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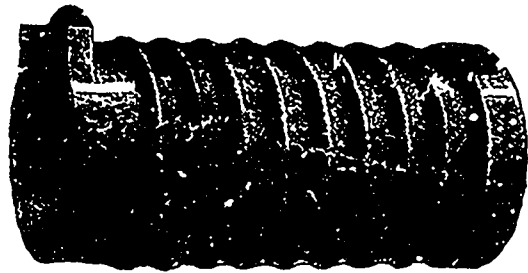
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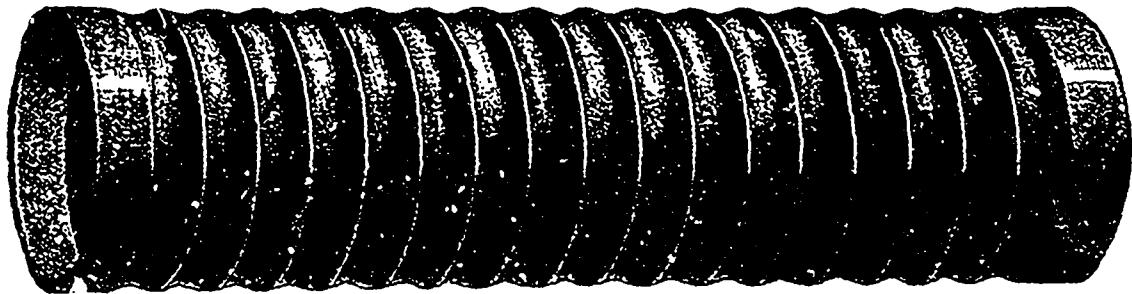


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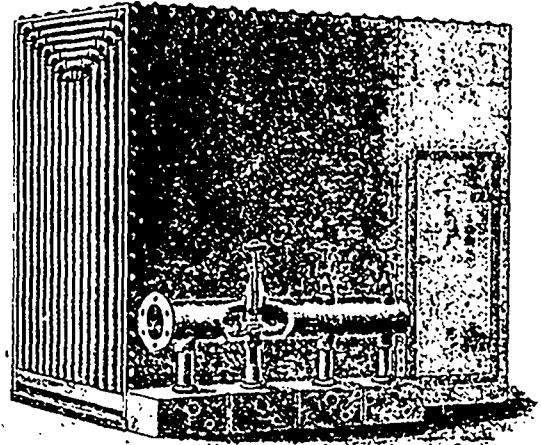
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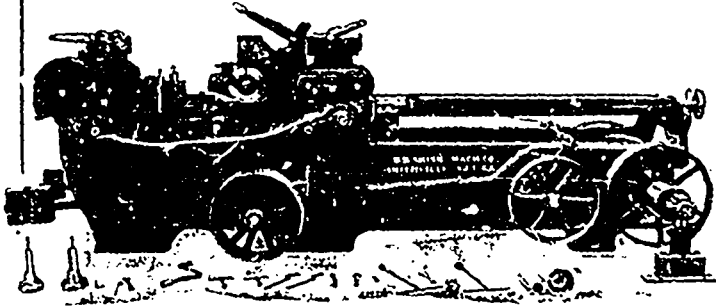
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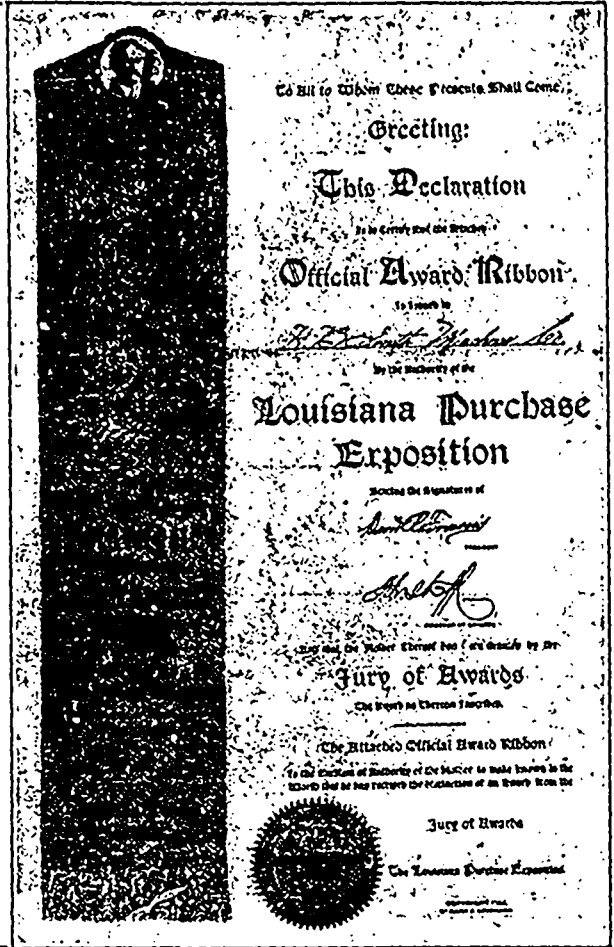
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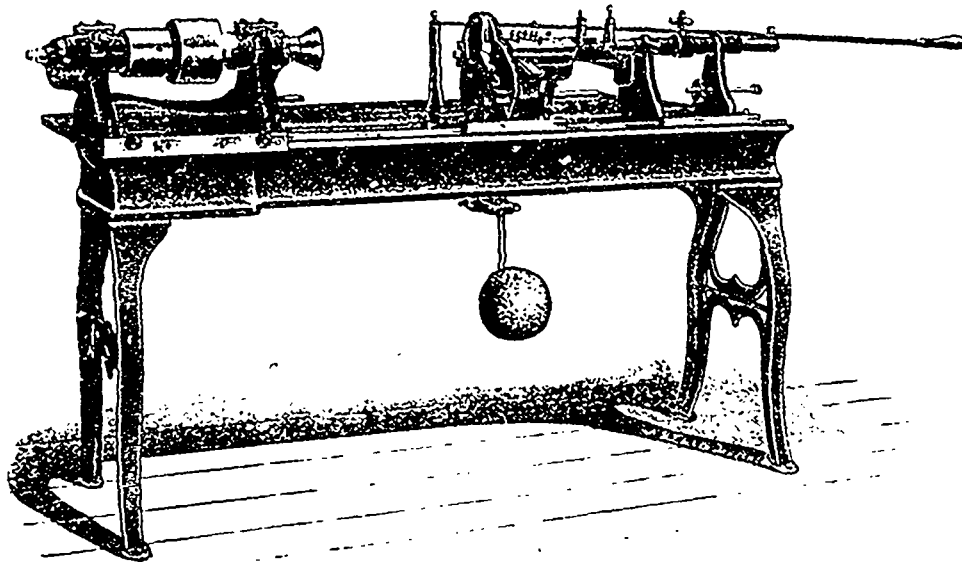
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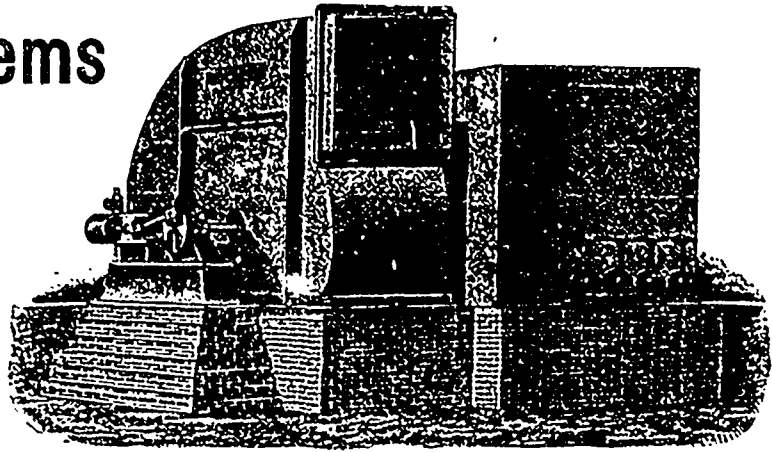
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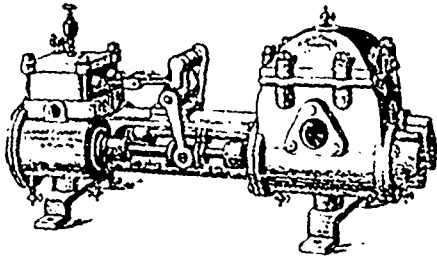
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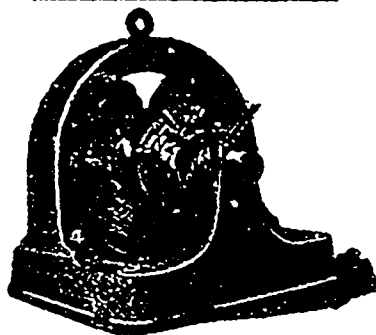
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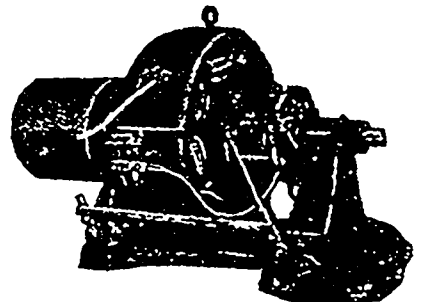
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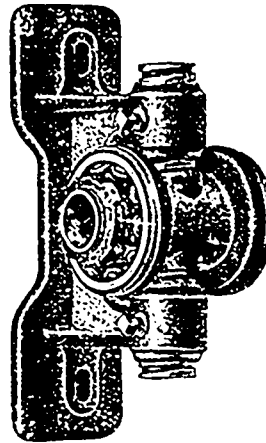
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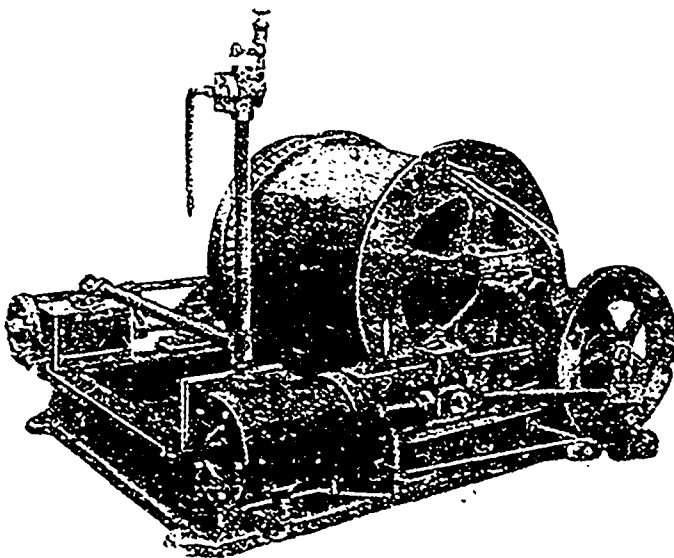
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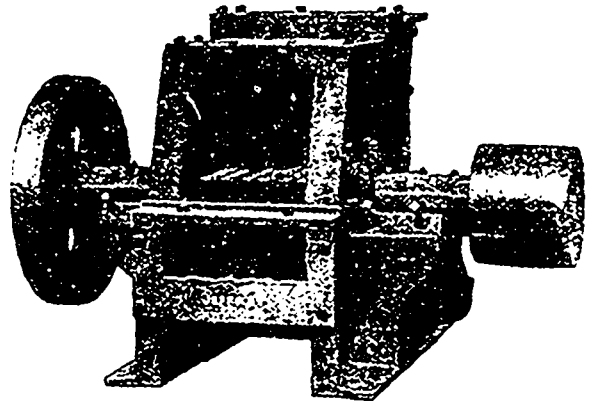
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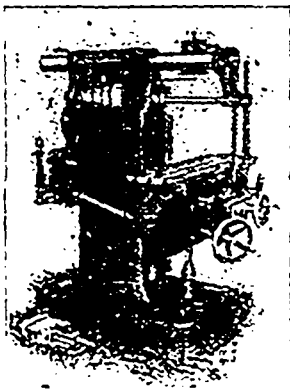
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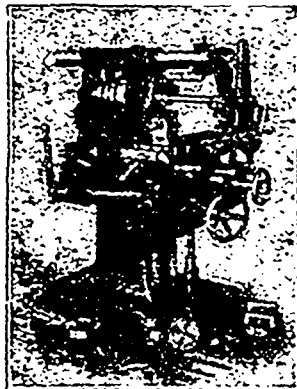
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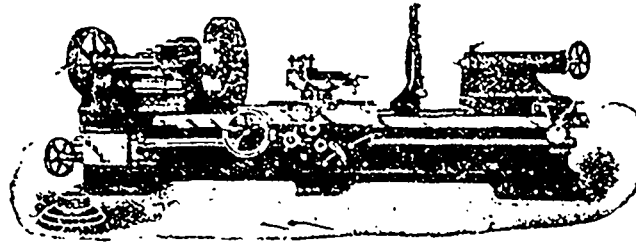
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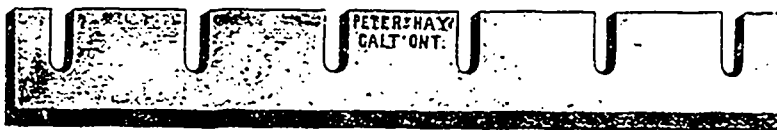
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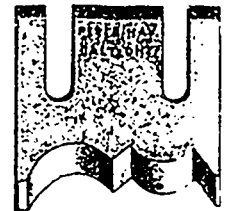
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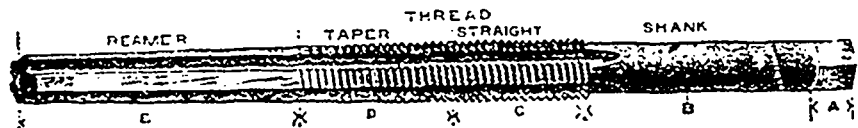
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Classified Index Page 42

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PREFERENTIAL TRADE.

The Canadian Manufacturers' Association has frequently been charged with insincerity in advocating Imperial preferential trade, while at the same time insisting that the minimum tariff shall afford adequate protection to Canadian industries. It has been alleged that the Canadian manufacturers were deceiving the British people and holding out false hopes of a lower Canadian tariff. There has never been the slightest foundation for the charges of deception. The attitude of the Canadian manufacturers has been clearly stated from first to last, and is well known to British advocates of preferential trade. Briefly summarized their policy is that the development of Canadian home industries should be the chief end of the tariff, but that so far as possible everything that cannot be obtained from Canadian producers should be imported from countries of the British empire. It is an undoubted fact that the most highly protected countries import enormous quantities of goods, and in spite of protection Canada's imports will increase as the country develops in population and wealth. The policy of the Canadian Manufacturers' Association is to divert into British channels as much as possible of this rapidly developing external trade. The views of Canadian manufacturers were forcibly stated by Mr. W. K. McNaught, chairman of the tariff committee of the Canadian Manufacturers' Association, in a letter to Hon. Joseph Chamberlain some months ago. Mr. McNaught said:

"I can assure you that as a rule the Canadian manufacturers are heartily in sympathy with preferential trade throughout the empire, and although they are desirous of building up Canada by protecting Canadian industries, even against the mother country, they are also equally desirous of helping British manufacturers by transferring to them as much of our trade as possible, which is now being done by foreign countries. I am satisfied from what I know of Canadian conditions that a Canadian tariff could be framed by experts which would not only protect Canadian industries, but bring about a large increase of trade between Canada and the mother country. In other words, while Canadian manufacturers want to make all the goods they can they prefer that what they cannot make shall be supplied us by our kinsmen in Great Britain rather than the artisans of any foreign nation."—Industrial Canada.

We do not know who has been charging the Association with insincerity in advocating preferential trade, or with deception of the British people by holding out false hopes of a lower Canadian tariff, and no doubt the Association is quite well satisfied with the defence that Industrial Canada and Mr. McNaught set against the charges. There is no disputing the fact that in spite of protection Canada's imports

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rapidly increase as the country develops, and that the policy of the Association is to divert into British channels as much as possible of this rapidly increasing external trade—that "as a rule" it is in sympathy with preferential trade, and that, as Mr. McNaught says, it is desirous of diverting to British manufacturers as much of our trade as possible which is now being done by foreign countries. To Mr. McNaught's letter Mr. Chamberlain returned a colorless reply.

It should be borne in mind that the preferential tariff came into full effect in the fiscal year ended with June 30, 1898, under which a rebate of 33½ per cent. was allowed from the general tariff upon goods made in Great Britain. Since then we have had plenty of time to observe the operation of it. The British people were told that the preference was shown without the hope or desire of reciprocity in any shape, and Canada has not received any other tariff treatment by the British Government than is accorded to the United States or any other foreign country. Mr. Chamberlain possesses an idea that the British people can be brought to believe in Imperial preferential trade, but the people seem not to agree with him, and it is probable that his scheme is an unrealizable iridescent dream.

In the meantime it is pertinent to enquire how our existing preferential tariff affects our trade with the Mother Country. The Dominion Government formulated tariff schedules fixing the duties at rates fairly sufficient for revenue purposes, but to show our love for British manufacturers, and to better enable them to compete in this market with American manufacturers, a discount of one third off the regular tariff rates was allowed them. This discount certainly constitutes, or should constitute a very fair profit on any commercial transaction, and enable British manufacturers to hold their own in competition with their American competitors. The only important effect the preference has developed in favor of British manufacturers has been to overload Canada with British textiles, and to make the once fairly prosperous Canadian textile industry almost a thing of the past. No new capital is now being invested in producing textile goods in Canada.

Aside from this feature of Canadian-British trade, reference to the trade and navigation returns from the going into force of the preferential tariff until now, it is seen that in a large number of the more important imports into Canada from Great Britain, there has been no substantial increase in trade;

and the facts show that British manufacturers have neglected to avail themselves of the tariff favor Canada shows to them. This is explained more fully in a series of tabulated statements published in the January 20 issue of this journal. These statements have reference to imports of iron and steel and manufactures of: brass and copper goods, hardware, metals and manufactures of; electrical machinery and appliances; fuels; manufactures of clays; minerals; paints; agricultural implements; vehicles; musical instruments; paper goods; leather and manufactures of, etc. With but two or three exceptions British manufacturers are to-day producing largely for export the various lines of products alluded to. Most of the articles enumerated in our schedules are imported into Canada either for further processes of manufacture, or as finished products, to meet the demands of the consuming public—demands which Canadian manufacturers cannot, or do not meet; and such is the case in the lists of duty free imports. It is noticeable, too, that all through the schedules, there are many items our imports of which from the United States are valued at many thousands of dollars, those from Great Britain being very small or none at all. It is shown that the total value of the 250 articles enumerated in the 15 schedules, the total value of which amounts to \$59,905,810, the United States under the general tariff supplied us to the value of \$49,603,523, while Great Britain, under the preferential tariff, sent us to the value of only \$6,183,458, the balance coming from all other countries.

