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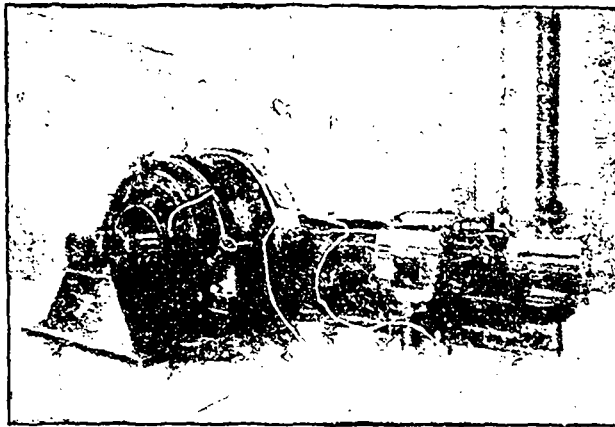
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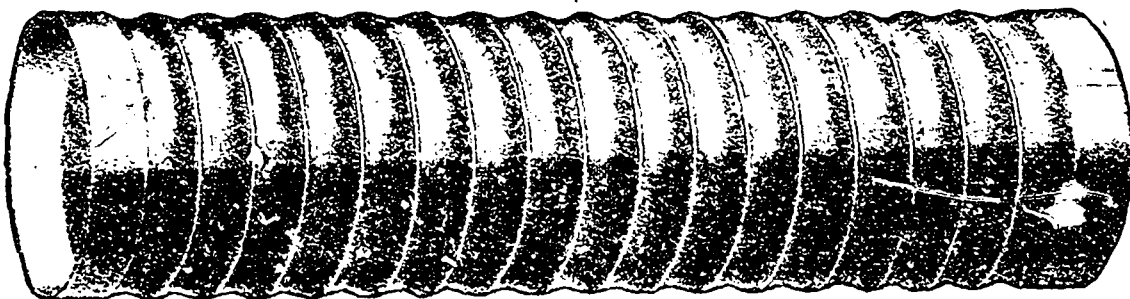
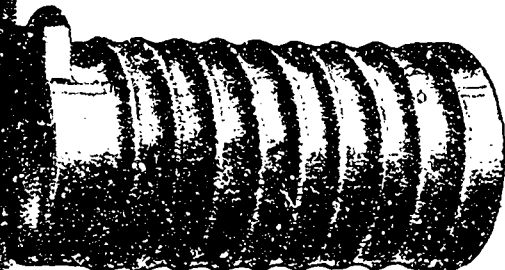
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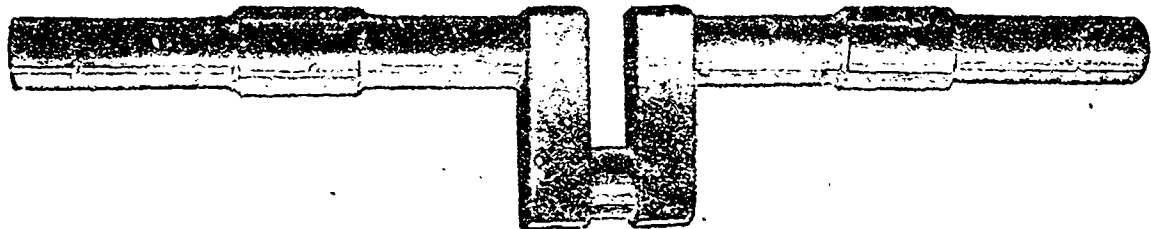
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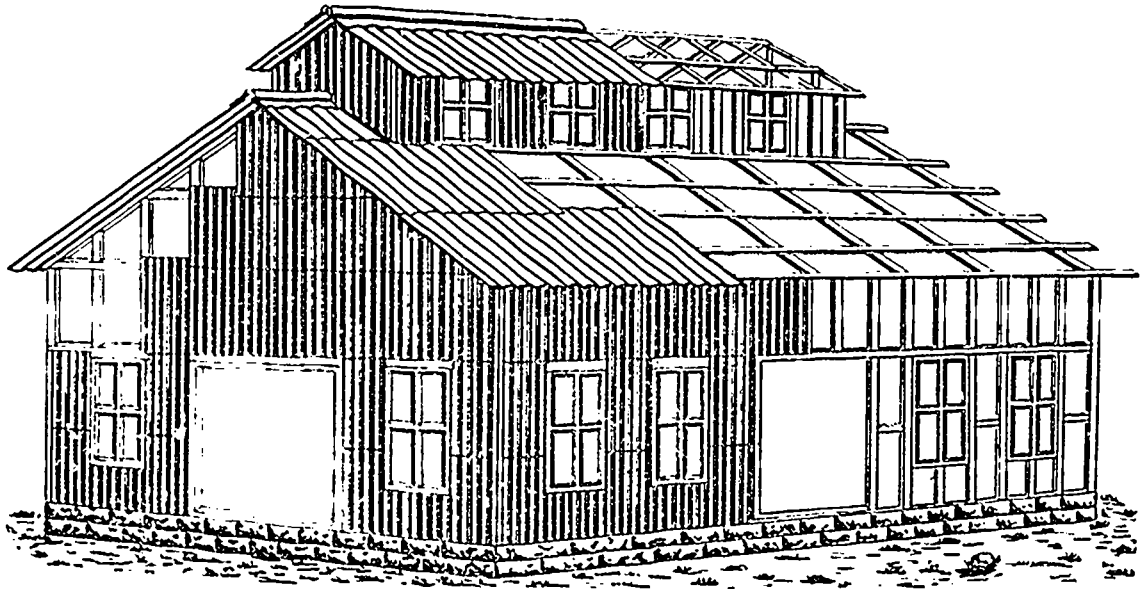


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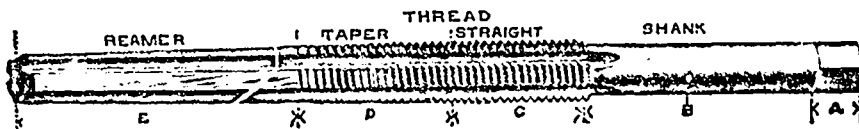
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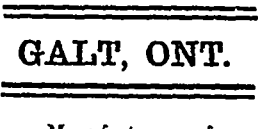
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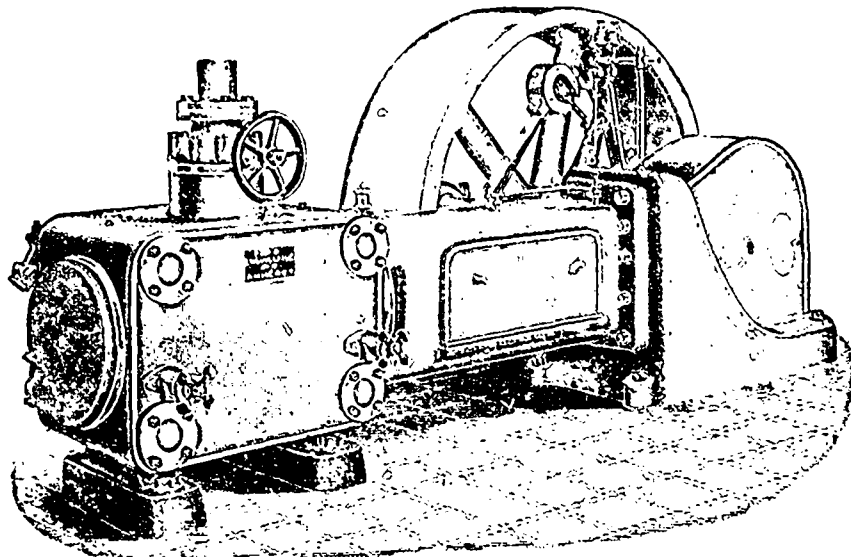
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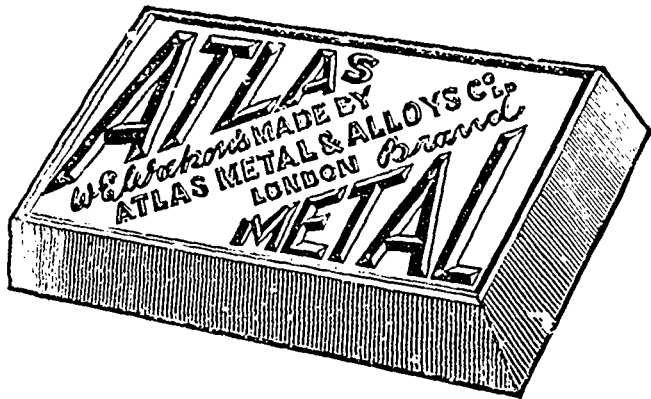
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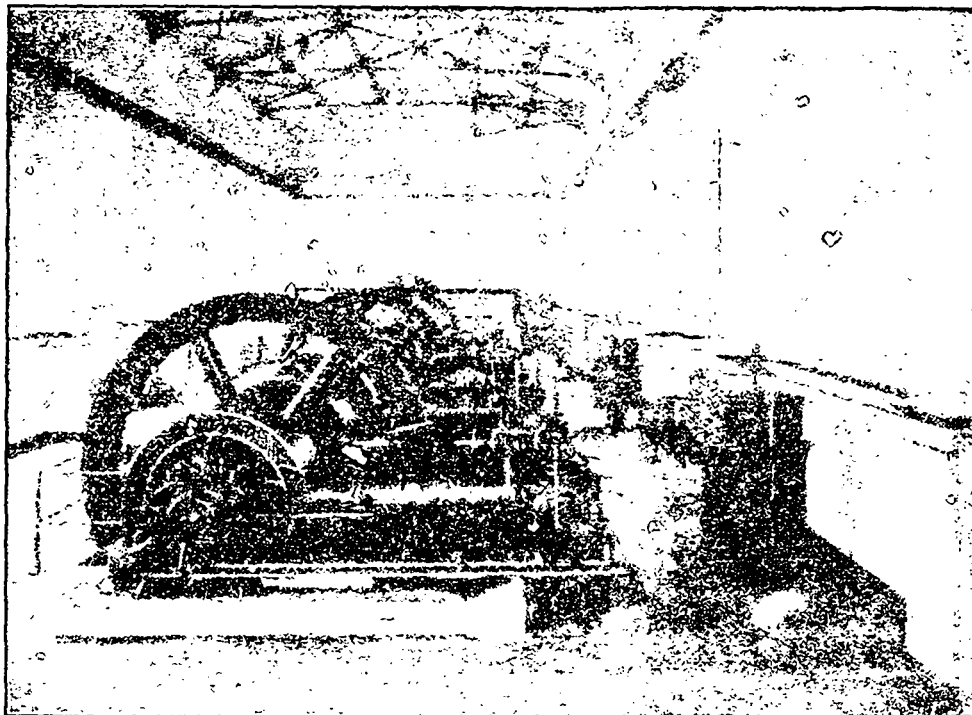
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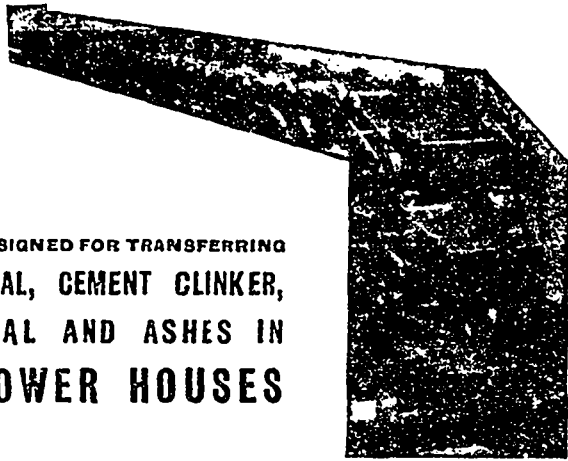
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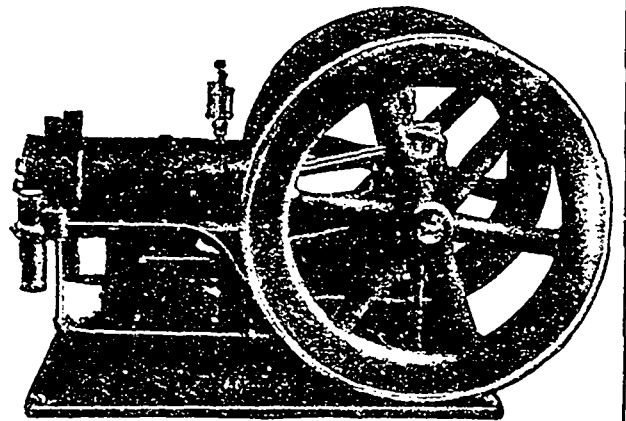
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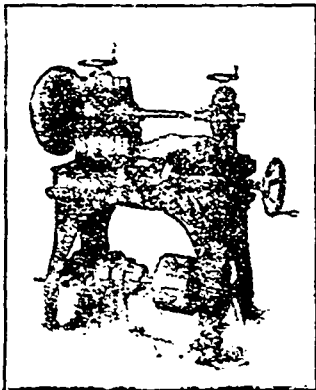
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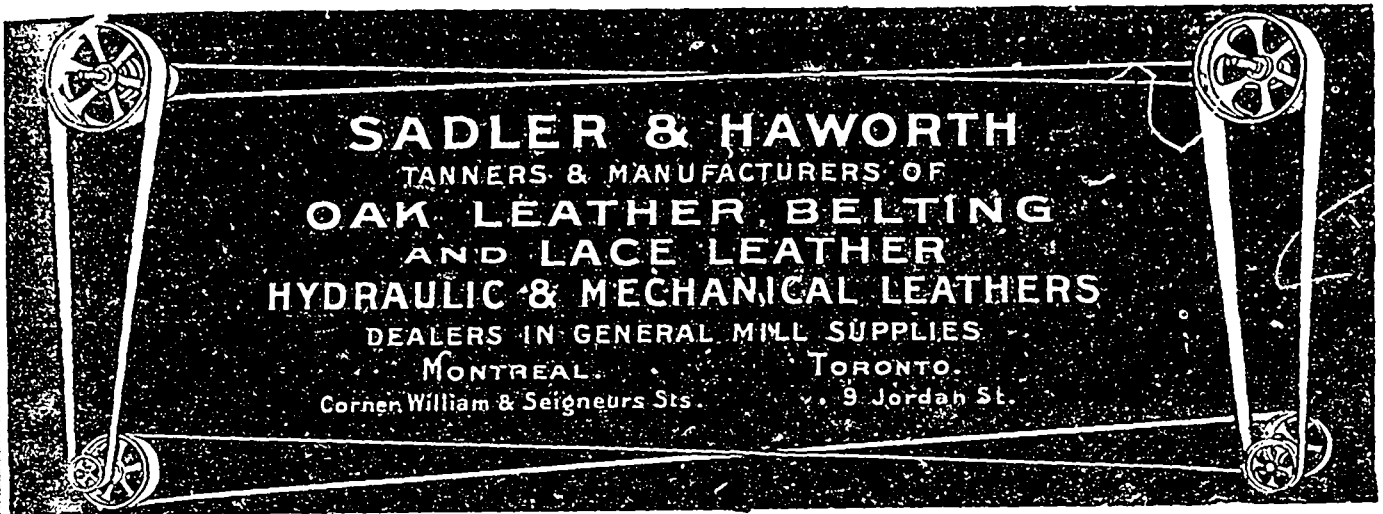
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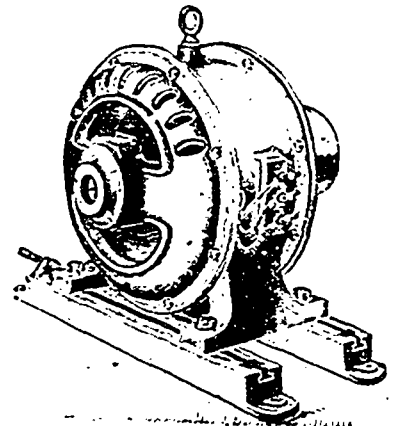
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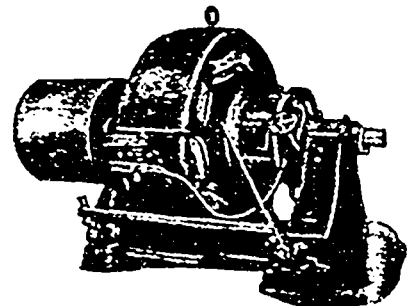
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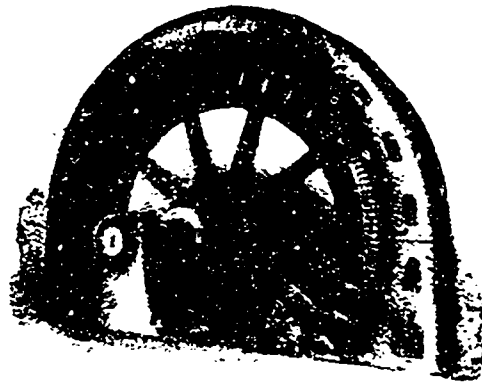
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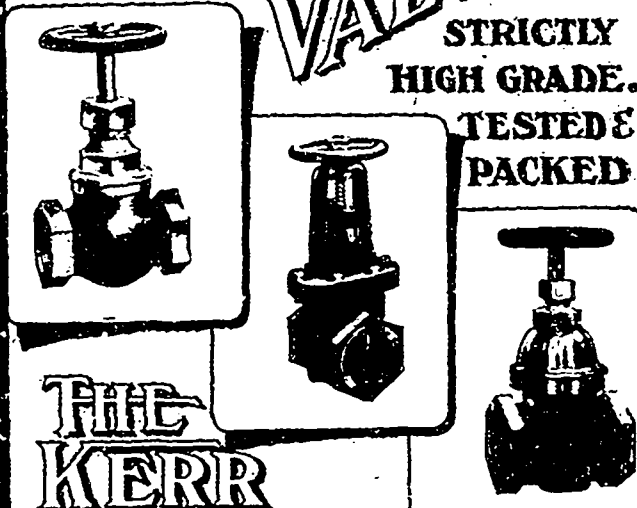
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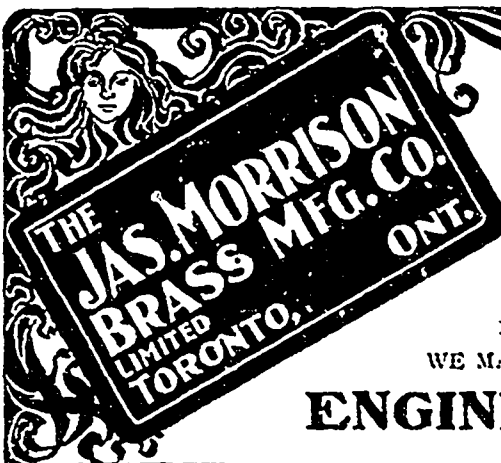
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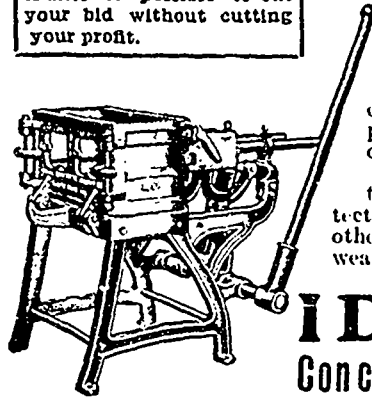
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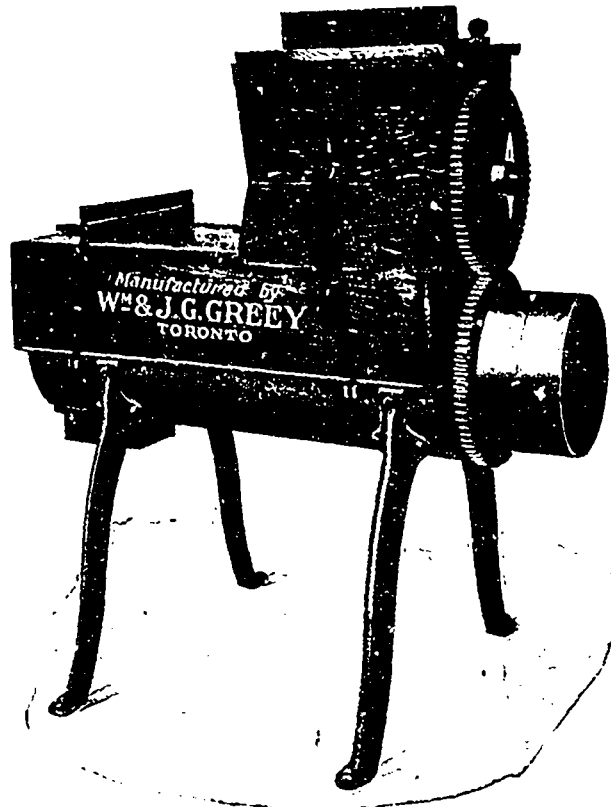
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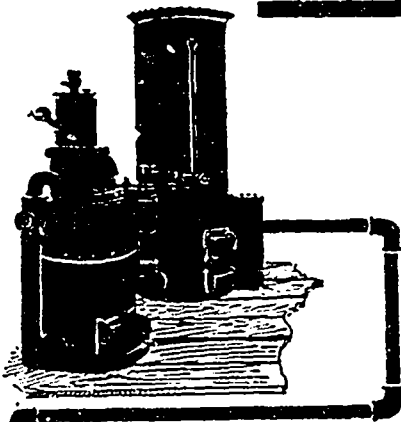
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## OUR FORTHCOMING TARIFF EDITION.

