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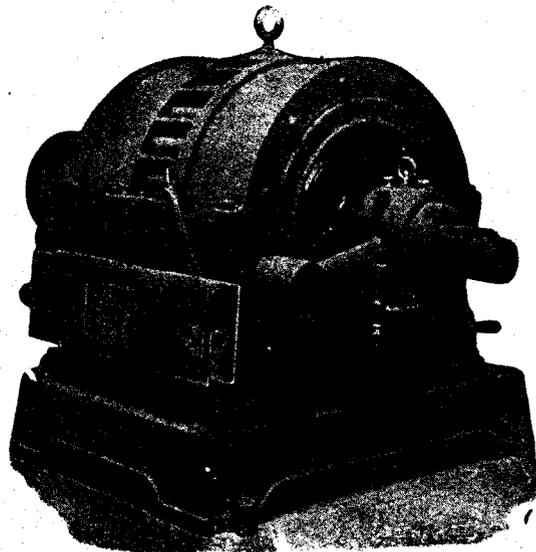
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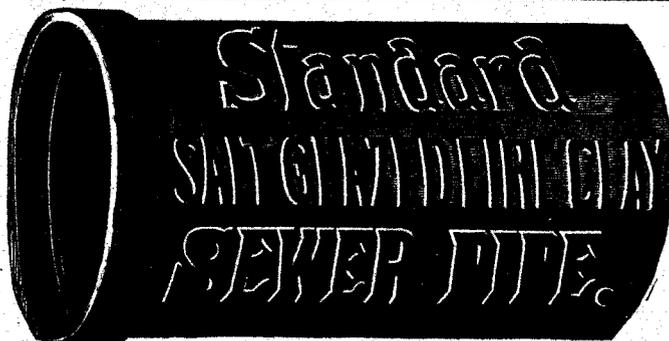
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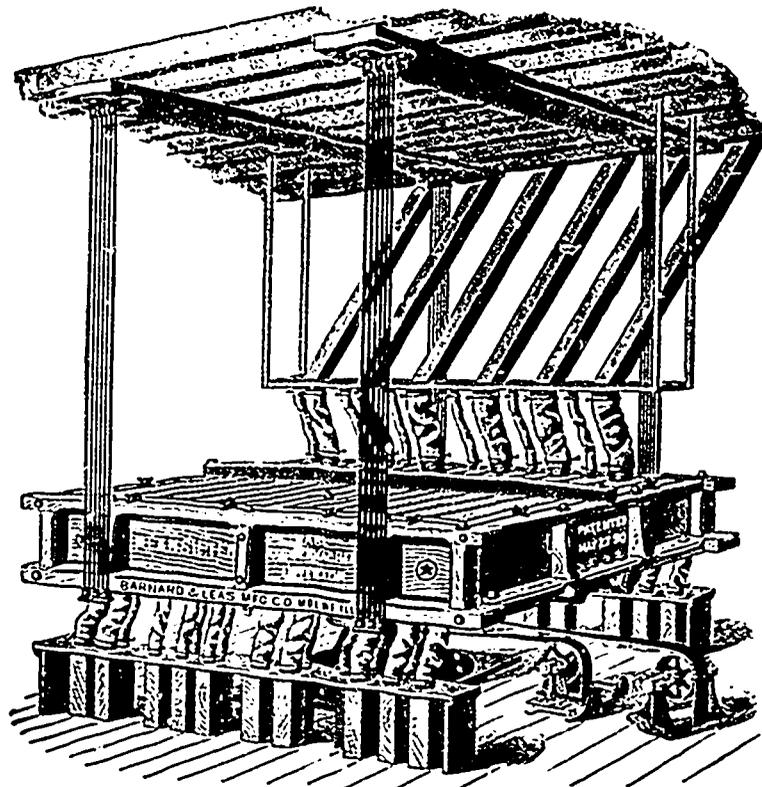
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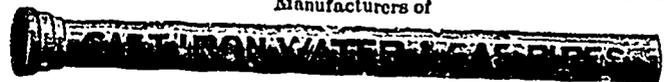
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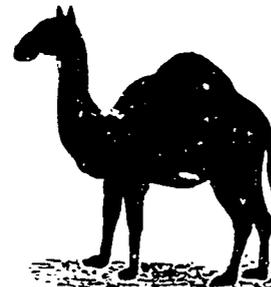
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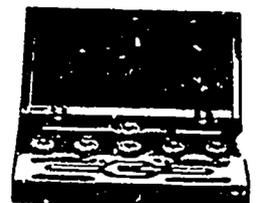
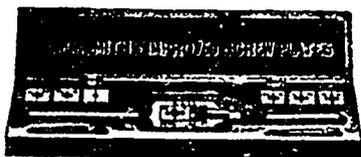