It is also noticeable that under the preferential tariff Great Britain sent us to the value of only \$38,475,505 dutiable goods and \$16,837,745 free goods, while the value of all merchandise imported from the United States were, dutiable, \$77,543,780, and non-dutiable, \$73,282,735; total, \$150,826,515. In other words, all merchandise, dutiable and free, imported into Canada in 1904 for home consumption, valued at \$251,464,332, Great Britain supplied but 24.5 per cent., the United States 60.00 per cent., all other countries contributing 15.5 per cent.

So, too, in our imports of free goods, our schedules including 104 items, a large portion of which are semi-manufactured products, to be considered as raw products for consumption in Canadian factories. Out of a total valuation of \$62,419,975, Great Britain supplied us to the extent of 9.8 per cent., the United States 82.5 per cent., the rest of the world 7.7 per cent. So too with our exports—a schedule of values of 67 articles of Canadian manufacture is given, the total value of which is, to all countries, \$17,735,861, only \$5,359,787 going to Great Britain, and \$6,838,622 to the United States.

Whatever the cause, the facts show that in the schedule of 250 enumerated items of dutiable imports into Canada last year, as in the 104 enumerated items of free goods, all of them related to manufacturing, Great Britain does not take the lead, notwithstanding the preference; and it is also a fact that in the enumerated schedule of 67 articles of Canadian manufactures exported, their distribution to Great Britain is considerably less than to the United States.

CANADIAN-MEXICAN TRADE.

A few days ago, in the House of Commons, information was asked for respecting the proposed steamship service between Canada and Mexico, it having been stated that some difficulties had arisen in the negotiations. Sir William Mulock, the Postmaster-General, who was recently in Mexico, and who takes great interest in the proposed enterprise, explained that last spring the Government of Mexico granted

a subsidy of \$50,000 gold, and the Canadian Parliament granted a like sum for a Pacific steamship service between the two countries, with monthly sailings. Tenders for the service had been received by the Department of Trade and Commerce from Weir & Co., of Glasgow, but the tenders were in excess of the \$100,000 available for the service. The representative of the tenderers told the Minister of Trade and Commerce that he would go to Mexico and discuss the matter with the government of that country.

Sir William Mulock and also the Department of Trade and Commerce, are to be most highly commended for the efforts they are making towards creating and building up trade with Mexico. We say creating, because Canada's trade with that country has never been but of the most meagre dimensions.

According to the Trade and Navigation Returns, our imports from Mexico for home consumption in 1904 were valued at only \$30,482 for dutiable goods, and \$52,353 for free—a total of only \$82,835; and our exports were, of Canadian produce valued at \$124,408—a total trade of only \$207,243.

When the proposed schemes are carried out, the United States will have to compete with Canada for the trade of Mexico. The Dominion is actively interested in the development of the Mexican Republic. A Canadian Club was established in the capital of the Republic a year ago, and its members are business men who are now sending representatives into the various states of Mexico, and into Canada, with a view of establishing reciprocal relations, commercial and social, between the two countries. One of the movements is the establishment of a direct steamship line between St. John's, N.B., and Halifax, N.S., and Vera Cruz. Mexico will take from Canada coal, pig iron, lumber, furniture, agricultural implements, wagons, fruit products, hams and bacon, canned goods, salt fish and general merchandise. Canadian cereals are superior in quality and cheaper in price than the same kind of goods offered by the United States. Mexico will send to Canada raw sugar, coffee, mahogany, dye woods, fruit, hides, etc.

The establishment of the steamship line between St. John and Vera Cruz will, it is expected, divert to Mexico the large class of Canadians of wealth who have heretofore made Florida their winter resort. To meet this expectation, prominent Mexicans are being sent by the Government, and by the Canadian Club in the capital, to the principal cities of Canada, supplied with the most alluring descriptions and data showing the advantages of Mexico's climate and other attractions. The class of people who will be induced to visit Mexico represent the trade and finance of the Dominion. When they reach Mexico the doors of the Republic will be open to them. When it is understood that both the Mexican and Canadian Governments are behind all of these efforts, the importance and scope of the programme will be readily realized.

BOILER EXPLOSIONS AND BOILER INSPECTION

According to the press despatches, a terrible boiler explosion occurred at George Whitehead's saw mill at Custer about eight miles from Langton, Ont., on January 19, by which three men were killed instantly and four seriously injured out of a crew of ten. One of the injured succumbed to his injuries the next day. The names of the killed were Chas. Danard, married man, left wife and family; George Asplen; George McCallum and Freeman Moflatt, all single men. The injured were George Whitehead, single man; Michael Asplen, married. The latter, whose death occurred next day, had a wife and ten children. Charles Whitehead was also slightly injured. The mill was running when the accident happened.

No cause is known for the explosion, as the machinery was practically all new, having been purchased last year. Report says there were two inches of water registered in the water gauge. The head of one of the victims was completely blown off by a piece of iron. The mill and machinery were blown to atoms. There was no insurance on it.

Such events are occurring constantly—so frequently, in fact, as to excite but temporary interest—except to the maimed and wounded who may survive, and to the relatives of the dead. The wives become widows, the children are made fatherless, the mother mourns for her son, and the hands of the bread winner for dependent ones are forever stilled.

We are familiar with the saying that "accidents will happen." Such incidents, whether accidents or not, are painfully prevalent. The procession proceeds constantly, and what is being done to retard its movement? One thing that might be done, but is not, is to prohibit placing the care of boilers in the hands of incompetent men, supplemented by the enforcement of a law requiring the regular and rigid inspection of them; and making the disregard of such laws a penal offense. It is not enough to say that the owner of the boiler, or the insurer of it, is the loser in case of explosion. There is an ever present menace to the lives and property of the whole adjacent neighborhood that should be regarded.

A recent issue of *The Locomotive*, published in Hartford, Conn., presented a table showing the number of boiler explosions that had occurred in the United States during a period of 25 years beginning with 1879, in which it is shown that there were 6,769 such explosions, resulting in the death of 7,295 persons, and in more or less serious injury to 10,868 others, the total number of human beings killed and injured during that period, by boiler explosions, aggregating 18,163.

Very few people have any correct idea of the causes of boiler explosions. *The Locomotive* gives a summary of the reports of the inspectors of a boiler inspection company for the year 1903, in which it is shown that during that year these inspectors made 153,951 visits of inspection, examined 293,122 boilers, inspected 116,643 boilers both internally and externally, subjected 12,232 to hydrostatic pressure, and found 933 unsafe for further use. The whole number of defects reported was 147,707, of which 12,304 were considered dangerous. The usual classification by defects is here given.

Nature of Defects.	Whole Number.	Dangerous.
Cases of deposit of sediment.....	14,606	753
Cases of incrustation and scale.....	40,949	1,095
Cases of internal grooving.....	2,487	191
Cases of internal corrosion.....	12,421	594
Cases of external corrosion.....	9,427	674
Defective braces and stays.....	2,362	546
Settings defective.....	5,306	410
Furnaces out of shape.....	6,083	200
Fractured plates.....	4,030	731
Burred plates.....	5,126	539
Blistered plates.....	1,270	85
Cases of defective riveting.....	4,137	743
Defective heads.....	1,151	145
Leakage around tubes.....	16,852	2,199
Leakage at joints.....	6,335	296
Water gauges defective.....	3,612	692
Blow-offs defective.....	3,495	937
Cases of deficiency of water.....	202	96
Safety-valves overloaded.....	1,063	324
Safety-valves defective.....	978	323
Pressure gauges defective.....	5,461	471
Boilers without pressure gauges.....	240	240
Unclassified defects.....	114	26
Total.....	147,707	12,304

It will be seen that in this large number of defective boilers,

in but 202 cases were the defects attributed to deficiency of water, while in 11,806 cases the defects were caused by deposits of sediment, and 40,949 cases to incrustation and scale.

The waters of nature are not pure, in consequence of the great solvent properties of water, very few bodies resist its action if continued long enough. There are evidences to show that there are no absolutely insoluble bodies; even those which are usually considered insoluble, such as barium sulphate and silica, are not quite so, at all events, in certain modifications. The purest water is rain water, and even this often contains gaseous impurities. Unfortunately, even in the rainiest districts, one cannot get enough of it, or otherwise the troubles of a steam boiler owner as regards scale formation in his boilers would be at an end. Still, the source of all natural waters is the rain, and the differences found in waters of various localities are caused by what happens to the rain after it falls on the ground. Part goes back into the atmosphere in the form of vapor; part flows over the surface of the ground into the nearest watercourse; and part sinks into the ground, and finds its way into wells, springs, brooks, etc. In passing through the ground it becomes more or less charged with solid matters, the nature and amount of which depends entirely upon the character of the rock through which the water flows. When the water is used in a steam boiler this solid matter is left behind, and forms a crust or scale more or less hard and extensive, according to the nature of the solid matters of the water. This incrustation or scale is bad in its effects, and it is very desirable that it should not form in any boiler.

Scale in boilers acts as a non-conductor of heat, and so prevents the heat of the furnace being communicated to the water as readily as it ought to be. To compensate for this, the furnace has to be kept hotter, and more fuel burnt in consequence. When there is no scale the heat of the furnace is rapidly transmitted to the water, and as both water and metal are good conductors of heat, the temperature of the boiler is kept uniform; thus the boiler strains are regular and even all over. When, however, scale is present to any great extent, it being a non-conductor of heat, there is a great tendency for local overheating to take place, which makes the strains unequal, and hence leads to leaks being formed at the joints.

The extent and character of the solid matters in the various natural waters at the disposal of the boiler-owner vary considerably, and depend upon the nature of the ground. Thus in limestone districts there is much carbonate of lime in the water; in slate and granite districts, the waters are fairly pure, and contain very little matter in solution; where there is a good deal of magnesium limestone, the waters contain much magnesia in solution; river and brook waters which flow over the surface are more charged with vegetable organic matter than are well and spring waters. The chief impurities usually present are the carbonates of lime and magnesia, and the sulphates of the same two earths; common salt (sodium chloride) is present in all waters; silica is a common constituent; some waters contain magnesium chloride.

Any law that implies the enforced inspection of boilers, implies also that such inspection must be done by competent inspectors; and of course such service must be paid for; and it should go without contradiction that where competent inspectors report defects in boilers, the further use of them should, while in defective condition, be prohibited. Common sense, of course, requires that where there are dangerous deposits of sediment, and cases of incrustation and scale, analysis should be made to show the necessary solvents which should be used.

CONVICT LABOR.

The Ontario Provincial Secretary was recently negotiating for the sale of the broom-making machinery at the Central Prison, which is owned by the Province, and as it is modern and complete it was expected that a good price would be realized for it. The contract for the manufacture of brooms at the prison expires on June 1, and, in accordance with the promises made by the Government some time ago to representatives of organized labor bodies, who objected to these goods coming into competition with free labor, it will not be renewed.

Regarding which the Toronto Globe says:

The Ontario Government, when it discontinues broom-making as an industry in the Central Prison, will have to devise some other method of keeping the convicts at work. It would be impossible to maintain discipline in such an institution without regular work, and it is not easy to find prison industries which do not come into competition with those in which non-criminal artisans find employment outside.

It has always been the contention of THE CANADIAN MANUFACTURER that the products of convict labor should not be brought into competition with free labor in the open markets of the country. It is a rank injustice not only to free labor but also to the employers of such labor. Before the Ontario Government placed broom-making machinery in Central Prison, and farmed out the convict labor to prison contractors to operate it, there were quite a number of broom factories in Toronto, which gave lucrative employment to free labor, men and women, boys and girls, but prison-made brooms could be sold cheaper than those made by free labor, with the result that hundreds of Toronto citizens were thrown out of employment to the end that thieves and scoundrels, convicted of crime, might be kept busy. How far the enforced idleness of respectable free labor may have been the cause of degradation and crime we cannot say, but the tendency of the system is inherently bad and should be avoided.

Undoubtedly there should be some method of keeping convicts at work, and it may not be easy to find occupations for them which do not come into competition with free labor, but it is not impossible to discover such occupations. There are large numbers of unfortunates whom it is advisable should be kept behind the bars, and these all require some of the comforts of life, and food and raiment must be provided for them. As far as possible these necessaries should be produced by themselves, and it is proper that they should be so employed, but never a dollar's worth of anything produced by prison labor should be sold in competition with free labor. When climatic conditions are favorable for outdoor work convicts might be employed in agricultural pursuits, whereby fruits, vegetables, etc., could be stored up for their own consumption; and there are thousands of miles of highways throughout the province that require improvement, the work upon which is admirably adapted for prison labor.

EDITORIAL NOTES.

A number of tariff changes have been made by order-in-Council. Carbons over six inches in circumference, when for use as materials in Canadian manufactures, have been transferred to list of goods which may be imported free of duty until otherwise provided. Rates of duty have been reduced on the following articles when imported by manufacturers of burial caskets or burial robes for use in their own factories: Casket gimps or fringes, and embroidered or embossed chiffon,

from 35 to 10 per cent.; silk cloth, including satin, from 30 to 10 per cent. These reduction rates are subject to further reduction of one-third under the preferential tariff, or to an addition of a like amount under the surtax, if the importations of goods come under said preferential tariff or surtax.

In a business letter just received from The Canada Chemical Manufacturing Co., London, Ont., Mr. T. H. Smallman the manager says: "I do not know whether it is the result of our advertising in THE CANADIAN MANUFACTURER or not, but at any rate we have found it necessary to nearly double the capacity of our distributing warehouse at Toronto, and are now building a large addition thereto; and we have also just completed arrangements to open a distributing warehouse in Montreal for our various chemical products."

Money invested in advertising in this journal is well invested.

President Roosevelt recommends the appointment of special agents to be called commercial attaches, who shall visit the different countries and make a study of industrial conditions, with a view to suggesting modifications and changes in the existing plans of United States foreign commerce. Premier Laurier might well do the same thing for Canada.

The Canadian Club, of Boston, Mass., has recently acquired most excellent and commodious headquarters at 15 Beacon Street, that city, to which a cordial invitation is extended to any Canadians visiting there. This is an organization composed mainly of business men of Boston and vicinity, which has already done considerable work in diffusing wholesome and proper information concerning Canada. The new headquarters of the Club will, no doubt, become a suitable and convenient place where Canadians visiting Boston may find a warm welcome and much valuable information in matters in which they may be concerned.

Gunton's Magazine, an esteemed American publication given to the discussion of political and economic questions, rebuking the New York Times for having proposed "reciprocity in coal," says:

As to exporting coal to Canada, we do not want to dig coal for Canada. Coal is not a product that should be exported. If we really could get coal any cheaper by importation, that would be the thing to do. . . . We should develop coal mining only to the extent of supplying our own industrial needs. If it could be secured more cheaply from Nova Scotia or China, then we had better import it. The only reason for not taking the duty off Nova Scotia coal is that it would not make it any cheaper, because the duty is purely a revenue duty, and to put it on the free list is simply to add to the profits of the Nova Scotia coal operators at the expense of the United States treasury.

The New England and the Pacific Coast states seem to entertain a different opinion, and so do the coal producing states of Pennsylvania, Ohio, Indiana, Illinois and West Virginia.

A regulation which will excite considerable interest in marine circles has just been issued to the Canadian steamboat inspectors. It is to the effect that all boats trading between one Canadian port and another must be subject to the provisions of the Canadian steamboat act. Formerly boats which passed the inspection of the English or French Lloyds, the British Council for the Survey and Regulation of Shipping or the Det Norske Veritas (Norwegian Lloyds), were exempt from inspection in Canada and were free to ignore

the regulations regarding construction and crew. Considerable feeling on the part of owners of Canadian built vessels resulted. An enormous amount of tonnage will be affected by the new order. Among the vessels which must be inspected before they again go into commission are the Ames, Plummer, Pellatt and the four Turrets of the Canadian Lake & Ocean Navigation Co., the Theoro, Paliki, Seafield, and Monkshaven of the Algoma Steamship Co., the Strathcona, Donnacona, Wacondah and Neepawa of the Hamilton-McKay Co. and the Neetung, Newmount and Wexford of Collingwood. The regulation will also apply to yachts brought over from the United States by summer tourists.

The department of customs has issued a circular advising collectors that the free entry of catalogues and price lists is to apply when they are imported for wholesale purposes only. These would usually be addressed to dealers or traders. Duty at the rate of 15 cents per pound under tariff item 126 is to be collected on circulars, fly sheets, and other advertising matter (except catalogues and price lists for wholesale only) when imported by mail, addressed to individuals, or otherwise. The distribution of advertising matter being ordinarily of interest to the sender, collectors are advised in respect of quantities of advertising matter weighing over 1 pound in the aggregate from the same exporter, that they may notify the sender as to the amount of duty payable thereon and state that the advertising matter will be forwarded as addressed on prompt remittance of duty. When the duty remains unpaid for sixty days, the matter is to be treated as unclaimed and a special notation made thereof without entry on the usual "unclaimed list of uncustomed goods." At the expiration of six months the inspector may direct the matter to be destroyed in default of payment of duty, if the same cannot be sold for a sufficient sum to pay duty and charges, as provided in section 37 of the customs act.

In the House of Lords recently the Lord Chancellor, Lord Davey, and Lord Robertson concurring, delivered judgment on the action impugning the validity of the Wilson master patent, covering the manufacture of calcium carbide, and all three agreed in confirming the judgments of the lower courts, which have been uniformly against Wilson, on the ground of anticipation by Moissan, who, by the way, it is claimed, was himself anticipated by Dr. Borchers, and others. The legal effect of this decision is to throw the manufacture of calcium carbide open to anyone, as "anticipation" voids patents in whatever country issued. Quite a quantity is used in Canada, and as the price charged is said to be nearly four times the cost of manufacture, the bringing in of competition cannot but result in lower prices for the consumer.

The merchant or manufacturer, the industrial or professional, the manager or operator, who assumes to "get on" without the trade journals directly or collaterally bearing on his particular specialty, is seriously handicapped in the stress of competitive strife. Wilfully, though perhaps not wittingly, he deprives himself of sources of information and material for progress and profit, lack of which must inevitably leave him in the lurch. The managing head of every "house," no matter how large the "concern," should above all things see to it that each department head, and so many of the working force as by their intelligent interest show that they would profit by technical and professional information—that all

these men are provided with the trade journals best fitted to promote the advancement of each in efficiency. This at the expense of the firm, of course, since the firm, in turn, cannot fail largely to profit by such policy. And don't commit the folly of balking at the preponderance of *ad. pages*. The information these contain is never less and often far more valuable than that found in the "reading matter."—Boston Herald.

Public-spirited citizens of Hartford, Conn., have started an enterprise which in its development will be watched carefully and which may become an example for Southern communities ambitious to realize their full industrial possibilities. About \$115,000 have been subscribed for the purpose of erecting what has been termed an industrial incubator or nursery. In the building, which will be equipped with a power plant and will have a floor area of more than 50,000 square feet, it is proposed to let rooms and power at a nominal figure to infant industries as an inducement to new industries to come to the city or be started there, the idea apparently being that the infants will soon develop into full-grown manufacturing undertakings beyond the capacity of the nursery.