Another tariff edition of THE CANADIAN MANUFACTURER is being prepared, and will be published immediately after the Dominion Parliament takes final action regarding the Canadian tariff, which is now under consideration.

The issue of THE CANADIAN MANUFACTURER of November, 7, 1894, contained complete reproductions of the then recently enacted Tariffs of Canada and the United States, which was the first time in the history of journalism in either country that two such important documents were ever published under one cover of a trade journal.

Important changes having been made in the tariffs of both these countries in the meantime, and to meet a general demand for information, the issue of THE CANADIAN MANUFACTURER of August 6, 1897, contained complete reproductions, not only of the Canadian and United States tariffs, but also of those of Great Britain and Newfoundland; and in the same issue was also published the full text of the British Merchandise Marks Act; and no more important papers bearing upon the commercial industries of the countries named were ever produced under one cover.

After the publication of these tariffs in 1897, very important political changes occurred in both Canada and the United States, one of the most noticeable of which was the adoption by Canada of a tariff preference in favor of Great Britain; and in the issue of THE CANADIAN MANUFACTURER of July 6, 1900, was published a complete reproduction of the Canadian tariff, including the Act providing for tariff preference in favor of British goods, the United States tariff, the British tariff and the Newfoundland tariff. The value of the publication was generously appreciated by all into whose hands it came.

The rapid growth and development of Canada, and the changing conditions which present themselves demanded yet another tariff edition, in response to which THE CANADIAN MANUFACTURER, of September 4, 1903, contained complete and accurate reproductions of the Canadian tariff, the United States tariff, the British tariff, the Australian tariff and the South African tariff, and there are thousands of offices of manufacturing, commercial and industrial concerns, Banks, Chambers of Commerce, Boards of Trade, etc., in Canada, United States, Great Britain and other countries, in which are yet conspicuously displayed copies of that edition.

Since the September 4, 1903, tariff edition of THE CANADIAN MANUFACTURER, Japan has come prominently into view as a rich country for the exploitation of Canadian trade. During the fiscal year ended with June, 1906, Canada imported from Japan dutiable goods for home consumption to the value of \$1,046,026, and of free goods to the value of \$627,516, a total value of imports of \$1,673,542; and exported to that country Canadian products to the value of \$492,275. The total value of the trade amounting to \$2,165,817. A new commercial treaty has been effected between Japan and Great Britain, in which many articles of merchandise are admitted into Japan on specially favorable terms and at reduced rates of duty, and under which treaty Canadian merchandise is received into Japan on the same terms as British goods. The Japanese tariff, in which is shown the rates and terms accorded to Canadian goods, will be reproduced in full in the forthcoming tariff edition of THE CANADIAN MANUFACTURER.

As is well known exceedingly important changes are being made in the Canadian tariff. The changes which have been made in the last few years in the tariffs of Australia and of South Africa, and the rapidly increasing export trade with these countries, and with Japan, call for full and up-to-date information, and it is therefore the intention of the publishers of THE CANADIAN MANUFACTURER, in accordance with the precedents already established, to immediately publish another tariff edition, which will contain complete reproductions of the tariffs of Canada, United States, Great Britain, Australia, South Africa and Japan.

## PIG IRON IN CANADA IN 1906.

The American Iron and Steel Association has received direct from the manufacturers the statistics of the production of all kinds of pig iron in Canada in the calendar year 1906.

The total production of all kinds of pig iron in Canada in 1906 amounted to 541,957 gross tons, against 468,003 tons in 1905, an increase of 73,954 tons, or over 15 per cent.

In the first half of 1906 the pig iron production of Canada amounted to 282,010 tons and in the second half to 259,947 tons, a decrease of 22,063 tons. Of the total production in 1906 525,716 tons were made with coke, 16,021 tons with charcoal, and 220 tons with electricity.

The production of basic pig iron in Canada in 1906

amounted to 246,228 tons, against 172,102 tons in 1905, and the production of Bessemer pig iron to 165,609 tons, against 149,203 tons in 1905. Basic pig iron was made in 1906 by 3 companies owning 6 furnaces, and Bessemer pig iron by 2 companies owning 3 coke furnaces. The basic and Bessemer pig iron was all made with coke. Canada has not made spiegeleisen or ferro-manganese since 1899.

On December 31, 1906, Canada had 15 completed blast furnaces, of which 8 were in blast and 7 were idle. Of the total 12 usually use coke for fuel and 3 use charcoal. In addition one furnace, to use coke, was being built and 3 coke furnaces were partly erected on December 31. Work on the partly erected furnaces was, however, suspended some time ago.

#### THE FRENCH TREATY TARIFF.

Many of our readers imagine that the three-sided tariff that is now under consideration in the Dominion House of Commons is, or will be when ratified, the only tariff that affects or will affect the foreign trade of Canada. There are several other tariffs that affect Canadian trade, which will receive attention in these pages, but we wish at this time to explain the nature of the French Treaty tariff now in operation.

On the tenth day of October, 1895, a proclamation was issued by the Governor of Canada in Council declaring the provisions of the French Treaty Act to be in force from and after October 14, 1895, and all Collectors of Customs in Canada were advised that the said Act be read in connection with the tariff, provided as follows :

"Wines, sparkling and non-sparkling, common soaps, castile soaps and nuts, almonds, prunes and plums of French origin entering Canada shall enjoy the following advantages :

"1. Non-sparkling wines gauging 15 degrees by the centesimal alcoholometer or less, or according to the Canadian system of testing, containing 26 per cent. or less of alcohol ; and all sparkling wines shall be exempt from the surtax, or ad valorem duty of 30 per cent.

"2. The present duty charged on common soaps. (Castile soaps) shall be reduced by one half.

"3. The present duty charged on nuts, almonds, prunes and plums shall be reduced by one third.

"The following articles of Canadian origin imported direct from that country (from Canada into France) accompanied by certificate of origin shall receive the advantage of the minimum tariff upon entering France, Algeria or the French colonies :—Canned meats ; condensed milk, pure ; fresh water fish, eels ; fish preserved in their natural form, lobsters and cray fish preserved in their natural form ; apples and pears, fresh, dried or pressed ; fruits preserved ; others ; building timber in rough or sawn ; wood pavements ; staves ; wood pulp (cellulose) ; extract of chestnut and other tanning extracts ; common paper, machine made, prepared skins, others whole ; boots and shoes ; furniture of common wood ; furniture other than chairs, of solid wood, common ; flooring in pine or soft wood ; wooden sea-going ships.

"It is understood that the advantage of any reduction

of duty granted to any other power on any of the articles enumerated above shall be extended fully to Canada.

An Act respecting Commercial Treaties affecting Canada, passed at the time by the Dominion Parliament recites that "So soon as the French Treaty Act of 1894 is brought into force by proclamation of the Governor General the advantages granted to France by the treaty with that power shall extend to any and every other foreign power which by reason of the operation of such treaty is, under the provisions of a treaty with Great Britain, entitled, in whole or in part, to the same or to the like advantages with respect to its commerce with Canada, to the extent to which in same manner such other foreign power is entitled thereto ; and such advantages shall continue to so extend to such other foreign powers, so long as the said Act remains in force, or until the right of such other foreign power to such advantages under its treaty with Great Britain is sooner determined

The advantages granted to France by the treaty are also extended to Great Britain and to the several British colonies and possessions with respect to their commerce with Canada, so long as France continues to be entitled to such advantages ; and during the period for which France is so entitled to such advantages, all laws in consistent with the enjoyment thereof by Great Britain and such British colonies and possession shall be suspended to the extent to which they are so inconsistent.

The foreign countries entitled to the same advantages under the provisions of the Act as are granted to France by the treaty, with respect to its commerce with Canada are.—Argentine Republic, Austria-Hungary, Belgium, Bolivia, Chili, Colombia, Costa Rica, Germany, Muscat, Russia, Salvador, Sweden and Norway.

It will be observed that the tariff now under discussion in the Dominion Parliament do not affect in any way the French Treaty Act of 1894, which remains in force.

#### MINING MACHINERY.

The Minister of Finance, in his budget speech, introducing and explaining his new tariff, alluding to mining machinery, said :

Changes have been made in the mining machinery items in the free list. There are a number of articles which are now made in Canada which are transferred from the free list. The following articles, under the head of mining machinery, are dropped from the free list, and will become dutiable as "machinery" or as "manufactures of iron or steel," as the case may be—Coal washing machinery, coke making machinery, charcoal making machinery, ore drying machinery, ore roasting machinery, ball and rock emery grinding machinery, jigs, classifiers, separators, blast furnaces, water jackets, monitors and giants. All of these articles are now being made in Canada. We drop them from the free list. There have been added to the free list the following—parts of miner's safety lamps and accessories for cleaning, filling and testing such lamps ; blast furnaces for the melting of copper and nickel ; integral parts of all machinery specified in the item, the diameter of the tubing covered by the item has been increased from 2½ to 4 inches.

Now, here is one of the few cases where we make an exception as to the importation of articles for the use of the Government or of other Governments. The following articles and materials when imported by manufactur-

ers of automatic gas buoys and automatic gas beacons, for use in the manufacture of such buoys and beacons for the Government of Canada or for export under regulations prescribed by the Minister of Customs, namely :

Iron or steel tubes over 16 inches in diameter ; flanged and dished steel heads made from boiler plate, over five feet in diameter ; hardened steel balls not less than three inches in diameter ; acetylene gas lanterns and parts thereof ; these things are made free of duty for this purpose. They could now be imported free by the Government, but we are abolishing the general item, while we reserve this for two reasons : It is not only for our Government, but for export. These are articles which are made for governments and for governments only. They are made by an extensive establishment in Ottawa, an establishment which we have reason to believe will grow very large indeed. It may be said that they do not get these articles free, that if it is for the export trade, they could get a drawback. But this is a business which would have to be carried on on a very large scale, and it is represented to us that if they had to pay their duties they would have such a vast amount of material in stock at the one time that they would have to deposit with the Government several hundreds of thousands of dollars, and keep it there all the time, the articles being very costly and taking a long time to produce, and the operations of the company being on a very large scale. If there was any danger of difficulties arising from this we would not make these articles free, but if these articles are to be made for our Government, or for foreign governments, and if there is proper supervision, we see no reason why they should not be allowed to import the articles free rather than have them pay the duties and then get a refund. There is every indication that this is going to be a very large industry indeed, and one that the whole country is interested in. It is claimed that on existing contracts the company will spend no less than \$800,000 for labor in Canada in the next two years.

#### COMMERCIAL TRAVELLERS.

The British Government has issued a bluebook summarizing the regulations in force in British possessions and protectorates and in foreign countries with regard to commercial travelers. An introductory note explains that the book was compiled in order to show the special taxes to which "travelers" are liable and the customs treatment accorded to the "samples" they bring with them.

In India and the majority of the British possessions no special regulations or taxes affecting commercial travelers exist, but India and many colonies give railway facilities as regards the carriage of samples and occasionally in regard to tickets. In most cases samples are not liable to import duty, or not to the full duty, unless actually sold within the colony.

"The agent to the governor-general in Baluchistan states that it might interest commercial travelers to know that the Northwestern Railway grants a rebate on goods exported to Persia if dispatched by the Nushki-Seistan trade route and also on goods coming from Persia by that route and booked to Karachi or to the Punjab or the United Provinces."

In the commonwealth of Australia duty must be paid on samples but if the samples are re-exported within six months the sum paid is returned. In each of the States slight advantages are granted in regard to lug-

gage. In Victoria "the resident agents of British firms are liable to income tax in respect to their own salaries, bonuses, commissions, or earnings in Victoria. As agents they are liable also to assessment for their British firms in respect of the income or profit of those firms earned in Victoria. They are not liable to any license fee." In Tasmania an importer's license of £10 (\$50) per annum is payable by resident agents of firms not domiciled in the colony. In New Zealand commercial travelers are liable to certain payments directed to protecting the colony's income-tax revenue.

In Cape Colony commercial travelers are required to take out annual licenses, and the same rule holds in Natal, the Transvaal, and Orange River Colony, but they receive railway facilities in return.

In Canada rebate of duty under the preferential tariff is allowed on samples "of British origin arriving from any British country." British Columbia obliges commercial travelers to take out a license.

In most foreign countries the British commercial traveler, in common with those of other nationalities, has to take out a license, but, as a rule, it is not heavy. In France and several other countries he is treated on the basis of "reciprocity," and as foreign commercial travelers are exempt from special regulations in the United Kingdom, the British traveler is similarly treated in the countries above referred to. In Austria and Hungary special regulations are in force on the following lines :

"The regulations in force in Austria governing the operations of commercial travelers, whether native or foreign, strictly forbid the solicitation of orders from private individuals, and prescribe that the dealings of all travelers or agents must be confined to such firms or individuals as in the course of their business actually make use of the goods offered them, except in certain cases."

In Mexico it is necessary to ascertain what is payable in the different States, which vary considerably.

"The rates of the taxes payable by commercial travelers vary considerably in the different States of Mexico, and in many cases municipal taxes are levied in addition to the State taxes. In many cases it is to be observed that the amount of the tax to be paid rests, within certain limits, on the decision of the local official, whose duty it is to assess the tax. A further charge of 25 per cent of the taxes leviable in the various States is made for the Federal revenue. In addition to the ordinary taxes, a Federal stamp tax of one-half per cent. is levied on the value of sales effected in Mexico."

In the Netherlands foreign commercial travelers are liable to a tax on their professional income if they are not domiciled in the country. In the Dutch East Indies they are liable to a tax of 2 per cent. on their income. Roumania demands from the foreign commercial traveler a "certificate of legitimation," and places restrictions resembling those in force in Austria on the taking of orders from private persons.

In Russia two licenses must be taken out by a seller of goods, and provincial dues have to be paid in the interior. No special railway facilities are given.

### THE TREND OF TRADE.

With many people, particularly those living in those sections of Canada west of Ontario, Lake Superior is accepted as a dividing line, all west of that lake being called Western Canada, and all Ontario and the provinces east thereof, Eastern Canada. There are many manufacturers in Eastern Canada who will be interested in an article in a Western Canada paper entitled "United States Goods in Demand." Here it is:

The most interesting feature in the commercial situation of the Canadian West, from the standpoint of the United States business man is the steady increase in the sale of United States goods throughout the Western provinces.

Whether trade always "follows the flag" or not it certainly follows the settler, and United States farmers and business men have become so numerous in Western Canada that the retailer is compelled to carry lines of American goods. In spite of all hindrances of custom tariffs such staples as boots and shoes, drugs, groceries, hardware, machinery and other staple mercantile lines are making good headway. Machinery, engines, tools and hardware are mostly of United States manufacture. Retailers explain that goods bought in the United States are more cheaply, easily and safely handled and are improving in quality every year. Enterprising firms in the States are sending more of their best commercial salesmen to call on the trade in this Canadian territory.

One representative of a Twin City house told me to-day that he had just completed his initial trip as far west as Edmonton and had booked the largest business for a first trip in any territory he had ever made. According to his experience the higher grade goods are the best sellers and at the most favorable prices. In the cheaper lines it was not so easy to meet prices of goods already in the field, but on better qualities, there was a good profit after the duty was added to the selling price.

All this has come about in the past few years. Until recently all commercial travelers came only as far as the boundary line. But the great movement of United States settlers into the West has brought about the change. The emigration into Canada has increased from 49,000 in 1901 to 189,000 in 1906. Some 58,000 of these 189,000 came from the United States. This is the motive power that is expanding trade in this direction. While the number of United States settlers this year was only about one-third of the year's total emigration, yet these are a most important factor in a commercial way. The United States settler has brought not only capital, but a large buying capacity acquired by years of generous living and the habit of using all the necessities and many of the luxuries of life. He has the habit also of farming on a broad scale that calls for large purchases and all these things make for increased volume of business.

Another reason the Canadian West is buying United States goods is also significant of the tremendous Western development. It is this. The Canadian jobbers are unable to supply the demand for goods. They are away behind in filling orders and cannot get shipments fast enough from the East to keep up their stocks. Under such conditions the United States manufacturer and jobber finds the time opportune for extending his markets.—Commercial West.

### THE FARMERS' HOME MARKET.

That the general prosperity of Canada is dependent upon the extent to which Canadian farmers take advantage of their home market, for the disposal of their products, and to the preference they show in whatever they

buy, for goods made in Canada and by Canadian labor is made evident by a communication we have received relating to the subject from Mr. George D. Guthrie, Toronto.

In the United States Emigrant Report issued in 1841, says Mr. Griffin, there is furnished industrial information collated from their census returns of 1870 and from special returns in said census in relation to the average earning per head and the average cost of living in the United States, similar to that taken by Great Britain in 1841. It was taken shortly after the Civil War when wages were high; and recent investigations show little difference exists. The report was issued to secure emigration to the United States.

The report states that the average earnings per head of the whole population of the United States in 1870 was \$100 per head, that is \$500 per family of 5, the average number per family both in the United States and in Canada. There was paid out of the earnings \$100 per head, or \$250 per family for farm products. In the report the items are specified as follows: "For meat, butter, vegetables, milk, eggs and sundries \$100 per head as follows: "For tea, sugar, and other foreign goods \$15" on which the government collected 60 per cent. in duties, or \$9 per head, or \$45 per family of tariff tax, and \$35 per head or \$175 per family for "rent, fuel, light, clothing and house-keeping." For these items \$50 per head—thus the total was \$500 per family.

The above proves that when one half of the population are farmers each farm family on the average supplies the other family engaged in other pursuits with necessary farm products.

In no exhibit has the writer with his sixty years of research and collation of data on this subject ever seen this average so clearly proved, and every well informed legislator can readily see that this data is of great national importance, for it teaches that the farmer and the manufacturer are the two great industrial arms of the nation through whom every other class is benefitted, and that while the farmer is dependent upon the manufacturer for his cradle and clothes in his babyhood, and later for his houses and barns, for axes, chains, harness, spades, ploughs and all other farm implements wherewith to cultivate the soil and to reap and gather in, and to carry his farm products to market; the manufacturer in turn is dependent upon the farmer for his food products, his wool and hides, and in part for other raw material that may be essential to his business. And in proportion as each helps to make a home market for the other, the nation prospers, and in proportion as either may endeavor to deprive the other of a home market they sacrifice themselves and their country upon the altar of their industrial ignorance.

Perhaps it is well to here give the numbers of farmers in Canada as appears in the last census returns, and as reported in the Year Book for 1903. Mr. McEwen, president of the Farmers' Association Convention, reported in the Farmers Sun in September, 1906, that three-fifths of the population of the Dominion of Canada were agriculturists.

The census returns of 1901 show there were 5,374,800 souls or 1,070,767 families in Canada in that year. In these there are only 1,500 souls in excess of five to a farm, and that is practically the same number per family as in the United States.

The number of farmers in Canada "occupying five acres up to 200 acres and over" as given in the Year Book for 1903, was 471,893. Deduct these from the 1,070,767 families in the Dominion shows 598,864 families

that is, 126,971 more than there is of farmers, or about one eighth in excess of the farmers. In 1905 they were estimated at farmers 500,000, all other families at 640,000. It is well to know the real facts because Mr. McEwing implied in his address to the farmers that the farmers paid one-fifth more taxes than what he calls the other two fifths, and that therein Government "discriminated" against the farmers, and that the farmers being the majority of the voters he advised that the Association should bring "pressure" to bear, that is by their votes, to force Parliament to take the discrimination off their shoulders and put it on the shoulders of the minority, and thus a violation of the principle of equity to tax all alike. According to Mr. McEwing's teaching the farmers as a proved minority factor of the population should pay more taxes than the majority. Would he not too be wiser if he revised his financial statesmanship?

The government returns to January 1, 1906, show that the total imports from the United States for home consumption in the two years 1904 and 1905 were valued at \$295,442,204, and Canada's exports to that country for the two years were \$137,283,650. This deducted from the imports shows that the balance of trade against Canada which we paid to the United States in gold was \$158,158,554. For the said two years Canada exported to all other countries \$28,348,815 more than it imported. Practically that last sum was the balance of trade due to Canada from Britain, and Canada drew upon Britain for the amount and paid it over to the United States. This still left us in debt to the United States \$130,810,039 for excess of imports loaded upon Canada by the importers in excess of Canadian exports to pay for them. This was the result of a defective tariff.