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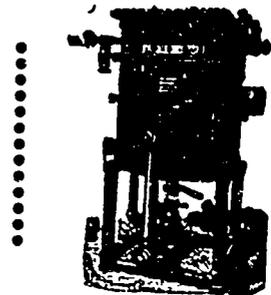
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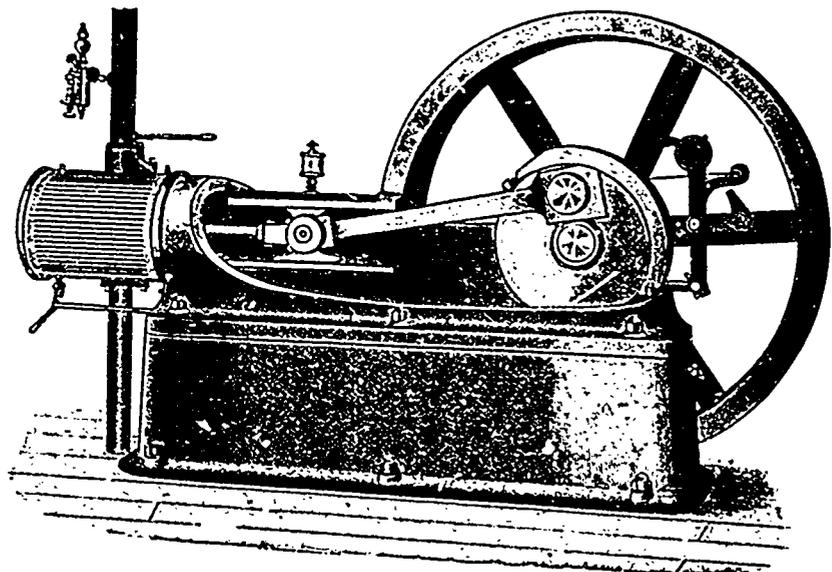
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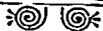
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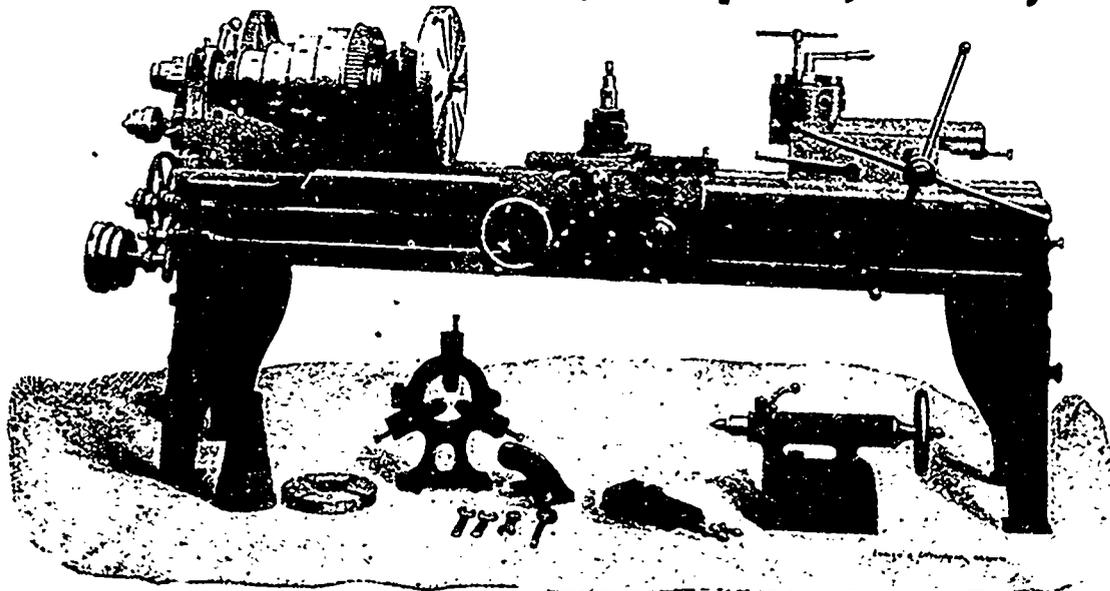
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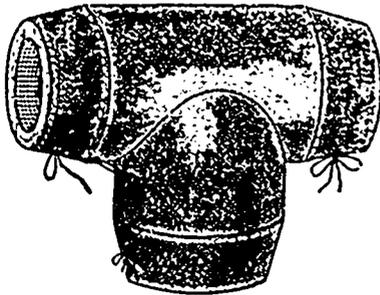
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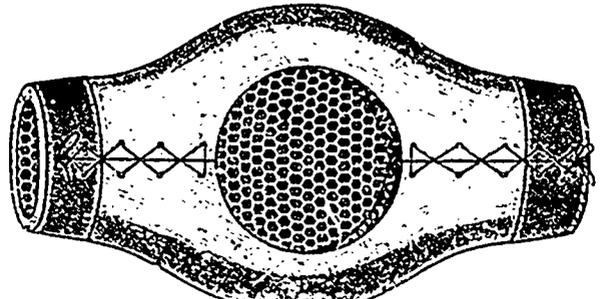
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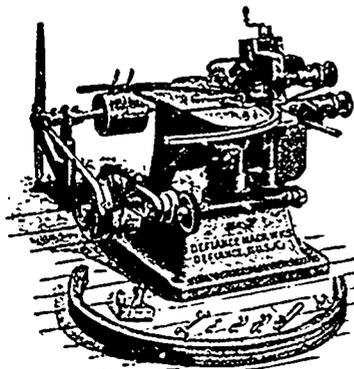
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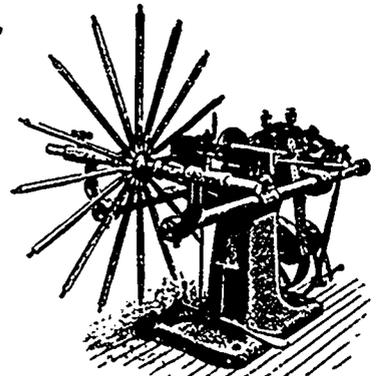
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CARPET MANUFACTURERS' ASSOCIATION

President,	JAMES P. MURRAY
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Secretary,	J. J. CASSIDEY.

GLOVE MANUFACTURERS' ASSOCIATION

President,	W. H. STOREY.
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REPRESENTATIVES TO

TORONTO INDUSTRIAL EXHIBITION ASSOCIATION

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J. J. CASSIDEY.	

OUR GREAT NORTH LAND.

The report of the exploring steamer Diana which has been up the Labrador coast and into Hudson Bay, is that she was only able to reach the mouth of Hudson Strait as late in the season as June 23rd, even the passage was badly blocked with ice. The steamer's daily journey from that date furnishes a terrible record of hardships and difficulties in making the passage. The Diana stuck fast in the ice for days together, and was frequently jammed and crushed in the terrible ice-floes. Her rudder was lost, her screw smashed, and the ves-

was frequently thrown entirely out of the water. At times her situation was so critical that the life-boats were made ready to quit ship. Captain Wakeham, her commander, says that no heavy vessel could have withstood the ice, which was often from 20 to 30 feet thick. The whole time until July 16th was occupied in pressing through the strait into the bay.