That a trade paper can be of great worth to the line of business it represents goes without comment and its worth can be measured in proportion to its use. By this is not meant the total issue printed and circulated altogether, but the total number of its interested readers. This information cannot be easily obtained, but it is a well-known fact that a trade paper has vastly more readers than subscribers. There are several reasons for this. One reason is that a tradesman who thinks he cannot afford to subscribe for one of his trade papers will borrow his neighbors. He is like the man without a watch. He wants to know the time, and to learn it he must consult the watch of another man. Another method by which extra readers are gained is through the proprietors or managers of establishments. They realize the worth of a paper akin to their business, and will often pass their trade papers around among their employes. Some firms go further and will subscribe for a dozen or more of these papers and distribute them among their employes. They do this because they want keen, bright, well read men behind their line of business, and the trade reviews sharpen these virtues. The public libraries also realize their value and are among the great patronizers of the trade press issues, and supply their shelves liberally with them. There they are read and re-read by a large number of trade people. Many expert tradesmen who have risen from the ranks will admit that they owe their success, in a large measure, to the keen interest with which for years they have followed the progress and policy outlined by the leading papers of the trade of which they were a part.—Trade Press List.

During the fiscal year ended June 30, 1904, the following sums were paid in bounties by the Dominion government: Pig iron, puddled bars, \$863,641; wire rods, steel angles, etc., \$15,320; binder twine, \$25,452; lead, \$182,229. The bounty on wire rods is \$6 a ton, on structural steel \$3 a ton, on rolled plates \$3 a ton, and on lead refined in Canada \$15 a ton.

W. J. Harvey, of London, Ont., has been appointed inspector of bounties under the provisions of the law by which a bounty of one-half cent a gallon is granted for the production of crude petroleum in Canada. This bounty went into effect June 8, 1904, and between that date and December 1 the sum of \$123,088 was paid out on 365 applications.

A MODERN PATTERN SHOP AND ITS SYSTEM OF HANDLING PATTERNS.

The new pattern building of the B. F. Sturtevant Co., at Hyde Park, Mass., is divided midway of its length by fire walls enclosing stairs, elevators, etc. One-half the building, with stories respectively 17x15 feet, is devoted to the flask and pattern making rooms, while

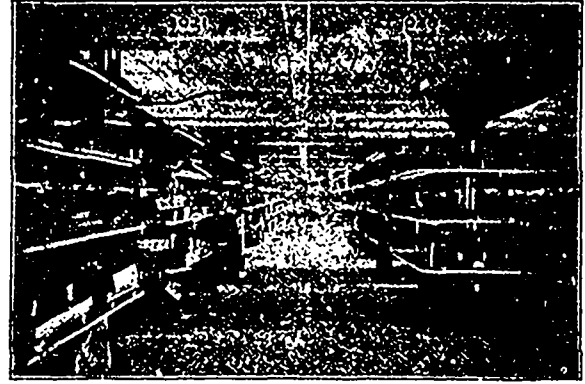
All the power machines are operated by two 10 h.p. Sturtevant motors, both being required for ordinary work, but one always serving as a possible relay in case of accident.

The benches which accommodate two men each and measure 2 feet 6 inches in width by 16 feet in length are so arranged along the sides of the building that the men all receive a left-shoulder light. Behind each bench is a working table 4

feet wide by 16 feet long. New patterns are numbered consecutively upon the drawings as made. Patterns for grey iron castings take a number without prefix. Patterns for brass castings take a number preceded by O, those for steel have the number preceded by OO, and so on with a different prefix for each material. The numbers are taken out by the draughtsman in a blotter having columns for date, pattern number, name of pattern and



PATTERN SHOP.



PATTERN STORAGE (THIRD FLOOR).

the other half, provided with intermediate floors, making four in all, is utilized for pattern storage.

The flask-shop measuring about 80x60 feet, is equipped with hand, cross-cut and splitting saws, boring machines and lathe, all driven by a 10 h.p. Sturtevant motor suspended from the ceiling. The industrial railway runs directly into this room from the foundry across a distance of about 40 feet and together with an overhead transfer track reduces to a minimum the cost of handling flasks. The lumber for their manufacture is unloaded from cars directly in front of the building. This room includes the metal pattern makers' department equipped with the necessary machine tools. Adjacent thereto is the locker, wash and toilet room for the building.

feet wide by 16 feet long. The benches are supported by cast iron legs of special design which were built by the Sturtevant Co.; the same design is used throughout the plant. They are equipped with Emert vises and their tops are of heavy maple plank. A drying chamber for glued work is provided, which receives warm air through the general heat flue from a Sturtevant heating apparatus below.

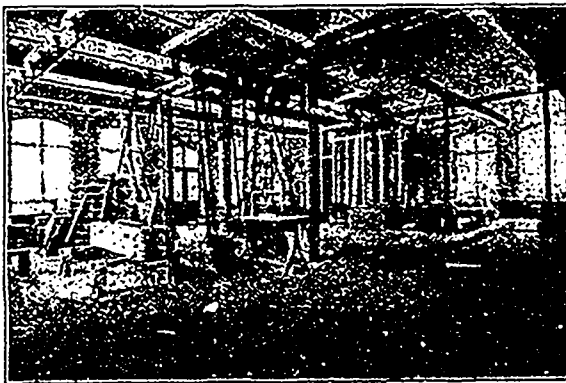
The first floor of the pattern storage end of the building is of concrete and is designed for the keeping of heavy cast iron patterns. It is served by an industrial railway and turn-table which permits of transfer to the elevator and thence to other floors. Communication between the pattern shop and storage department is direct, while the fire risk

drawing number. This record is afterward transcribed into the "Pattern Record" book by the record clerk in the draughting room.

At the time of taking out a new pattern number a "Pattern Cost Card" is filled out. This is sent with the drawings to the foreman of the pattern shop and is an order for him to make the pattern described. The time is kept in the pattern shop and entered on this card as is also the record of stock used. When the pattern is completed, it is inspected by the pattern shop foreman who signs cost card and enters date completed. The pattern is then sent at once to the pattern storage, which is under the supervision of the pattern foreman, and the pattern cost card is returned to the draughting room. The pattern cost card is figured by the record clerk in the draughting room and filed by pattern number, consecutively. The item "expense" is obtained by keeping a record of the total labor in the pattern shop and the total material purchased for the pattern shop.

When any work other than pattern work is done a record is kept of the time and material and the pattern shop is given credit. These records give the amount of material and labor chargeable to expense, to which is added a depreciation and fixed charges. The whole is then distributed as a percentage on the hours of pattern labor.

When the patterns are delivered to the pattern storage department proper locations are assigned and records thereof made upon cards, one for each pattern. These cards are filed in the order of the pattern numbers. Four figures with the addition of a letter are in every case sufficient to locate a pattern. A given location, for instance, may be 212B, that is, it is upon the second floor, as shown by the first numeral "2"; it is in the twelfth row of shelves and the fifth division of that row as shown by the suc-



FLASK SHOP.

Immediately above, is the pattern shop abundantly lighted upon three sides and equipped with a full complement of tools including one single and two double saw benches, two hand saws, a buzz planer and a double surfacer, five lathes, one of which is a 66 inch by 11 1/2 feet gap lathe, a drill press, a core box machine, numerous wood trimmers, etc.

is reduced to a minimum by a double system of fire doors. Around the pipe columns which support the floors are clamped the pattern shelving brackets which are adjustable to any height. Shelves on the walls afford excellent storage space for the smaller patterns.

In connection with a description of this shop, the system of handling pat-

densers sizes. When the power condenses the atm the bac and pipe from the. When the condensi performe rejected atmosphe at 15 pou The wa move this stant vac

ceeding numbers "12" and "5"; and on the B level, the floor level being designated A, and the letters B, C, D, etc., indicating the shelves in their order above.

When the foundry foreman receives an order for castings from the office he issues to the pattern storage department a copy of form filled in. The pattern storage keeper on receipt of same refers to index of patterns and finds thereon the location of pattern which he immediately records upon a card. The latter he attaches to the pattern and delivers it to the foundry. A metal clip placed upon the form indicates that the pattern is out. When the form is filled in at the foundry office a copy is sent to the clerk of the cleaning room who daily records on the back the number of good and bad castings made from the pattern and keeps the moulder informed as to the number of castings required to complete the order. When the required number of castings are made, the pattern is returned to the pattern storage. One copy of form is destroyed and the other is retained in the foundry office files.

INDEPENDENT CONDENSERS.

The Goldie & McCulloch Co., Galt, Ont., are building a very high grade of steam pumps and condensers, and we herewith give an illustration of their con-

per square inch, on the exhaust side of the piston, and the steam can consequently be expanded to nearly the absolute zero of pressure, thereby utilizing its full expansive power. The use of a condenser will therefore cause a saving of from 20 to 25 per cent. or increase the power from 20 to 25 per cent.

An Independent Air Pump and Condenser has an advantage over a direct connected or belted air pump as it can be started and vacuum obtained before the engine is started. Another advantage with this condenser is that when a close heater of any pattern is already located, it need not be discarded, as it will act as a surface condenser between the engine and independent condenser, and increase the temperature of the feed water so it can be returned to the boiler at a temperature of about 130 degrees. A single condenser can be used for two or more engines, pumps, etc., one or all of which may be stopped without interfering with the action of the condenser. The condenser will work as well with marine engines as with stationary, and it can be used as an independent bilge pump when necessary. No steam pump is required to lift its injection water. It will lift from any point that can be reached by pumps in general use. The water cylinder lining, stuffing boxes, gland and nuts are brass. The piston rod is Muntz metal. The valve seats are

River, near the wagon road to Clinton, B.C., was recently bonded to the Daly Reduction Co. of Montana. These claims are located about midway between Cargile (mouth of Hat Creek) and Mundorf's. A considerable amount of development work has been done on these prospects by the present owners, who are Wm. Hocking and his three sons, W. R. Hocking, John Hocking and Thos. Hocking of Montana, also Smith Bryson of Ashcroft, blacksmiths, and the estate of the late Mr. Williams, represented by L. M. Harley of Butte, Montana.

The workings consist of a prospecting shaft and tunnel. The formation on the west side of the Bonaparte farm a few miles north of Spence's Bridge to Clinton is locally known as the lower member of the Cache Creek (carboniferous). The lower member of this formation is known to contain three beds of limestone, but the prevailing rocks comprise dark argillites, cherty quartzites and contemporaneous volcanic products.

These latter also comprise both effusive rocks, agglomerates and tuffs, also some beds of pure serpentine. The volcanic rocks for the greater part are decomposed diabase-porphyrates, occasionally passing into schistose structure.

Samples of this ore have been shown your correspondent. The mineral is chalcopyrite in octohedral-crystals on a cherty quartzite. The color is brass-yellow. I have not seen any certificate of assay, but it is well known that to pay there should at least be 6 per cent. of metal.

The Maggie prospects have been worked for a number of years by William Hocking and his sons. Hocking was formerly a Cornish miner, he has had some experience in the mining districts of Montana.

So far not enough development work has been done on these properties to enable any one to form an opinion as to whether or not the occurrence of these ores is likely to be found massive.

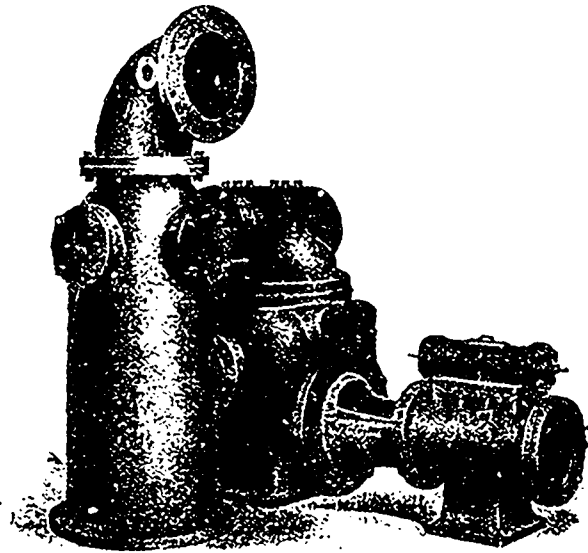
W. K. Rodgers, representing the Daly Reduction Co. of Montana, recently came over from the Nickel Plate Mine near Hedley City, Similkameen, and on behalf of the Daly Reduction Co., took an option on the Maggie group, paying down \$2,400 on the bond which extends for 18 months.

The purchase price has been fixed at \$175,000, and all the papers have been placed in escrow with the Bank of British North America which has an agency in Ashcroft.

In this deal Mr. Stuart Henderson, M.L.A., barrister, represented the interests of the owners. The Riverside mineral group, comprising 13 claims, surround the Maggie group of mineral prospects, and the deal so far as carried out has revived the previously lagging character of the mineral industry in the Thompson and Bonaparte River's districts of B.C.

It is understood that a force of miners will be put to work on the Maggie group early in March for the purpose of determining the character of the ore occurrence on the properties.

Horace F. Evans.



ELECTRICALLY DRIVEN CENTRIFUGAL OIL SEPARATOR.

densers, which are made in 15 different sizes.

Where water is available a great saving of fuel or corresponding increase of power can be obtained by the use of this condenser. It is a well-known fact that the atmospheric resistance, together with the back pressure in exhaust passages and pipes, is just so much power taken from the steam on the engine piston. When the steam in an ordinary, non-condensing or high pressure engine has performed its work in the cylinder, it is ejected into the atmosphere against atmospheric pressure, usually reckoned at 15 pounds to the square inch.

The work of the condenser is to remove this back pressure and form a constant vacuum, equal to 13 or 14 pounds

brass but the valves are rubber with brass springs.

The Goldie & McCulloch Co., Limited, issue a very nice catalogue of these condensers which they would be pleased to send on request.

MINING IN BRITISH COLUMBIA.

We are in receipt of the following interesting letter from Mr. Horace F. Evans, of Ashcroft, B.C. giving a reliable report of the recent deal in connection with the Maggie group of mineral claims in that neighborhood.

EDITOR CANADIAN MANUFACTURER.

SIR,—The Maggie mineral prospect, comprising a group of three mineral claims situate close to the Bonaparte

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

A MODERN WOOD-WORKING MACHINE.

The accompanying illustration is of an extra heavy outside moulding machine, manufactured by the H. B. Smith Machine Co., Smithville, N.J.

The machine is described as of capacity to plane or work mouldings on all four sides as thick as four inches and dress flooring and sheathing up to full width of machine. And it will plane two sides of timbers 10 x 12 inches. It is particularly well adapted for car shops, large moulding mills, and for working hard woods.

The frame is cast entirely whole, not bolted together, hence is perfectly rigid. It is heavy, wide and long, which give ample room for long and wide belts, and is of such design as to give substantial support to all of the working parts, and to allow of convenient access to the inside vertical head.

The table is wide and very heavy, having long gibbed bearings or ways,

inches. Side spindles are 1½ inches in the bearings and 1½ inches where heads go. Both vertical head-stocks are attached to the table and have independent lateral, angular and vertical adjustments which are made and rigidly locked in position from the front. The outside cutter-head is fitted with a weighted chip breaker. The horizontal spindles have longitudinal adjustment, and the upper mandrel is provided with a belt tightener for regulating the tension of the belt.

The spindle bearings are an improved modification of White's Patent Clamp Boxes. The caps can be adjusted by a sensitive touch of the fingers and clamped firmly in position desired. These bearings are equally important for the vertical spindles, in which case the pull of the belts is against the head-stocks. The outside support to main spindle has vertical adjustment.

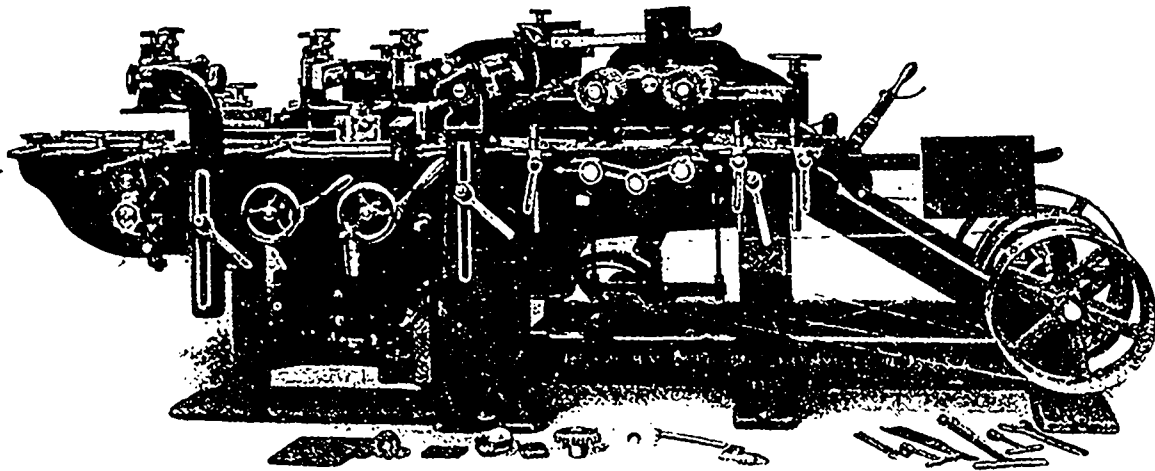
The chip-breaker and pressure-bars are all adjustable, and the pressure feet may be set at angles to suit the work. The

solidly by our improved cast steel clamp, which is much superior to the old method of a set screw against the post, and easier to repair in case it becomes necessary to renew one of the screws.

Cutter heads. The cutter heads furnished with the machine are all four slotted, lipped, and made of high carbon steel. There are four heads, one to each arbor and all of the same cutting circle (6-inch) thus allowing an interchange of cutters on the different heads.

Belting required. Top head, 15 feet 9 inches long by 6 inches wide; bottom head, 20 feet 9 inches long by 4 inches wide; outside head, 16 feet 4 inches long by 4½ inches wide; inside head, 18 feet 3 inches long by 4 inches wide; one feed belt, 12 feet long by 2½ inches wide, one feed belt 7 feet 10 inches long by 3 inches wide.

This machine was exhibited at the St. Louis Exposition last year, and was included in the splendid display of wood-working machinery made by the H. B. Smith Machine Co., for which they re-



EXTRA HEAVY TEN-INCH OUTSIDE MOULDER—(No. 105-A—Built on same general plan, 12 inches wide).

and is adjustable up and down by a screw which rests on ball bearings and operated by a crank in front. It drops 12 inches for the deeper class of work, and clamps firmly to the frame in three places so as to make the machine practically as rigid as an inside moulder.