The Canadian bank returns show that our banks furnished the gold, and Mr. B. E. Walker, manager of the Canadian Bank of Commerce, at the Annual Meeting of the stockholders held in Toronto in November, 1905, said in relation to our excess imports for 1904. "The more serious aspect of our foreign trade is on the import side of \$63,500,000 in excess of exports, and we must not overlook the fact that we are putting a heavy mortgage on the future." "The mortgage on the 'future' means a mortgage upon all the farms, factories, mines, dwellings, banks, and loaning societies of the whole Dominion. The importers took no heed to that financial danger signal of Mr. Walker, for in 1905 they increased the mortgage to \$130,810,039. The interest on that debt unpaid from earnings on January 1, 1907, is over \$10,000,000 and is now compounding to the banks. The government and the bank returns together prove that while the increase in bank circulation of all our banks in the four years, 1903-1906, was only \$18,260,945; our importers in the two years, 1904 and 1905, to pay for the imports in excess of exports, paid to the United States manufacturers and the farmers that fed them, in place of to their own customers in Canada, \$158,158,554, and of which \$28,348,815 was by way of Great Britain, and \$130,810,039 was borrowed from Canadian banks—that is, they furnished the United States with nine times as much increase in money in two years to prosper that country as all our banks furnished Canada in four years. The importers while doing so drained away that \$158,158,554 from their own customers in Canada, that needed to pay for the goods they imported, thus destroying the market for the goods they purchased and giving it to the merchants

of the United States. This mercantile financial ignorance leads to financial suicide, and in which their profits will be a dividend of unpaid debts ending in their own financial wreckage. They have ample "danger signals" in the financial wreckages of 1857 and 1858 and in those of 1876-1878, the result of importing in excess of exports to pay for them. It is taking the customers last dollar and then selling him more goods, expecting him to pay for them.

Every Canadian voter, and especially every importer, should carefully study and ponder upon the following priceless information:

A careful examination of the various classes of imports from the United States for the two years 1904-5 amply indicate that the raw material for manufacturing and the coal, and other factors which we cannot produce in Canada, did not average more than \$45,000,000 a year, or a total of \$90,000,000 for the two years. The total imports from the the United States for the two years was \$295,442,204, from which deduct the \$90,000,000 and in round numbers there is \$205,000,000, which, under a forestalling tariff as effective as that of the United States, would have been produced in Canada. We have the collateral proof of this in the present exodus chiefly from the United States to Canada of manufacturers and their workmen to be ready for the market which their business instincts teach them will develop as fast as our tariff is wisely arranged so as to protect Canadian industries instead of fostering United States producers. This is amply proved in the \$205,000,000 of gold poured into the United States in 1904-5, the logic of which is that our low tariff legislation has in the said two years been worth \$205,000,000 more to the United States than to Canada. That sum was at invoice prices, and to it must be added for packing, freight, insurance and commission paid to the United States at least \$15,000,000 more, and which added to the invoices to be paid by Canada to the United States in gold makes a total of \$220,000,000 in two years.

Is not the teaching of the fact presented that our imports must not only be reduced below our exports so that we may be able to pay the interest now compounding on our excess of imports and sufficient besides to rapidly pay off the mortgages upon the whole Dominion, for every such mortgage has correctly been described as a smothering blanket upon farmer's crops. There are several ways of doing so—the one in use in the United States is a high and effective tariff, that does not let in more than the country can pay for.

#### EDITORIAL NOTES.

Statistics of the young beet-sugar industry of the United States were first reported in the census of 1880. Between that time and 1905 the number of refineries increased from 4 to 51; the capital from \$365,000 to \$55,923,459; wages paid from \$62,271 to \$2,486,702; cost of material used from \$186,128 to \$14,486,876, and the value of the product from \$282,572 to \$24,393,794. The leading producing States are Colorado, Michigan, and

California. The utilization of by-products is receiving more attention. Quantities of beet juice are used in the manufacture of alcohol; and lime cake, another sugar-beet by-product, is being employed for fertilizers and in making pavements. In Utah the problem of the delivery of beets to the factories has been solved by establishing slicing stations at points from 12 to 25 miles distant and connecting them with the central factories by pipe lines. The beets from the neighboring country are received at these slicing stations, where the juice is extracted and treated with a composition of lime, after which it is forced through the pipes to the factories.

The probability that, as a result of the new South African customs arrangement, a number of manufacturing industries will be inaugurated with at least reasonable prospects of permanency, opens up some very interesting possibilities for makers and exporters of machinery, states the British and South African Export Gazette. During the last five years South Africa has expended \$50,000,000 on new machinery; and the total value of the machinery in the country at the present time is estimated at no less than \$150,000,000.

Mr. Root ought to be informed politely, but firmly, that this country has embarked upon the National Policy, and does not intend to retrace its steps.—Mail and Empire.

That's all the Mail and Empire seems to know about it. The National Policy, at the Halifax Convention of the Canadian Manufacturers' Association, was abandoned by their resolution advising and endorsing preferential trade which the Canadian Government had already taken up. We have no National Policy at this time.

The Mail and Empire abandons the three-column tariff as a complicated arrangement. The mechanism of a watch looks complicated to an ordinary laborer, but is perfectly simple and plain to a trained watchmaker.—The Globe.

Three column nothing. If the trained watch maker of The Globe knows anything about the tariff he would know that there are some six or seven or more columns of the tariff.

A late closing of navigation permitted the passage of 1,558,248 tons of freight through the Sault canals after December 1. This brought the total freight passing both canals up to 51,751,080 net tons, of which 41,584,901 tons, or 80.4 per cent., were east bound, and 10,166,175 tons, or 19.6 per cent., were west bound. A total of 16,475 vessels, carrying 45,180,292 tons of freight, passed through the United States canal, while 5,680 vessels, with 6,570,788 tons of freight, use the Canadian canal. The total number of vessels passing the locks was 22,155, of which 18,138 were steamers, 2,817 sailing vessels, and 1,200 were unregistered, or small craft. The average cargo carried was 2,236 tons. The United States canal was open April 13 to December 17, a total of 249 days; the Canadian canal, April 14 to December 22, or 253 days. The average daily passage was 89 vessels and 207,004 tons of freight. The total freight reported for the season of

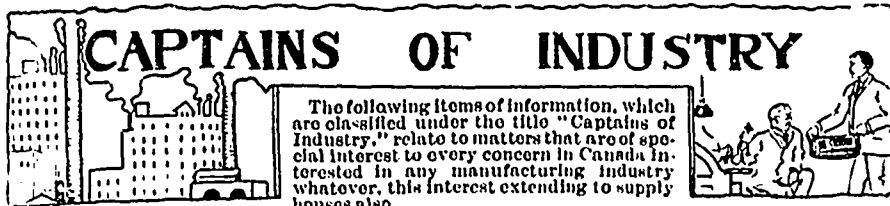
1905 was 44,270,680 net ton, showing an increase in 1906 of 7,480,400 tons, or 16.9 per cent. The increase in coal was 34.3 per cent.; in iron ore, 12.8 per cent.—The Engineering and Mining Journal.

British trade bears testimony to the widespread cause of our general prosperity. Never before has the five billion dollars mark been passed in the grand total of British commerce. This showing means an increase in exports of a value of over \$229,000,000 and in imports of nearly \$215,000,000. The Board of Trade report for December alone shows an increase in exports of \$13,785,000 and imports of \$7,767,500. As the increase of exports is mostly in manufactured articles and the increases in imports were principally in raw material, it would seem that as the factory and workshop of the commercial world, Britain is in a fair way not only to hold her prestige, but to strengthen it.—New York Commercial

Nineteen hundred and six has passed into history as the year of the greatest business activity this country has ever experienced. It has been a year of marvelous growth, which has astonished the shrewdest and most far-seeing citizen. The railway building in Canada eclipsed that of any previous year, and this country still holds the record of having more miles of road to the population than any other. The great expansion in trade and industry in the West, which is due more to the extension of railways than to anything else, has overlapped the growth of transportation facilities; and for the next few years greater sums than ever have to be expended on extensions and railway equipment. It is the opinion of many that another railway from the Upper Lakes to the seaboard is imperative, so great is the traffic from the West to the lakes. Canada is destined to be a great exporting country. Already our exports per capita are greater than those of any other country, not even excepting Great Britain, whose foreign trade, imports and exports included, leads the world. The total foreign trade of Canada for the year ended January 1 was the heaviest on record, amounting to \$546,929,000, being an increase of \$80,616,000 over that of the previous year. The increase was greatest in our export trade, the value of which was \$44,184,000 more than the previous year, while imports increased \$31,646,000. In Great Britain, Canada exported 53.96 per cent. of her total exports, against 50.61 per cent. the previous year, and to the United States 35.68 per cent. as against 33.1 per cent. the previous year.—Saturday Night.

Lord Milner has struck a new and, as we think, the most significant note in British statesmanship in his speeches of the past few days. He tells us that in the opinion of our electioneering expert, "Imperialism as a political cry is as dead as Queen Anne." We wish it were; we want nothing better than a truce to the eternal party banter on matters that concern the welfare of the Empire. What we want is a clear public mandate for the recognition of the Colonies as members of the family.—Canadian Gazette.





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

The Eastern Construction Co., Ottawa, has been incorporated with a capital of \$1,000,000, to carry on a general constructing and contracting business, and to manufacture machinery, steam pumps, cranes, engines, vessels, driving apparatus, etc. The provisional directors include J. Gillespie, H. H. Short and S. B. Johnson, Ottawa.

A waterworks system will be installed at Elhura, Ont. Artesian wells will be sunk at a cost of about \$25,000.

The Bullen Brick Co., Chicago, Ill., will establish brick yards and kilns at Weston, Ont., covering 156 acres.

The Carbon Paper & Ribbon Mfg. Co., Toronto, have purchased a lot 135x36 feet on Jarvis Street for the sum of \$4,500. The company will erect a new factory on the site.

The ratepayers of Carleton Place, Ont., voted favorably on a by-law to loan \$10,000 to Messrs. Bates & Ennis to establish a knitting mill and factory for the manufacture of paper-makers' felt. The new firm have bought the Gillies woolen mill plant and will begin work immediately.

The paint and benzine shop of the Brantford Roofing Co., Brantford, Ont., were damaged by fire February 1. Loss about \$200.

The Department of Public Works, Ottawa, invite tenders up to February 25 for the construction of a public building at Owen Sound, Ont.

The congregation of the Pape Avenue Baptist church, Toronto, will erect a new edifice at a cost of about \$4,500.

The Confederation Life Assurance Co., Toronto, have secured a site on the corner of Queen and Victoria Streets and will erect a seven-story office building.

It is the intention of the managers of the Star Theatre, Toronto, to tear down the present building and erect a new theatre at a cost of about \$150,000.

The foundry and moulding shop of C. Wilson & Sons, scale manufacturers, Toronto, were damaged by fire February 2, to the extent of about \$5,000.

Stationers Specialties, Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture stationers' specialties, etc. The provisional directors include C. W. Laker, J. W. Campbell and C. R. W. Postlethwaite, Toronto.

The Security Light Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture gas, gasoline, etc. The provisional directors include H. E. Pearce, A. Galt and T. Minton, Toronto.

The Sutton Bay Cobalt Mining Co., Haileybury, Ont., have been incorporated with a capital of \$50,000, to carry on a mining, milling and reduction business. The provisional directors include F. Pottage, G. O. Merson and C. E. Stewart, Toronto.

The Tiffany Cobalt Mines, Cobalt, Ont., have been incorporated with a capital of

\$600,000, to carry on a mining, milling and reduction business. The provisional directors include H. A. B. Cooke, J. Hylands and G. Ross, Cobalt, Ont.

Cobalt Silver Crescent, Pittsburg, Pa., have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include T. H. Barton, F. D. Byers and O. F. Taylor, Toronto.

Canadian Central Mines, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include H. D. McCormick, D. A. Rose and G. T. Veale, Toronto.

Dominion Smelters, Limited, Sault Ste. Marie, Ont., have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include H. H. Muggley, W. L. Peters and P. M. Knippenberg, Oshkosh, Wis.

The Dundas Banner, Limited, Toronto, have been incorporated with a capital of \$25,000, to carry on a printing and publishing business. The provisional directors include A. R. Moore, L. H. Robertson and A. R. Kerland, Toronto.

Harris Maxwell Larder Lake Gold Mining Co., Toronto, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include M. M. Hulse, J. R. Maxwell, Toronto, and W. R. Wakefield, Toronto Junction, Ont.

The Galt Brass Mfg. Co., Galt, Ont., have been incorporated with a capital of \$40,000, to manufacture brass, steam fitters' and plumbers' supplies, etc. The provisional directors include J. Scott, S. R. Sheldon and J. Smith, Galt, Ont.

The Westboro Trading Co., Westboro, Ont., have been incorporated with a capital of \$40,000 to manufacture goods, wares, merchandise, etc. The provisional directors include A. N. McLean, A. E. Honeywell and W. H. Putnam, Ottawa.

The Cobalt Silver Mount. Mining Co., Ottawa, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include F. Watts, S. P. S. Dunlevie, and S. King, Toronto.

The Silver Rock Mining Co., Cobalt, Ont., have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. L. McDougall, J. Gillespie and H. H. Short, Ottawa.

The Carlton Cobalt Silver Mining Co., Ottawa, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include T. F. Elmitt, W. H. A. Fraser and R. G. Stewart, Ottawa.

Canada Arms & Rifle Sights, Limited,

Toronto, have been incorporated with a capital of \$200,000, to manufacture guns, rifles, etc. The provisional directors include H. Dixon, R. S. Mitchell and C. T. Coking, Toronto.

The plant of the Ontario Iron & Steel Co., Welland, Ont., which has been under construction for some months will be much larger than was expected. The plans now are for an expenditure of \$300,000.

F. Crossley and others, Woodstock, Ont., will erect a large hotel at a cost of about \$60,000.

Heintzman & Co., Toronto Junction, Ont., have purchased a site on Van Horne and Union Streets and will erect a large addition to their factory at a cost of about \$5,000.

The premises of the Chapman House, Sarnia, Ont., were damaged by fire recently.

The Vencer Co., Philadelphia, Pa., are considering the establishment of a plant at Almonte, Ont.

J. R. Mann, Dayton, Ohio, will erect a summer hotel near Sarnia, Ont., at a cost of about \$25,000.

Mackenzie & Mann may erect a large hotel at Port Arthur, Ont.

The Canadian Pacific Railway Co. are considering the erection of car shops at London, Ont.

A. Merner, Waterloo, Ont., may establish an engine and thresher plant there.

The Lucknow Furniture Co., Lucknow, Ont., are seeking a loan of \$4,000 to enable them to enlarge their plant.

The Cobalt & Blanche River Silver Mining Co., Ottawa, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include J. Connolly, T. O'Gorman and J. O'Sullivan, Renfrew, Ont.

The Cord & Tassel Co., Ottawa, will remove to Montreal in the spring.

The Ottawa Car Co., Ottawa, will establish a plant for the manufacture of freight cars and general rolling stock.

The Tennessee Copper Co., Port Arthur, Ont., will erect a large smelter.

The Commonwealth Mines of Cobalt, Toronto, have been incorporated with a capital of \$5,000,000, to carry on a mining, milling and reduction business. The provisional directors include A. C. McRae, Toronto, J. W. Redfern, Owen Sound, Ont., and A. J. McPherson, Stratford, Ont.

The Meaford Hotel Co., Meaford, Ont., have been incorporated with a capital of \$40,000, to build hotels, cafes, cottages, etc. The provisional directors include E. Y. Godfrey, J. Gardner and O. J. Boden, Meaford, Ont.

The Dominion Brewery Co., Toronto, have been incorporated with a capital of \$750,000, to manufacture wines, liquors, mineral waters, bottles, bottle stoppers, etc. The provisional directors include W. Bain, R. Gowans and H. Chambers, Toronto.

The Foreign Rail Joint Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture rails, rail joints, angle bars, etc. The provisional directors include J. S. Lovell, W. Bain and E. W. McNeill, Toronto.

The Georgian Bay Oil Co., Fort Erie, Ont., have been incorporated with a capital of

\$1,000,000, to manufacture oil, gas, petroleum etc. The provisional directors include S. Johnston, F. R. McKelean, and A. J. Thomas, Toronto.

The Wilgar Lake Cobalt Mining Co., Toronto, have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include J. E. Day, J. M. Ferguson and A. W. Bixel, Toronto.

The Ungar Williamson Laundry & Dye Works, Brantford, Ont., have been incorporated with a capital of \$40,000, to carry on a laundering and dyeing business. The provisional directors include M. Ungar, Halifax, N.S., D. T. Williamson and A. J. Ruddy, Brantford, Ont.

The Veterans Prospecting & Mining Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. A. Macdonald, W. H. Blight, and J. T. Hornbrook, Toronto.

The Evans Rotary Engine Co., Toronto, have been incorporated with a capital of \$250,000, to manufacture engines, boilers, pneumatic tools, boats, motors, pumps, etc. The provisional directors include K. Rose, J. M. Evans and F. W. Carey, Toronto.

The Brockville Cement Pressed Brick & Concrete Co., Brockville, Ont., have been incorporated with a capital of \$10,000, to manufacture cement bricks and blocks, building material, etc. The provisional directors include B. Dillon, A. T. Wilgress and J. C. Yarwood, Brockville, Ont.

Kearns Ink & Wax Co., Toronto, have been incorporated with a capital of \$10,000, to manufacture inks, mucilage, pastes, wax, etc. The provisional directors include J. J. Kearns, W. J. Ingram and D. H. Quinn, Toronto.

The Latonia Agar Co., Brantford, Ont., have been incorporated with a capital of \$40,000, to manufacture cigars, tobacco, etc. The provisional directors include C. A. McIntyre, W. T. Henderson and R. Smith, Brantford, Ont.

The Cobalt Eagle Silver Mines, Ottawa, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include C. M. Farley, W. H. Newton and F. W. Ford, Ottawa.

The Coleman & Larder Lake Gold & Silver Mining Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include W. Henry, J. Dickey and R. M. Foster, Uxbridge, Ont.

Messrs. A. Workman & Co., Ottawa, have been incorporated with a capital of \$60,000, to manufacture hardware, etc. The provisional directors include T. Workman, A. A. Whillans and T. O. Workman, Ottawa.

The Wendigo Crater Mines, Cobalt, Ont., have been incorporated with a capital of \$40,000, to carry on a mining, milling and reduction business. The provisional directors include M. Mahaffy, Bracebridge, Ont., G. Ross, Cobalt, Ont., and R. P. Lydon, New York City.

The Otonabee Navigation Co., Peterborough, Ont., have been incorporated with a capital of \$40,000, to construct steamboats, vessels, barges, etc. The provisional directors include W. H. White, W. H. Robertson and J. E. Henderson, Peterborough, Ont.

The Great Northern Oil Co., Sault Ste. Marie, Ont., have been incorporated with a capital of \$500,000, to manufacture oil, gas, petroleum, etc., and to carry on a mining, milling and reduction business. The provisional directors include R. H. Carney, S. G. Stone and P. T. Rowland, Sault Ste. Marie, Ont.

Societe Electrometallurgique Canadien, Limited, Toronto, have been incorporated with a capital of \$40,000, to carry on a mining, milling and reduction business. The provisional directors include F. D. Byers, O. F. Taylor and T. H. Barton, Toronto.

The Wayne Cobalt Silver Mining Co., Windsor, Ont., have been incorporated with a capital of \$50,000, to carry on a mining, milling and reduction business. The provisional directors include J. W. Hanna, J. Wigle, Windsor, Ont., and A. Green, Detroit, Mich.

A very interesting advertisement of John Lysaght, Limited, appeared in "The Ironmonger" of January 19. This was a double page display illustrating this company saying, "The sun never sets on Lysaght's Galvanized Iron." It showed 20 steamers on which shipments had recently been made, covering almost every part of the world.

The Hamilton, Grimsby & Beamsville Electric Railway Co., Hamilton, Ont., will extend their line to St. Catharines, Ont.

J. W. Graham, St. Mary's, Ont., invites tenders up to February 20 for the construction of the St. Mary's & Western Railway between St. Mary's and Embro, Ont.

The premises of the Separate school, Dundas, Ont., were destroyed by fire recently. Loss about \$4,000.

The Provincial government have made a grant of \$50,000 for the erection of a hygienic institute at London, Ont. Besides the \$50,000 for building, an annual grant of \$5,000 a year will be made for maintenance.

The premises of the Orvine Lumber & Fuel Co., Brampton, Ont., were destroyed by fire recently.

An addition will be erected to the hospital, London, Ont.

The new Knox College, Toronto, will be erected on University Lawn.

The ratepayers of London, Ont., will vote on a by-law to expend \$60,000 on sewerage extensions.

The water supply, Berlin, Ont., will be increased by 1,000,000 gallons per day.

The Department of Public Works, Ottawa, invite tenders up to February 22 for the construction of a pier head at Burlington Channel, Hamilton, Ont.

Thorpe Bros., furniture dealers, New Liskeard, Ont., have purchased a site and will erect a building.

Chas. McFee, Sarnia, Ont., will erect a skating rink 200x100 feet.

M. P. Lynch, Guelph, Ont., invites tenders up to February 19 for the erection of a stone and brick school at School Section No. 3, Wellington County, Ont.

A butter factory will be established at Bobcaygeon, Ont. T. J. Ingram is interested.

The Walper House, Berlin, Ont., will be enlarged.

Dr. Laidlaw and W. R. Wilson, Kenora, Ont., will erect a large rink having a capacity of about 4,000.

The Town Clerk, Fort Francis, Ont., will receive tenders up to February 26 for purchase of \$43,005, thirty year waterworks debentures.

The Dominion Government will shortly receive tenders for the construction of a concrete dam and bridge at Buckhorn, Ont. at a cost of about \$35,000.

The Ontario Interurban Railway Co. will build a line of electric railway, starting at Belleville, Ont., then across the Bay of Quinte bridge, running through the townships of Ameliasburg and Hillier, to Wellington, thence to Picton. Branches will likely be laid to Wellers' Bay and the Sand Bank.

A new school will be erected at St. Catharines, Ont.