Without wishing in the least to disparage Captain Wakeham's record, it is encouraging to compare with it the opinion of Rear Admiral Albert Markham, whose explorations in the same region are pretty well known. The agitation for the James Bay Railway has created an unusual interest in the region away to the north of us. We have been told that it is rich in fisheries, furs and minerals.

It is well known that for many years the northern portions of Hudson Bay and the numerous channels to the north of it have been favorite American and Dundee whaling grounds. Several New England vessels have made Marble Island, in the northwest part of the bay, their regular wintering quarters, for the purpose of being able to get at the whales with the breaking up of the ice in the spring. Another American vessel or years wintered at Spicer's Harbor, on the north shore of Hudson Straits, in order to attain the same object, and succeeded in amassing much wealth. When it is considered that a single right whale in oil and bone is valued at from ten to twenty thousand dollars, it is not difficult to conceive the possibilities of a successful whaling voyage.

The little white whale is valued for its hide and oil, and the Hudson Bay Company ship them in large numbers to England.

Walrus are plentiful. They live in the shallow water and feed upon clams which they dig from the sand. Walrus hides average 300 pounds weight, and the hide and tusks of a walrus are worth from thirty to forty dollars. Porpoises, narwhals, seals and many varieties of fine food-fish are also to be taken in the waters of Hudson Bay.

Explorer Tyrrell has told us that he knows of one Hudson Bay post where the Eskimos in one season bring 300 or 400 musk-ox skins, besides many other rich furs of polar bears, wolves, white and colored foxes and wolverines. Nearly all these are now diverted to England, and we have been allured by the prospect of opening up this country and establishing a trade in these articles that would be beneficial to Canada. Americans are taking millions of dollars worth of oil and a large quantity of furs every year from this district, despite the fact that it is in Canadian jurisdiction.

The mineral formations of the northwest shores of Hudson Bay are similar to those of the Rainy Lake and Lake of the Woods country, and exploration will add an immense area to our known gold-bearing region.

Last September, Mr. W. A. Charlton, M.P.P., was commissioned by the Ontario Government to report on a Hudson Bay route via Missinabi and Moose River. For a hundred and twenty miles (from Missinabi to Long Portage), the country is very broken, but there is plenty of poplar, whitewood, spruce, small pine, tamarac, cedar, birch and balsam, with some ash and other varieties. He measured some of the spruce trees, and found them to be in many instances from five to eight feet in circumference. The level lands are heavily timbered, to a great extent with hardwood. On the ridges there is a good deal of small pine. At Coal River, Mr. Charlton's party burned coal on the fire, over which their dinner was cooked,

and at this point there is a large quantity of china clay or Kaolin. Mr. Charlton says that although Hudson Bay is open all the year, the entrance to the straits is blocked by ice coming down from the north, so that navigation between the bay and the Atlantic Ocean is only practicable about four or five months in the year, from August to December. But this would be the time of the year when a large portion of the Manitoba grain could be shipped by way of Moose Factory to Europe. This route would be even shorter by a few miles than from New York to Liverpool. From Moose River to Liverpool the distance is 3,050 miles. The Moose River country offers exceptional opportunities for the manufacture of pulp.

Mr. Charles T. Harvey, C.E., accompanied Mr. Charlton. He says the whale fishing, heretofore carried on by New England, will be transferred to Ontario, as vessels can reach Marble Island several weeks earlier by wintering at Moose River. An old whaling captain estimates that the profits of the trade if prosecuted from a railroad terminal in Ontario would be \$250,000 a year. The catch of "right" whales, which are worth from \$10,000 to \$20,000 each, can be regulated by the Dominion Government when the new route is available and the whaling industry increased, while these valuable mammals could be protected from extermination. Mr. Harvey's report says:—

The estimate that one million of dollars would soon, after railway facilities reached these shores, be paid out annually at Ontario's seaport for salmon alone, is undoubtedly a safe one.

So much for the reasons why the Hudson Bay district's wealth should be diverted to Canada. The report of the cruise of the Diana shows very clearly that a railway line between Toronto and James Bay would be of immense advantage by establishing a connection that would greatly lessen the length of a winter in the sub-arctic, and increase the yearly season for whaling and fishing in Hudson Bay by several months. Rear Admiral Markham says the account of the Diana's trip is at variance with all previous experience. In his opinion, the Hudson Bay route is open certainly four months and possibly six months a year. He declares that it would be an immense boon to commerce, cheapen the transport of cattle and wheat to Great Britain, be invaluable from an imperial standpoint in saving time in the transport of men and stores to the naval base at Vancouver, and afford a duplicate British route should the Canadian Pacific Railway be seized by the United States in time of war.

Take it either way and we should have the railway. If navigation is difficult, by its aid we can open the fisheries of Hudson Bay for a couple of months longer than they are at present open, each year we shall make an immense gain. The products of these industries will be handled in Canada, and Canada will send supplies to the men engaged in them. If, on the other hand, navigation is open, we shall have a great all-Canadian route from Toronto and from Winnipeg to Liverpool. That will place us in a very advantageous position in case of commercial or military operations against us by the United States.

The question for discussion is the route and manner of building the road. Its necessity and feasibility are undoubted.

## CANADIAN COPPER.

The copper market is feeling the beneficial effects of a generally heavy demand, both domestic and foreign. Lake copper has reached the highest price that has been asked in months. Foreign stocks are reported to be now only about 29,000 tons, which is less than ever known before in the history of the copper trade. Much of the metal now being exported is used for the manufacture of ammunition for European armies, and there is a constant demand in this branch of the trade.—Daily Financial News.