The feed is most powerful, consisting of four five inch feed rolls, all driven and expansively geared. The weighting of the rolls is done in a superior manner, a spring intervening between the weight-lever and rolls so as to minimize any shocks in starting heavy cuts. Raising the weight-lever lifts the feed rolls for withdrawing stock and they may be retained in a lifted position by the prop if desired. The upper rolls have parallel lift and adjust to change the angle with face of machine. There are four rates of feed, viz. 18, 26, 35 and 47 feet a minute, which are controlled by a binder conveniently operated by a hand lever.

The cutter-head spindles are all of high carbon steel. The top or main arbor is 2 inches in the bearings, 1½ inches for the head and 1½ inches for the outside support; under-head journals are 1½

pressure-bar over the under cutter-head have an outside bearing or support which by a clamp-bolt is held firmly to the table and frame. All bars and chip-breakers are readily removable for sharpening cutters. The table beyond the under head drops down for this purpose. See cut above.

The under cutter-head has adjustment to regulate the depth of cut, and the end of bed after the under head has adjustment to fit the cut as well as being raised and lowered with the head when it is once set to the cutters. Therefore it is right for light or heavy cut when set for the cutters in use, without further attention.

The pulleys are of generous size to give good width of belt and not excessive belt speed. They are turned carefully and balanced in the plane of rotation and will therefore run true at any speed.

Hand wheels and wrenches. All screws for adjusting or clamping hold-downs, pressures or springs, etc., are provided with hand wheels, stationary wrenches or handles. The spring posts are held

received a special gold medal award and a blue ribbon badge.

For further particulars address, H. B. Smith Machine Co., Smithville, N.J. U.S.A.

The Hamilton Bridge Co., Hamilton, Ont., have completed the remodeling and extensions of their works. They now have a modern steel building and a beam yard provided with large electric cranes. The plant has been entirely renewed and is one of the finest on the continent and entirely operated by electricity and air. It will have a capacity of from 18,000 to 20,000 tons per annum.

It is reported that the Lake Superior Corporation, Sault Ste. Marie, Ont., started the year 1905 with sufficient orders to keep the rail mill in operation until the end of September, and with every prospect that within a month orders will be closed to keep the mill running full until the end of the year. The largest customers will be the Canadian Pacific, the Canadian Northern and the Grand Trunk railroads.

CAPTAINS OF INDUSTRY.

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

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephono, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machine machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belt ing, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalies, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The Frost & Wood Co., Toronto, have increased their capital from \$1,500,000 to \$2,500,000.

The Dailey Rotary Engine Co., Galt, Ont., have been incorporated with a capital of \$100,000, to manufacture rotary engines of the Dailey type, water meters, machinery, etc. The provisional directors include Chas. Hetherington, R. W. Roelofson, A. J. Oliver and C. Turnbull, Galt.

The North Bruce Lumber Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture lumber, timber, etc. The provisional directors include F. Reilly, J. B. Bartram and H. M. Murlon, Toronto.

Canadian Builders', Limited, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a general contracting and construction business. The provisional directors include G. P. Magann, Toronto, J. C. Stewart, New York City, C. F. Francon, Pittsburg, Pa.

The Canada Chemical Mfg. Co., London, Ont., are doubling the capacity of their warehouse in Toronto, and have completed arrangements to open a warehouse in Montreal, for the more convenient distribution of their various chemical products.

The Canadian Pacific Railway Atlantic Steamship Line and that railway have closed a contract for the transportation of 10,000 tons of spiegel from Liverpool to Sault Ste. Marie, Ont., which is the first contract of its kind made by a Canadian company. The contract was brought about by the Algoma Steel Co. purchasing 10,000 tons of English spiegel, to be used in the manufacture of pig iron at the steel-rail mill. All the rail mills in the United States use a certain amount of English spiegel, and as the Lake Superior Corporation had opened up their coke blast furnaces they also secured some. The first shipment of 5,000 tons was brought over on the steamers Lake Erie and Lake Manitoba and shipped to the Soo over the Canadian Pacific Railway main line.

The Standard Construction Co., Ottawa, have been incorporated with a capital of \$1,000,000, to carry on a contracting and construction business. The provisional directors include E. J. Chamberlin, J. W. Smith, and G. E. Fauquier, Ottawa.

Messrs. G. R. Gregg & Co., Toronto, have been incorporated with a capital of \$250,000, to manufacture smallwares, merchandise, etc. The provisional directors include G. R. Gregg, W. E. Hazley, and Thos. Gregg, Winnipeg, Man.

Among the contracts for automatic sprinkler systems recently secured by H. G. Vogel & Co., of New York City, through their Montreal office, is one for equipping the new plant of the Canadian Westinghouse Co. at Hamilton, Ont. They have also been awarded similar contracts by W. R. Brock & Co., Toronto, and by the Canadian Pacific Railway Co., for their new shops in Winnipeg, Man.

The Truth Building, Toronto, occupied by the Reeves Pulley Co., and the Wilson Paper Co., was partially destroyed by fire January 24. Loss about \$16,000.

R. A. Sabiston's horse blanket factory at Toronto, was damaged by fire January 23. Loss about \$10,000.

The warehouse occupied by Wm. Blackley, Limited, importers, and Kemp & Keith, printers, at Toronto, was damaged by fire January 23. Loss about \$5,000.

The Rubber Goods Mfg. Co., New York City, will establish a large plant in Windsor, Ont., to manufacture rubber belting, hose, steam ricking, automobile tires, etc., for the Canadian market.

The Lindsay Block at Collingwood, Ont., was partially destroyed by fire January 24. Loss about \$15,000.

The Mark Fisher & Sons Co., Montreal, will erect a warehouse in Toronto 115 x 35 feet, five stories high, at a cost of about \$30,000. D. Brown, Toronto, is the architect.

Messrs. F. Gutteridge and H. Edge, Seaforth, Ont., have been awarded the contract for the erection of the new Canadian Bank of Commerce building at Stratroy, Ont.

Messrs. J. E. Cutler and Mr. Vanderburg, Welland, Ont., have been awarded the contract for the erection of the House of Refuge at Dunnville, Ont., at a cost of \$17,500.

E. B. Smith, Ailsa Craig, Ont., will receive tenders for the erection of a new town hall there.

S. B. Todd's wagon and blacksmith

shops at Uxbridge, Ont., were destroyed by fire January 26. Loss about \$4,000.

The roof of the Fat Stock Show building at Ottawa, caved in on January 19. Loss about \$20,000.

The Hamilton, Ont., Steamboat Co.'s steamer Macassa has been sent to Collingwood to be remodeled and to have forty feet added to her length.

The Canadian Locomotive Co., Kingston, Ont., are building 25 new locomotives for the Intercolonial Railway.

A company are considering erecting a factory at Peterborough, Ont., at a cost of about \$100,000, for the manufacture of breakfast foods, etc. W. H. Meldrum, and W. H. Collier, Peterborough, are interested.

A five-stamp mill and rock and ore crushers have been installed in the machinery department of the new school of chemistry and mineralogy at the University of Toronto. A quantity of ore has also been obtained, and in a few days students will be able to make practical tests of mineral ores.

Messrs. Mackenzie & Mann, will probably erect a smelter with a capacity of about 150 tons of pig iron per day at Port Arthur, Ont.

The Dominion Government at Ottawa has provided \$100,000 for the establishment of a Marconi wireless telegraph service on the Pacific. It is the intention amongst other work, to install a wireless service to Caetmah, Cape Beale, and other point light stations on Vancouver Island, and when this is done the Empress liners running to the Orient will have wireless apparatus installed on board.

The Bank of Commerce at Woodstock, Ont., have purchased the Caister House from Mr. J. White, which they will remodel for banking purposes.

Messrs. McDowell, Stocker & Co., Chicago, Ill., have purchased the plant of the Dominion Brass Works at Collingwood, Ont.

A syndicate headed by Mr. Fred. Nicholls, of the Canadian General Electric Co., Toronto, have acquired the Niagara, St. Catharines & Toronto Railway Co. and the Niagara St. Catharines & Toronto Navigation Co. The new board of Directors are as follows: President, Fred. Nicholls; vice-president, E. R. Wood; D. D. Mann, H. G. Nicholls, A. Jarvis and Z. A. Lush.

A furniture company are considering locating a new factory at Collingwood, Ont. They would give employment to about 200 men and would have a capital of \$150,000. For further information apply to the Mayor of Collingwood.

The International Harvester Co., Hamilton, Ont., will double their present capacity and begin the manufacture of harvesters.

John Whitehead's sawmill near Culter, Ont., was destroyed by a boiler explosion January 19.

The Woodstock Varnish Co., Woodstock, Ont., will greatly enlarge their factory and install a new plant.

The Canadian National Exhibition, Toronto, have prepared plans for the new art building to be erected at the Exhibition Park, the dimensions of which are 128 x 82 feet. The architect who laid out the St. Louis Exposition grounds will probably be brought to Toronto to make a topographical map of the Exhibition Park, and to advise as to a general scheme for the sites of the new buildings, and the arrangement of the grounds.

The Thibodeau business block at Pembroke, Ont., was destroyed by fire January 27.

Several capitalists, among whom was E. Seagram, of Waterloo, Ont., visited Hamilton, Ont., a few days ago with a view to selecting a site for the erection of a brewery there.

The department of Public Works at Ottawa, are inviting tenders for the construction of three concrete piers and one abutment at Battleford, N.W.T.

The Polson Iron Works, Limited, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a ship-building business, to manufacture machinery, engines, boilers, etc., and to acquire the business of the Polson Iron Works. The provisional directors include A. H. Jeffrey, W. B. Tindall, J. J. Main and B. S. Polson, Toronto.

The Department of Public Works at Ottawa, will receive tenders for the construction of a wharf at Collingwood, Ont.

The Electrical Development Co., Niagara Falls, Ont., will receive tenders for the erection of a large power house building which will be built of either stone or granite. E. J. Lennox, Toronto, is the architect.

The Central Counties Railway Co., are applying for authority to build a bridge from Point Fortune, on the south side of the Ottawa River to Carillon, County of Argenteuil; to construct a railway from Carillon to Montreal and to increase their capital stock.

The Bank of Nova Scotia, Toronto, will erect a branch bank at Peterborough, Ont.

Messrs. Clark & Demill, Galt, Ont., will shortly remove their plant to their new works at Hespeler, Ont., where they will employ about sixty men.

Revised plans are being prepared for the new Collegiate Institute building at Galt, Ont., and it is expected tenders will be called for shortly.

The Faer Solid Steel Car Wheel Co., Perth, Ont., are asking for an extension of one year, within which to import steel wheels and machinery used in the manufacture thereof, without invalidating the patents.

The Rodney Casket Co., Rodney, Ont., will erect a large factory in that town.

A classification of the building permits issued in Toronto last year shows that there were 1,111 brick dwellings erected, 409 rough-cast dwellings, 20 concrete dwellings, and 33 brick veneered dwellings, a total of 1,573. Besides this, there were 40 summer cottages built. The amount of money which these buildings represent is \$3,326,152. Twenty-

five factories and 42 warehouses were built at a cost of \$1,477,450. Altogether 2,489 permits were issued, representing \$5,896,120. For 1903 the figures were \$4,356,457, from 2,023 permits.

The Commissioner of Public Works at Ottawa, has approved of the plans of Backus & Co., for building the dam and developing waterpower on the Rainy River at Fort Frances, Ont. The plans provide for the development of 20,000 h.p.

The officials of the Lake Superior Pulp & Paper Co., Sault Ste. Marie, Ont., report that by contract the entire output of the pulp mills for 1905 will be disposed of in the United States, instead of a good portion of it going to England.

The works of the Woodstock Gas Co., at Woodstock, Ont., were damaged by fire January 29.

The Dryden Board Mills Co., Dryden, Ont., will shortly commence the erection of pulp mills at that place. The power house will be 95 x 70 feet, the two main buildings will be 294 x 40 feet, and 168 x 55 feet, respectively; the boiler house to be 50 x 45 feet. The company will have a capital of \$1,000,000, and will give employment to about 100 men.

Mr. Geo. Tretheway and Mr. Wm. McMartin, have discovered a vein of silver situated on lands north of Massey and the Bruce Mines, near North Bay, Ont. Four carloads of the ore was shipped to a smelting plant in New Jersey and netted \$60,000. Two more carloads have been forwarded to the smelting plant, and it is expected that they will average \$15,000 per car.

The Canada Brass Rolling Mills Co., New Toronto, in which the Menzie Mfg. Co. of Toronto are largely interested, have lately gone into operation. The new plant is thoroughly equipped with the most improved brass rolling machinery which was manufactured and installed by the Waterbury Farrell Foundry & Machine Co., Waterbury, Conn., which concern also supplied considerable machinery to the Canada Screw Co. at Hamilton, Ont., during the past year.

The Royal Canadian Yacht Club, Toronto, have awarded the contracts for the erection of their new club house as follows:—A. Weller & Co., for carpentering work; Joseph McCausland & Sons for painting and glazing; Keith & Fitzsimons, for plumbing, etc.; and Davery Bros., for plastering.

The Japan shop of Messrs. Marlatt & Armstrong's tannery at Oakville, Ont., was destroyed by fire January 27.

Mr. T. Southworth, Ontario Director of Colonization & Forestry, delivered an interesting address to the Empire Club of Toronto, last week, in which he dealt with the resources of Ontario as one of the units of the empire, particularly in regard to the possible eventual revenue from the proposed extension of the forest reserves. At the present time these reserves cover about 7,000,000 acres. This would bring the permanent forest area of the Province up to probably 40,000,000 acres. Mr. Southworth estimated that this territory placed under proper

scientific management would represent an annual increment of growth of \$30,000,000.

The Methodist church at Leamington, Ont., was destroyed by fire January 30. Loss about \$22,000.

Messrs. Mackenzie & Mann will erect a smelter with a daily capacity of about 200 tons at Port Arthur, Ont.

The custom duties collected at the port of Toronto during January totalled \$732,956, an increase over the corresponding month last year of \$156,463.

The International Stock Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture foods, food compounds, chemicals, etc. The provisional directors include E. B. Savage, H. Macdonald and P. Savage, Toronto.

The Defiance Iron Works Co., Chatham, Ont., have been incorporated with a capital of \$60,000, to manufacture gasoline, oil and distillate engines, farm implements, malleable castings, etc. The provisional directors include W. S. Marshall, G. W. Foott and L. Howard, Chatham.

The Lake Orion Oil & Gas Co., a United States incorporation, have been licensed to produce petroleum, oil, gas, etc., in Ontario, with a capital of \$40,000. H. F. Slater, Leamington, Ont., is their attorney.

The Murray Shoe Co., London, Ont., have been incorporated with a capital of \$50,000, to manufacture boots, shoes, etc. The provisional directors include H. F. Murray, A. M. Jarvis and J. E. Kerrigan, London.

The Diamond Dry Powder Fire Extinguisher Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture powder for extinguishing fire. The provisional directors include G. R. Simpson, W. D. Earney and W. J. Curry, Toronto.

The W. J. Gardiner Co., Limited, Toronto, have been incorporated with a capital of \$40,000, to manufacture watch cases, watches, jewellery, etc., and to acquire the business of W. J. Gardiner & Co. The provisional directors include W. J. Gardiner, East Toronto, Ont.; C. McKenzie and I. Standish, Toronto.

The Pioneer Mining Co., a United States incorporation, have been licensed to carry on a mining, milling and cyaniding business in Ontario with a capital of \$50,000. G. H. Draper, Rat Portage, Ont., is their attorney.

Messrs. John G. Harvey, Limited Toronto, have been incorporated with a capital of \$50,000, to manufacture chemicals, etc. The provisional directors include J. G. Harvey, Todmorden, Ont.; C. P. Stuart and I. G. Withrow, Toronto.

The Plating & Specialty Co., Brantford, Ont., have been incorporated with a capital of \$40,000, to do all kinds of plating and to manufacture hardware specialties, etc. The provisional directors include G. W. Markle, C. J. Farr and F. Munro, Brantford.

The Hammond Typewriter Co., a United States incorporation have been licensed to manufacture typewriters, etc.

in Ontario with a capital of \$55,000. J. B. England, Toronto, is their attorney.

The Creamery Package Mfg. Co., a United States incorporation have been licensed to manufacture wooden ware, butter, cheese and egg packages, dairy machinery and supplies, etc., in Ontario, with a capital of \$40,000. A. D. Lamont, Woodstock, Ont., is their attorney.

The Rodney Casket Co., Rodney, Ont., have been incorporated with a capital of \$75,000, to manufacture caskets, etc. The provisional directors include W. N. Lusty, A. J. Liebner and B. J. Harris, Rodney.

The Richelieu Construction Co., Toronto, have been incorporated with a capital of \$200,000, to carry on a construction and contracting business. The provisional directors include J. W. McDonald, R. L. Brackin and E. A. Francis, Toronto.

The Barnston Woolen Mills at Sherbrooke, Que., were destroyed by fire January 29. Loss about \$10,000.

The British-Canadian Supply Co., Montreal, have been incorporated with a capital of \$50,000, to carry on a general contracting business and to manufacture supplies, etc. The provisional directors include Watson Jack, J. W. Harris, and Wm. B. Powell, Montreal.

The Quebec & Saguenay Railway Co., St. Joachim, Que., are applying for incorporation to construct a railway from St. Joachim to the Saguenay River. The applicants include M. Workman, R. Forget, and McLea Walbank, Montreal.

The Hochelago Ice & Coal Co., Montreal, have been incorporated with a capital of \$10,000, to manufacture ice, and deal in fuel, etc. The provisional directors include J. J. Bastien, Montreal, P. Vermette, St. Justin, Que., and W. J. Proulx, Montreal.

The National Skirt Co.'s factory, Montreal, was damaged by fire January 23. Loss about \$3,000.

Messrs. E. Imhauser & Co., 206 Broadway, New York, have recently installed a number of their time recording clocks in the plant of the Canadian Westinghouse Co., Hamilton, Ont. The Machinery Exchange, Montreal, have been appointed Canadian agents for these recorders.

Messrs. Smith, Carter & Smith, Montreal, have been incorporated with a capital of \$20,000, to manufacture shades, made cloth, blinds, curtains, etc. The provisional directors include L. W. Smith, H. Martel and T. H. Carter, Montreal.

The Commercial Rubber Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture rubbers, rubber boots, etc. The provisional directors include R. D. McGibbon, D. Armour and J. Beardwood, Montreal.

The McLennan Timber Lands & Lumber Co., Quebec City, have been incorporated with a capital of \$50,000, to manufacture lumber, pulpwood, etc. The provisional directors include J. McLennan, Syracuse, N.Y., C. E. McPherson and F. Roy, Quebec City.

The Ambrose-Petry Co. of Canada, Montreal, have been incorporated with a capital of \$20,000, to carry on a printing and book-binding business, and to manufacture paper, fancy articles, etc. The provisional directors include D. Armour, J. Le Huray and K. J. Beardwood, Montreal.