Queen Alexandra School, Toronto, will be enlarged at a cost of about \$25,000.

The congregation of Mill Street Presbyterian church, Port Hope, Ont., will erect a new edifice.

St. Joseph's Separate School, Toronto, will be replaced by a larger building.

A. McDonald, North Bay, Ont., has secured a site and will erect a large building.

Messrs. R. A. Rogers & Co., East Toronto, may erect a large cement plant there.

The Board of Works, Hamilton, Ont., are considering the installation of a municipal lighting plant.

The time for receiving competitive designs for the new Departmental and Justice Buildings, Ottawa, has been extended from April 15 to July 1.

The Yukon Consolidated Goldfields Co. Limited, have bought a large supply of electrical apparatus from the Canadian Westinghouse Co., for use in gold dredging in the Yukon.

Chas. M. Hays, of the Grand Trunk Railway has laid before the Ottawa city council plans for a new million-dollar hotel in connection with a new central depot, to cost about \$250,000.

Jones Bros., Bracondale, Ont., manufacturers of stove linings, fittings, etc., who were burnt out a short time ago, have almost completed the building of a new plant. The kiln shed is 37x33 feet, covered with sheet iron. The machine shop will be 145x28 feet, one story in height. They expect to be ready for business again by April 1.

Matthews Bros., Limited, Dundas Street, Toronto, manufacturers of picture frames and mouldings, expect to enlarge their buildings next summer to provide more room for the office, stock and shipping departments.

The Toronto Laundry Machine Co. are doubling the capacity of their factory on Dundas Street, Toronto. The new work will be completed by August.

The Robert Watson Co., manufacturers confectioners, of 75 Front Street East Toronto, will occupy the premises formerly used by the Liszt Piano Co., and the Star Bolt & Screw Co., Sorauren Avenue.

The Chapman Double Ball Bearing Co., Toronto, have moved their plant from 37 Pearl Street, to their new building on Sorauren Avenue. The new building is of brick, one story in height, and the machine shop is 170x80 feet. The offices are not yet completed.

The Sharples Cream Separator Co. are

occupying their new premises at 1130 Dundas Street, Toronto. The building is 250x65 feet, one story, built of brick to allow future additions of two stories. Equipment is now complete all but the offices.

The London Machine Tool Co., Hamilton, Ont., have installed a 1,000 ton double acting back gear press in the new factory of the Chapman Double Ball Bearing Co., Toronto.

The Atlantic Soap Co., Don Esplanade, Toronto, will double their capacity this year. A new plant for removing glycerine from lye will be installed in May.

The Canadian Oil Co., Strachan Avenue, Toronto, manufacturers of "Sterling Brand" oils, paints, and varnishes, are adding a second story over a part of their buildings. This increase of floor space will allow for enlargement of office room, and improvement in storing and shipping facilities. Storage batteries will be installed so that their own steam power can be used for lighting purposes. The recent enlargements of this company's refineries at Petrolia will relieve the Toronto plant of most of the work of compounding oils, except for special orders. The Toronto plant will now be devoted chiefly to the manufacture of paints and varnishes.

The City of Toronto is calling for tenders for a 1,000,000 gallon pumping plant for the Island pumping station. As will be seen from the advertisement on page 40, the tenders for this plant must be in by February 21.

The Port Credit Brick Co., Limited, and the Miller Cartage Co., Limited, have almost completed their new buildings on Christie Street, corner of Dupont Street, Toronto. The buildings provide storage for 5,000,000 bricks and stabling for 54 horses. Near by the company has also built 9 houses for teamsters and their families. A blacksmith shop will be built in connection with the stables.

The Gomer Mfg. Co., Chesley, Ont., have been incorporated with a capital of \$50,000, to manufacture bedsteads, etc. The provisional directors include A. Gomer, A. Harrod and T. E. Devitt, Weston, Ont.

The Kelly Island Lime Co., Windsor, Ont., have been incorporated with a capital of \$100,000, to manufacture lime, mortar, cement, sewer pipe, etc. The provisional directors include A. R. Bartlet, N. A. Bartlet and A. W. Macgregor, Windsor, Ont.

Messrs. Love Bros., Toronto, have been incorporated with a capital of \$150,000, to manufacture building materials and supplies, etc. The provisional directors include P. Love, E. G. Long and W. J. Couiter, Toronto.

The Breslau Brick & Tile Co., Breslau, Ont., are making several improvements in their plant.

The Shipway Iron, Bell & Wire Co., Toronto are considering moving their plant to Niagara Falls, Ont.

The Stanley Smelting Co., of Maine, have received a license to manufacture iron, steel, pig-iron, coke, copper, lumber, etc., in Ontario.

The Miller Reversible Gasoline Engine Co., Toronto have removed from 39 Sherbourne Street to 569 Yonge Street.

The Bury Pulp Wood & Lumber Co., Bradford, Que., have dissolved, Thomas H. Andike and Samuel E. Watts continuing business.

The moulding shop of C. Wilson & Son Limited, Toronto, manufacturers of scales, etc., was damaged by fire a few days ago; insured.

A despatch from Sault Ste. Marie, Ont., states that the United States bridge trust will establish a plant at that place under the name of the Algoma Bridge Co., with A. W. Hillier, as manager.

Hamilton Board of Trade is behind a scheme to have "Made in Hamilton" goods given especially prominent attention by all the merchants of that city for an entire week in the near future.

The Toronto Board of Education is asking the city council to approve appropriations to the extent of \$547,954, for building extensions. This includes enlargements of public schools and collegiates.

The stock, plant, etc., of the Hamilton Biscuit & Confectionery Co., Limited, Hamilton, are advertised for sale by auction to-day (February 15).

A winding-up order has been granted the Toronto Fire Brick Co., Limited, Toronto and Mimico.

Messrs. Haney & Miller, the contractors for the tunnel under the bay for the Toronto waterworks have now about 50 men working two shifts of eight hours each. The main shaft, 105 feet deep, and 12 feet 4 inches in diameter, is now completed except for the concrete lining. Four 85 h.p. boilers supply the motive power for the machinery. Pneumatic drills are being used. It is the intention of the contractors to put on three gangs before long, so that work can proceed without intermission day and night.

The Ontario Department of Lands, Forests and Mines are calling for tenders for the right to cut pulpwood on certain areas in the District of Nipissing. The advertisement appears on page 40 of this issue.

It is understood that Toronto will lease 14 acres on Ashbridge's bay to the King Radiator Co., Limited, of Toronto. Part of this land is under water and will require filling in. The company agrees to employ at least 30 men per acre, and will employ 150 at the outset. Plans for the buildings are being prepared by Fred Herbert, architect.

Since the appointment of Mr. J. J. Thompson as Commissioner of Industries and Publicity, Toronto, he has been in negotiation with sixty firms. Up to the end of 1906 the following firms have located factories in that city. Kindall Bed & Mattress Co., St. Louis; Blanchite Process Paint Co., New York; Canada Bolt & Nut Co., Boston; De-Sauga Silk Co., St. Etienne, France; Chemical Laboratories, Limited, Dominion Carriage Works, Berlin Electrical Manufacturing Co.

Over \$20,000 damage was done by fire to the premises of the E. B. Shuttworth Chemical Co., 92 and 94 Adelaide Street east, Toronto. Considerable machinery was damaged.

The Peterborough Steel Rolling Mills Co., Peterborough, Ont., are considering the erection of a new plant.

Negotiations are being carried on for the establishment of a match factory in Lindsay, Ont. J. D. Manton, formerly of Hull, Que., is among the promoters.

Building permits to the value of \$750,000 were issued in Toronto during January, as against \$450,000 in January last year.

A Committee of the Hamilton Board of Education has been appointed to examine the condition of Victoria Avenue, Cannon Street, Hess Street, Barton Street and Caroline Street Schools. Complaints have been made that they were so insanitary as to cause illness amongst children.

The saw mill of the Tobin Mfg. Co., Bromp-tonville, Que., was damaged by fire recently.

The various athletic associations of Longueuil, Que., will erect a club house. G. R. Gray, Longueuil, Que., is interested.

Messrs. James Coristine & Co., Montreal, will erect an addition to their building at a cost of about \$100,000.

The Phoenix Bridge & Iron Works, Montreal, have purchased a site and will enlarge their plant.

M. Dean, New York City, is negotiating for the establishment of a plant at Iberville, Que., for the manufacture of iron pipes, etc.

The Consolidated Chemical Co., Guelph, Ont. will erect a factory at Three Rivers, Que.

A new city hall will be erected at Sherbrooke, Que.

The Canadian Pacific Railway Co. will erect a new passenger station at Westmount, Que.

The Grand Trunk Railway Co., invite tenders up to February 28 for the construction of a double track between St. Lambert and St. Rosalie Junction, Que., a distance of 33 miles. This section comprises a bridge over the Richelieu River.

The Gould Cold Storage Co., Montreal, will erect four stores at a cost of about \$14,000.

Pavements will be laid at St. Louis, Que., at a cost of about \$100,000.

Following are among proposed Montreal contracts for the coming season:—Sewer on Commission Street from Place Royal to Berri Street, \$87,000; Delorimier sewer, outlet at the jail, \$18,000; Longueuil ferry Street sewer, \$2,000; St. Denis relieving sewer, \$100,000; new sewer outlet, Victoria bridge, for Mill Street, \$50,000; Sherbrooke Street storm drain, from Visitation to St. Lawrence Street, to relieve the Ontario Street sewer, \$15,000; taking out tile pipes and replacing them with 3 by 2 sewers, at an estimate of \$500,000, one-fifth in 1907, \$100,000; pumping station and plant for William Street district, relieving Craig Street pumping station, \$55,000; new asphalt plant for the western division, including buildings and machinery, \$40,000; new permanent sidewalks, city's share, \$239,800; purchase of paving blocks for paving between car tracks, \$30,000; street gullies and laying of the same, \$10,000; and new permanent pavements, \$1,206,230, making a total of \$2,003,495.

T. McQuat & Son, Lachute, Que., have shipped to T. Brosseau, St. Boniface, Que., another "Duncan Resaw." This machine has the double advantage of both saving lumber and increasing output of mill.

The Crescent Machine Co., Montreal, have been incorporated with a capital of \$20,000 to manufacture brass, iron, machinery, implements, water tanks, etc. The charter members include C. M. Gardiner, C. D. Drabble and W. A. Paterson, Montreal, Que.

Messrs. John Bert & Co., Montreal, have been incorporated with a capital of \$10,000, to manufacture goods, wares, merchandise,

etc. The charter members include J. Curry, Toronto, G. H. Taylor, Montreal, and A. J. Moreland, Westmount, Que.

The North Atlantic Dock & Shipbuilding Co., Montreal, have been incorporated with a capital of \$1,500,000, to manufacture vessels, tugs, engines, ship furniture, etc., and to construct wharves, docks, piers, offices, warehouses, factories, etc. The charter members include T. Brosseau, B. Brosseau, Montreal, and W. H. Moore, Toronto.

T. M. McKenzie Co., Montreal, have been incorporated with a capital of \$75,000, to manufacture pitch, tar, sails, tarpaulins, life-buoys, jute-cotton, binder twine, etc. The charter members include W. P. Hamilton, A. A. Lunon and A. Dunn, Montreal.

The Canadian Rand Co., Sherbrooke, Que., have been incorporated with a capital of \$500,000, to take over the business of the Canadian Rand Drill Co., and to manufacture rand drills, mining machinery, air compressors, pneumatic tools, motors, engines, rock drills, pumps, etc. The charter members include Geo. Doubleday, New York City, E. W. Oilman, Montreal, and S. W. Jenckes, Sherbrooke, Que.

The John Murphy Co., Montreal, will enlarge their premises.

Messrs. A. H. Cummings & Son, Coaticook, Que., have been incorporated with a capital of \$140,000, to manufacture lumber, brick, stone, etc. The charter members include G. H. Church, W. G. Mitchell, and W. S. Hart, Montreal.

The Sanitas Company of Canada, Montreal, have been incorporated with a capital of \$20,000, to manufacture soap, perfumes, glycerine, oils, etc. The charter members include U. C. Strachan, E. S. Montet and W. G. Mitchell, Montreal.

Theodore Lefebvre & Co., Montreal, have been incorporated with a capital of \$80,000, to manufacture drugs, chemicals, dyes, soaps, etc. The charter members include C. A. M. Lefebvre, M. T. Lefebvre and L. S. S. Lefebvre, Montreal.

The Roxton Tool & Mill Co., Roxton Pond, Que., have been incorporated with a capital of \$100,000, to manufacture tools, planes, wrenches, etc. The charter members include C. C. A. Bullock, O. Popin and H. Rainaud, Roxton Pond, Que.

Messrs. Starke-Seybold, Limited, Montreal, have been incorporated with a capital of \$400,000, to manufacture metals, paints, oils, etc. The charter members include R. Starke, J. P. Seybold, Westmount, Que., and W. Starke, Montreal.

The Allan McIntosh Co., Montreal, have been incorporated with a capital of \$19,000, to carry on a general contracting, plastering and fire-proofing business. The charter members include R. C. McMichael, F. G. Bush, and R. Adair, Montreal.

Warden King, Limited, Montreal, have been incorporated with a capital of \$1,000,000, to manufacture iron, brass, metals, soil pipes, heating apparatus and builders', plumbers' and steamfitters supplies, etc. The charter members include J. C. King, L. A. Payet and R. C. McMichael, Montreal.

Messrs. Laporte, Martin & Co., Montreal, have purchased property on William and St. Paul Streets, and have remodelled the premises. The purchase price was \$57,000.

L. E. Ouimet, Montreal, will erect a building on St. Catherine Street at a cost of about \$10,000.

J. W. Woods, Ottawa, will erect a five story factory, 200x70 feet, at Hull, Que., at a cost of about \$100,000.

Universal Systems, Limited, Adelaide Street West, Toronto, intend erecting a factory in Montreal for the manufacture of loose-leaf specialties.

The Canadian Boomer & Boschert Press Co., Limited, have secured a factory at 1012 St. Catherine Street, Montreal, in which to manufacture hydraulic presses, and other machinery. H. W. Parmalee, Traders Bank Building, is Toronto representative of the company.

A. A. Ayer & Co., cheese and butter exporters, Montreal, have bought the property they now occupy and will construct a modern cold-storage plant.

The council, Moncton, N.B., are seeking authority to construct a telephone system at a cost of about \$30,000.

The Common Council, St. John, N.B., accepted the tender of Clark & Adams for the construction of a new deep water berth on the Westside. The price for the structure is \$149,000, and the berth, which will be an extension of a new one, now under way, will be 600 feet long, completed on the south side and faced for 200 feet on the north side.

The Salvation Army, St. John, N.B., have purchased a site and will erect new barracks at a cost of about \$11,000.

J. E. Wilson, St. John, N.B., will erect a large addition, 100x40 feet, to his foundry, and will go extensively into the manufacture of stoves.

The Imperial Coal Co., Beersville, N.B., will establish a brick plant having a capacity of 20,000 brick per day.

The Canadian General Electric Co. Toronto, are installing an electric plant at Dorchester, N.B., for street and commercial lighting.

The foundry and bridge works of the W. P. McNeil Co., New Glasgow, N.S., was damaged by fire recently.

Allro Street school, Halifax, N.S., will be remodelled.

The machine shop at the dry dock, Halifax, N.S., was destroyed by fire recently.

The Dominion Carriage Co., Truro, N.S., recently organized with a capital of \$250,000, will erect a new building in the spring.

The Canadian Northern Railway Co. have awarded a contract to Messrs. Rhodes, Curry & Co., Amherst, N.S., for twenty 30-ton refrigerator cars.

Messrs. Glube & Berger, Winnipeg, Man., have purchased the hotel business of Dugald McArthur and will remodel the premises.

The Board of Control, Winnipeg, Man., invite tenders up to February 25 for the construction of 24 miles of single track tramway between Lac du Bonnet and Point du Bois, Man.

The council, Winnipeg, Man., invites tenders up to February 28, for 3,000 to 5,000 tons of asphalt for paving.

It is stated that the Manitoba Government will construct a railway line from Winnipeg, Man., to Hudson's Bay, thus making a short route to the European markets.

The Munro Wire Works, Winnipeg, Man., have extended their plant at a cost of about \$30,000. The new building is set apart for the production of wire mattresses and beds.

The large warehouse of Messrs. Bright & Johnstone, Winnipeg, Man., was destroyed by fire recently. Loss about \$300,000.

The Wingold Stove Co., Winnipeg, Man., have been incorporated with a capital of \$40,000, to manufacture stoves, ranges, furnaces, machinery, wagons, carriages, cycles, etc. The provisional directors include F. B. Blanchard, O., Gensmer and R. Ke., Winnipeg, Man.

Pearsons, Limited, Winnipeg, Man., have been incorporated with a capital of \$25,000, to manufacture steamboats, vessels, coal vehicles, coal, wood, oil, gas, etc., and to construct warehouses, elevators, etc. The provisional directors include W. Pearson, H. Perkins and A. N. McPherson, Winnipeg, Man.

A. J. Bennett, architect, Winnipeg, Man., will shortly open a branch office in Port Arthur, Ont.

F. C. Filer, of the Northern Electric Mfg. Co., Montreal, is establishing a branch in Winnipeg, Man.

The Power Plant, Winnipeg, Man., has been enlarged, which will necessitate buying new boilers and electric generators.

The Commercial Cement Co., Cambridge, Man., are installing new machinery.

The roundhouse of the Canadian Northern Railway Co., at Brandon, Man., was destroyed by fire February 7. Loss about \$100,000.

The elevator of the Winnipeg Elevator Co., West Selkirk, Man., was destroyed by fire February 8. It carried about five thousand bushels of wheat.

Manitoba & Saskatchewan Coal Co., Winnipeg, Man., have been incorporated with a capital of \$1,000,000, to manufacture chemicals, machinery, coal, gas, timber, brick, tile, terra cotta, etc. The provisional directors include A. S. Swinford, J. Thomson and W. W. McMillan, Winnipeg, Man.

Messrs. Kayler & Son, Winnipeg, Man., have purchased the American Hotel, Dawson, Sask., and will erect a three story addition.

Indian Head, Sask., will expend about \$100,000 this year, to provide granolithic sidewalks, macadamized streets, water connections and electric light extensions.

The congregation of the Protestant Church, Indian Head, Sask., will erect a new edifice at a cost of about \$20,000.

The Canadian Pacific Railway will erect a new station at Calgary, Alta., at a cost of about \$200,000.

The Canadian Pacific Railway are considering the construction of a line between Regina and Prince Albert, Sask.

Tenders will be received by the treasurer of the City of Saskatoon up to March 20 for the following Contract "A"—Labor on piped waterworks and sewerage, comprising 27,000 feet of trenching. Contract "B"—Concrete foundation for water tower for water tower. Contract "C"—Water tower. Contract "D"—Water tower. Contract "E"—Water tower. Contract "F"—Water tower. Contract "G"—Water tower. Contract "H"—Water tower. Contract "I"—Water tower. Plans, etc., may be seen at the City Engineer's Office.

the office of the chief engineer, 103 Bay street, Toronto, or at the office of the resident engineer, Saskatoon.

Among the plants now being equipped with the Sturtevant system of heating and ventilating are those of Roughsedge & Ramsey, Prince Albert, Sask., and the Canadian Pacific works, Toronto, Junction, Ont.

The lodge of Elks, Calgary, Alta., will erect a new club house at a cost of about \$10,000.

E. B. Campbell, Olds, Alta., will receive orders up to February 25 for the purchase of \$9,000, twenty year town debentures.

C. May, Edmonton, Alta., has been awarded the contract for the construction of the new post office that city.

J. W. Knight, Raymond, Alta., will erect a three story block at a cost of about \$75,000.

The Fire, Water & Light Committee, Raymond, Alta., will purchase a boring machine and are considering the purchase of a chemical fire engine.

A new building, 144x101 feet, will be erected in Regina, Sask., for stock show purposes, at a cost of about \$15,000.

The Medicine Hat Milling Co., Medicine Hat, Alta., will erect a large elevator.

The following is the programme of the work planned for Canadian Pacific Railway Western lines during the coming season: continuation of double-tracking completion of following lines: Pheasant Hills branch; Wolfy-Reston branch; Weyburn-Stoughton branch, Moose Jaw north 50 miles, Bredenbury and Esterhazy branch, Shebe to connect with Pheasant Hills branch, grade reduction Medicine Hat section, grade reduction Lethbridge to MacLeod, including bridge one mile long and 300 feet high; grade reduction between Field and Hector, new station at Port Arthur, recreation, and lodging buildings at Ignace for engineer and trainmen, change Hibernia Avenue subway, Winnipeg, for double track, new yards at Coleridge, completion of hotel at Victoria, changing 330 miles of light steel for 90-pound steel.

The building permits issued in Vancouver, B.C. for 1906, totaled \$4,084,840, more than double those of two years ago.

The Vancouver assessment returns show the great growth which that city is steadily maintaining. The latest report gives the population at 52,000, a growth of 7,000 in twelve months. The total assessment has been increased by \$14,000,000.

W. S. Cross & Co., Vancouver, B.C., will erect a large office building.

T. H. Calland & Son, Vancouver, B.C., will erect two new office buildings.

F. I. Mathon, owner of the Sehl Block, Victoria, B.C., will erect an addition to the building at a cost of about \$20,000.