Canadian copper will form a by no means minor part of the quantity required. Yet, it is being sent out of Canada without the slightest regard for the fact that every cent of profit on it goes into American pockets when we have the remedy in our own hands. It is refreshing to read the following extract from the Canadian correspondence of The Paper Mill:—

It is believed to be beyond a doubt that at least one clause of the export duty Act passed by Parliament last midsummer will be put into effect. The act, it will be recalled, covers certain other raw materials, beside pulp wood and saw logs. These are specified metals in their crude form, especially ores and matte containing nickel and ores and matte containing silver, other metals being generally combined with these, as copper with the nickel and lead with the silver. Nickel copper matte and silver lead matte have been and are being freely shipped to the United States, the first from the district of Algoma in Ontario, the second from East Kootenay in British Columbia. \* \* \* This export trade is similar to that in eggs and pulp wood. The opposition to it is based on the same principle as that to the exportation of the timber in its raw state, namely, that Canada should have the benefit of the industries which manufacture the material into the finished product. For that reason saw logs, pulp wood, nickel, copper matte ore and matte, and silver lead ore and matte were all grouped together and made subject to an export tax by the same act. The act, it may be said once more, was not put into operation, though it may be, when ever the Governor in Council sees fit to proclaim it. \* \* \* It is stated that a definite promise has been made by Sir Wilfrid Laurier that an export duty on nickel ore and matte will be announced in the forthcoming budget.

The Paper Mill's correspondent sets forth the reasons so often stated, at length, in these columns, and upon which we base our claim for the export duty which our contemporary kindly assures is in prospect. Then by way of logically and effectually disposing of the argument that the export duty will cause nickel-steel works to be established in Canada, he says, "This, of course, is a magnificent dream."

We should be very much obliged if The Paper Mill would furnish us with some argument just a trifle more tangible than a mere assertion. We have contended and we still contend for the export duty on copper, nickel, and pulp wood. If The Paper Mill can shew us the flaw in our apprehension of its effect we will be glad to acknowledge our mistake. In the meantime a bold statement is no proof, and our contemporary will do well to remember that, "Who laughs last laughs best."

## THE DEATH OF W. H. STOREY.

We have to record the death on the morning of March 6th, of Mr. W. H. Storey, the founder and head of the Canada Glove Works, at Acton, past president of the Canadian Manufacturers' Association, and one of the men to whose indomitable energy Canada owes her progress as an industrial

nation. Mr. Storey's life presents to us an example for our admiration and imitation.

Born at Ayton, Yorkshire, England, in 1837, he had exceptional educational advantages up to the time he came out with his parents to Canada in 1845. Summerville, on Dundas Street, in York County, was his residence up to 1852, when he was left alone in the world by the death of his parents, he having no brothers or sisters.

Young as he was, he had made up his mind to master a trade and accordingly apprenticed himself to the late John G. Rogers, of Lambton Mills, to learn saddlery. Association with that upright and worthy man developed Mr. Storey's young character along the straightforward lines that have ever since characterized his public and private life. When his term as apprentice was ended he went into partnership with Mr. J. F. Taylor, and together they established the saddlery business of Storey & Taylor, in Acton, in 1856. Three years later Mr. Storey purchased his partner's interest in the concern and began to carry on the business himself.

In 1868 his keen foresight showed him that Canada was a great consumer of gloves and depended upon foreign manufacturers for her supply. The Canada Glove Works was accordingly established and from a small beginning Mr. Storey, by close personal attention to every detail of each department, built up a business turning out a range of products from the finest of kid to the coarsest mittens for binders and wood-choppers, and employing the services of some two hundred skilled operatives. His glove business was conducted as his saddlery business had been, and it might be mentioned as an indication of the character of the man and his work that sets of harness made in his shop were in constant use and in good condition twenty years after he had gone out of saddlery.

Mr. Storey never neglected his business affairs to mix in politics or matters municipal, but, nevertheless in 1874, when Acton was incorporated as a village, he was its first reeve and held that position many years, being its incumbent at the time of his death. In 1888 he was warden of the County of Halton, and the Canadian Manufacturers' Association recognized his sterling worth and executive ability by placing him in the presidential chair—a position which he occupied with credit no less to the association than to himself. On several occasions he was earnestly solicited to become a candidate for parliamentary honors, but he always declined on the ground of the necessity for his care over his large business interests. He was a director of the Manufacturers' Life Assurance Company, and the Wellington Mutual Fire Insurance Company, and a member of the Executive Board of the Canadian Order of Woodmen of the World.

In 1857 Mr. Storey married Miss Hannah Jane Smith, daughter of Anson Smith, Esq., of Acton. One son and four daughters of this union are left to mourn his loss. Happy in his home life he was esteemed among all who knew him, and in Acton he was beloved of every one. Upon the day of his interment, business in Acton was suspended, and every flag in the town hung at half-mast. The obsequies were performed in the Methodist Church where he had been a regular attendant during his life, and a beautiful feature of the service upon his own suggestion, was the liberation of a white dove from a box on the casket upon the utterance of the words, "But the spirit has taken its flight."

Prominent men from all over the Province gathered to tender the last sad tribute to the man they honored. Should this brief history of his life encourage others to press forward it will not have been written in vain. Such a record of perseverance by unaided exertion cannot but inspire the young man of to-day to do likewise, and in the light of its value to us the life of William H. Storey has a significance broader and deeper, and a usefulness infinitely wider even than as it led to his own success.

### CANADA'S PROSPERITY.

BY GEO. D. GRIFFIN.

President Rogers of the Toronto Board of Trade, in his inaugural address in lamenting the slow progress of Toronto in industrial and mercantile prosperity, stated:—"We should ascertain where obstructions to our progress exist, and have them removed." That is, that the Toronto Board of Trade should unite to discover the obstructions, and to remove them.

The Mayor of Toronto is, equally with President Rogers, alive to the interests of Toronto. To assist them the writer, from data collected from government returns, will try to exhibit four leading obstructions for the Mayor and President Rogers to present to their constituents for removal.