L. Caron's sash and door factory at Nicolet, Que., was destroyed by fire January 17. Loss about \$50,000.

The Excelsior Clothing Mfg. Co.'s factory at Montreal, was damaged by fire January 19. Loss about \$2,000.

The National Rubber Co.'s warehouse and Messrs. J. W. Kilgour & Bros. Co.'s furniture factory at Montreal, were destroyed by fire January 28. Loss about \$100,000.

B. Vaillancourt's boot and shoe factory in Montreal, was damaged by fire January 25. Loss about \$5,000.

The Grand Trunk Railway Co., Montreal, have placed an order for 25,000 tons steel rails with the Dominion Iron & Steel Co., at Sydney, N.S.

Messrs. D. B. Martin & Co., Montreal, will remodel their abattoir at a cost of \$150,000.

At a recent meeting of the Canadian Pacific Railway Co., held in Montreal, it was decided to spend about \$4,000,000, in improvements. About 500 miles of new standard rails will be laid on the main line from Montreal to Vancouver. B.C., new bridges will be constructed, others strengthened. A new station will be erected at Revelstoke, B.C. Some of the large terminals will also receive attention, and by the end of the present year standard rails will cross every mile of the Canadian Pacific Railway main line from Windsor station to the city of Vancouver, B.C.

The Dominion Iron & Steel Co., have decided to adopt at their works at Sydney, N.S., a new and inexpensive process for the manufacture of pig iron, utilizing waste iron ore, which costs from 60 to 75 cents a ton. Iron ore in this condition can be used only when it is solidified. For a great many years chemists endeavored to solve this problem, but it was only a few years ago that W. Owen, consulting engineer and foreign representative of Bruck, Kretschel & Co., steel manufacturers, Osnabruck, Germany, made the discovery. Since then the process has been adopted by seven German and two or three English steel companies, with eminent satisfaction. The waste is first solidified usually in bricks, and in this condition is placed in blast furnaces, when pig iron is produced. The plant which the Sydney steel company propose to install will cost about \$8,000, and will have a daily output of about 75 tons. It will be the first of the kind erected on the continent, and the company will have the exclusive rights for the Dominion of Canada.

A company of English capitalists propose erecting large cement works at Sydney, N.S. They are asking that city for a bonus of \$10,000, and free taxation for twenty years. They will begin operations in May, the plant to have a capa-

city of five hundred barrels of cement per day, and there will be a large co-operation in connection with the works. The cement will be manufactured from the Slag, now the waste product of the Dominion Iron & Steel Co. The company will be capitalized at half a million dollars. For further information apply to the Mayor of Sydney.

The Sydney & Glace Bay Railway Co., Glace Bay, N.S., are installing a new boiler and making other improvements to their sub-station at Stirling. The new boiler is of the improved Mumford type manufactured by the Robb Engineering Co., Amherst, N.S.

The Intercolonial Railway Co.'s oil shed at Stellarton, N.S., was destroyed by fire January 17. Loss about \$1,000.

Official returns of the production of the Dominion Iron & Steel Co.'s plant at Sydney, N.S., during the year 1904 is as follows.—Pig iron, 96,601 tons; steel ingots, 62,842 tons; steel blooms, slabs etc., 54,673 tons; billets, 14,850 tons; wire rolls, 10,748 tons; tar, 1,650,153 gallons; sulphate of ammonia, 3,546,557 gallons; sulphuric acid, 2,631 tons. During the year the company used 385,000 tons of coal, from which 170,000 tons of coke were made. The output of the Wabana ore mines was 625,000 tons, 220,000 of which were brought to Sydney, as well as 70,000 tons of other ores; 170,000 tons of limestone were quarried at Marble Mountain.

The school house at L'Ardoise, C.B., was destroyed by fire January 24. Loss about \$1,000.

Messrs. Rhodes Curry & Co., Amherst, N.S., have secured a contract from the Halifax & Southwestern Railway Co. for the building of 100 box cars, 50 flat cars and two conductor's vans, also for 2,000 car axles for the Canadian Pacific Railway Co.

The town council of Chatham, N.B., will ask the Legislature for authority to loan \$20,000 to a company for the erection of a boot and shoe factory there.

Messrs. F. E. Sayre & Co., St. John, N.B., have been incorporated with a capital of \$60,000, to carry on a lumbering and milling business. The provisional directors include F. E. Sayre, J. W. Holly and J. E. Sayre, St. John.

Messrs. John E. Moore & Co., Limited, St. John, N.B., have been incorporated with a capital of \$100,000, to acquire the business of J. E. Moore & Co., and to manufacture lumber, shingles, shooks, boxes, etc. The provisional directors include W. W. White, J. E. Moore and J. Wilson, jr., St. John.

Messrs. John Gibson & Son, Fredericton, N.B., will erect a four story warehouse at a cost of \$15,000.

The Restigouche Wood-Working Co., Dalhousie, N.B., have been incorporated with a capital of \$50,000, to manufacture lumber, sashes, doors, agricultural implements, etc. The provisional directors include W. S. Montgomery, D. Richards, and G. E. Mercier, Dalhousie.

The Eveleigh Dairy Co., Sussex, N.B., have been incorporated with a capital of

\$9,900. to manufacture butter, cheese, etc. The provisional directors include N. W. Eveleigh, Sussex, N. B. Smith and R. B. Proctor, Halifax, N. S.

Messrs. Brown's, Limited, Portage la Prairie, Man., have been incorporated with a capital of \$200,000, to manufacture dry goods, etc. The provisional directors include Jas. Brown, D. Turner and D. R. Moore, Portage la Prairie.

Canadian Farm Implements, Limited, Winnipeg, Man., have been incorporated with a capital of \$50,000, to carry on a printing, engraving and book-binding business. The provisional directors include F. D. Blakely, T. L. Metcalfe and E. E. Sharpe, Winnipeg.

The Alexander Milling Co., Brandon, Man., have been incorporated with a capital of \$150,000, to manufacture flour, oatmeal, etc. The provisional directors include W. M. Alexander, J. R. Brodie, and J. R. Davidson, Brandon.

A new Catholic church will be erected at Regina, N.W.T. For further information apply to the Mayor.

The Western Mfg. Co., Indian Head, N.W.T., are inviting tenders for the erection of their new factory at Regina, N.W.T.

The Nelson River Packing Co., Selkirk, Man., have been incorporated with a capital of \$40,000, to carry on a fish canning and preserving business. The provisional directors include J. K. McKenzie and R. Smith, Selkirk, and C. H. Newton, Winnipeg, Man.

The Tribune building, Winnipeg, Man., was damaged by fire January 23.

The Treherne Roller Flour Mills, owned by C. Wiechman, Winnipeg, Man., were destroyed by fire January 24. Loss about \$15,000.

A. J. French and M. W. Conley are commencing the manufacture of cement building blocks at Melfort, Man.

The Manitoba Peat Co., Winnipeg, Man., have been incorporated with a capital of \$200,000, to manufacture peat, fuels, etc. The provisional directors include R. J. Whitla, J. Woodman and R. Taylor, Winnipeg.

The Anglia Land & Lumber Co., Winnipeg, Man., have been incorporated with a capital of \$200,000, to manufacture lumber, brick, tile, etc. The provisional directors include J. Horne, Thos. Sharpe and H. D. Bauer, Winnipeg.

It is reported that a new Canadian package freight and passenger line will be on the lakes this season, between St. Lawrence river ports and Buffalo, Cleveland, Detroit and Fort William, Ont., to take care of the northwestern territory.

The ratepayers of Edmonton, N.W.T., have voted favorably on a by-law granting the Grand Trunk Pacific Railway Co. a bonus of \$100,000, for the establishment of shops and a union depot there.

The Commercial Club building at Winnipeg, Man., was destroyed by fire January 16. Loss about \$20,000.

Messrs. Munro Bros., New Glasgow, N.S., will establish a wire manufacturing plant in Winnipeg, Man.

The Dominion Public Works Department are making the following improvements and aids to navigation in the west: A wharf is being built at Ames, Lake Winnipeg, a wing is being built to the wharf at Gimli, Lake Winnipeg; and the wharf at Selkirk, Man., is being extended. A bridge will also be constructed over the Assiniboine River at Shelmouth, Man.

The Canadian Pacific Railway Co.'s new station at Winnipeg, Man., will be completed shortly.

Messrs. Shannon & Bell, are erecting a large warehouse at Prince Albert, N.W.T.

The Leland Hotel at Hague, N.W.T., was destroyed by fire January 25. Loss about \$10,000.

The Roman Catholic school building at St. Paul des Metis, N.W.T., was destroyed by fire January 15. Loss about \$25,000.

The Edmonton Wool & Wood Co., Edmonton, N.W.T., have been incorporated with a capital of \$50,000. The provisional directors include Wm. Short, J. A. McDougall and K. W. McKenzie, Edmonton.

The city council of Calgary, N.W.T., are inviting tenders for the erection of a municipal lighting plant.

The Port Nelson Canning & Salting Co., have been incorporated at Victoria, B.C., with a capital of \$30,000, to manufacture fish oil, ice, etc., and to carry on a fish packing and canning business.

The Mainland News, Limited, Vancouver, B.C., have been incorporated with a capital of \$10,000, to carry on a printing and lithographing business, etc.

The B.C. Wire & Nail Co., Vancouver, B.C., have been incorporated with a capital of \$50,000, to manufacture nails, wire, wire rope, etc., and to acquire the business of E. Easthope.

The Fort Steele Building Co., are installing five new storage tanks in their plant at Fernie, B.C.

Mr. McInnes, Cranbrook, B.C., and others are interested in the erection of a new lumber mill at Elkmouth, B.C., with a capacity of 30,000 feet daily.

The Granby Consolidated Mining & Smelting Co., Grand Forks, B.C., will spend \$125,000 this year adding two furnaces to their smelter and increasing the daily tonnage from 2,000 tons to 2,700 tons.

The Lardeau Valley Mines, Limited, Spokane, Wash., of which Col. W. N. Brayton is president, will erect a mill and concentrating works at the mouth of Tenderfoot Creek, B.C., to treat ores, etc.

A by-law will be submitted to the ratepayers of Nelson, B.C., to raise \$40,000 for the erection of a public school building.

Messrs. Morris, Baird & Co., Victoria, B.C. and Port Renfrew, west coast of Vancouver Island, will install a water power plant at Port Renfrew for generating power for the manufacture of writing inks, metal polish, powders, etc.

Dr Powell, Vancouver, B.C., will

erect a business block in that city at a cost of \$15,000.

Mr. F. J. Hamilton, Calgary, N.W.T. will erect a three-story hotel at Vancouver, B.C.

The Capital City Canning & Packing Co., have been incorporated at Victoria, B.C., with a capital of \$150,000, to carry on a fish canning and packing business, etc.

The Vancouver, Westminster & Yukon Railway Co., Vancouver, B.C., will increase their capital stock from \$2,000,000 to \$12,000,000.

The Dominion Government will give a grant of \$50,000 to a Dominion Exhibition to be held during the coming summer at New Westminster, B.C.

ELECTRICITY.

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

The Toronto Street Railway Co. will fit all their cars with the best air brake obtainable. It is understood that the Magann brake, in use on the Metropolitan line, will be the one adopted. The cost of fitting the cars will reach \$170,000 and the maintaining of the system \$70,000 annually.

The Ottawa River Railway Co. has awarded a contract to M. P. McGrath of Easton, Pa., for the construction of an electric line between Montreal and Ottawa.

La Compagnie Electrique de Papineauville, Papineauville, Que., have been incorporated with a capital \$20,000, to produce electricity for light, heat and power purposes. The provisional directors include A. Prevost, A. Belanger and E. Cote, Papineauville.

An agreement has been completed between the Canadian Pacific Railway Co. and the British Columbia Electric Railway Co. for the latter to operate the Island branch railway between Vancouver and Steveston on the Fraser River. The roadway will be electrified.

The Bell Telephone Co. having installed the Modern Central Energy system of switchboard equipment in all local exchanges, are now engaged in installing the same class of equipment at Toronto Junction, thus rounding out the whole system. In a few weeks the Junction subscribers will be able to signal "Central" by simply removing the telephone from the hook.

The New Brunswick Telephone Co. will erect a brick building at Fredericton, N.B., and the central energy system be installed.

The Montreal Street Railway Co. has arranged for the expenditure of \$500,000 during this year in securing and installing additional power and making improvements over the system. It is proposed to build three sub-stations at different terminals of the system, each to provide 1,000 h.p.

Work will be commenced shortly on the long-distance telephone line between Indian Head and Regina, N.W.T.

An electric light plant will probably be installed at St. Andrews, N.B. For further information apply to the Mayor of that town.

The town council of Port Arthur, Ont., will consider the installation of another power plant on the Current River.

The Pine Creek Power Co., Victoria, B.C., have increased their capital by \$50,000.

The Independent Telephone Co. of Canada are applying to the Manitoba Legislature for incorporation with a capital of \$10,000,000, to establish in Winnipeg and other towns an automatic system of telephones.

A by-law will be submitted to the rate-payers of Ottawa to provide for the purchase of the Ottawa Electric Railway for \$7,000,000.

The town council of New Liskeard, Ont., are considering the installation of a modern municipal electric light and waterworks systems.

The Wallaceburg Electric Light Co., Wallaceburg, Ont., have been succeeded by the Premier Electric Light & Power Co. of that place.

The town of Fort William, Ont., will spend \$6,000 on improvements to their electric light plant.

The Pocock Power Co. have submitted a proposition to supply electric light and power to Dominion City, Man., from a plant to be installed on the Roseau River.

Messrs. T. McAvity & Sons, St. John, N.B., have installed an electric lighting plant in their foundry. It consists of a Crocker-Wheeler compound generator 12 k.w., slate switchboard, and arc and incandescent lamps.

The Toronto Electric Light Co. have now in operation the first turbo-generator set to be manufactured and installed in Canada. It is a 500 k.w., three-phase, 30 cycle Curtis turbine wound for 2,300 volts and was built by the Canadian General Electric Co., Toronto. The same manufacturers are also building for this company two turbo-generator sets of 1,000 k.w. each, which will be completed and installed this spring.

A party of Montreal capitalists, among whom are Mr. Jas. Ross, president of the Mexican Light, Heat & Power Co., Messrs. R. B. Angus, J. R. Wilson and W. Hooper, have gone to Mexico in the interests of the electric lighting scheme for the city of Mexico.

A colonial exposition will be held in Lille, France, in 1906, for which preparations are being made with great urgency. A site has been selected, and 100,000 francs (\$259,500) has been voted by the department, city, and various colonies have already appropriated 7,000,000 francs (\$965,000) to their expenses in this exposition.

Secretary W. A. Martin, of the Western Coal Association, has entered the wholesale coal business as Canadian Agent for W. J. Scully, of Detroit, having his headquarters, as formerly, at Port Arthur, Ont.

FUEL.

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

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

The coal trade is the key to the industrial situation. When the manufacturing industries are prospering, then coal is in demand and all branches of business life show activity. When coal is in small demand it indicates stagnation in other industries and in general business. As iron used to be the industrial thermometer, so coal has now grown to be the indicator of business conditions. When coal prospers, all prosper; when coal suffers, all suffer in sympathy with coal. Coal is the index to business.

The peat bogs of Ireland, which have from time almost immemorial furnished fuel for the natives of that island, have become the subject of experiments looking to increasing their caloric and other properties, making them desirable as a fuel for general use. Two English electricians are experimenting, and should they attain success in their manufacture of peat briquettes they will do a good work for a country where peat abounds and where coal is high. In this country so far nothing has been accomplished of moment, but electricity is being called in in the English experiments and the experimenters are sanguine of success.

The Southeastern Kootenay Coal & Petroleum Co. is the name of an organization which has been formed to work coal and oil lands in East Kootenay district.

According to J. S. Smoot, the commissioner of the New York City Coal Merchants' Association, the deliveries in that city are reduced fully one-half after a heavy snow-fall, while the demand increases 50 per cent. One well-known retailer there lost more than \$40,000 during a period of two months last winter, when the snow and ice lay on the streets continually. The same conditions exist in all towns, and there is no question but that retailers all would prefer to deliver the coal during the summer and early fall, and consumers who neglect to take advantage of the summer prices should expect to pay more for their coal when bad weather sets in. There is no good reason why the dealer should reduce his profit (which is too low, anyway) by standing the increased cost of handling and delivery during the snow and icy season.—The Retail Coalman.

The Nicola Valley Coal & Coke Co., St. Catharines, Ont., have been incorporated with a capital of \$1,000,000, to carry on a coal mining and smelting business, to manufacture coke, etc. The provisional directors include E. A. Jukes, Toronto, H. E. Larkin and F. N. Hara, St. Catharines.

It is announced by Mr. M. Williams, president of the Susquehanna Coal Co., that the anthracite coal tonnage which has hitherto been sold in the west through the W. L. Scott Co., Erie, Pa.; Boyd

Stickney & Co., Harrisburg, Pa., and J. Laugdon & Co., Elmira, N.Y., will hereafter be sold by salaried agents of the Susquehanna Coal Co. Mr. C. L. Thompson, Erie, Pa., has been appointed general western agent of the Susquehanna Coal Co., with headquarters at Erie.

PUBLICATIONS.

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

The National Electric Co., Milwaukee, Wis., manufacturers of Christensen air brakes, electrical machinery, etc., have sent us their handsome Calendar for 1905 entitled "The Thoroughbreds" taken from the painting by Thos. Blinks.

The Brantford Carriage Co., Brantford, Ont., have sent us their very handsome calendar for 1905, on which is a picture of that famous Indian "Thayendanege" (Captain Joseph Brant) after whom Brantford was named, the background of which represents birch bark. This work of art was made by The Toronto Lithographing Co., Toronto.

The Canadian General Electric Co., Toronto, have sent us Section 2 Supply Catalogue, which describes and illustrates Cabinet Panels, Fuse Blocks, Cutouts and Fuses. The catalogue is a very handsome book which will be greatly appreciated by every dealer who may receive it.

The Canadian Westinghouse Co., Hamilton, Ont., have issued circular No. 1094, relating to Westinghouse Alternating Current Turbine Type Generators.

The Sirocco Engineering Co., Belfast, Ireland, and New York City, have published a new catalogue descriptive of Sirocco Centrifugal fans. These fans are manufactured in Canada, by the Robb Engineering Co., Amherst, N.S. The Canadian Government cruiser, recently built by the Polson Iron Works, Toronto, is equipped with these fans.

The Metallic Roofing Co., Toronto, are sending out a card in which they advise their friends not to "get stuck" by large insurance rates when they can cut them down by using the company's fire proof glass windows and doors with hollow sash and frames.

Messrs. Ritchie & Ramsay, Toronto, have sent in a book of samples of the coated papers manufactured by them, and upon which are specimens of beautiful half-tone printings, intended to show the perfection to which such work can be done with the use of their papers.