The Silvester Feed Co., Vancouver, B.C., will erect a large grain elevator.

The Victor's Phoenix Brewing Co., Victoria, B.C., will erect an addition to their plant at a cost of about \$10,000.

The Board of Trade, Vancouver, B.C., have advised the Dominion Government to build an addition there having a capacity of 250,000 lbs.

The Public Works Department, Ottawa, will receive orders up to February 18 for the construction of a post office building at Ferrisburgh.

## THE QUERY COLUMN.

ANY subscriber to the CANADIAN MANUFACTURER is invited to seek any information desired through these columns.

### AUGER BIT BOXES.

EDITOR CANADIAN MANUFACTURER.—

We would like to secure name of Canadian manufacturers of small wooden boxes for holding sets of auger bits.

Hardware Merchant.

c/o CANADIAN MANUFACTURER, Toronto.  
February 1, 1907.

### SHOE DRESSING SPONGES.

EDITOR CANADIAN MANUFACTURER.—

Can you inform me where I could buy the wire, with or without sponge, such as are used in bottles of shoe dressing?

F. P. Brock.

c/o CANADIAN MANUFACTURER, Toronto.  
February 7, 1907.

### ICE-MAKING MACHINERY.

EDITOR CANADIAN MANUFACTURER.—

Will you kindly put us in touch with Canadian makers of ice-making machinery? If there are none in Canada, please let us have names of American makers.

Bridgewater Aerated Water Co., Limited,  
Bridgewater, N.S.

January 24, 1907

## FINANCIAL.

The United Empire Bank of Canada have opened a branch at Galt, Ont.

The Bank of New Brunswick have secured the premises of C. A. Clarke, St. John, N.B., and will open a branch there.

The Sovereign Bank are opening branches at Standstead and Beebe Plain, Que., and at North Bay, Callander, Haileybury and New Liskeard, Ont.

P. C. Stevenson, manager of the Canadian Bank of Commerce, Sydney, N.S., will open a branch at Kingston, Ont.

The Sovereign Bank of Canada will open a branch in Dauphin, Man.

A branch of the Bank of Montreal is being opened in Vancouver, B.C.

The Canadian Bank of Commerce have secured a site on the corner of Jarvis and King Streets, Toronto, and will erect a large bank building.

The Molsons Bank have opened a branch at Lachine Locks, Que.

The Bank of Commerce have now 163 branches, including ten offices in Toronto, eight in Winnipeg, Man., and two in San Francisco, Cal.

The Royal Bank of Canada have purchased property owned by Geo. Yates & Sons, Halifax, and will erect a new bank building.

The Metropolitan Bank have opened a branch at Brighton, Ont.

A branch of the Standard Bank of Canada has been opened at Grafton, Ont., also at Strathroy, Ont.

The Canadian Bank of Commerce have opened a branch at Prince Rupert, B.C.

The Molsons Bank have opened a new branch in Lachine, Que.

### RAILWAYS NEED ROLLING STOCK.

On Thursday, February 7, Judge Killam, of the Dominion Railway Commission, told representatives of the different railways the board would insist upon a reasonable standard of rolling stock and equipment being maintained. The railway act required that adequate and suitable accommodation to the public be provided. The improvement and extension of existing lines gave ample evidence of the financial ability of the railroads to comply with the law. He questioned whether the railways were justified in extending their lines without first having a proper equipment for the lines already built. Judge Killam also took occasion to strongly criticize the irregularity in the running of passenger trains. He believed the railroad should always make greater effort to live up to the time schedules, and if trains were delayed the public should be accurately informed as to the time they would arrive. At present the bulletin boards of the railways were quite unreliable, and station agents gave the most conflicting replies to queries.

Mr. J. W. Leonard, of the Canadian Pacific Railway, declared that much of the blame for the car shortage was due to the delay on the part of merchants and customers in unloading. They waited to suit their own convenience before taking goods from the cars or the station sheds. This applied especially to cities and terminal points. He instanced one day last week when 400 cars were kept loaded in Montreal because the consignees would not take their freight out. The Canadian Pacific Railway, said Mr. Leonard, had now over 42,000 cars, an increase of 10,000 over last year.

Divisional Superintendent Brownlee, of Toronto, stated for the Grand Trunk Railway, that conditions were the same at the large terminal points of that road.

### WINNIPEG, AN INDUSTRIAL CENTRE.

Winnipeg has made great strides forward during the last ten years or so that it is now recognized as one of the three great commercial, financial and transportation centres of Canada.

The time has now come, in the opinion of the leading business men, as well as of the principal public bodies of that city, to emphasize the advantages of Winnipeg as a manufacturing centre.

The unanimity of this view has resulted in the organization of the Winnipeg Development and Industrial Bureau and the appointment of Chas. F. Roland, one of the most aggressive organizers in the Dominion, as Industrial Commissioner.

Among the bodies behind this bureau are the City Council, the Board of Trade, the Grain Exchange, the Real Estate Exchange, the Builders' Exchange, the Manufacturers' Association, the Bankers' Association, the Trades and Labor Council, the Commercial Travellers' Association.

In an address before a meeting of the organization outlining his plans, Mr. Roland stated that Winnipeg would reach the 250,000 mark in five years. He insisted that Winnipeg business men should continually emphasize the progress of that city. They should draw attention to Winnipeg's fast increasing population, her twenty-five miles of asphalt streets, her thirty miles of street

railway system, her twenty miles of suburban lines entering Winnipeg, her sixty-two miles of boulevards, her 316 acres of public parks, her municipal 50,000 h.p. electric plant contemplated.

Only two cities in Canada have a greater population than Winnipeg. The city has eighteen banks financing the harvesting and transportation of the greatest grain crop on the continent. Six railway systems centre there, with yards and shops adding to the city's activity.

Winnipeg, with her \$42,836,000 expended in building in the past four years, has not had the percentage of factory construction she should have had, concluded Mr. Roland. The natural advantages alone offered by the city has increased this percentage wonderfully in the year just past. The Winnipeg Development and Industrial Bureau has before it the work of keeping the ball a-rolling and to add to the city new industries, wholesale houses, encourage tourist traffic and promote the general advancement of the city by acquiring, preserving and disseminating the increasing statistics and information that is daily building up our great city. Important in the building of any city is the spirit of advertising, you have got to use the ink to get the results, and to use printers' ink costs money, still the citizens of Winnipeg should feel proud of the fact that men of such substance as the executive committee of this bureau represents, are sacrificing their valuable time and are giving their attention to the directing of the affairs of this campaign that we are about to enter into."

#### PRIZES FOR CANADIAN DISCOVERIES.

Hon. Mr. Matheson, Provincial Treasurer of Ontario, has announced that the late Aeneas McCharles, a Sudbury prospector, has willed \$10,000 to the University of Toronto, to be used in giving prizes under the following conditions:

"First—To any Canadian from one end of the country to another, and whether a student or not, who invents or discovers any new and improved process for the treatment of Canadian ores or minerals of any kind after such process has been proved to be of special merit on a practical scale.

"Second—Or for any important discovery, invention or development by any Canadian which will lessen the dangers and loss of life in connection with the use of electricity in supplying power and light.

"Third—For any marked public distinction achieved by any Canadian in scientific research in any useful and practical line."

#### NEW FACTORY FOR WALKERVILLE.

The Trussed Concrete Steel Co., Limited, of Canada, have been incorporated with a capital of \$200,000. The provisional directors include Gustave Kahn, D. C. Raymond, and L. Wyman. The company is building a plant in Walkerville, Ont., which is expected to be in operation by April 1. This building is one story, 120x65 feet, built of brick and steel. Two more buildings of about the same dimensions of trussed concrete will probably be added later. The company are in the market for electric cranes and motors for their new plant. A new form of expanded metal will be made in this plant and placed on the market next autumn. This consists of a series of straight rods connected by separators, and the advantage is claimed for it

that its strength can be calculated. The head offices and engineering staff will remain at 23 Jordan Street, Toronto.

#### RECORD OUTPUT OF STEEL RODS.

A despatch from Halifax states that during January the Dominion Iron & Steel Co., Sydney, N.S., broke all previous records for the production of steel rods. The output during the month was 7,966 tons, as compared with 7,400 tons in January, 1906, which was the highest monthly production up to that time. At the commencement of the month the men employed in the mill had not expected the January output would be a record-breaker, but when the 15th had been reached, and it was found they were ahead of all former figures, a rush was inaugurated and kept up to the finish, with the above favorable results. During thirty-one days the hands lost three shifts, a circumstance which lessened the figures.

On Monday, the 28 inst., the output of three-eighth inch rods was 124 tons in the 24 hours, a new record for that time.

#### THE SOUTHERN CALIFORNIA NEW TRAIN.—BEST ROUTE.

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

At the annual meeting of the Canadian Society of Civil Engineers, the following officers were elected for the ensuing year: President, W. McLea, Walbank, chief engineer of the Montreal Light, Heat & Power Co.; vice-presidents, J. Butler, chief engineer railways and canals, Ottawa; Phelps Johnson, manager of the Dominion Bridge Co., and J. S. Dennis, chief engineer of the C.P.R. irrigation works, Calgary Council—G. A. Keefer, Vancouver; D. McPherson, assistant chief engineer transcontinental railway, Ottawa; G. H. Duggan, second vice-president Dominion Coal Co., Sydney; C. E. W. Dodwell, engineer public works, Halifax; C. H. Rust, city engineer, Toronto; W. McNab, assistant engineer, G.T.R.; W. F. Tye, Montreal; E. V. Johnson, Ottawa; W. H. Breithaupt, Berlin; J. A. Jamieson, R. S. Lea, R. A. Ross, G. J. Desharats, John Kennedy, F. P. Gutelius, assistant chief engineer, C.P.R.; W. H. Laurie, Prof. R. J. Durley, L. J. Papineau and H. Hardman, all of Montreal, and A. A. Dion, Ottawa.

Tenders are to be opened next week for 437 miles of construction work on the Grand Trunk Pacific. The work includes the section from (a) near Moncton, N.B., westerly for about fifty miles (b) from near Grand Falls, N.B., westerly for about sixty-two miles (c) from Quebec Bridge easterly for 150 miles (d) from a point known as Weymontachene, westerly for about forty-five miles (e) from a point about eight miles east of the Abitibi River, easterly for 150 miles. The G.T.R. will compete for this work, the total cost of which will exceed \$6,000,000.

#### THE REALM OF THE FAN BLOWER.

By WALTER B. SNOW, *CASSELL'S MAGAZINE.*

With the possible exception of the steam pump it is doubtful if any other mechanical device has so varied a field of direct application as the fan blower; these two machines really being in the same class, the one handling liquids at pressures measured in pounds, while the other creates movement of air and gases under pressure differences measured in ounces.

Fan blower applications may be broadly divided into two classes. First, those in which the object is to actually transport the air or gas, and second, those in which the air serves as a medium for the transportation of other materials. Ventilation and the supply of air for combustion are properly included under the first classification. The conveyance of light material and the transmission of heat or moisture in the air come within the second classification.

Ventilation, whether secured by natural or artificial means, results only from the creation of a pressure difference between two points such as to cause a flow of the liquid from the higher and the lower pressure area. In the case of natural ventilating systems maximum efficiency is secured only through the employment of flues and ducts of large area, through which the air flows at low velocity. At best, the mechanical efficiency of the heated flue is very low. With a fan, however, much greater pressure differences can be easily created, and smaller pipes with higher air velocities employed. With the fan, the heat expenditure necessary to produce a given air movement is surprisingly less than with natural draft in a flue or chimney.

According to the degree of activity of the occupant the velocity of the air admitted to the room may be high or low, but it is easily regulated where a fan is employed. In the sparsely occupied building the per capita space is large, the air volume therefore required is relatively small, and the rate of flow may be high. In the crowded hall of audience the minimum of floor space is provided for each occupant and the maximum of air supply is required. Here the utmost refinement is necessary in the tempering and distribution of the air.

In the ordinary building, ventilation is very properly a process of substitution of fresh air for foul air, but the fan does not absolutely control the conditions, for the walls are usually porous and there are leaks around the windows and doors. In the mine, however, with its practically air-tight chamber and its vertical shaft, there is no appreciable inward or outward leakage. All air which passes through the mine likewise passes through the fan, very positive control being had over its distribution.

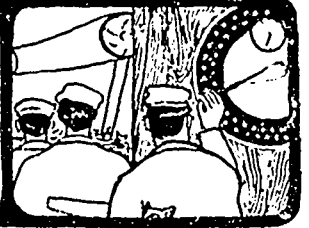
The limits of the realm of the fan blower cannot be established, its boundaries are constantly increasing, new processes and industries depend upon it for successful operation, old applications are improved by its introduction, it is a boon to all mankind.

New tenders are to be called for the general offices at North Bay, Ont., of the Temiskaming & Northern Ontario Railway, the tenders opened last week being too high or incomplete.



## Office Methods and Appliances

A Review of the Latest Suggestions in Office Systems and Supplies for Manufacturers.



### Sensible Systems for Manufacturers.

By E. D. LOWE, OF THE ROLLA L. CRAIN CO., OTTAWA.

In any proposal in the way of system for manufacturers, the great essential is to reduce outlay for labor over that entailed by the old fashioned method of bookkeeping. Much that has been proposed has evidently been evolved by writers quite devoid of knowledge of the conditions under which business houses exist. In fact some of the systems suggested would entail more labor, more outlay in every way, and yet offer improvements in results.

In systemizing any business there are two ends: to be served, either the reduction of expenses by reducing the number of one's employees or by introducing such new ideas as will give more detail and thus enable the owner or manager to know just how each department of the business is doing—and often to show the remedy for loss where it occurs.

This development is the inevitable result of the great competition of modern business and the great need of keeping down costs without impairing efficiency.

That this could not be accomplished by the old and antiquated methods in common use up to within the last twenty-five years was apparent to every man seeking to improve his business, and forge ahead into the front rank of commercial giants, with the result that brains and brawn have been developed to meet this demand, bringing into existence the system of units or "loose leaves." This principle permits of adaptability to meet to best advantage the changing conditions of business, giving the greatest amount of information in condensed form, in the least time and the most accurate manner.

For these reasons "Loose Leaf" methods are no longer an innovation, but are considered a necessary part of modern business and are fast displacing the cumbersome methods of the past.

There are several reasons for this:

1. The expansion of the loose leaf system is unlimited.
2. Unlimited classification is obtained.
3. The chances for mistakes are greatly reduced.
  1. The work can be divided among several clerks so as to accomplish it within a specified time.
  5. It permits the removal of all dead and useless matter.

These various points can be readily seen by studying in detail the "Loose Leaf" ledger.

All bookkeepers and accountants know that with any style of bound book certain accounts are bound to require more space than originally allotted to them when opening the book; rendering transfers from one part

of the ledger to another absolutely necessary. The "Loose Leaf" ledger with its unlimited expansion removes the necessity of re-opening accounts.

The use of one sheet for one account with the opportunity of adding as many sheets as may be found necessary for the continuance of the account without interfering with the other accounts is a desirable feature only obtained by a "Loose Leaf" system.

The one account always retains the same place in the ledger year after year; sheets as they become filled are balanced and removed to the transfer binder where they occupy the same relative position in which they appeared in the current binder.

Unlimited classification can be obtained by various methods of indexing. Accounts may be arranged alphabetically, sub-dividing A-Z index into as many divisions as required for the convenience of handling the accounts, taking into consideration the numbers of ledgers in use; some business houses derive greater benefit by indexing their ledgers by routes, territories, towns, salesmen, numerically, or any other plan suitable to the needs of the business.

By this elastic method a vast amount of time is saved in the posting; the charge sheets and cash items can be arranged previous to posting in the same order as the indexing of ledgers, thus rendering posting very rapid and removing practically all possibility of error.

Another great advantage is the reduction in the size of the ledger. It is not necessary to provide a large sheet for the long account as ample space is provided by the addition of extra leaves and by continually weeding out the closed or discontinued accounts, the size and weight of the book is reduced to a minimum.

The security of the system is obtained by a careful examination of the locking devices, the principle features of which are fully explained by the various inventors and manufacturers.

The fact that the most conservative banks, insurance companies, and mercantile houses are adopting "Loose Leaf" books is conclusive evidence that the principle is perfectly safe.

No manufacturer doing business to any great volume can afford to be without "Loose Leaf" systems. Those who do not have it do not know what they are missing and those who have it regret they did not have it long before. It is an absolute necessity and of invaluable assistance in business of moderate volume.

### Evolution in Office Equipment.

By J. M. PRICE IN OFFICE APPLIANCES.

Office system developments have worked marked changes in the modern office within the last decade, and where ten years ago the heads of large commercial establishments separated themselves from the outer world by a high roll top desk with its bewildering collection of pigeon holes and mass of accumulated papers, to-day the office manager uses the very unconventional flat top that was formerly in but small request.

Styles in office fittings change, to be sure, just the same as they change in all other things, but style has not had all to do with the change in the appearance of the modern office. In years gone by it was necessary for the office manager to collect large numbers of papers for ready reference immediately in front of him and when he sought any particular piece of information he found it necessary to go on an exploring expedition through the mass of accumulated matter before him.

The advent of the typewriter and the more modern methods of handling correspondence and office detail, has worked a marked change in everything that has to do with the transaction of office and general business.

To-day when a man desires to get into communication with another in a distant city or in his own city, for that matter, he uses a very different set of tools than formerly. If the person he wishes to reach lives or does business within the same town or immediate vicinity, he reaches out and grasps the ever ready telephone, mounted upon a moveable or adjustable arm or stand, and in the course of a few seconds is enabled to hold a personal conversation with the man or firm he desires to reach. If it is necessary that the conversation be held by reduced to record form, all he does is to lift up the mouthpiece of a flexible tube, press an electric button, tell what has transpired to an invisible force, and in a few minutes the record thus made is transcribed on a modern typewriter and put in a place for ready reference where it can be called up at any time and upon a moment's notice.

In communicating with a man or firm in a distant city, he uses either the mysterious tube and the invisible force or he presses an electric button and a young lady armed with a well sharpened pencil and a note book responds, and he tells her exactly what he

wants to convey to the man in the distant city and within a fraction of time she returns, with a written record of what he has said all carefully prepared on the firms' stationery ready to be entrusted to the postal authorities for careful and sure delivery. These are the wonders that the modern telephone, commercial graphophone and typewriter have worked in the world of business.

#### AN AGE OF WONDERS.

With these wonders have come other wonders, all of them simple but effective. Simplicity is the rule of modern business methods and simplicity must mark every detail of every device invented or sold for aiding the modern business man in the transaction of the daily grind of his business.

In the olden days the rows upon rows of pigeon holes, most of which were generally erroneously labelled, contained the whole record of all business transactions that went over the busy man's desk. The advent of the modern wonders of business worked a great change in this, so that to-day the pigeon hole and the roll top desk are fast being relegated to the realm of ancient things. The necessity of a safe place for referring to correspondence and valuable details, brought about other changes, and like evolutions of nature, office furniture lost useless appendages. The modern office desk has lost the almost useless appendage of pigeon holes and these have been replaced by the present day card systems and filing devices.

The modern typewriter increased the volume of papers and correspondence and forced the many changes that have come about. It has transpired that business men to-day transact several times as much business every hour than those of past generations transacted in several hours. The calls of the typewriter for an assistant brought about the invention of the modern office systems for filing papers and recording important facts.

To-day when a busy man wants to find the record of some transaction he presses an electric button, summoning a boy. The boy is told what is wanted. He proceeds to a cabinet in some secure section of the office, opens a small drawer, passes over a number of carefully arranged cards not much larger than the business cards used by the concern's representatives. He stops at one, takes a mental note of what he has seen, opens a larger drawer and in less time than it takes to tell it, returns to the desk with a bundle of papers, carefully arranged, containing a full and complete record of every phase and detail of the transaction in question.

#### PIGEON HOLES HAVE DISAPPEARED.

In the evolution of business, the pigeon holes have slowly disappeared. The lumbering old desk with its numerous places in which papers could be more easily lost than located, has given way to more modern and advantageous improvements. The maze of drawers before so much in evidence, have also been reduced to a bare half dozen. The mass of papers that formerly littered the bed of the desk are now conspicuous by their absence and in place of them is seen a neat desk blotter, a handsome ink set, a tickler file, a pad of paper and a calendar with a leaf for every day. A wire basket or two take up the surplus and the day's accumulations and another basket takes care of the mail to

be sent to the postoffice or dropped down the mail chute of the modern office building.

To-day every day's business is finished that day. The business of last week or last month that was to be taken up and disposed of to-day, is mechanically called to the busy man's attention by means of his tickler. This little device has saved probably more dollars, more temper and aided more in the proper transaction of business than almost any other one thing that has grown out of modern office evolution.

The busy man to-day has but to go about his daily tasks, taking up each day's business each day, never giving a single thought to anything but the present, when presto, the little tickler, automatically calls to his attention every day the work of that day, and then with the aid of his filing system, the modern typewriter and the card system, he is equipped to go ahead and accomplish business wonders that in the olden days of the lumbering roll top desk would have been an impossibility.

The manager of the modern office, the proprietor of the modern concern or the president of the present day corporation no longer sits shut off from the world by a mass of papers and a maze of pigeon holes. He does business in the open. He is seated in a swivel chair that allows him to take in every detail about him, get full advantage of the light directly upon the work in front of him, and at the same time he is transacting his business matters, he is enabled to see what is going on throughout his entire office.