\* \* \*

FIRST.—EXCESS OF IMPORTS OVER EXPORTS.—The Mayor and President Rogers will find by the Government returns that, from 1850 to the end of 1895, the importers flooded Canada with \$1,011,000,000 of the products of foreign countries, in excess of our exports. These excess imports were balanced by stocks, bonds, mortgages and other securities, all drawing interest. And in referring to which The London Times, as far back as 1886, asked: "What is the matter with Canada, it appears to be living on borrowed money?" The financial theory of our Finance Ministers, of both political parties, has been that these excess imports have been balanced in some mythical way; but the securities referred to, and the annual interest paid on them, proves that Canada is in debt \$1,011,000,000 for the over-productions of foreign countries. And at an average of only five per cent., Canada has already paid over \$1,000,000,000 of interest thereon, that is \$1,000 per family, and not a dollar paid on the debt itself. That is a sum which would build all the railroads, canals and harbors in Canada. The interest now annually paid is not less than \$45,000,000. Data, furnished by The London Economist, shows that about \$35,000,000 of the interest goes to Britain, the other \$10,000,000 to Canadian money lenders. This interest now is \$17,000,000 more annually than all the tariff and excise tax collected by the Dominion Government. This is an obstruction that can be, and must be, removed before there can be true prosperity in Toronto and Canada. Practically, this is an immense importers' tax, yet where is the Board of Trade, or the Canadian statesman who has risen up for its removal?

This \$1,000,000,000 of interest has been paid on the over-productions of foreign countries flooded upon Canada by importers. The army of foreign producers employed by our importers in foreign countries making over-productions for Canada for the forty-five years from 1850 to the end of 1895, working at \$1.00 per day for 300 days in the year would average 72,278, and their wages paid out of our Canadian banks in gold have, for all these years, averaged \$433,668 for each and every week. Remember that that sum is simply for the imports in excess of exports. And yet in the limitless financial ignorance on this question too many cannot see that there was all the time a Canadian army averaging 72,278 standing idle ready to do the work which foreign nations were doing for us.

The imports from the United States in 1897, in excess of what they took of us, are reported to have been over \$13,000,000 which means that last year our importers employed over 40,000 producers in that country, and every week of the

year drained our banks of \$210,000, and every month nearly a million in gold to pay their wages. The number of those thus employed in the United States during the past five years has annually averaged 45,000. In the light of these facts is it any wonder that the number of unemployed in Toronto this winter, as reported by the secretary of St. George's Society, seeking relief from the House of Industry is one in every twenty-one of the population? And this he states while in London, England, the number seeking similar relief is only one in forty-two of the population.

Those thus deprived of work do not live on air, nor pay rent out of their earnings. They are fed and clothed and sheltered by those who have work, and by merchants and capitalists and philanthropists thus indirectly taxed by the importers in employing so many thousand in foreign countries making over-productions for Canada.

The British Census Returns for 1841, in which special provision was made to discover the sources of livelihood of the whole population, showed that six were dependent upon each one employed in agriculture, that is, 18,000,000 of the 26,000,000 of the then population. A firm of manufacturers in New York State, in an isolated place, made a series of careful examinations which proved that every dollar they paid out in wages turned over eleven times in providing necessaries for their wage earners. The average of these two cases would be eight and a-half. Not to exaggerate we will average them in Canada at seven for each producer, and that means a population of over 500,000 that Canadian importers, on the average, have provided for in foreign countries every day for forty-five years. And that means a population, in round numbers, equal to the population nearly, if not quite, of all the cities and towns and villages in Ontario, having over 3,000 inhabitants. At the same time, they deprived the farmers of Canada of the home market attendant upon such a population. And with them deprived all the business men and other producers, and the banks, railroads, vessels, and professional men incident thereto, of business and a livelihood. The effect upon the banks alone can be seen in the recent statement of Senator Cox to the Finance Minister in relation to one bank interested in the binder twine industry which the Government tariff has ruined, and sacrificed \$2,500,000 of capital, and a yearly profit to his bank of \$60,000, and enforced idleness to the employes whose means of livelihood the Government has transferred to the producers of the United States.

That is but one in a thousand examples of ruin to Canadian industries through the inefficient legislation of both political parties in permitting importers to deprive Canadian producers of work, and Canadian banks of their gold and profits, to pay the wages of the producers in foreign countries making over-productions for Canada.

It was reported that the Hon. Geo. Foster, while Finance Minister, stated the sum of losses to Canadian industries, similar to the above, would total \$100,000,000. Had he doubled the amount it would have been an under estimate. How did he endeavor to counteract this evil—this obstruction to national prosperity? Not by raising the tariff in 1894, but by lowering it \$2 per family, as the Government returns fully prove. When the National Policy was adopted the increase in tariff averaged \$6 per family. The increase in interest on the debt for excess imports up to 1894 was, for the fifteen years, \$15 per family. Then to have placed Canada upon the protection and industrial level, when the National Policy was put on, he should have raised it that \$15 per family in place of reducing it to the \$2. Is it any wonder that this reduction ruined so many manufacturers, and deprived so many producers of employment?

In the light of the above facts is it any wonder that Toronto and Canada have progressed so slowly? We can remove this obstruction by employing Canadians instead of foreigners.

\* \* \*

SECOND.—SHODDY AND FRAUDULENT GOODS.—If the Mayor and President Rogers, as representatives of the city and the

Toronto Board of Trade, want to see the extent of the import of shoddy and fraudulent goods, let them select competent judges of goods, and with them examine the classes of goods on exhibit in stores in this city and in the importers' warehouses, and then remember that the shoddy and fraudulent goods on sale are, on the average, rather better than those on sale in stores all over the country. The inspection will show that the proportion of this class of goods imported varies from ten to ninety per cent. shoddy, and with them a large amount of liquors, tobaccos, teas and groceries, that are more or less fraudulent. The total will average at least twenty per cent., that would be dear at any price. The total imports in the forty-five years were \$3,969,000,000, and twenty per cent. thereon is \$783,000,000. Add thereto the carriage, the duties, the wholesale and retail margins, and the indirect evils thereby will make the loss at only fifteen per cent. shoddy; an average of fully \$1,000 per family, or for Canada over \$1,000,000,000, of which the importers of the shoddy and fraudulent goods have robbed Canadians in forty-five years. Is it any wonder that Toronto and Canada have not prospered?