The Canadian Law List for 1905, published by the Canadian Legal Publishing Co., Toronto, just received, is a most interesting and useful book in the office of any manufacturing or commercial concern. It contains a vast amount of useful information regarding the commercial and admiralty laws of Canada, the constitution of the various courts, including those of all the provinces, names of court officers, names of com-

missioners for taking evidence in the different provinces and in other countries. The names of prominent King's Counsel and solicitors throughout the Dominion, etc.

"The Book of Four Powers" is the title to a beautiful brochure published by the Allis-Chalmers Co., Chicago. The four powers alluded to are steam, gas, water and electricity, and the book sets forth the scope of the machines, machinery, etc., produced by the company. The book does not say so, but it is a coincidence that there are four other powers involved in this concern—The Allis-Chalmers Co., the Bullock Electric Mfg. Co., the Ingersoll-Sergeant Drill Co., and the Lidgerwood Mfg. Co., all of which are important American concerns which are now operated under one organization, and all of which are represented in Canada by the Allis-Chalmers-Bullock, Limited, of Montreal. "The Book of Four Powers" is beautifully and artistically illuminated and illustrated with fine half tones of the different lines of machinery alluded to, brief descriptions of them constituting the text.

The 1905 Toronto City Directory shows that Toronto is still growing rapidly. The number of individual names in the volume, by actual count, is 106,691, exclusive of firms, corporations, etc., an increase of 5,045 over the 1904 issue. If the number of individual names, 106,691, is multiplied by 2½ the estimate of the population of Toronto at the end of 1904 is 293,395. The number of buildings of all kinds in Toronto, as shown by the street directory, is 47,523. Of these there are shown 57 vacant stores and 759 vacant houses, being less than 1½ per cent. of the buildings in Toronto. The 816 vacant buildings include buildings in course of erection.

The Jeffrey Mfg. Co., Columbus, Ohio, have just issued Bulletin A, which has reference to the Scioto Valley Traction Co.'s power plant at Reese's Station, Ohio. The novel coal and ashes distribution plant which is the subject of this bulletin is attracting much attention. The Jeffrey Co. will mail free Bulletin A, to anyone interested, upon application.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us circular No. 1093 relating to and illustrating self-contained direct current multipolar generators. Circular 1060 is also to hand which describes and illustrates Westinghouse Type N. Transformers.

The Gas Engine Publishing Co., Cincinnati, Ohio, have sent us a neatly bound volume of a brochure entitled "Suction Gas," by Oswald H. Haensgen. The manufacture of gas suitable for power service is becoming a matter of growing importance. For small and medium size units, the suction gas producer has been attracting increased attention, and it is to supply the existing demand for information on this subject that "Suction Gas" has been published.

The Hinkley Co., New Haven, Conn., manufacturers of oil cups, dowel pins and other specialties for machinists, etc.,

have issued a new catalogue having reference to same.

OPPORTUNITIES.

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

Messrs. C. R. & E. S. Armstrong, Lock Haven, Pa., are considering the erection of paper mills in Chihuahua, Mexico.

The Guaynopita Copper Co., Guaynopita, Mexico, have been organized with a capital of \$5,000,000, and will develop copper properties in the state of Chihuahua. They will construct smelting plants, reduction works, etc. W. C. Greene is President.

M. P. Server, 524 Cypress St., San Antonio, Texas, is in the market for wood-working machinery.

W. M. Bruce, Lawton, Ok., will receive quotations for a 60 h.p. engine, an 80 h.p. boiler and eight mine fans.

P. P. Martinez, Dallas, Texas, is in the market for steel metal for ceiling, brick and iron for front of building, also elevators.

H. L. Stricker, Calvert, Texas, wants prices and catalogues from manufacturers of machinery and equipment for a canning factory.

Haag Tamway Maatschappij, at The Hague, Netherlands, will receive bids for supplying 25 electric motor cars. The director of this company will furnish particulars to enquirers.

The city of Lugano, Switzerland, has just voted \$372,000 for establishing an electric plant.

Tenders for construction work in the port of Valparaiso, Chili, S.A., to cost about \$11,000,000, for the year 1906, will be opened during April.

PERSONALS.

At the semi-annual meeting of the Rolland Paper Co., held in Montreal a few days ago, the following officers were elected: President, Hon. D. M. Rolland; vice-president, Mr. O. Rolland; secretary-treasurer, Mr. R. Bedard; directors, Hon. R. Prefontaine and Messrs. J. L. Archambault, B. Rolland, B. D. Rolland and A. Faucher.

The thirty-ninth annual meeting of the shareholders of the Edwardsburg Starch Co. took place in Montreal a few days ago when the following officers were elected: President, Mr. G. F. Benson; vice-president, Mr. William Strachan; secretary, Mr. R. Cunningham. The directors are Hon. Robert Mackay, and Messrs. C. R. Hosmer, D. R. Miller, George Hyde and A. P. Murray.

The Canada Car Co., Montreal, have elected the following board of directors: Sir H. M. Allan, of the Allan Steamship Co.; H. S. Hoyt, president of the Montreal Light, Heat & Power Co.; E. L. Pease, general manager of the Royal Bank of Canada; Frederic Nicholls, general manager of the Canadian General Electric Co.; F. N. Hollist, president and J. N. Friend, vice-president, of the Pressed Steel Car Co., and W. P. Coleman, ex-vice-president of the American Car & Foundry Co.

The officers and directorate of the Dominion Textile Co., Montreal, the new cotton combine, are President, David Yuille; vice-presidents, Hon. J. Forget and C. B. Gordon; secretary, C. I. Hanna; directors, Hon. Robt. Mackay, H. W. Meredith, H. S. Hoyt, J. P. Black, Col. F. C. Henshaw, J. David Morrice, G. A. Grier, D. Williamson, S. Carley, C. B. Whitehead and A. J. Brown. M. A. J. Mole was appointed acting manager.

J. G. Jardine, Canada's commercial agent, South Africa, has resigned his position on account of ill-health. Mr. Jardine has returned to Toronto.

The Canadian Society of Civil Engineers at a recent meeting held in Montreal elected the following officers:—President, E. Marceau, Montreal; vice-president, C. H. Keefer, Ottawa; second vice-president, D. McPherson, Montreal; third vice-president, G. A. Mountain, Ottawa; treasurer, H. Irwin; secretary, Post McLeod; librarian, H. R. Lordly, Montreal; councillors, J. Kennedy, Montreal, W. S. Tye, Montreal; D. A. Keefer, New Westminster, B.C.; C. H. Rust, Toronto; A. E. Doucet, Quebec; Phelps Johnston Lachine, Que.; R. W. Leonard, St. Catharines, Ont.; P. W. St. George, Montreal; W. B. Mackenzie, Moncton, N.B.; Dr. Owen, Montreal; M. J. Butler, Ottawa; R. J. Durlay, Montreal; G. J. Desbarats-Sorel, Que.; Dr. J. B. Porter, Montreal; and H. C. Burchell, Newfoundland.

Messrs. Jewett, Bigelow & Brooks announce that they have removed their Roanoke office to 401 Citizens Bank Building, Norfolk, Va.

Mr. Eugene Coste, president of the Canadian Mining Institute, has just returned to Toronto after a visit to the California oil fields.

The members of the Canadian Society of Civil Engineers to the number of 17 visited the new works of Allis-Chalmers Bullock, Limited, Montreal, on January 25. They expressed surprise at the progress of the company and at the amount and character of electrical work and construction. They were given an interesting demonstration on the construction and operation of drills, coal cutters and compressors. On leaving each member was presented with a hand-bound leather card-case as souvenir of the visit.

The Toronto Beaux Art Club has been organized by a number of architectural draughtsmen and architects and the following officers elected: Hon. president, F. Darling; Hon. vice-presidents, H. A. Bond, W. A. Langton; President, S. A. Pentecost; first vice-president, W. B. Van Egmond; second vice-president, F. E. Belfry.

tary-treasurer, L. McGill Allan; executive committee, C. Thetford, W. J. Abra, S. Pator.

Mr. J. B. Henderson, general manager of the Penman Mfg. Co., died at his residence in Paris, Ont., January 21. Mr. Henderson was born in Paris fifty years ago. He started a knitting mill in Streetsville, Ont., about 1878, and conducted same there for three years, afterwards taking over a larger property in Merrittou, Ont., and later on, the Thorold Knitting Co., of Thorold, Ont., which he conducted until 1892. Since that time he has been a director and general manager of the Penman Mfg. Co., which have mills at Paris, Ont., Port Dover, Ont., Thorold, Ont., St. Hyacinthe, Que., and Coaticook, Que.

ALLIS-CHALMERS-BULLOCK, LIMITED.

The directors of Allis-Chalmers-Bullock, Limited, celebrated their first semi-annual meeting with their representatives from all parts of the country, by tendering them and the office staff a dinner in Montreal a few days ago.

The chair was occupied by Mr. George Bullock, Cincinnati, who is president of the company, and the vice-chair by Mr. Edgar Macdougall, Montreal, who is vice president. There were over fifty present, all directly interested in the company. Among them were:—Messrs. B. H. Warren, president, W. Chalmers, treasurer, and W. H. Whiteside, general manager of sales of the Allis-Chalmers Co. of New York, Chicago and Milwaukee. J. S. Neave, vice-president of the Bullock Electric Mfg. Co., Cincinnati; R. W. Chapin, second vice-president and general manager, Colonel Henshaw, H. J. Fuller, J. W. Pyke, Alex. Pringle, Phelps Johnson, W. C. McIntyre, all of whom are directors; W. C. Brown, J. B. Maclean, H. M. Molson, E. K. Greene, C. E. Gudewill and others financially interested.

Mr. Bullock, after the toast to the King and the President, referred to the events of a year ago, when he was ill and Mr. Neave closed the negotiations for the acquisition of the works. At that time the company did not exist, and last night there were over fifty present all deeply interested in the success of Allis-Chalmers-Bullock. They looked to their salesmen for success, and had every reason to believe they would succeed. They looked to the parent companies, the Allis-Chalmers Co., the Bullock Co., the Ingersoll-Sergeant Co., and the Lidgerwood Co., for support and assistance. Without their sustaining powers the company could not exist. He had just returned from the North-West and British Columbia, and was convinced that the success of the company was assured from that territory. He proposed the toast of the salesmen, to which Mr. Alfred Collyer replied.

Mr. Warren dwelt upon the important position of salesmen for, from many years experience in manufacturing, he had come to the conclusion that success depended on their skill, energy and intelligence. He had carefully observed the organization and if Allis-Chalmers-Bul-

lock, did not succeed with their present corps he would be much mistaken. Having given some practical advice, derived from his own experience, he pointed out that success depended upon the co-operation of the parent companies. This was his first visit to Montreal in the joint interest, and he was impressed with the importance of the support that should be given. He then pledged the hearty support of the Allis-Chalmers Co. to Allis-Chalmers-Bullock, Limited. He dwelt upon the value of co-operation in every walk of life, and insisted that good organization meant absolute success.

Mr. Chalmers regretted that he had not a larger interest in the company, and would like to see Allis-Chalmers-Bullock placed in a position to supply every demand.

Mr. Neave briefly told the story of the organization of the company, and declared it could not help being a success with the co-operation of the parent companies.

COL. SELLERS AT OTTAWA.

The main estimates of expenditures by the Dominion Government for the fiscal year ending with June 30, 1906 were presented to the House of Commons January 19. The total amount called for is \$68,664,397, but it must be borne in mind that supplementary estimates will be introduced later which will considerably increase the amount named.

Of the total to be spent on public buildings, Ontario gets \$1,094,200; Prince Edward Island, \$10,000; New Brunswick, \$108,000; Quebec, \$593,000; Manitoba, \$442,000; North-West Territories, \$240,500, and British Columbia, \$133,500.

The Ontario votes for public buildings are as follows:

Belleville Armory	\$30,000
Bowmanville public buildings	7,200
Brantford Drill Hall	25,000
Bridgeburg public buildings	16,000
Chatham Armory	55,000
Cobourg Armory	14,500
Dominion buildings, renewals, improvements, repairs, etc	12,000
Galt public building, alterations to Post-office	3,000
Guelpb Armory	40,000
Guelpb public buildings, addition to	5,500
Hamilton Drill Hall, addition	50,000
Hawkesbury public buildings	13,000
Kingston military buildings, barracks for Royal Canadian Field Artillery	20,000
Kingston military buildings, stable accommodation for field battery	5,000
Kingston Royal Military College, addition to drill hall	6,000
Kingston Royal Military College, servants' quarters	8,000
Kingston Royal Military College, stable	5,000
London military buildings, magazine	3,000
London military buildings, new stores building	10,000
London Post-office, addition and improvements	20,000
North Bay public building	15,000
Oshawa public building	21,500

Peterborough Armory	\$30,000
St. Catharines Drill Hall	15,000
St. Mary's public building	15,000
Sandwich public building	15,000
Simcoe public building	15,000
Sturford Armory	47,000
Toronto Customs House, alterations and additions	15,000
Toronto Dominion buildings, improvements, renewals, repairs, etc	8,000
Toronto Drill Hall, additional accommodation for new corps	40,000
Toronto ex-warehouse addition to	12,000
Toronto military buildings, magazine	3,000
Toronto military buildings, new stores building	10,000
Toronto military buildings, barracks for permanent corps	50,000
Toronto Post-office land, building, pneumatic plant and machinery	100,000
Toronto Post-office, additional postal station	60,000
Toronto postal station "C," quarters for caretaker	1,500
Wingham public building	8,000
Woodstock Armory	45,000
Amherstburg Harbor—improvement of channel, etc., including purchase of land	30,000
Belle River—Dredging and renewing protection work	4,000
Bayfield—Repairs to north pier and dredging	2,500
Beaverton—Harbor improvements	8,000
Blanche River—Improvement of Bracebridge—Wharf	3,000
Bronte—Harbor improvements	8,000
Cobourg—Repairs to piers	5,000
Collingwood—Harbor improvements	60,000
Depot Harbor—Breakwater	20,000
Goderich—Harbor improvements	70,000
Grand Bend—Breakwater, pier, etc	15,000
Harbors, rivers, and bridges—General repairs and improvements to	20,000
Halleybury (Lake Temiskaming)—Wharf	2,500
Hamilton—Harbor improvements	30,000
Kincardine Harbor Repairs to piers and dredging	2,500
Lake Temiskaming—Wharves	3,000
Little Current—Improvements of northern channel	50,000
Matchedash Bay—Improvements channel between Fesserton and Waubashene	8,000
Meaford Harbor—Improvements	66,000
Midland Harbor—Improvements	7,000
Newcastle—Repairs to pier	3,300
Olipphant—Wharf	1,000
Ottawa—Wharf at foot of Rideau Canal	5,000
Owen Sound Harbor—Dredging and protection	10,000
Parry Sound—Wharf	8,000
Petewawa—Wharf	4,000
Pembroke—Wharf	20,000
Penetanguishene—Dredging and other improvements	10,000
Point Edward—Dredging	17,000
Port Burwell—Harbor improvements	50,000
Port Bruce—Wharf	5,000

Port Dover Harbor improvements	\$5,200
Port Hope—Repairs to piers and dredging	5,000
Port Stanley Harbor improvements	70,000
River Otonabee—Dredging at Peterboro'	6,000
Rondeau Harbor Improvements	70,000
Sarnia Dredging	10,800
Saugeen River—Improvements at mouth	10,000
Spanish River Dredging	10,000
Thessalon Breakwater	8,500
Thornbury Dredging	6,750
Toronto Harbor—Eastern entrance	28,000
Toronto Harbor—Extension of Island breakwater	60,000
Treadwell—Wharf	3,500
Warton—Wharf	13,000
Warton—Dredging	9,000

In the estimates for public works, Ottawa gets a good share. For the Dominion Archives building \$15,000 has been voted; for the Royal Mint \$200,000; for the Victoria Memorial Museum \$250,000; for addition to Western Departmental Block \$85,000.

Other Ottawa appropriations are Dept. Buildings—Steel drawers and roller shelves, etc., \$25,000. New coal shed, \$10,000.

Parliament Building—Improvements in main entrance hall, renewal of skylights, windows, etc., \$10,000.

Pavement on Wellington street opposite public buildings, \$35,000.

Ottawa Post Office—Restoration of burned building and addition of new stores, \$80,000.

Government Printing Bureau—To replace the present wooden roof by a fire proof roof and raise the walls for one additional story on main building and two additional stories on annex, \$30,000.

Public School buildings—Heating, including salaries to engineers, firemen and watchmen, \$87,000.

Public buildings—Gas and electric light, including roads and bridges, \$24,000.

Public buildings, including repairs, ventilation and lighting, furniture, etc., \$140,000.

Rideau Hall, including grounds, renewals, improvements, furniture and maintenance, \$25,000.

Rideau Hall—Allowance for fuel and light, \$3,500.

Ottawa—Wharf at foot of Rideau Canal, \$5,000.

Bridges over the River Ottawa, the Slides and the Rideau Canal and approaches thereto—ordinary repairs, \$7,000.

Dufferin and Sappers Bridges over the Rideau Canal, Hull Slides and Union Bridge and roadway approaches, repairs, additions, etc., \$11,000.

Montreal's Post Office is down for \$25,000 for improvements, \$55,000 for pneumatic tube system, and \$50,000 for new postal station. Quebec buildings are to have \$90,000 expended on them. Sherbrooke gets \$10,000. Three Rivers, \$35,000, and St. Hyacinthe, \$30,000, for drill halls. Acton Vale, Chicoutimi, Iberville, Lachute, Levis, Longueuil, Magog, Montmagny, St. Johns, the Mile End, Terrebonne, Thetford Mines, and

Valleyfield are favored with public building re-votes. There is \$20,000 again for barracks and \$10,000 for military stores building at Montreal; \$20,000 for improvements to examining warehouse; \$50,000 for inland revenue building.