Out of all of this modern, present day evolution the typewriter rises as the supreme creator of these wonderful changes. When this aid to modern business was first introduced, business men scoffed at it and turned the vendor from their doors with the statement that they could not be bothered taking so much time to their correspondence and adding to the office expense by hiring an operator. It was an uphill road for a long time for those who introduced this wonderful mechanism, but what is there to-day that has worked such a marked change in the manner of doing business that the typewriter has?

#### TYPEWRITER CAUSED CHANGES.

It is safe to say, that the present day

methods, the modern changes and the constantly improving effect of business evolution, started and has been carried forward by the typewriter. To-day simplicity is the demand. To-day simplicity takes the place of complication of days gone by. The old-fashioned, unsanitary office with its old-fashioned unsanitary, roll top desk and its ancient way of muddling things, with the attendant drawbacks and almost utter impossibility of locating papers when they were wanted; the slow ways of doing business and the general uncertainty of things are all changed. To-day business is done on facts. In days past it was done very much on faith. To-day every business transaction is carried through in the shortest possible time with the same care as a legal brief. Every detail is looked to most carefully, and every section of the business whatever it may be, is prepared and carried out in regular campaign order. Every paper, every piece of information and every fact regarding it is recorded as carefully as though the business man were a lawyer preparing a case before the bar. All these things are possible to-day because of the typewriter, the card system and modern filing devices, coupled with the various other improvements and inventions that of necessity grew out of the evolution of the modern typewriter. The modern flat top desk, displacing the old-fashioned, lumbering affair of years gone by, was and is a necessity. It had to come and it came. The general appearance and tenor of the modern office is in every way different from what it used to be. From the old idea of writing each letter slowly and carefully with a quill pen, depending upon the honesty and care of the other fellow, the almost impossibility of keeping papers where they could be called up when needed, the slow going system of every man attending not only to the things that concerned him most, but all of the details, has gone, never to return. With them had to go the old-fashioned roll top desk, and with the new order of things has come the modern flat top with few drawers, no pigeon holes and improved methods. These have been heralded by the typewriter, backed up by an army of cards, files and modern office equipment that have stormed the fortress of yesterday and established the modern methods of to-day.

## Foreign Trade not a Mail Order Business.

By WALTER H. COTTINGHAM.\*

The way to get business is to go after it. This applies to both domestic and foreign trade, but with particular force to the latter. You can't stay at home and expect letters, circulars, advertising, or even export agents to get the business for you. These methods are all useful and will help, but they are not sufficient to land the business. They don't go far enough. They are not direct enough. You must go out into the field yourself or send your own experienced, well-trained men—the very best men you have.

It is not an easy job, but a hard and dis-

couraging one, and this is one of the first lessons that every manufacturer intending to enter the export trade should learn. It is unfortunate for the reputation of the exporters of this country that so many manufacturers have rushed into this extremely difficult field with so little appreciation of the requirements and obstacles to be met and overcome.

The result of such hasty and immature action has usually been a half-hearted effort soon followed by discouragement and retirement from the field. This has so often happened that the foreigner has come to look upon us as lacking in determination and stability. He doesn't take us seriously, and very naturally hesitates to start

\* Mr. Cottingham is one of the brilliant Canadians who have risen to wide responsibility in the United States. His position as vice-president and general manager of the Sherwin-Williams Co., makes him an authority on the subject he discusses in this article.



his existing connections by making alliances that have so little guarantee of permanency.

The first thing, and the important thing, therefore, for any firm contemplating extending their business to foreign fields, is to carefully study the situation by sending out an experienced and competent representative to report on the ground. Find out what the trade requirements are, and what the competition is that you must meet. Then you can intelligently lay out your campaign, and not until then. There is no use going into the business unless you are willing to meet the special conditions and requirements that confront you. It is a waste of time and money to try to force goods and methods that, while they may be ever so successful at home, are untried to other lands.

I do not mean to say that we should not endeavor to create a demand for some article that is new, or introduce some methods that, while they are unknown, may be superior; but in doing so, it will still be necessary for us to adjust, as far as possible, our plans to suit first of all the dealer who handles the goods and then the customer whom we expect to use them. This means that our goods must be put up in packages or sizes according to the measure of the country, and they must be packed in cases that will stand the long, hard haul that they are subject to in reaching countries beyond the seas. Our labels and all advertising and printed matter must be printed in the language of the people we cater to. Our quotations and our invoices must be made in the currency that the trade use. Our correspondence should also be conducted in the language and style used by the people we address.

Then there is the matter of terms, freights, insurance and settlements. These are all of great consequence to the foreign buyer and have an important bearing on our transactions. Pains must be taken to select the quickest and cheapest transportation and to secure the most favorable rates, both for freight and insurance. Our terms should be as liberal as possible, and our banking arrangements must be simple and care taken that the charges are fair and reasonable. This is where the transportation companies and banking houses can give important assistance to their own advantage.

To carry out these special conditions means the establishing of a well organized and thoroughly equipped export department, managed by a staff who make a constant study of this particular and difficult business. The foreign trade is as different from the home trade as day is from night, and if this difference is not recognized and met, better not undertake it.

And right here let me give a little bit of advice to those who contemplate going into the export trade. Don't undertake it until you have completely exploited the possibilities of your home market. The home trade is best and most profitable, and the man who reaches out into foreign fields before he has made an entire success of the trade at his own door is unwise. At home you have only your fellow manufacturers to compete with. When you go abroad, you are in competition with the whole world, and to win in such a field you must be a world-beater; and, further, you are likely to spend a lot of money in seeking out and establishing a business in these far-away places where you get any profit out of it.

If you can't wait for results, you had better not start in.

I mention these things, not to discourage anyone, but think it may save some disappointments; and, as I have already said, it will be well for the American export trade if those who are not willing and able to stand by the undertaking and win at it, keep out of it.

One other point I would like to emphasize, and that is the importance of manufacturers establishing for their products a reputation for quality. We are comparatively new in the export business, and our goods and our methods are being closely scrutinized. We are on trial by discriminating buyers whose trade is sought by the principal manufacturers of the world. Our competitors are old in the business. They are in possession of the field, and will do all they can to hold possession of it. Many of them, especially the English exporters, after long years of experience, have established for themselves high and enviable reputations for their goods and for fair, square dealings. If we are going to supplant them, we must give better value, and, if possible, surpass them in their reputation for honesty and integrity.

#### PSYCHOLOGY AND PUBLICITY.

By WARWICK S. CARPENTER IN SELLING MAGAZINE.

The opening up of a new field of endeavor is almost invariably characterized by extensive experiments. Policies are mapped out and put into execution, and, in the light of the results obtained, they are subsequently modified or radically changed until gradually, out of the mass of experience, certain facts stand forth preeminently, and are recognized as fundamental principles. These interrelated facts constitute the beginning of a theory. To this general proposition advertising has proved no exception. Advertising is still in the formulative stage, but, nevertheless, sufficient progress has been made in the evolution of a theory to warrant the prediction that in the not distant future the art of successful advertising will rank as one of the branches of a new applied science. We are but just entering into an era that has already begun to show marked progress toward the application of the principles of psychology, and of its first cousin, sociology. That advertising is applied psychology is easily apparent.

#### HUMAN NATURE AND PSYCHOLOGY ARE ONE.

The people who foot the bills for extensive campaigns of advertising are now demanding reasons for the plans that are submitted to them, and they are no longer content with the old rules of thumb that have been the means of wasting countless appropriations. Upon what other grounds than those of human nature can the advertising engineer justify his plans? Successful advertising demands an exact knowledge of human nature, and here comes in psychology, for human nature, as it is understood by the advertiser, and psychology are one. The terminology that is used is of little importance, so long as no confusion and haziness arise.

#### GOING MORE THAN EYE DEEP—REACHING THE MIND.

Psychology is defined as the science of the mind, and it is solely to the mind that ad-

vertisements make their appeal. Many advertisers, however, do not realize the truth of this statement. They are psychologists nevertheless. "The successful advertisement," says one, "must attract the attention of the reader, and it must then appeal to him so strongly that he will be induced to purchase the goods there described." This is perfectly true, but in attempting to put it into effect by means of a knowledge of human nature obtained by rubbing casually against many men a large number of advertisers go hopelessly astray. The mind is a part of a very complex body, and to successfully influence it requires the same exact knowledge that a physician needs to treat disease. We should be horrified at the idea of calling in a blacksmith to perform the operation of trepanning a fractured skull. The work must be performed by a skilled specialist, who knows the part of the brain affected, the functions of the body that it controls, and the scientifically foreseen results of different methods of treatment. In advertising we have an exact analogy. All of our actions are determined by impressions that come to us from without, enter the brain, or the mind, along the nerves, and there set in motion machinery which for the purposes of the psychologist and the advertiser, can be as accurately and as scientifically described as can a modern three-phase motor.

#### KNOWING THE TOOLS AND HOW TO USE THEM.

There have been successful designers of machinery who have been absolutely ignorant of the rules of mechanics, and who could not have stated the laws of levers to save their lives. They have always been the exception, however, and will continue to be. The engineer must know the material with which he is working, must know its strength in pounds, and its elasticity. Then he must know what tools to use. Lastly, he must know how to use those tools. Success is in direct proportion to his familiarity with these three elements. How is it different with the advertising engineer? There have been brilliant writers and campaigners who have been utterly devoid of theory. There have been others who have achieved a measure of success because of certain dogmatic rules that they have picked up, so to speak, by experience in the shop. On the other hand, there have been many failures. The majority of the leaders, however, have succeeded because they knew their material, the mind, their tools, words and the printed page, and the way to utilize these resources.

#### THE ASSOCIATION OF IDEAS.

An illustration may serve to make this clearer. A firm advertises steam pumps by means of a picture of a cowboy lassoing a steer, and the words "HOLD ON. Do you know that — steam pumps are the most powerful, etc?" The writer of that advertisement realized that he must attract attention, but he did not appreciate the great effort that the mind of the reader must make to jump from a wholly irrelevant idea of a steer and a cowboy to that of a steam pump. He attracted attention, but in many cases he failed to hold it. Moreover, all men interested in steam pumps would look at an advertisement containing a picture of one, but they would not all stop at the cowboy.

Advertisements should make their strongest appeal to that sense which is intended to be satisfied by the goods displayed. "Rub your poor, tired, aching, swollen feet with Omega Oil." Can you not feel how your poor, tired, swollen feet are aching, and how soothing the oil is? Which of our senses is most strongly affected by machinery? Surely, sight is first. Then our reasoning faculty is stimulated, and the time is ripe for the intelligent use by the advertisement writer of the theory of association of ideas. A psychological study of the mechanical mind would lead to the throwing out of the irrelevant cuts and the glittering generalities, and the substitution of rational and scientific advertising.

An attempt has been made in writing the above to prove that advertising can be put upon a theoretically sound basis. If this article induces anyone to stop reasoning in the loose terminology of the street, and to go to the sources for a theory of advertising, it will have been well worth while.

#### THE VANTAGE POINT IN BUSINESS.

In closing a contract or settling a dispute it makes a difference whether you are in the other fellow's office or your own. The man in whose office a transaction takes place has the decided advantage.

If you have a disputed bill, or if you wish to make a contract for material, use every effort to get the other fellow in your office, advises W. C. Hunter in the Denver News. When you go to another's office you are on the aggressive; when another comes to your office you are on the defensive.

If you meet the other man at a hotel, club or place outside of either your office or the other man's office, then the vantage ground is even and neither has the best of it, so far as location is concerned. Starting from an even vantage ground the advantage shifts from 5 to 50 per cent. one way or another, according to whether you go to the man or the man comes to you.

Railroad officials, bankers and great merchants realize the importance of having the vantage ground in their favor. The merchant, for instance, has private rooms and regular office hours for his buyers, and he invites the manufacturers to come to him.

Stop a moment and look over your own experiences and you will recall numerous instances where it has been to your advantage to close the deal in your own place of business.

The army that attacks the enemy in the enemy's country has the odds against it, as all wars have proven. You can fight your battle much better on your own ground.

Whether you are buying or selling, try to close the deal in your own place of business if possible. If you have travellers on the road let it be part of their duty to invite and persuade customers to call at your place of business whenever they are in town.

You can make your point clearer, you can talk with more force, you can impress your customer better, if you stand and he is seated.

Have you ever noticed that when you are sitting and the other fellow is standing it puts you to a disadvantage?

How far would a life insurance man or an advertising solicitor get if they sat down and leaned back and relaxed while talking

to you? You will observe that the good solicitor declines the proffered chair with thanks. He stands up.

By the relation between his standing and your sitting down it makes him a positive force and you a negative force. An orator will lose his force if he delivers his oration in a sitting posture.

You can't combat argument sitting as well as standing. You can't convince sitting as well as standing.

When you call on a customer carry a busy air with you. Stand up. Talk straight from the shoulder. Make your point clearly. Place your position or proposition clearly, forcefully, and quickly before the customer, and make a quick get-away when you have accomplished your purpose.

If you don't land him the first time get away, anyway. Let him see your time is valuable, and that you appreciate that his time is valuable, too. Don't visit. Gracefully decline the chair that is offered you, saying limit of time and disinclination to trespass on the customer's time require that your stay be brief.

Stand, keep busy and active, and get out quickly.

The short stayer who stands up and does his talking is welcome next time. He may not land the first time, but he'll get there all right later on.

#### THE WORK FOR THE MANAGER.

To know what details mean—without having to watch them.

To direct details—without having to perform them.

This is the proper work, the purpose of every manager.—System.

#### KEEPING THEIR PLANS A SECRET.

Two young men were establishing a laundry business. One was an employee of an existing laundry and for obvious reasons did not want his connection with the new concern known until it was established, writes E. B. G. in System.

In order to prevent travelling salesmen from making a personal visit to the town and possibly "letting the cat out of the bag" all requests for information addressed to the supply houses contained an explanation of the circumstances and gave no address except a post-office box. Both the prospective partners had a very good opinion of a certain supply house. It had the best of reputation in every way and put out machinery which was as good as the best and better than most, while its prices were moderate. This firm at the outset stood a better chance of getting the order than any of its competitors.

The answers to the requests for catalogues were uniform—"Please let us send a representative"—"Our man will be at certain places on certain dates; when you are ready to see him wire him collect;" and so on; except the firm which originally held the lead. Its answer was in effect: "We don't send literature which costs us good money to unknown parties." Needless to say that firm did not sell the new laundry its first instalment of machinery, a \$2,500 deal; and moreover, ever will sell any.

## PUBLICATIONS.

### HIGHER ACCOUNTING.

Under the above title the Shaw Correspondence School have published a 16-page booklet giving information regarding a special course in higher accountancy, leading to the examinations in chartered accountancy prescribed by the Institute of Chartered Accountants of Ontario. The course will be under the direction of D. Hoskins, F.C.A. author and instructor and W. H. Sharpe, principal. Office managers would do well to suggest such a course to their book-keepers or to other members of their office staff who desire to become familiar with modern book-keeping methods.

### BUSINESS ORGANIZATION.

One of the most comprehensive books dealing with the management of modern industrial establishments has just been issued by the Macmillan Company of Canada, Toronto. The work is by Samuel E. Sparling, Ph.D., Assistant Professor of Political Science, University of Wisconsin. The writer covers a wide range of subjects. In the introductory chapters general principles are covered as well as the elements of organization and its legal aspects. In Part II, a chapter is devoted to factory organization, one to commercial organization and one to factory book-keeping. Part III. is devoted to distributive industries and touches on such matters as organization of selling forces, exchange travelling salesmanship and mail order business advertising, credits and collections. More attention will be given to this work in later issues. The price of the book is \$1.25.

### LOOSE-LEAF BOOK-KEEPING.

Owing to the need of special instructions to suit individual needs it is not easy to explain loose leaf book-keeping in a general work.

Yet Chas. A. Sweetland, in a book entitled "The Science of Loose Leaf Book-keeping and Accountancy," has covered the ground in a most instructive manner, explaining the principles that underlie the new methods of office work. Another feature that makes it valuable is the fact that it is practical and can be applied without the aid of an expert.

### THE HORSE.

A very attractive book with the above title, which contains suggestions for the proper care of the horse in and out of the stable, is published by the Joseph Dix Crucible Co., of Jersey City, N. J. The book will appeal to all who own or handle horses and will be sent free to those requesting a copy. Write the publishers at the above address.

Robert W. Hunt & Co., Chicago, have been appointed consulting engineers to the receivers of the Union Traction Co., Chicago and placed in direct charge of the lowering of the car tunnels under the Chicago River.

# FOR MANUFACTURERS



Our Systems for the handling of a manufacturing business have been tested and proved to be absolutely satisfactory. They simplify the handling of work, collecting details quickly in systematic form and condensing the results to simple totals which let you know at once how your business is prospering.

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### QUALITIES OF A GOOD SALESMAN.

R. T. CRANE, IN THE VALVE WORLD.

Some people seem to believe that a good salesman is one who is able to deceive, humbug, cheat and defraud the buyer, and this, aside from the question of morality, and considered only from the money-making point of view, may be true where the business is such that the seller does not expect to meet or sell to the same person a second time. We claim, however, that any enterprise which is conducted in that manner is not entitled to the dignity of being classed as a business, for it is nothing more than a swindle.

We maintain that in an ordinary business it is not good policy for salesmen to practice the slightest deception, and one of the first things that we require of our men is that they shall be absolutely honest, frank and fair in their treatment of our customers. We think the value to a salesman of having these qualities appear in his every feature and action and suggested by every word that he utters cannot be overestimated.

Every purchaser is, we believe, desirous of dealing with a house that supplies honest goods at honest prices, that carries stocks in sufficient variety and quantity to take care of his requirements without delay, and where he can be sure of always obtaining the same line of goods.

It is a great relief to a buyer when he finds such a concern, and he should at once see that it is to his interest to confine his dealings to that house, as he is usually so fully occupied in looking after the other portions of his work that he cannot afford to spend his time endeavoring to ascertain whether he has been defrauded either in the quality of goods or in prices.

#### TRADE ONLY WITH RELIABLE FIRMS.

From our own experience, we know it is a great satisfaction, when purchasing goods, to feel that we are dealing with a house having such a reputation. In fact, we have made it a rule to trade only with concerns of that kind.

For a firm to gain and maintain a reputation for fair dealing, it is not enough for the firm itself to be honest, but the policy of the house must be reflected by the salesmen, who, in many cases, are the only persons connected with the firm the trade ever meet. Hence the importance of having salesmen of good character, who, in soliciting business, make only such statements as the house can live up to. It is apparent, therefore, that an honest concern cannot afford to employ untruthful salesmen, as nothing will cause it greater injury than to have such men out among the trade.

On the other hand, a house selling inferior goods needs salesmen who can and will lie sufficiently to conceal the inferiority beneath a cloak of plausible phrases. Therefore, when we find by experience a salesman whose statements are always correct, and who will not stoop to misrepresentation, we are convinced that his house is honest and reliable, and are disposed to give him our business.

For a salesman to impress the trade in this way involves something more than simply refraining from lying. He must confine himself to what he knows to be true, neither deliberately lying, nor mixing up guesses, opinions and facts in such a way as to deceive or mislead the customer, who, after having discovered a deception, can rarely be sold

to again by the salesman, with the result that the house loses a customer.

#### SALESMEN MUST KNOW GOODS.

Many salesmen are apt to be slovenly and careless in their replies to questions, sometimes possibly with the intention to deceive, but probably many more times for the purpose of concealing their ignorance on the subject about which they are questioned. This is a practice that we most strongly condemn. We very much prefer that our men shall acknowledge their ignorance to the customer and suggest to him that he apply to the house for information, if the matter is of sufficient importance to take that trouble. While salesmen are not expected to give customers unusual or technical information, still it is exceedingly desirable that they should have an extensive knowledge of the goods they are handling so as to be able to describe their goods and answer questions likely to be asked.

Occasionally a salesman is asked his opinion as to market conditions. Our salesmen are instructed not to give any opinion in the matter of prospective rise or fall in prices, as in our judgment salesmen are not in a position to be reliably informed as to the prospective trend of prices, and we cannot afford to have them deceive or mislead the trade in this way, any more than we can afford to have them misrepresent the quality of our goods. In any event, we do not care to encourage our customers to gamble on the market. However, if customers have contracts on which they would stand to suffer loss if prices were advanced, we feel that it would not be at all improper for our salesmen as a matter of safety to the customers, to recommend that they place orders to cover such contracts.

#### CUT OUT TREATING HABIT.

One mistake that salesmen frequently make is to urge an audience with a man when he is busy, thereby annoying him so that he will not give them a proper reception. Besides being tactful, it goes without saying that salesmen should be men of good address and affable in manner.

Another feature of the subject which some of the older people in business will remember was a common practice in the past, was the custom of drinking and carousing with customers. In those times some dealers kept a bar in their stores, others would have jugs or bottles of whisky on hand for their customers, and it was looked upon as being rather necessary for salesmen to take people out and entertain them by drinking and carousing with them in order to hold their trade.

We are pleased to be able to state that this practice has almost totally disappeared, business now being transacted more strictly on the basis of merit than was formerly the case. We laid down the rule years ago that if a man's trade could not be obtained without having our salesmen dissipate with him, we did not want it at all.