\* \* \*

THIRD.—EXCESSIVE RATES OF INTEREST.—The third great obstruction is the rates of interest in excess of the gain that can be received from the use of borrowed money in any regular industry.

The United States census returns for each ten years, from 1790 down to 1860, show that the annual increase of wealth from earnings during each separate census period was only two per cent. annually, and they were a prosperous people. And their census returns and present debt together, prove that since 1860 the United States have not increased a dollar in wealth from earnings—that all increase has been by borrowed money. If they had been borrowing from foreign countries at four per cent., such nations would have been consuming their wealth at the rate of two per cent. annually, and, as such nations have been, ever since their civil war, seriously undermining their protective tariffs. Such interest since 1860 has been more than all their surplus exports, or over \$3,500,000,000.

The Ontario Government returns, from 1884 to 1894, during a boom period when, as in Toronto, property was assessed far beyond its value, was only three and a-half per cent. increase from earnings annually. Deduct the boom increase, and three per cent. would be the limit of increase from earnings. The regular discount rate at the banks is seven per cent. in advance; add the interest on the discount margins left on deposits, and the average will be about eight per cent., or five per cent. in excess of all gain for the use of the money in any regular industry. It is thus made plain that any regular Canadian industry or business that has to depend upon bank rates of interest will likely, sooner or later, lose all its capital, and in the end the banks stand to lose in bad debts all they made in rates in excess of the three per cent. limit of earnings.

The ample proof, so far as the banks are interested, can be seen from their annual reports, when we deduct the dividends and annual accrual, if any, from the volume of interest received, that is, when we leave the incidental accruals from bills of exchange and other sources, to pay running expenses as it is supposed they should. Their rates are more than double the average in Britain, France and Germany for industrial purposes. And the difference against Canada is a handsome profit, and is equivalent to a tariff in their favor, both in the Canadian and the foreign market.

Astounding as it may appear on that \$1,000,000,000 debt for shoddy and fraudulent goods, the average weekly payment of interest at five per cent. has averaged over \$487,000 per week for forty-five years, and this, while the increase of debt for the same period, was only \$433,668, or about \$50,000 more per week for interest than for principal. Those were the averages for the whole period. But this interest since 1895 averages over \$877,000 per week, and requiring the labor of an army of 155,400 men at \$1 per day, six days in the week for 312

days in the year, fed, clothed and sheltered, to earn that interest which, with the supplies means an army of at least 200,000 producers to earn the money. This interest ball chained to the leg of every produce by the importers of the worthless over-productions of foreign nations is an obstruction in the way of the prosperity of Toronto that must be removed before there can be any true and permanent prosperity.

As before related the annual drain of interest to Britain on excess imports is about \$35,000,000 which must be paid in gold or securities sold for gold, and of which it will be shown our banks have furnished about \$273,000,000.

The Year Book for 1891 reports some thirty-two banks to have failed in the forty-five years. It is estimated that in capital and deposits there was \$50,000,000 lost. It went to pay interest in Britain; if not, what became of the gold? It is not in Canada.

The Canadian banks on the last day of December, 1897, report \$62,000,000 of paid-up capital and \$140,000,000 of deposits on interest, and \$80,000,000 of casual deposits from which twenty-five per cent. must be deducted for discount margins left on deposit which cannot count as gold reserve, leaving \$60,000,000 that do. The late Sir Francis Hincks stated that in the financial crash of 1877-78 the banks by bad debts lost twenty-five per cent. of their capital or about \$14,700,000, which must count as gold. Those five gold factors amount to \$326,000,000.

Their returns for December show \$8,000,000 of specie in their vaults and \$41,000,000 of gold to their credit in Britain and the United States, a total of \$49,000,000, which, deducted from the first factors, show that they have in gold for interest to Britain been drained of \$277,000,000 of capital and deposits.

If not for interest, what for? The excess imports have been paid for by securities, the balance by our exports, and therefore no possible drain except for this interest. The gold is not in Canada. It is not forgotten that there are international receipts and expenditures aside from the above, but there is evidence to prove that practically they balance each other.

In proportion as the banks have been drained to pay interest to Britain they have increased their capital and borrowed deposits on interest to add to the available casual deposits which (had there been no excess imports to pay interest on), would have been entirely unnecessary. In fact, but for that drainage, the banks with one half the capital could have done four times the business. For example, the Bank of France with not half the capital have, when there were no excess imports, been able to circulate \$6 of their notes for each \$1 of capital, where our banks only average about \$1 of circulation to \$2 of capital, a difference of twelve to one in proportion to capital. This difference compels our banks to charge double the rates charged in France in order to pay dividends on two dollars of capital in place of one. The banks, as seen, to meet the drain of gold to pay interest to

Britain on the excess imports, have been obliged to increase their capital or borrow on interest. They have done both. The sum of interest they have paid on deposits is over \$60,000,000, of which, but for those excess imports, it would not have been necessary for them to pay a cent.

There is another curse which daily increases from paying interest on deposits and which lies in the fact that many millions of such deposits are actually due by the depositors to the business men, customers of the banks, who, unable to collect from such creditors, have to borrow of the banks at practically eight per cent. the money of their customers upon which the banks are only paying three per cent. In this way a large number of the customers of the banks are driven out of business and out of house and home. The result to the banks in bad debts about eats up all the interest they get in excess of the interest they pay on the interest-bearing deposits. The number of business men in Toronto driven out by high rates of interest, the result of the excess imports, is incredible. And during the forty-five years the sum of the bankruptcies and failures equals the sum of the wages the importers have paid to foreigners for goods sold to those they deprived of work in Canada, which is \$1,000,000,000. This accounts for the financial collapse of so many importers who have tried to quickly get rich while beggaring their customers through employing foreign producers in place of Canadian.