Following are the appropriations for public buildings in Nova Scotia:

Antigonish public building	\$15,000
Canso, public building	15,000
Glace Bay, public building	15,000
Halifax Dominion building improvements, repairs, etc.	2,000
Halifax immigrant building, additional story over the one-story portion, etc.	11,000
Halifax immigrant building detention building	24,000
Halifax new public building	112,000
Inverness public building	15,000
Shelburne public building	15,000
Sydney public building, additional	2,500
Sydney Mines public building	14,000

Following are the appropriations for harbors and rivers in Nova Scotia:

Apple River wharf	\$3,000
Buddeck wharf	5,000
Barnebois boat harbor	1,500
Bass River, repairs to wharf	500
Bay St. Lawrence, boat harbor	5,500
Bear Cove, breakwater	5,500
Breton Cove, boat landing	4,000
Beckerton, public wharf	2,700
Bridgewater, dredging	5,000
Broad Cove Marsh, repairs to wharf	3,700
Carlos Cove, breakwater	5,000
Clark's Harbor, removal of rocks from channel	4,000
Country Harbor, removal of obstruction	2,200
Church Point, extension	1,200
Cow Bay (Port Morien) repairs to breakwater	20,000
Cow Bay Run, breakwater to protect outlet of harbor	500
Colloiden, breakwater	2,000
Cunningham's Point wharf, on Milford Haven River	260
Devil's Island, breakwater	4,000
Digby Pier, repairs and renewals	1,000
East Chezzetcook, breakwater	4,000
Freeport, landing pier	14,000
Gabarus, harbor improvements	20,500
Georgeville wharf, extension	1,300
Habitant River, wharf at Canning	16,500
Harrigan's Cove, wharf	800
Indian Harbor, wharf	1,400
Inverness (Broad Cove) Mines Harbor, repairs to harbor works	10,000
Janvri's Island, wharf	600
Jersey Cove (or Eel Cove) wharf	3,000
L'Ardoise, extension of breakwater up to the shore	7,500
Larry's River, breakwater, extension	1,500
Litchfield, breakwater	1,000
Little Brook, repairs to breakwater	5,000
Little Jidique, boat harbor	1,000
Loug Point, wharf	2,000
Lunenburg, dredging harbor	5,000
Mahou Bridge, wharf	1,800
Mahone Bay, dredging	5,000
Mais-a-Dieu, breakwater on west side of harbor	7,000

Malignant Cove, close piling end and sides of channel piers with eroded piles	\$1,000
Margaree Harbor, improvements	1,000
Margaretville, general repairs to and extension of breakwater	1,500
Meteghan Cove, restoration of breakwater	4,000
Mill Cove, breakwater	13,500
New Campbellton, ballast wharf in Kelley's Cove	12,000
Newport Landing, wharf	5,200
Noel wharf, repairs	1,200
Ogden's Pond, to complete protection works	800
Pembroke, breakwater	800
Pleasant Bay, wharf	6,700
Plymouthton, repairs to breakwater	2,500
Port Greville, extension to breakwater and repairs	8,000
Port Hastings, wharf	4,000
Port Hood Harbor, closing northern entrance with brush and stonework	10,000
Port La Tour, extension of breakwater	11,000
Scott's Bay, extension of breakwater, etc.	2,100
Shelburne Harbor, dredging	4,000
Skinner's Cove, boat channel and protection work	8,000
Summerville, wharf additional	2,500
Three Fathom Harbor, restoration of beach protection work	1,500
Victoria Beach, wharf	58,000
Wallace Harbor, improvements and repairs	12,000
West Arichat, wharf	7,200
White Head, wharf	4,000
Wolfville, wharf	6,000
Yarmouth Harbor, retaining walls	10,000

The expenditure at Port Colborne, Ont., will be noted. It is to be observed that the total expenditure on the Welland Canal in the ensuing year will be heavy. In the capital expenditure credited to the Railways and Canals Department appear estimates aggregating \$987,000. The details are:

Improvements at Port Colborne entrance	\$250,000
Electric lighting and power plant	100,000
To remove obstructions and make other improvements	75,000
To deepen portions of summit level between Port Colborne and Thorold	80,000
To remove centre piers and rebuild bridges at Niagara and Queenston streets, and Homer Road crossings	150,000
To make survey of canal	20,000
Elevator at Port Colborne including foundations	310,000
Additional items for the Welland Canal, chargeable to income, are as follows:	
Stone protection to banks of new canal	\$10,000
To change valves and hanging gear of new Welland Canal lock gates	15,000
To build retaining wall in rock cut	60,000

For the Sault Canal \$100,000 is to be voted, and for the Trent Canal \$300,000. The Montreal expenditures include:

Barracks for Permanent Corps	\$20,000
Examining Warehouse, etc.	20,000
Inland Revenue Building (site for addition to be furnished by city)	50,000
Military Building (new stores building)	10,000
Post Office improvements	25,000
Post Office (installation of pneumatic tube system for post-office purposes)	55,000
New Postal Station (site and building)	50,000
Public Buildings (improvements)	8,000

The Toronto appropriations under the head of river and harbor service are \$28,000 for dredging the eastern entrance to the harbor, and \$60,000 for an extension of the Island breakwater.

Under the heading transportation facilities, French River survey is down for \$157,000; Montreal harbor, below St. Mary's current, for \$90,000, and Port Colborne for \$150,000.

The item of \$6,402,210 for railways and canals chargeable to capital includes \$2,676,850 for the Intercolonial; \$664,360 for the Prince Edward Island Railway, and \$1,328,500 for surveys, construction and expenses of the National Transcontinental Railway.

Following are the appropriations for the Intercolonial Railway, chargeable to capital:

Increased accommodation at Sydney	\$81,500
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Dredging at deep water terminus, Halifax	\$18,000
New station at Windsor	11,000
Increased accommodation Stel-larton	30,000
Increased accommodation at Truro	50,000
Increased accommodation at Halifax	200,000
Improvement at North Sydney	23,200
Increased accommodation at Antigonish	9,000
Increased accommodation at Am-herst	28,000
Extension to Sydney Mines	50,000
Increased accommodation at Charlottetown	108,000

Under the heading of mail subsidies and steamship subventions is to be noted a new vote of \$50,000 for a steamship service between Canada and New Zealand. Under the head of ocean and river service is a vote of \$100,000 for the Government steamers and ice-breakers, an increase of \$75,000. The establishment of Marconi stations will account for \$100,000, an increase of \$55,000, while \$70,000 is provided for submarine signal apparatus. This latter is a new expenditure.

One important vote is \$1,328,500 for the National Transcontinental Railway, as against \$500,000 for 1904-5.

Following are the appropriations for Prince Edward Island Railway:

To increase accommodation at Char-lottetown	\$108,000.
Murray Harbor Branch and Hills-borough Bridge	\$357,400.

To improve water service	\$10,200.
Branch line from Cardigan to Montague Bridge	\$75,000.
Summerside improvements	\$8,000.
Branch line to Vernon River Bridge	\$30,000
Swing span for Morell River Bridge	\$15,000.
To apply M.C.B. couplers to rolling stock	\$11,000.
To fit up locomotives and passenger cars for steam heating	\$7,000.
To apply Westinghouse air brakes and air signals	\$20,000.
To increase accommodation at Ken-sington	\$2,200.
To increase accommodation at George-town	\$18,500.

Following are appropriations for har-bors, piers, etc., in Prince Edward Island:

- Higgins' Shore, pier work of recon-struction and repairs, \$1,000.
- Miminegash Harbor, extension of break-water and cribwork revetment at inner end, \$4,000.
- McPherson's Cove wharf, \$9,000.
- New London, repairs to breakwater, etc., \$3,500.
- Panmure Island, wharf on south side of island, \$1,000.
- Pont Prim Island, wharf, \$5,000.
- Repairs to piers and breakwaters, \$6,000.
- Repairs to piers and breakwaters, creosoted timber, \$5,000.
- Richmond Bay, reconstruction of wharf near Grand River Ferry, \$5,000.
- Rustico Harbor, breakwater, on Robin-

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son's Island, south side of entrance to harbor, \$11,000.

Rustico Harbor, repairs to breakwater on north side of entrance, dredging, \$2,250.

St. Peter's Bay, breakwater on east side entrance to harbor, \$7,500.

Savage Harbor, sand hurdles, etc., \$1,000.

Souris, Knight's Point, strengthening of breakwater, etc., \$5,000.

Summerside Harbor, breakwater, \$20,000.

Tignish Harbor, addition to southern breakwater, \$3,000.

Wood Islands, protection of southern breakwater, \$7.5.

Appropriations for Public Buildings in Prince Edward Island.

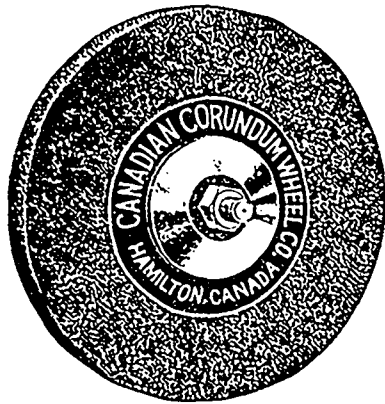
Souris Public Buildings, \$10,000.

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the reluctant radiator is held in the circulating atmosphere of the room, which is soon changed from cold to warm at a trifling cost for electric energy.

The exports of iron ore and tin plate from the United States during the 11 months ending November, 1904, show large increases compared with the same period ending November, 1903, the figures being: For 1903, 80,441 tons of ore and 203 tons of tin plate; for 1904, 203,411 tons of ore and 7,358 tons of tin plate. In response to an inquiry as to the destination of these exports, the government bureau of statistics states that the ore went to the following countries: Quebec and Ontario, 162,046 tons; Belgium, 21,379; Nova Scotia, 15,458; Scotland, 4,373, four other countries, 44. The countries to which the tin plate was exported were Quebec and Ontario 1,562 tons, British Columbia, 506; Japan, 2,201; and 89 tons divided among 16 other countries.



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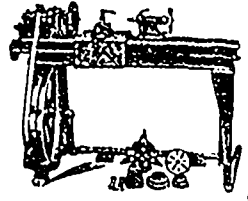


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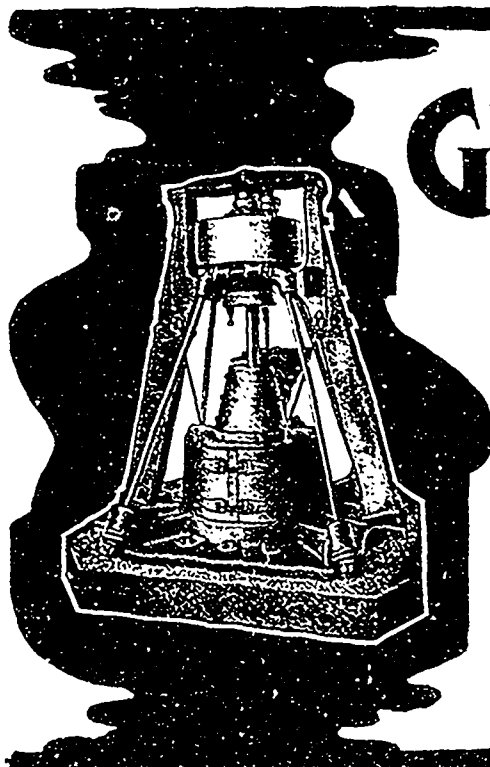
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PATENTS GRANTED.

Messrs. Fetherstonhaugh & Co., patent solicitors, Toronto, have sent us the following list of patents recently obtained by them

Canadian Patents: — J. H. Knope, Newmarket, Ont., mail boxes; O. Tandif,

Plessisville, Que., planing mill; J. Walsh, Huntingdon, Que., gates; H. Slater and J. Carpenter, Lachute, Que., turning lathes; A. E. LeSueur, Ottawa, process and apparatus for separating fluids rich in oxygen from air; W. Dick, Bolton, Ont., plows; R. Hareourt, Toronto, smoke jacks; C. H. Hutchings, Toronto, holding machine; J. Richmond, Blyth, Ont., threshing machines; H. Power, Toronto, Ont., convertible cars; J. Lemire, Drummondville, Que., railway signalling system; I. Deatsch, Montreal, apparatus for controlling the voltage from an electric generator; A. M. Mosley, Guelph, Ont., process of and means for applying brands or trade marks to pipes during their process of manufacture; P. Rosenbes, Toronto, electric cloth cutting machines; J. Thornton, Cashtown, Ont., drain tile moulds; H. R. McDonald, Vancouver, B.C., knife blade structure; P. Reynolds, Farham, Que., and J. A. Raoul, Bedard, Me., machines for pressing wet peat; E. Von Der Osten, Toronto, bridge construction; A. D. Bentely, Toronto, signalling apparatus.

United States Patents: — Wm. T. Gibbs,

Buckingham, Que., treating alkaline solutions of chromate of soda, also making hydrochloric acid; P. W. Finkle, Toronto, skate; A. Tetreault, Conticook, Que., sewing machine; James Wagner, Hamilton, Ont., automatic window or door alarm.

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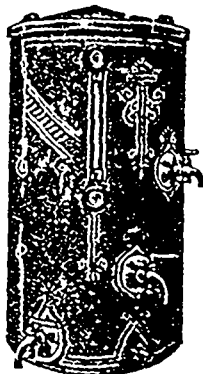
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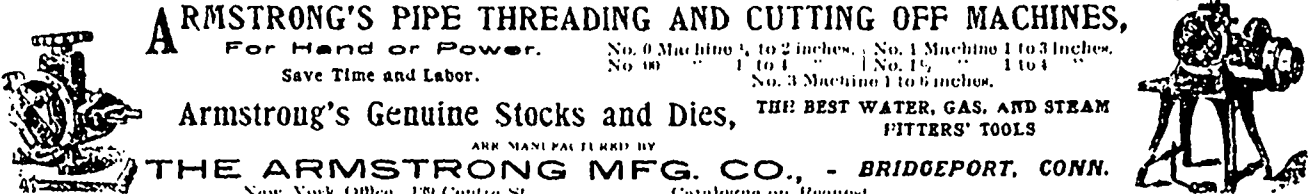
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The Classified Index of products of advertisers in this journal, begins in page 42. Consult it.

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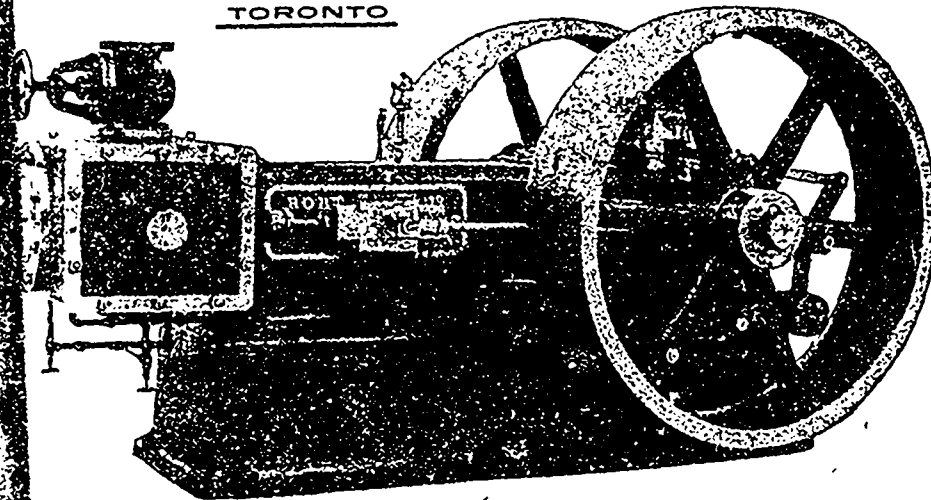
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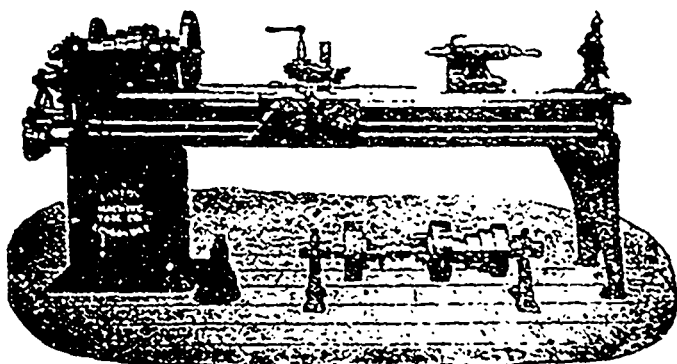


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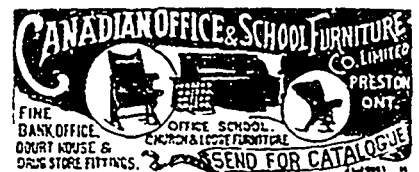
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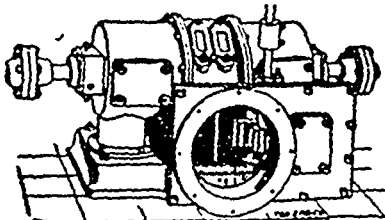
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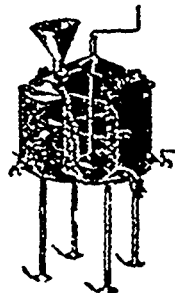


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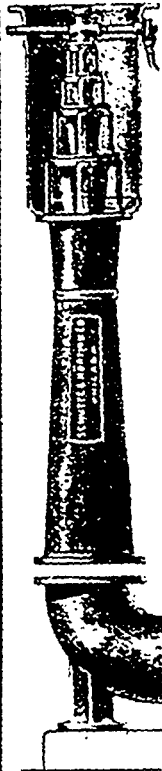
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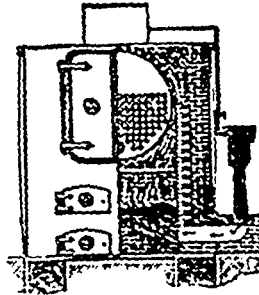
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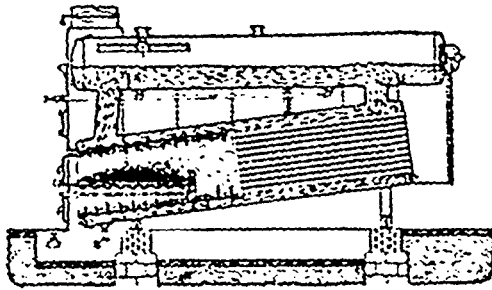
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Rico Lewis & Son, Toronto.
Williams, A. H. Machinery Co., Toronto.

Air Compressors

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek Mich.
Canada Foundry Co., Toronto.
Canadian Hand Drill Co., Sherbrooke, Que.
Corbett R. B., Brooklyn, N. Y.
Darling Bros., Montreal.

Aluminum

Northern Aluminum Co., Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Angles, Beams and Girders

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N. S.

Aniline Colors and Dyewood Extracts

Hellhouse, Dillon & Co., Montreal.
Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Cassella Color Co., New York City.
Geigy and Co. Extract Co., New York City.
McArthur, Cornelio & Co., Montreal.
Nicholls Chemical Co., Montreal.
Winn & Holland, Montreal.

Annealing Muffles and Furnaces (Wire)

Leslie, A. C. & Co., Montreal.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Antimony

Syracuse Smelting Works, Montreal.

Anvils and Vices

Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
Rico Lewis & Son, Toronto.

Architects

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

Automatic Gear Cutting Machines

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

Axles

Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow N.S.

Babbitt Metal

Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Syracuse Smelting Works, Montreal.

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
Rico Lewis & Son, Toronto.

Belt Dressing

McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rosedale Belting Co., Toronto.
Williams, A. H. Machinery Co., Toronto.

Belt Fasteners

Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rosedale Belting Co., Toronto.
Williams, A. H. Machinery Co., Toronto.

Belting (Cotton)

Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Grey, Wm. & J. G., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rosedale Belting Co., Toronto.

Belting (Leather)

Fleming, W. A. & Co., Montreal.
Grey, Wm. & J. G., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rosedale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. H. Machinery Co., Toronto.