#### THE RISE OF A CIGAR KING.

Don Gustavo Bock, the dean of the Havana cigar manufacturers, landed in that city nearly fifty years ago, from Germany, with a few marks in his pocket. Cuba's one manufactured product was then undeveloped in foreign markets. The Cubans made up rough breva cigars, packed them fifty in a box and sent them chiefly to their cousins

in Spain and South America. There were gold bands, no fancy ribbons, no neat boxes. The German had worked in an export house in the Fatherland and saw possibilities for more attractive goods and wider sales. Eventually he got enough capital to start a small cigar factory and began to turn out goods in neat boxes, packed twenty five to the box. His cigars had neater shapes and gold bands. Some were wrapped in tin to withstand moisture at sea or keep them in climates. The older Havana manufacturers laughed at them. Nobody would have seen such ladylike goods to Spain.

But the young German had in view markets other than Spain. First he placed goods with cousins in Germany, and sales were made. Then he cast an eye straight north to New York. Samples were sent to jobbers in the United States, but none of them showed interest in Cuban cigars. The demand was large, they said, the prices were high, there were heavy import duties, and American tastes had been educated to domestic tobacco. The Don still thought Yankee smokers would develop a fondness for his product, but could not convince the jobbers.

When arguments and samples failed to turn a neat Spanish trick.

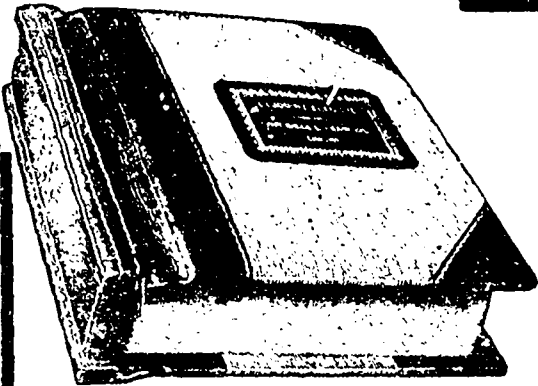
An extremely fancy consignment of goods was shipped to a big New York jobber without his knowledge. The cigars were packed in small, showy boxes. They were hardly on the steamer before somebody whispered to the revenue officers at New York that a big consignment of Havana cigars was coming up at a false valuation. The jobber to whom they were consigned denied all knowledge of the shipment, of course, and so the lot was seized forthwith. Eventually they were sold for duties. Word got around New York of bargains in Havanas, with the result that the buyers were men who wanted a trial box. Every box had the Don's label.

"After that they went fine in the United States," he says.

A comfortable trade was building itself up in London, where an educated public in the Don's understanding of the term—that is, a public that knows a good cigar—was giving the new manufacturer a following. So he turned next to France as a prospective market.

France had her tobacco monopoly and made her own cigars. The introduction of a new brand through official sources meant years of red tape. French tobacco is notoriously rank, but the public in France knew no better and was content. The Don set out to make the French people discontented. A grand dinner of journalists from every part of France was to be held in Paris. Don Gustavo saw that at each plate a box of twenty-five Havanas was placed, duly labeled. The odor of smoke that arose at the end of this dinner eventually became more troublesome to the French Government than some of its little war clouds.

Within a week the newspapers of France were asking why their government did not put on sale the superlative cigars of Monsieur Bock. They attacked the government's cigars, and the subject was one that obviously furnished its own humor. The sharpest point in France drove home the points, and within a few months the authorities stocked up with the Don's goods. Fully forty years have passed since then, but the Don, who is still active in Havana, has maintained his foothold both in the United States and France—Saturday Evening Post.



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As an investigation is usually productive of much general good. We would like to have you investigate the superior merits of, and the many advantages gained by using

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The chief advantage claimed for it is the great saving of time and labor. There are many more which this space prevents our describing. It costs less to keep up than bound books and is much more easily handled.

Drop us a card and we will mail you full descriptive circulars, catalogues, prices, etc. We feel quite certain you would be benefitted by the investigation.



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The more work you can get from your employees, the less their time costs you—any business man knows that.

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Business Systems will so lessen the time consumed with the books that your office staff will have twice their present capacity.

Business Systems will point out to you the men who are making good in your factory—no guess work about it.

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## New Customs Tariff and Regulations

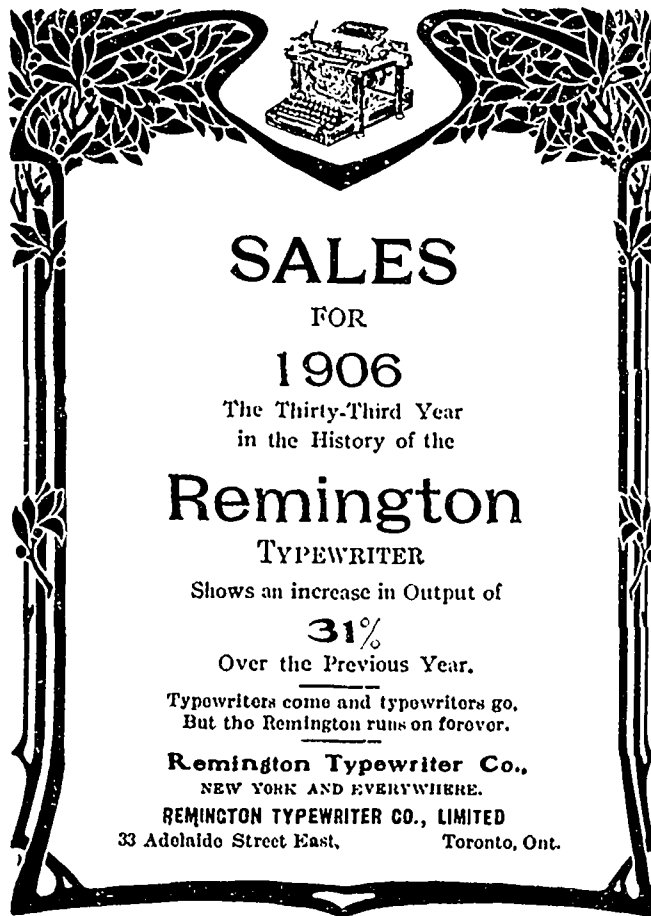
WE ARE PUBLISHING A COMPLETE GUIDE  
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The Thirty-Third Year  
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TYPEWRITER  
Shows an increase in Output of  
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Typewriters come and typewriters go.  
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## YOUR FACTORY COST SYSTEM.

### What Is Its Basis?



**THE CALCULAGRAPH**  
DOES NOT GUESS  
DOES NOT ESTIMATE  
DOES NOT FORGET  
DOES NOT MAKE CLERICAL ERRORS

As the stability of a building depends on the soundness of its foundation, so a factory cost system depends on the accuracy of the records on which it is based.

If you depend on your workmen for these records they must be full of errors—not necessarily intentional.

## THE CALCULAGRAPH

is a machine which makes original records of working time with absolute mechanical accuracy.

Such records make a reliable foundation for, and are adaptable for use in connection with, any system of finding costs of factory products.

The **CALCULAGRAPH** is the only machine in the world which mechanically subtracts the time of day a workman begins from the time of day he stops and prints his actual working time.

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Highest grade of Hoisting Rope made.

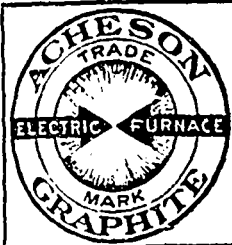
Extra Tensile Strength for heavy work.

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ACHESON-GRAPHITE ELECTRODES. Best for Furnace Work

Works at NIAGARA FALLS, ONT.

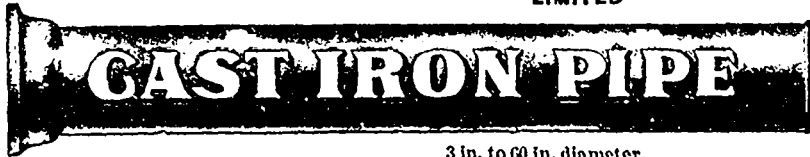
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WATER WORKS SUPPLIES    HAMILTON, ONT.

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QUEEN CITY PLATE GLASS AND MIRROR CO., Limited, every description of glass for buildings, 213 Victoria street, Toronto.

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LEATHER BELTING - We are the largest manufacturers of leather belting in Canada. Saddle & Haworth, Toronto and Montreal.

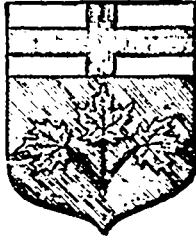
## ROOFING MATERIALS

ROOFING READY FOR USE - With cement caps and nails; easily applied; write for particulars. Eureka Asbestos Co., Toronto.

ARCHITECTURAL SHEET METAL Manufacturers' fireproof metallic ceiling, siding, shingles, lathing, windows, doors, skylights, cornices, moldings, ventilators, corrugated iron, zinc ornaments. The Metallic Roofing Co., Limited, Toronto; telephone Park eight hundred.

## INDUSTRIAL CENTRES

NIAGARA AND CATARACT POWER gives Welland cheapest electric lighting in Canada; manufacturers investigate our power, lake shipping and five railways. Write Board of Trade, Welland.



## Tenders for Pulpwood Concession.

Tenders will be received by the undersigned, up to and including the eighth day of March next, for the right to cut the Pulpwood on a certain area, in the District of Nipissing, north of the Townships of Holmes, Bart, Eby, Otto, Boston, etc., and immediately west of the interprovincial boundary line.

Tenderers should state the amount they are prepared to pay as Bonus, in addition to such dues as may be fixed, from time to time, for the right to operate a pulp or pulp and paper industry on the area referred to. Successful Tenderers will be required to erect mills on the territory, or at some other place approved by the Lieutenant-Governor in Council, and to manufacture the wood into pulp in the Province of Ontario.

Parties making tenders will be required to deposit with their tender, a marked cheque, payable to the Treasurer of Ontario, for ten per cent. of the amount of their tender, to be forfeited in the event of their not entering into agreement to carry out the conditions, etc. The highest or any tender not necessarily accepted.

For particulars as to description of territory, capital required to be invested, etc., apply to the undersigned.

F. COCHRANE,  
Minister of Lands, Forests,  
and Mines.

Toronto, December 29th, 1906.

No unauthorized publication of this notice will be paid for.

Have you a Boiler, an Engine or any Machinery or Factory Equipment to sell? Here's the paper and the page.

## H. W. PETRIE'S LIST

### Horizontal Stationary Tubular Boilers.

	Approx. H.P.
72"x14", 114 3/4" tubes, plug hat dome	125
60"x17", 6", 54 1/4" tubes, plug hat dome	85
63"x14", 6 1/4" tubes, plug hat dome	80
60"x13", 9", 84 3/4" tubes, plug hat dome	75
60"x15", 4", 80 3/4" tubes, plug hat dome	75
60"x12", 7 1/4" tubes, plug hat dome	60
56"x14", 4", 64 3/4" tubes, plug hat dome	65
56"x12", 6 3/4" tubes, plug hat dome	55
48"x13", 6", 44 3/4" tubes, plug hat dome	50
48"x15", 6", 52 3/4" tubes, plug hat dome	45
46"x13", 5 3/4" tubes, plug hat dome	45
48"x13", 10", 52 3/4" tubes, plug hat dome	45
48"x13", 6", 42 3/4"x12" tubes, manhole dome	40
44"x13", 9", 45 3/4"x12" tubes, plug hat dome	40
44"x14", 5 1/4" tubes, plug hat dome	40
44"x14", 6", 40 3/4" tubes, plug hat dome	36
44"x12", 4 3/4" tubes, plug hat dome	35
44"x11", 9", 42 3/4" tubes, manhole dome	35
44"x11", 6", 43 3/4" tubes, manhole dome	35
44"x11", 4", 46 3/4" tubes, manhole dome	35
44"x11", 3", 36 3/4" tubes, manhole dome	30
40"x12", 2 1/4" tubes, no dome	30
38"x13", 3 1/4" tubes, plug hat dome	28
38"x13", 3 3/4" tubes	25
38"x12", 2 3/4" tubes, manhole dome	25
36"x12", 2 3/4" tubes, plug hat dome	25

### Throttling Governor Engines, Horizontal

	Approx. H.P.
20" x 24" plain slide valve, R. Hd.	225
16" x 24" rocking slide valve, L. Hd.	100
15 1/2" x 24" plain slide valve, L. Hd.	100
12" x 24" plain slide valve, R. Hd.	75
12" x 16" plain slide valve, L.H.	50
11" x 24" plain slide valve	50
10" x 24" plain slide valve, L. Hd.	45
9" x 22" plain slide valve, R. Hd.	45
10" x 12" plain slide valve, L.H.	25
9 1/2" x 10" centre crank, Dutton, NEW	20
9 1/2" x 18" M. Mowry	22
8 1/2" x 12" plain slide valve	20
9" x 10" Leonard centre crank	20

### Centrifugal and Rotary Pumps

	Capacity, Gals. per m.
New No. 6 Northey, vertical centrifugal	900
No. 6 Horizontal Centrifugal, Morris	1050
No. 5 Horizontal Centrifugal, Morris	470
No. 3 Vertical Centrifugal, Morris	260
New No. 0 Taber Rotary Pump	100
New No. 2 Taber Rotary Pump	250
No. 0 Taber rotary pump	100
No. 0002 Taber rotary pump	25

Machinery Headquarters

## H. W. PETRIE

Front Street W., TORONTO  
St. James Street, MONTREAL

## NOTICE TO CONTRACTORS

### TENDERS FOR PUMPING

### ENGINE AND BOILER FOR SAME

Tenders will be received, by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to noon on Tuesday, March 5, 1907, for the construction of a one million imperial gallon compound double pumping engine, also boiler for same, to be erected at the Island waterworks pumping station, Toronto.

Envelopes containing tenders must be placed marked on the outside as to contents. Specifications may be seen and forms of tenders obtained at the office of the City Engineer, City Hall, Toronto.

The usual conditions relating to tenders as prescribed by city by-law, must be strictly complied with, or the tenders may not be entertained. The lowest or any tender not necessarily accepted.

E. COATSWORTH, (Mayor)  
Chairman Board of Control

City Hall, Toronto, Feb. 1, 1907.

## MARINE ENGINES FOR SALE

Tenders will be received by either of the undersigned up to and including February 22nd inst. for four fore and aft marine engines of the following dimensions, respectively:-

Diameter of cylinder, inches.	Stroke, inches.	Shaft weight, lb.
6-12	9	320
7-14	10	400
8-16	12	500
9-18	12	600

Preference will be given to tenders for all the engines, and neither the highest tender for any tender necessarily accepted.

These engines are absolutely new, being on the premises occupied by the Goderich Engine & Bicycle Company, Limited, Goderich, when they were built, and where they may now be inspected.

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Gives liquid steel at 500° F. anywhere in half a minute.

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 STAMP MANUFACTURERS  
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 Write us. ENGRAVERS  
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**TYPEWRITER FOR SALE**  
 Second-Hand Remington Typewriter in good repair. Cheaper than renting. Let us send you samples of its work.  
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THE . . . . .  
**Toronto Paper Manufacturing Co.,**  
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 Manufacturers of Engine Sized Superfine Papers, White and Tinted Book Papers, Blue and Cream Laid and Wove Foolscaps, Account, Envelope and Lithographic Papers, etc.

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# Classified Index for Lines Sold by Advertisers

All advertisers are invited to send in full list of lines sold by them. We desire to keep this index thoroughly up-to-date, but this will be impossible unless each advertiser sees to it that he is represented under each heading he is entitled to.

<p><b>Abrasives</b> Williams, A. R. Machinery Co., Toronto.</p> <p><b>Accountants</b> Nell &amp; Postlethwaite, Toronto. Viau, Henri, Montreal.</p> <p><b>Acids</b> Canada Chemical Co., London, Ont. Nichols Chemical Co. of Canada, Montreal.</p> <p><b>Air Compressors</b> Allis-Chalmers-Bullock, Limited, Montreal. Canada Foundry Co., Toronto. Canadian Rand Drill Co., Sherbrooke, Que. Dwelling Bros., Montreal. Smart-Turner Machine Co., Hamilton, Ont.</p> <p><b>Alum</b> Nichols Chemical Co. of Canada, Montreal.</p> <p><b>Aluminum</b> Northern Aluminum Co., Pittsburg, Pa. Syracuse Smelting Works, Montreal.</p> <p><b>Angles, Beams and Girders</b> Bourne-Fuller Co., Cleveland, Ohio. Canada Foundry Co., Toronto. Nova Scotia Steel &amp; Coal Co., New Glasgow, N.S.</p> <p><b>Aniline Colors and Dyewood Extracts</b> Benson, W. T. &amp; Co., Montreal. Brunner, Mond &amp; Co., Norwich, England. Canada Chemical Mfg. Co., London, Ont. Casella Color Co., New York City. McArthur, Corneille &amp; Co., Montreal. Nichols Chemical Co. of Canada, Montreal. Winn &amp; Holland, Montreal.</p>	<p><b>Annealing Muffles and Furnaces (Wire)</b> Leslie, A. C. &amp; Co., Montreal. Turner, Vaughn &amp; Taylor Co., Cuyahoga Falls, Ohio.</p> <p><b>Antimony</b> Syracuse Smelting Works, Montreal.</p> <p><b>Anvils and Vises</b> Leslie, A. C. &amp; Co., Montreal.</p> <p><b>Architects</b> Parke, R. J., Toronto.</p> <p><b>Automatic Gear Cutting Machines</b> Becker-Brainard Milling Machine Co., Hyde Park, Mass.</p> <p><b>Axles</b> Nova Scotia Steel &amp; Coal Co., New Glasgow, N.S.</p> <p><b>Babbitt Metal</b> Petrie, H. W., Toronto. Syracuse Smelting Works, Montreal.</p> <p><b>Banks</b> Bank of Hamilton, Hamilton, Ont.</p> <p><b>Bar Iron and Steel</b> Bourne-Fuller Co., Cleveland, Ohio. Leslie, A. C. &amp; Co., Montreal. London Rolling Mills, London, Ont. Union Drawn Steel Co., Hamilton, Ont.</p> <p><b>Belt Dressing</b> Petrie, H. W., Toronto. Sadler &amp; Haworth, Montreal and Toronto. Williams, A. R. Machinery Co., Toronto.</p>	<p><b>Belt Fasteners</b> Bristol Co., Waterbury, Conn. McLaren, D. K., Montreal and Toronto. Petrie, H. W., Toronto. Sadler &amp; Haworth, Montreal and Toronto. Williams, A. R. Machinery Co., Toronto</p> <p><b>Belting (Cotton)</b> Dominion Belting Co., Hamilton, Ont. McLaren, D. K., Montreal and Toronto. Petrie, H. W., Toronto. Sadler &amp; Haworth, Montreal and Toronto.</p> <p><b>Belting (Leather)</b> McLaren, D. K., Montreal and Toronto. Petrie, H. W., Toronto. Sadler &amp; Haworth, Montreal and Toronto. Williams, A. R. Machinery Co., Toronto.</p> <p><b>Belting (Rubber)</b> Gutta Percha &amp; Rubber Mfg. Co., Toronto McLaren, D. K., Montreal and Toronto. Petrie, H. W., Toronto. Sadler &amp; Haworth, Montreal and Toronto.</p> <p><b>Belting and Supplies</b> Bristol Co., Waterbury, Conn. Dominion Belting Co., Hamilton, Ont. Gutta Percha &amp; Rubber Mfg. Co., Toronto Jeffrey Mfg. Co., Columbus, Ohio. McLaren, D. K., Montreal and Toronto. Petrie, H. W., Toronto. Williams, A. R. Machinery Co., Toronto.</p> <p><b>Blast Furnace Brick</b> Dunbar Fire Brick Co., Pittsburgh, Pa. Elk Fire Brick Co., St. Mary's, Pa. Hamilton Facing Mill Co., Hamilton, Ont. Harbison-Walker Refractories Co., Pittsburg, Pa. Pennsylvania Fire Brick Co., Beech Creek, Pa. Queen's Run Fire Brick Co., Lock Haven, Pa. Stowe-Fuller Co., Cleveland, Ohio.</p>
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**CLASSIFIED INDEX.**

(CONTINUED).

**Blowers**

Hamilton Facing Mill Co., Hamilton, Ont.  
Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

**Boiler Compounds**

Canada Chemical Mfg. Co., London, Ont.  
Hamilton Facing Mill Co., Hamilton, Ont.

**Boiler Inspection**

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

**BOILERS (See Engines and Boilers)****Bolts and Nuts**

London Rolling Mills, London, Ont.  
Moraw, John, Screw, Limited, Ingersoll, Ont.

**Building and Paving Brick**

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

**Building Iron and Steel**

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

**Builders' Materials**

Albert Mfg. Co., Hillsboro, Ont.  
Canada Foundry Co., Toronto.  
Conduits Company, Limited, Toronto.  
Expanded Metal & Fireproofing Co., Toronto.  
Gartshore, John J., Toronto.  
Metallic Hoofing Co., Toronto.  
Pedlar People, Oshawa, Ont.  
Sheldons, Limited, Galt, Ont.

**Burlap (Decorative)**

Dominion Oil Cloth Co., Montreal.

**Business Methodizers**

Viau, Henri, Montreal.