If each bank from the first had made it a rule to furnish no importer with exchange in excess of their bills on hand drawn against shipments, they would not have been drained of a dollar in gold therefor, and the importers would, as some have, not only patronized home manufacturers, but have, when possible, aided in promoting their development. It would have saved the banks the \$60,000,000 of interest, and greatly increased their business and the prosperity of Toronto and Canada.

\* \* \*

**FOURTH—EXCESSIVE COST OF GOVERNMENT.**—A careful investigation by President Rogers and Mayor Shaw will enable them to see that the total cost for our various governments at Confederation was about \$24 per family of five, and that it is now \$60 per family, and in which there is not included receipts from post office and public works. Since 1876 the increase in Ontario for municipal governments alone has been over \$18 per family. Our tariff now averages about \$20 per family. The cost of all our governments since Confederation has increased \$36 per family. Therefore, if there had been no tariff at Confederation to place us on the industrial level of 1867 to compete with British producers, the tariff now should be increased to \$36 per family, but as there was then a tariff of about \$10 per family it should now be increased to \$26 per family.

In Britain the total cost of their governments amounting to about \$80 per family is indirectly paid out of interest received from the earnings of foreign countries and to which Canada contributes about \$35,000,000 a year, or \$35 per family. If

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it was not for that interest income Britain would have to earn the \$80 per family before they would have a cent to call their own. The logical result is that Canadians who have to earn \$60 per family for government with no interest accruing from foreign nations, to be on a financial industrial level with the British producers should not pay a cent out of earnings for government otherwise that we should have a protection tariff equivalent to our cost of government, or \$60 per family, or three times what it is. Britain pays no interest to foreign countries. After deducting from the \$35,000,000 interest we pay to Britain about \$13,000,000 for interest embraced in the \$60 per family for government, there is still \$22 per family of protection for Britain in Canada in favor of British producers. The \$22 added to the \$60 for government shows that, besides having Britain's low rates of interest to put us on an industrial level with British producers, our tariff should average \$82 in place of \$20 per family. This readily accounts for the immense annual import of goods from Britain and other countries, and therewith the enforced idleness of so many thousand Canadian producers, and amply accounts for the business failures and slow progress of Toronto and Canada.

While this double obstruction of cost of government and interest cannot at once be entirely removed, the evil must and can be countervailed.

Those who desire to see a far fuller exhibit of the statistics from which this is partly selected can find them in THE CANADIAN MANUFACTURER for April 17th, May 1st, July 3rd and 17th, 1896.

**THE REMEDIES.**—Let Mayor Shaw and President Rogers take prompt action to secure the prohibition of all shoddy, fraudulent and worthless imports, and their confiscation and destruction as Britain confiscates and burns impure teas, and on all goods to require the producer's name as under the British Guild system, a guarantee that they are rightly made of right material. The Globe recently advocated that this should be required of every Canadian producer for fear they will cheat the foreigner, and as the government now requires of Canadian cheese makers. Let our government thus protect Canadians from fraudulent importers and it will save Canada about \$10,000,000 a year toward reduction of debt.

Raise the tariff on all goods we can produce so as to give our producers a protection to correspond with that which Britain has in the Canadian market, in the \$80 protection she has indirectly secured in having the whole cost of her government paid through interest paid to her out of the earnings of foreign nations. This would secure constant employment for tens of thousands of toilers in Canada.

Let the banks stop paying interest on deposits, something which no bank should do. Many thousands of depositors would then pay their debts. Others would use their money in developing the country, which cannot be expected when it is so risky

to do so, and the deposit rate so secure and so high that it is more profitable for them to deposit than to use it for productive purposes. The saving of interest to the banks and protection of the banks from a large proportion of their bad debts would enable them to discount at rates which would enable their customers to borrow with profit in place of loss. And the increase in casual deposits would soon overbalance the withdrawal of deposits on interest which the banks to-day are aware is a losing factor in their business, leading them to cry for a reduction of interest. This suggestion carried out would save to them and their customers, and that really means to the whole country, more than \$20,000,000 annually. The writer can prove it.

After deducting receipts from post office and public works recouped from their earnings, the cost of our various governments averages \$36 per family in excess of what it was at Confederation, whereas with increase of population there should be a reduction. For example, in the United States in 1870 the average was \$80 per family—which, by the way, their statistics prove was \$45 per family in excess of their earnings after feeding and clothing themselves—all the deficiency being covered by borrowed money. But by increase of population the cost of government has been reduced \$20 per family. The increase in Ontario in municipal government alone, has more than doubled and is now over \$8 per family in excess of the average total cost of all our governments in 1867. To bring down by simplification the total cost of government to what it was in 1867 would be a reduction of \$26 per family and it can be done. The aggregate of savings through cheaper government, cheaper currency and prohibition of all shoddy and other fraudulent goods would be about \$66,000,000 annually, which would enable us to pay all the interest on our \$1,000,000,000 of debt, for which the importers gave us no value, and a margin of millions annually to reduce it. And the minor obstructions to be removed would add millions to the margin.

The question now is:—Will Mayor Shaw and the City Council and President Rogers and the other members of the Toronto Board of Trade, and Parliament with them, if no better suggestions are offered, unite to secure the removal of the great obstructions above outlined, which have so oppressively injured the producers, decreased the value of property and disastrously retarded the development of the industrial, mercantile and financial interests of Toronto and Canada?

PARRDALE, March, 1898.

The value of the merchandise entered last month for consumption in the Dominion of Canada was \$9,887,256, and the duty collected was \$1,786,572. The value of the free goods entered was \$3,799,267. The total exports amounted to \$10,614,210, of which \$9,583,539 worth was the produce of Canada.

**INGERSOLL-SERGEANT** **Rock Drills**  
FOR MINES, TUNNELS AND QUARRIES

**PISTON INLET Air Compressors** **STRAIGHT LINE**  
**DUPLEX and**  
**COMPOUND.**

FOR ALL DUTIES.

**... COMPLETE MINE EQUIPMENT ...**

**JAMES COOPER MANUF'G CO., Limited, - 299 St. James St., Montreal.**  
Other Offices - - - ROSSLAND, B.C. RAT PORTAGE, ONT. HALIFAX, N.S.