Belting (Rubber)

Grey Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, D. K., Montreal and Toronto.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.

CLASSIFIED INDEX.

(CONTINUED).

Belting and Supplies

Bristol Co., Waterbury, Conn.
 Dominion Belting Co., Hamilton, Ont.
 Fleming, W. A. & Co., Montreal.
 Greer, Wm. & J. G., Toronto
 Gutta Percha & Rubber Mfg. Co., Toronto
 Jeffrey Mfg. Co., Columbus, Ohio
 McLaren, D. K., Montreal and Toronto.
 McLaren, J. C. Belting Co., Montreal and Toronto.
 Petrie, H. W., Toronto.
 Pittsburgh Shafting Co., Detroit, Mich.
 Rice Lewis & Son, Toronto.
 Rosendale Belting Co., Toronto.
 Williams, A. R. Machinery Co., Toronto

Blast Furnace Brick

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

Blowers

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

Boiler Compounds

Canada Chemical Mfg. Co., London, Ont.
 Lord, Geo. W. Co., Philadelphia, Pa.
 Smith, D., Montreal.

Boiler Inspection

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

BOILERS (See Engines and Boilers)

Brass Foundries

Hamilton Brass Mfg. Co., Hamilton, Ont.
 Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.
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Brick and Bricklaying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.

Building and Paving Brick

Dover Fire Brick Co., Cleveland, Ohio.
 Dunbar Fire Brick Co., Pittsburgh, Pa.
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 Pennsylvania Fire Brick Co., Lock Haven, Pa.
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 Reese-Hammond Fire Brick Co., Bolivar, Pa.
 Stowe-Fuller Co., Cleveland, Ohio.

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

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
 Canada Foundry Co., Toronto.
 Canadian Otis Elevator Co., Toronto.
 Expanded Metal & Fireproofing Co., Toronto.
 Barchess, John J., Toronto.
 Hopkins, F. H. & Co., Montreal.
 Meadows, Geo. B. Wire, Iron & Brass Works, Toronto.
 Metallic Roofing Co., Toronto.
 Owen Sound Portland Cement Co., Owen Sound, Ont.
 Pittsburgh Shafting Co., Detroit, Mich.
 Rice Lewis & Son, Toronto.
 Sheldon & Sheldon, Galt, Ont.

Cables

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

Canada Plates

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

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

Reese-Dalsell Crucible Co., Pittsburgh, Pa.

Card Clothing

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

Cast Iron Pipe

Canada Foundry Co., Toronto.
 McSherr-Thomson Pipe & Foundry Co., Hamilton, Ont.
 Rice Lewis & Son, Toronto.
 Special Pipe Foundry Co., Montreal.
 Stouffer, John, Caledonian Iron Works Co., Montreal.

Castings (Iron and Brass)

Buhl Malleable Co., Detroit, Mich.
 Greer, Wm. & J. G., Toronto.
 Kerr Engine Co., Walkerville, Ont.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal
 Bradley Pulverizer Co., Boston, Mass.
 Greer, Wm. & J. G., Toronto.
 McDougall, John, Caledonian Iron Works Co., Montreal

Chain Making Machinery (Welded Coil Chain)

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

Channels

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

Charcoal Pig Iron

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

Chemists

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

Clay Working Machinery

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

Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio
 Boynton, F. M., Inc., Buffalo, N.Y. and Pittsburgh, Pa.
 Browlee, J., Galt, Ont.
 Burton, Heidler & Phillips Co., Cleveland, Ohio.
 Ferguson, J. D., Hamilton, Ont.
 Hoffman, Jules G., Detroit, Mich.
 Milnes, James H. & Co., Toronto.
 Myles' Sons, Hamilton, Ont.
 Pittsburgh Coal Co., Pittsburgh, Pa.
 Rochester & Pittsburgh Coal & Iron Co., Buffalo, N.Y.
 Shawmut Coal & Coke Co., St. Mary's, Pa.
 Shepard, Charles G., Buffalo, N.Y.
 Shipman, O. W. Co., Detroit, Mich.
 Wick, H. K. & Co., Buffalo, N.Y.
 Wilson H. T. Coal Co., Detroit, Mich.

Coal Cutting Machines

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

Coal Triples

Jeffrey Mfg. Co., Columbus, Ohio.

Coil Chains

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

Coke Oven Brick

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

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. & Co., Montreal

Contractors' Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Garbshore, John J., Toronto.
 Hopkins, F. H. & Co., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Contractor's Plants

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

Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
 Babcock & Wilcox, Limited, Montreal
 Borden & Selock Co., Chicago, Ill.
 Buhl Malleable Co., Detroit, Mich.
 Canada Foundry Co., Toronto.
 Greer, Wm. & J. G., Toronto.
 Jeffrey Mfg. Co., Columbus, Ohio.
 Link-Belt Engineering Co., Philadelphia, Pa.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Perrin, William R. & Co., Limited, Toronto
 Pittsburgh Shafting Co., Detroit, Mich.
 Rosendale Belting Co., Toronto.

Copper Materials

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

Correspondence Schools

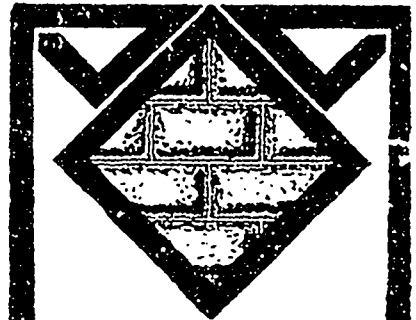
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Canada Corundum Co., Toronto.

Corundum Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
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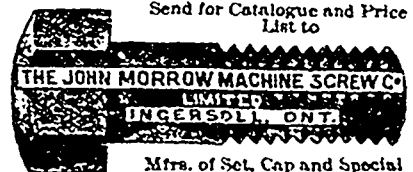
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Crayons

Lowell Crayon Co., Lowell, Mass.

Crucibles

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McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.
Synecure Smelting Works, Montreal

Crucible Caps

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

Crucible Covers

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

Cutter Grinding Machines

Becker Brannard Milling Machine Co., Hyde Park,
Mass.

Decalcomania

Meyercood Co., Chicago, Ill.

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Dewar Detective Agency, St. Louis, Mo.

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

Directories

Kelly's Directories, Limited, Toronto.

Draw Benches (Wire)

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

Drills

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

Drills (Pneumatic and Rock)

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

Drills (Twist)

Pittsburg Shafting Co., Detroit, Mich.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio

Dry Kiln Apparatus

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

Dust and Shavings Separators

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

Dye Stuffs and Chemicals

Hellhouse, Dillon & Co., Montreal.
Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Cassell's Color Co., New York City.
Geigy Aniline & Extract Co., New York City.
McArthur, Corneille & Co., Montreal.
Nichols Chemical Co., Montreal.
Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamios)

Electric Motors and Transformers

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

Electric Mine Locomotives

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

Electrical Repairs

Volta Electric Repair Works, Toronto.

Electrical Supplies

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

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Buhl Malleable Co., Detroit, Mich.
Canadian Otis Elevator Co., Toronto.

Darling Bros., Montreal.
Greer, Wm & J. G., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto

Emery and Emery Wheels

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

Engineers (Chemical)

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

Engineers (Civil)

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

Engineers (Consulting)

Aitken, K. L., Toronto.
Delano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Hunt, Robert W. & Co., Chicago, Ill.
Marion & Marion, Montreal.
Parke, R. J., Toronto.
Parry, William R. & Co., Limited, Toronto.
Simpson, T. F., Deschenes, Que.
Vogel, C. H., Ottawa.
Volta Electric Repair Works, Toronto.
Von der Osten, E. & Co., Toronto.

Engineers (Contracting)

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

Engineers (Electrical)

Aitken, K. L., Toronto.
Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Crocker-Wheeler Co., St. Catharines, Ont.
Delano-Osborn Engineering Co., Toronto.
Electric Engineering & Supply Co., Montreal.
Electrical Construction Co., London, Ont.
Jones & Moore Electric Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto.
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Buhl Malleable Co., Detroit, Mich.
Darling Bros., Montreal.
Delano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Greer, Wm. & J. G., Toronto.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Hunt, Robert W. & Co., Chicago, Ill.
Kerr Engine Co., Wakeville, Ont.
Marion & Marion, Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Engineers (Mill and Hydraulic)

Buhl Malleable Co., Detroit, Mich.
Delano-Osborn Engineering Co., Toronto.
Hawkinson, Alfred, Montreal.
Vogel, C. H., Ottawa.

Engineers (Mining)

Buhl Malleable Co., Detroit, Mich.
Heys, Thomas & Son, Toronto.
Mills, S. D., Toronto.

Engineers (Municipal)

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

Engineers and Contractors

Buhl Malleable Co., Detroit, Mich.
Jeffrey Mfg. Co., Columbus, Ohio.

Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Babeck & Wilcox, Limited, Montreal.
Bertram Engine Works Co., Toronto.
Canada Foundry Co., Toronto.
Canadian Heine Safety Boiler Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

McEachren Heating & Ventilating Co., Galt, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R. Machinery Co., Toronto.

Engravers

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

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Exhaust Fans

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

Exhaust Hoods

Burt Mfg. Co., Akron, Ohio.
Darling Bros., Montreal.

Explorer and Geologist

Evans Horner F., Ashcroft, B.C.

Factory Sites

Central Ontario Power Co., Peterboro, Ont.

Feed Water Heaters

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

Files

Reece, R. & Co., Hamilton, Ont.

Financial

Wallstreet's, New York City.
Dun, R. G. & Co., Toronto.
Hoff & Postelnschwaite, Toronto.
Frie H. D., Hamilton, Ont.

Filters (Oil)

Alcock & Wilcox, Limited, Montreal.
Burt Mfg. Co., Akron, Ohio.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co. Limited, Toronto.

Filters and Filtering Systems (Water)

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

Fire Brick and Clay

Best Fire Brick Co., Cleveland, Ohio.
Dobbs Fire Brick Co., Pittsburgh, Pa.
Dunlop Facing Mill Co., Hamilton, Ont.
Gibson-Walker Refractories Co., Pittsburgh, Pa.
Pennsylvania Fire Brick Co., Look Haven, Pa.
Reese Fire Brick Co., Look Haven, Pa.
Hammond Fire Brick Co., Boliver, Pa.
Fuller Co., Cleveland, Ohio.

Fire Escapes

Darling Bros., Montreal.
McGee, Geo. H., Wire, Iron & Brass Works, Toronto.

Flour Mill Machinery

Alcock & McCulloch Co., Galt, Ont.
Greig, Wm. & J. G., Toronto.

Forges and Blowers

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

Founders

Canada Foundry Co., Toronto.
Alcock & Co., Galt, Ont.
Barnhart-Blomson Pipe & Foundry Co., Hamilton, Ont.
Alcock & McCulloch Co., Galt, Ont.
Greig, Wm. & J. G., Toronto.
Darling Bros. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Foundry Facings and Supplies

Dunlop Facing Mill Co., Hamilton, Ont.

Fuel Economizers

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

Furniture (Lodge, Opera and School)

Wheeler Office & School Furniture Co., Preson, Ont.

Galvanizing

Darling Bros. Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Vaughan & Taylor Co., Cuyahoga Falls, Ohio.

Gas and Gasoline Engines

Alcock & McCulloch Co., Galt, Ont.
Greig, Wm. & J. G., Montreal.

Gauges (Recording Pressure)

Alcock & Wilcox, Limited, Montreal.

Gauges (Steam)

Darling Bros. Steam Pump Co., Battle Creek, Mich.
Darling Bros. Injector Co., Windsor, Ont.
Wm. & J. G., Toronto.

Gauges (Water)

Alcock & Wilcox, Limited, Montreal.
Darling Bros. Injector Co., Windsor, Ont.

Generators

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

Gloves, Mittens and Moccasins

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

Glue Heaters

Advance Machinery Co., Toledo, Ohio.
Greig, Wm. & J. G., Toronto.

Glue Room Equipment

Advance Machinery Co., Toledo, Ohio.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos., Crucible Co., Jersey City, N.J.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Grease Cups

Penberthy Injector Co., Windsor, Ont.

Grinding Machinery

Canadian Corundum Wheel Co., Hamilton, Ont.
Greig, Wm. & J. G., Toronto.

Hardware

Butterfield & Co., Rock Island, Que.
Gartshore, John J., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Rice Lewis & Son, Toronto.
Ryall Machine Screw Co., Montreal.

Heating and Ventilating Apparatus

Darling Bros., Montreal.
McEnchren Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Bertram Engine Works Co., Toronto.

Hoists (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Hand Drill Co., Sherbrooke, Que.
Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.

Hydrants

Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

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

Hydraulic Machinery

Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie H. W., Toronto.
Wilson, J. C. & Co., Glenora, Ont.

Industrial Plants

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

Insulated Wires and Cables

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

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Brown & Co., Paris, Ont.
Huhl Malleable Co., Detroit, Mich.
Canada Foundry Co., Toronto.
Leshe, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Montreal.
Meadows, Geo. B., Wire, Iron & Brass Works Co., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Rochester & Pittsburg Coal & Iron Co., Buffalo, N.Y.
Ryall Machine Screw Co., Montreal.

Injectors

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

Iron and Steel Inspection

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

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HEAD OFFICE, HAMILTON, ONT.

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PUBLISHER
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Lamps—Electric

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

Lathes

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

Lathes (Wood-working)

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

Lubricators

Penberthy Injector Co., Windsor, Ont.

Machinists

Bertram Engine Works Co., Toronto.
Buhl Malleable Co., Detroit, Mich.
Goldie & McCulloch Co., Galt, Ont.
Greay, Wm. & J. G., Toronto.
London Machine Tool Co., London, Ont.
Worth & Martin Toronto.

Machinists' Supplies

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

Machine Tools

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

Machinery Repairs

Bertram Engine Works Co., Toronto
Greay, Wm. & J. G., Toronto.

Malleable Iron Castings

Buhl Malleable Co., Detroit, Mich.
Smith's Falls Malleable Castings Co., Smith's Falls,
Ont.

Marine and Stationary Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Bertram Engine Works Co., Toronto.

Mechanical Draft

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

Metal Gates

Pago Wire Fence Co., Walkerville, Ont.

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.

Metallurgists

Mills, S. D., Toronto.

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Becker-Brainard Milling Machine Co., Hyde Park,
Mass.

Buhl Malleable Co., Detroit, Mich.
Darling Bros., Montreal.
Fleming, W. A. & Co., Montreal.
Garthore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Greay, Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm., Mfg. Co., Peterborough, Ont.
Hawkesworth, Alfred, Montreal.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Mont-
real.

McLaren, D. K., Montreal and Toronto.
Penberthy Injector Co., Windsor, Ont.

Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Robb Engineering Co., Amherst, N.B.
Ryall Machine Screw Co., Montreal.
Spence, R. & Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Milling Cutters and Machines

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

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal
Anton, John & Son, Monongahela, Pa.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal
Buhl Malleable Co., Detroit, Mich.
Canadian Road Drill Co., Sherbrooke, Que.
Corbett, R. B., Brooklyn, N.Y.
Garthore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Petrie, H. W., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Nickel.

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

Novelty Manufacturers

Worth & Martin, Toronto.

Nozzles

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

Office and Bank Fittings

Canadian Office & School Furniture Co., Per-
th, Ont.
Meadows, Geo. B., Wire, Iron & Brass Works, Co-
rono, Ont.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
Fleming, W. A. & Co., Montreal.
Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

Paints and Colors

Bellhouse, Dillon & Co., Montreal.
Berry Bros., Walkerville, Ont.
Fleming, W. A. & Co., Montreal.
Goisy, Aniline & Extract Co., New York City
McArthur, Corneille & Co., Montreal

Paper Manufacturers

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

Patents

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

Perforated Metals

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

Personal Accident

Canadian Casualty & Boiler Insurance Co., In-
gersoll, Ont.

Phosphorizers

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

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio
Canada Iron Furnace Co., Montreal
Nova Scotia Steel & Coal Co., New Glasgow,
Shepard, Charles G., Buffalo, N.Y.
Syrause Smelting Works, Montreal

Pipe (Riveted, Iron and Steel)

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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Pipe Threading Machines

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

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Dartmouth-Thomson Pipe & Foundry Co., Hamilton, Ont.
Montreal Pipe Foundry Co., Montreal.
Rice Lewis & Son, Toronto.

Plaster

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

Plates

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

Plumbago

Hamilton Lacing Mills Co., Hamilton, Ont.
Hillsborough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

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

Pointer Bolls (For Rods and Wire)

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

Portland Cement

Owen Sound Portland Cement Co., Owen Sound, Ont.
Pittsburg Co., Toronto.
St. Lawrence Portland Cement Co., Montreal.

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Deering Bros., Montreal.
Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Moore & Moore Electric Co., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Marshall Electric Co., St. Catharines, Ont.
Petrie, H. W. & Co., Limited, Toronto.
Rice Lewis & Son, Toronto.
Turner, Eugene F., Electrical Works, Montreal.
Pittsburgh Shafting Co., Detroit, Mich.
Engineering Co., Amherst, N.S.
Petrie, H. W. & Co., Boston, Mass.
Petrie, H. W. & Co., Hamilton, Ont.
Marshall Electric Co., Toronto.
Petrie, H. W. & Co., Glenora, Ont.

Presses (Tile, Sewer Pipe, Nozzles and Sleeves)

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

Pulleys

Deering Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W. & Co., Toronto.
Hamilton Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Green, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W. Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Petrie, H. W. & Co., Glenora, Ont.

Pumps and Pumping Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Deering Bros., Montreal.
Pump Co., Downsville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Wind Engine & Pump Co., Toronto.
Petrie, H. W. Toronto.

Punches and Shears

Machinery Co., Sarina, Ont.
Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W. Toronto.

Purifiers

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

Purifying and Softening Systems (Water)

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

Railroads

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

Railway Supplies

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

Reamers

Butterfield & Co., Rock Island, Que.

Rivets

Bourne-Fuller Co., Cleveland, Ohio.

Rock and Ore Crushers

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

Roller Bearings

Pittsburg Shafting Co., Detroit, Mich.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

Roofing

Bourne-Fuller Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.
Pittsburg Shafting Co., Detroit, Mich.

Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

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

Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Screws

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

Screw Plates

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

Shafting

Allis-Chalmers-Bullock, Limited, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Greene, Wm. & J. G., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W. Toronto.
Pittsburgh Shafting Co., Detroit, Mich.

Shapers and Carvers

Advance Machinery Co., Toledo, Ohio.

Shear Knives

Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel)

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

Sheet Metal Goods

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.

Sheet Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Ryall Machine Screw Works, Montreal.

Ship Builders

Bertram Engine Works Co., Toronto.
Ramage Edward, Toronto.

Smoke Stacks

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Solder

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

THE CANADIAN MANUFACTURER

J. J. CASSIDY, Manager.

PUBLISHED TWICE A MONTH.

Devoted to the Industrial Interests of Canada.

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