**Cables**

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

**Canada Plates**

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

**Caps**

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

**Card Clothing**

McLaren, D. K., 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)

Jencks Machine Co., Sherbrooke, Que.  
Kerr Engine Co., Walkerville, Ont.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
McKinnon Dash & Metal Works Co., St. Catharines, Ont.  
Maxwell, David & Sons, St. Mary's, Ont.  
Smart-Turner Machine Co., Hamilton, Ont.

**Cement Machinery**

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

**Centrifugal Pumping Machinery**

Morris Machine Works, Baldwinsville, N.Y.  
Smart-Turner Machine Co., Hamilton, Ont.

**Chain Making Machinery**

(Welded Coll Chain)

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

**Channels**

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

**Charcoal Pig Iron**

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

**Chemicals**

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

**Chemists**

Heys, Thomas & Son, Toronto.

**Clay Working Machinery**

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

**Coal, Coke and Charcoal.**

Bourne-Fuller Co., Cleveland, Ohio.  
Hamilton Facing Mill Co., Hamilton, Ont.

**Coal Cutting Machines**

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

**Coal Tipples**

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

**Coll Chains**

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

**Coke Oven Brick**

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

**Collection Agency**

Petrie, H. D., Hamilton, Ont.

**Collectors (Pneumatic)**

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

**Condensers**

Smart-Turner Machine Co., Hamilton, Ont.

**Conduits (Interior)**

Conduits Company, Limited, Toronto.

**Connecting Rods.**

Canada Forge Co., Welland, Ont.

**Contractors' Machinery**

Allis-Chalmers-Bullock, Limited, Montreal.  
Gartshore, John J., Toronto.  
Jencks Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Smart-Turner Machine Co., Hamilton, Ont.

**Contractors' Plants**

Allis-Chalmers-Bullock, Limited, Montreal.  
Jencks Machine Co., Sherbrooke, Que.  
Petrie, H. W., Toronto.  
Smart-Turner Machine Co., Hamilton, Ont.  
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.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Perrin, William R. & Co., Limited, Toronto.  
Smart-Turner Machine Co., Hamilton, Ont.

**Copper Materials**

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

**Corrugated Iron**

Metallic Hoofing Co., Toronto.  
Pedlar People, Oshawa, Ont.

**Covers**

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

**Cranes (Electric and Hand Power)**

Smart-Turner Machine Co., Hamilton, Ont.

**Crankshafts**

Canada Forge Co., Welland, Ont.

**Crayons**

Lowell Crayon Co., Lowell, Mass.

**Crucibles**

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

**Crucible Caps**

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

**Crucible Covers**

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

**Cutter Grinding Machines**

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

**Dashes**

McKinnon Dash & Metal Works Co., St. Catharines, Ont.

**Dies (Socket, Sewer Pipe and Tile)**

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

**Directories**

Kelly's Directories, Limited, Toronto

**Draw Benches (Wire)**

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

**Dredges**

Allis-Chalmers-Bullock, Limited, Montreal.

**Drill Chucks**

Krug & Crosby, Hamilton, Ont.

**Drills**

Allis-Chalmers-Bullock, Limited, Montreal.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Petrie, H. W., Toronto.

**Drills (Pneumatic and Rock)**

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

**Drop Forgings**

Globe Machine & Stamping Co., Cleveland, Ohio

**Drop Forging Dies**

Globe Machine & Stamping Co., Cleveland, Ohio.

**Dry Battery Filler**

International-Acheson-Graphite Co., Niagara Falls, N.Y.

**Dry Kiln Apparatus**

Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

**Dust and Shavings Separators**

Sheldons, Limited, 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.  
McArthur, Corneille & Co., Montreal.  
Nichols Chemical Co. of Canada, Montreal.  
Winn & Holland, Montreal.

**DYNAMOS (See Motors and Dynamos)****Electric Meters and Transformers**

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.

**Electric Transformers**

Allis-Chalmers-Bullock, Limited, Montreal.

**Electrical Supplies**

Bristol Co., Waterbury, Conn.  
Canadian General Electric Co., Toronto

# CLASSIFIED INDEX.

(CONTINUED)

Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Electrical Construction Co., London, Ont.  
Forman, John, Montreal.  
Jones & Moore Electric Co., Toronto.  
Packard Electric Co., St. Catharines, Ont.  
Toronto & Hamilton Electric Co., Hamilton, Ont.

## Electrodes

International-Acheson-Graphite Co., Niagara Falls, N.Y.

## Elevators and Conveyors

Darling Bros., Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Jenckes Machine Co., Sherbrooke, Que.

## Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

## Emery and Emery Wheels

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

## Engineers (Chemical)

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

## Engineers (Civil)

Parke, R. J., Toronto.

## Engineers (Consulting)

Aitken, K. L., Toronto.  
Electrical Construction Co., London, Ont.  
Fensom, C. J., Toronto.  
Hunt, Robert W. & Co., Chicago, Ill.  
Marion & Marion, Montreal.  
Parke, R. J., Toronto.  
Perrin William R. & Co., Limited, Toronto

## Engineers (Contracting)

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

## Engineers (Electrical)

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

## Engineers (Mechanical)

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

## Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.  
Smart-Turner Machine Co., Hamilton, Ont.

## Engineers (Mining)

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

## Engineers and Contractors

Jeffrey Mfg. Co., Columbus, Ohio.  
Jenckes Machine Co., Sherbrooke, Que.  
Smart-Turner Machine Co., Hamilton, Ont.

## Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.  
Babcock & Wilcox, Limited, Montreal.  
Canada Foundry Co., Toronto.  
Goldie & McCulloch Co., Galt, Ont.  
Jenckes Machine Co., Sherbrooke, Que.  
Morris Machine Works, Baldwinville, N.Y.  
McDougall, John, Caledonian Iron Works Co., Montreal.

Petrie, H. W., Toronto.  
Robb Engineering Co., Amherst, N.S.  
Sheldons, Limited, Galt, Ont.  
Smart-Turner Machine Co., Hamilton, Ont.  
Sturtevant, B. F. Co., Boston, Mass.  
Williams, A. R. Machinery Co., Toronto.

## Engravers

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

## Exhaust Fans

Hamilton Facing Mill Co., Hamilton, Ont.  
Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

## Exhaust Heads

Darling Bros., Montreal.  
Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Hyde Park, Mass.

## Exhausters

Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Hyde Park, Mass.

## Factory Sites

(See Factory Locations, page 31.)

## Fans

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

## Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.  
Darling Bros., Montreal.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Pittsburg Filter Mfg. Co., Pittsburg, Pa.  
Robb Engineering Co., Amherst, N.S.  
Smart-Turner Machine Co., Hamilton, Ont.

## Feed Water Purifiers

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

## Files

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

## Fillot (Pattern)

Hamilton Facing Mill Co., Hamilton, Ont.  
Sadler & Haworth, Montreal and Toronto.

## Filters (Oil)

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

## Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.  
Jenckes Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Pittsburg Filter Mfg. Co., Pittsburg, Pa.

## Financial

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

## Finials

Metallic Roofing Co., Toronto.  
Pedlar People, Oshawa, Ont.

## Fire Brick and Clay

Dunbar Fire Brick Co., Pittsburg, Pa.  
Elk Fire Brick Co., St. Mary's, Pa.  
Hamilton Facing Mill Co., Hamilton, Ont.  
Harbison-Walker Refractories Co., Pittsburg, Pa.  
Pennsylvania Fire Brick Co., Beech Creek, Pa.  
Queen's Run Fire Brick Co., Look Haven, Pa.  
Stowe-Fuller Co., Cleveland, Ohio.

## Fire Escapes

Darling Bros., Montreal.

## Fireproof Partitions

Metallic Roofing Co., Toronto.  
Pedlar People, Oshawa, Ont.

## Flour Mill Machinery

Allis-Chalmers-Bullock, Limited, Montreal.  
Goldie & McCulloch Co., Galt, Ont.

## Forges and Blowers

Canada Foundry Co., Toronto.  
Hamilton Facing Mill Co., Hamilton, Ont.  
Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

## Forgings

Canada Forge Co., Welland, Ont.

## Founders

Canada Foundry Co., Toronto.  
Goldie & McCulloch Co., Galt, Ont.  
Jenckes Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Robb Engineering Co., Amherst, N.S.  
Smart-Turner Machine Co., Hamilton, Ont.

## Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.  
International-Acheson-Graphite Co., Niagara Falls, N.Y.

## Fuel Economizers

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

## Furniture (Lodge, Opera and School)

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

## Galvanizing

Ontario Wind Engine & Pump Co., Toronto.

## Galvanizing and Tinning Machinery and Furnaces (Wire)

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

## Gas Blowers and Exhausters

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

## Gas and Gasoline Engines

Economic Power, Light & Heat Supply Co., Toronto.  
Morrison, T. A. & Co., Montreal.  
Smart-Turner Machine Co., Hamilton, Ont.

## Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

## Gauges (Steam)

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

## Gauges (Water)

Babcock & Wilcox, Limited, Montreal

## Generating Sets

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

## Generators

Allis-Chalmers-Bullock, Limited, Montreal.  
Canadian General Electric Co., Toronto.  
Canadian Westinghouse Co., Ltd., Hamilton, Ont.  
Electrical Construction Co., London, Ont.  
Forman, John, Montreal.  
Jeffrey Mfg. Co., Columbus, Ohio.  
Jones & Moore Electric Co., Toronto.  
Phillips, Eugene F., Electrical Works, Montreal  
Toronto & Hamilton Electric Co., Hamilton, Ont.

## Gloves, Mittens and Moccasins

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

## Government Notices

Factory Inspectors.  
Minister of Agriculture.

## Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.  
Hamilton Facing Mill Co., Hamilton, Ont.  
International-Acheson-Graphite Co., Niagara Falls, N.Y.  
McCullough-Dalsell Crucible Co., Pittsburg, Pa.

## Hack Saws

Krug & Crosby, Hamilton, Ont.

## Hames

McKinnon Dash & Metal Works Co., St. Catharines

## Hardware

Butterfield & Co., Rock Island, Que.  
Gartshore, John J., Toronto.  
Globe Machine & Stamping Co., Cleveland, Ohio.  
Morrow, John, Screw, Limited, Ingersoll, Ont.

## Heating and Ventilating Apparatus

Darling Bros., Montreal.  
Sheldons, Limited, Galt, Ont.  
Sturtevant, B. F. Co., Boston, Mass.

## High Pressure Blowers

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

## Hoisting Engines

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

## Holsts (Chain and Pneumatic)

Canadian Rand Drill Co., Sherbrooke, Que.

## Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.

## Hydrants

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

## Hydraulic Accumulators

Jenckes Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Perrin, Wm. R. & Co., Limited, Toronto.  
Smart-Turner Machine Co., Hamilton, Ont.

## Hydraulic Machinery

Allis-Chalmers-Bullock, Limited, Montreal.  
Canada Foundry Co., Toronto.  
Darling Bros., Montreal.  
Jenckes Machine Co., Sherbrooke, Que.  
McDougall, John, Caledonian Iron Works Co., Montreal.  
Perrin, William R. & Co., Limited, Toronto.  
Petrie, H. W., Toronto.  
Smart-Turner Machine Co., Hamilton, Ont.

## Hydro-Electric Plant

Allis-Chalmers-Bullock, Limited, Montreal.

**HARBISON-WALKER REFRACTORIES CO.**  
 PITTSBURGH, PA.

*Manufacturers of  
 Highest Grade  
 Refractories.*

*Importers of  
 Chrome Ore.*

*Sole Agents for  
 Carl Spachter Magnesite.*

**Fire Clay, Silica,  
 Magnesia, Chrome  
 BRICK.**

Blast Furnace Linings. Slove  
 Brick. Open Hearth Furnace  
 Brick. Cupola Linings. Brick  
 for Gas Furnaces. Brick for Mill  
 Forge and Heating Furnaces.  
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 Leslie, A. C. & Co., Montreal.  
 London Rolling Mill Co., London, Ont.  
 Lyssaght, John, Limited, Bristol, England and Montreal.  
 Metallic Roofing Co., Toronto.  
 Nova Scotia Steel & Coal Co., New Glasgow, N.S.  
 Pedlar People, Oshawa, Ont.  
 Petrie, H. W., Toronto.  
 Union Drawn Steel Co., Hamilton, Ont.

**Injectors**

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

**Iron and Steel Inspection**

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

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

**Lathes**

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

**Lathes (Wood-working)**

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

**Linoleum**

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**Lubricators**

Hamilton Facing Mill Co., Hamilton, Ont.

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**Machinists' Supplies**

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McKinnon Dash & Metal Works Co., St. Catharines, Ont.  
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 Jenckes Machine Co., Sherbrooke, Que.  
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**Metal Doors**

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**Metal Stamping**

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**Metallurgists**

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**Milling Cutters and Machines**

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

**Mining Machinery**

Allis-Chalmers-Bullock, Limited, Montreal.  
 Canadian Rand Drill Co., Sherbrooke, Que.  
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 Electrical Construction Co., London, Ont.  
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 Jeffrey Mfg. Co., Columbus, Ohio.  
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 Sturtevant, B. F. Co., Hyde Park, Mass.  
 Toronto & Hamilton Electric Co., Hamilton, Ont.

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Hamilton Facing Mills Co., Hamilton, Ont.

**Moulders Supplies.**

Hamilton Facing Mill Co., Hamilton, Ont.

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

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McCullough-Dalsell Crucible Co., Pittsburg, Pa.

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International-Acheson-Graphite Co., Niagara Falls, N.Y.

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 McArthur, Cornelle & Co., Montreal.

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 Toronto Paper Mfg. Co., Cornwall, Ont.

**Patents**

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**Patterns (Wood and Iron)**

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**Perforated Metals**

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McCullough-Dalsell Crucible Co., Pittsburg, Pa.

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 Hamilton Facing Mill Co., Hamilton, Ont.

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 Jones & Moore Electric Co., Toronto.  
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**Punches and Shears**  
**Globe Machine & Stamping Co., Cleveland, Ohio.**  
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**Purifiers**  
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**Purifying and Softening Systems (Water)**  
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**Greening, B. Wire Co., Hamilton, Ont.**  
**Gutta Percha & Rubber Mfg. Co., Toronto.**  
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**Allis-Chalmers-Bullock, Limited, Montreal.**  
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**Rolling Mill Engineers**  
**Bourne-Fuller Co., Cleveland, Ohio.**

**Roofing**  
**Bourne-Fuller Co., Cleveland, Ohio.**  
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**Rubber Packing**  
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**Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.**

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**Saddlery Hardware**  
**MacKinnon Dash & Metal Works Co., St. Catharines, Ont.**

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**Smart-Turner Machine Co., Hamilton, Ont.**

**Solder**  
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**Syracuse Smelting Co., Montreal.**

**Special Machinery**  
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**Krug & Crosby, Hamilton, Ont.**  
**Smart-Turner Machine Co., Hamilton, Ont.**

**Speed Recorders**  
**Bristol Co., Waterbury, Conn.**

**Sprinkler Insurance**  
**Canadian Casualty & Boiler Insurance Co., Toronto.**

**Stamps and Stencils**  
**Globe Machine & Stamping Co., Cleveland, Ohio.**

**Steam, Hot Blast Apparatus**  
**Sturtevant, B. F. Co., Hyde Park, Mass.**

**Steam Pumps**  
**Allis-Chalmers-Bullock, Limited, Montreal.**  
**Canada Foundry Co., Toronto.**  
**Darling Bros., Montreal.**  
**Goldie & McCulloch Co., Galt, Ont.**  
**McDougall, John, Caledonian Iron Works Co., Montreal.**  
**Petrie, H. W., Toronto.**  
**Smart-Turner Machine Co., Hamilton, Ont.**  
**Williams, A. R. Machinery Co., Toronto.**

**Steam Separators**  
**Babcock & Wilcox, Limited, Montreal.**  
**Darling Bros., Montreal.**  
**Robb Engineering Co., Amherst, N.S.**  
**Sheldons, Limited, Galt, Ont.**  
**Smart-Turner Machine Co., Hamilton, Ont.**

**Steam Shovels**  
**Allis-Chalmers-Bullock, Limited, Montreal.**

**Steam Specialties**  
**Darling Bros., Montreal.**  
**Sheldons, Limited, Galt, Ont.**  
**Sturtevant, B. F. Co., Hyde Park, Mass.**

**Steam Valves**  
**Babcock & Wilcox, Limited, Montreal.**  
**Darling Bros., Montreal.**  
**Kerr Engine Co., Walkerville, Ont.**  
**Petrie, H. W., Toronto.**  
**Williams, A. R. Machinery Co., Toronto.**

**Steel Rails**  
**Algoma Steel Co., Sault Ste. Marie, Ont.**  
**Drummond, McCall & Co., Montreal and Toronto.**  
**Gartshore, John J., Toronto.**

**Steel Shafting**  
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**Leslie, A. C. & Co., Montreal.**  
**McDougall, John, Caledonian Iron Works Co., Montreal.**  
**Nova Scotia Steel & Coal Co., New Glasgow, N.S.**

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

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

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**Canada Foundry Co., Toronto.**

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**Continental Iron Works Co., New York City.**

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**Systematizers**  
**Viau, Henri, Montreal.**

**Tanks (Oil and Water)**  
**Canada Foundry Co., Toronto.**  
**Goldie & McCulloch Co., Galt, Ont.**  
**Jenckes Machine Co., Sherbrooke, Que.**  
**McDougall, John, Caledonian Iron Works Co., Montreal.**  
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**Taps and Dies**  
**Butterfield & Co., Rock Island, Que.**  
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**Tees**  
**Bourne-Fuller Co., Cleveland, Ohio.**  
**Canada Foundry Co., Toronto.**

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

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

**Tin**  
**Leslie, A. C. & Co., Montreal.**  
**Syracuse Smelting Works, Montreal.**

**Tool Steel**  
**Bourne-Fuller Co., Cleveland, Ohio.**  
**Leslie, A. C. & Co., Montreal.**

**Traps (Steam)**  
**Sturtevant, B. F. Co., Hyde Park, Mass.**

**Trucks**  
**McDougall, John, Caledonian Iron Works Co., Montreal.**  
**Sheldons, Limited, 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.**

**Tumbling Barrels**  
**Globe Machine & Stamping Co., Cleveland, Ohio.**  
**Petrie, H. W., Toronto.**  
**Smart-Turner Machine Co., Hamilton, Ont.**

**Turbines**  
**Allis-Chalmers-Bullock, Limited, Montreal.**  
**Canada Foundry Co., Toronto.**  
**Jenckes Machine Co., Sherbrooke, Que.**

**Upright Drills**  
**Krug & Crosby, Hamilton, Ont.**

**Valves**  
**Babcock & Wilcox, Limited, Montreal.**  
**Canada Foundry Co., Toronto.**  
**Kerr Engine Co., Walkerville, Ont.**  
**Petrie, H. W., Toronto.**  
**Smart-Turner Machine Co., Hamilton, Ont.**  
**Williams, A. R. Machinery Co., Toronto.**

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

**Varnishes**  
**Berry Bros., Walkerville, Ont.**

**Ventilators**  
**Darling Bros., Montreal.**  
**Metallic Roofing Co., Toronto.**  
**Pedlar People, Oshawa, Ont.**  
**Sheldons, Limited, Galt, Ont.**  
**Sturtevant, B. F. Co., Boston, Mass.**

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

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

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

**Water Softening Plants**  
**Pittsburg Filter Mfg. Co., Pittsburg, Pa.**

**Wheelbarrows.**  
**Hamilton Facing Mill Co., Hamilton, Ont.**

**Windmills**  
**Ontario Wind Engine & Pump Co., Toronto.**

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

**Wire and Wire Rope**  
**Greening, B. Wire Co., Hamilton, Ont.**  
**Leslie, A. C. & Co., Montreal.**  
**Phillips, Eugene F. Electrical Works, Montreal.**

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

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

**Wood-Working Machinery**  
**Goldie & McCulloch Co., Galt, Ont.**  
**Petrie, H. W., Toronto.**  
**Sheldons, Limited, Galt, Ont.**  
**Williams, A. R. Machinery Co., Toronto.**

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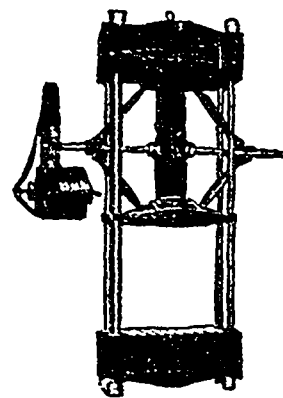
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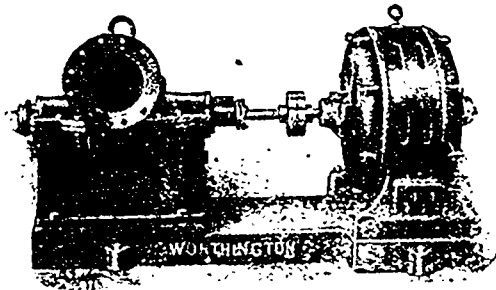
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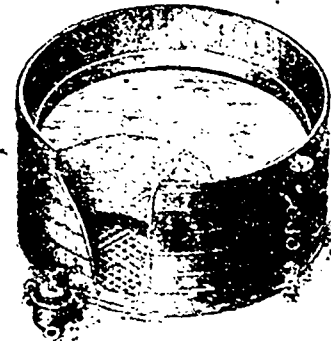
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