## CAPTAINS OF INDUSTRY.

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

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, 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 machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belting, 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.

Senator Poirier, Shediac, N.B., has ordered a 60 h.p. engine and boiler from the Robb Engineering Co., for running a flour mill and shingle mill.

J. E. Lushy intends starting a feed mill at Amherst, N.S., in a short time, and has ordered a 40 h.p. power boiler and engine from the Robb Engineering Co.

Application is being made to Parliament for letters of incorporation for an electric railway from London, Ont., to Grand Bend, on Lake Huron. M. G. Cameron, Goderich, is solicitor for the applicants.

The Star Iron Co., of Montreal, has dissolved.

A chart has been granted to the Central Press Agency, of Canada, Limited, which will do business in Toronto.

Michie & Co., the big Toronto grocers, were burned out on the morning of March 5th. Loss about \$25,000.

John P. Black & Co., manufacturers of ladies' ware, Montreal, have doubled their capacity. They have installed another electric motor, which was supplied by the Electric Repair and Contracting Co., Montreal.

The Robb Engineering Co. has received an order for two Robb-Armstrong Engines, 150 h.p. each, for an electric railway at St. Thomas, Ont.

Messrs. McLaren & Bates, Montreal, have moved from Craig Street to 419 St. James Street.

The Montreal Electric Co. have moved into new premises at 1898 Notre Dame St.

M. Lefebvre & Co., Montreal, are building a new factory at St. John's, Que., where they will manufacture vinegar, pickles, canned goods, etc. The new factory will be in operation by April 1st.

Messrs. Lefebvre are getting their share of the Klondike trade, having shipped fifteen car loads of their goods to Vancouver last week.

The Massey Harris Co. are negotiating with the Toronto City Council for certain concessions in connection with a proposed extension of the factories, to allow an increase in their knife and bar business. They have a purchase option on the block bounded by Strachan and Wellington Avenues and King Street and Massey Street, with the exception of 100 feet from King Street. On this property stand twenty-nine dwelling-houses, which will be pulled down to make way for the new factories. The city is asked to close the portion of Wellington Avenue and Massey Street, which would otherwise cut through the factory yard, and this concession will likely be made. The assessment of the works is also to remain as at present.

Mr. Duggan, of Montreal, is designing a fast twenty-footer for the trial races for Seawanhaka cup defenders for Lord Strathcona. Mr. Huntley Drummond has also ordered a boat.

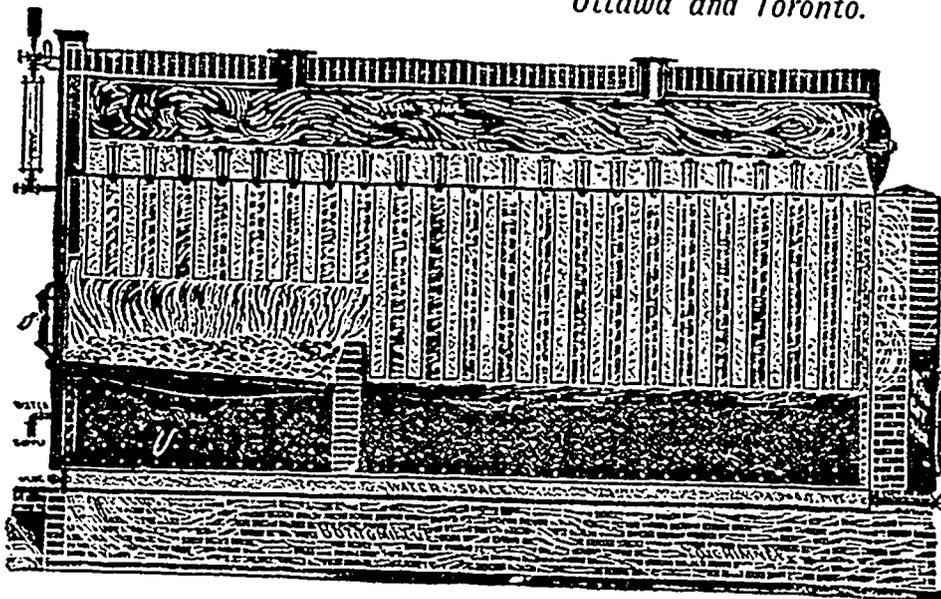
# E. A. WALLBERG, C.E.,

Bell Telephone Building, - MONTREAL, QUE.

HEAD CANADIAN OFFICE FOR

## KINGSLEY WATER TUBE BOILERS

Manufactured in Montreal,  
Ottawa and Toronto.



*For Steam, Power  
and Hot Water  
Installations...*

*The Most Economical Boiler,  
and the Cheapest, when  
based on Evaporat-  
ing Capacity.*

Can be installed in any Basement,  
requiring only 6½ feet in height.

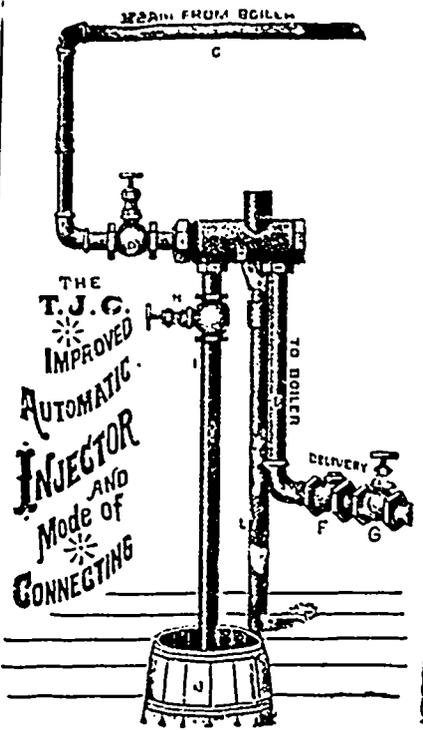
**GUARANTEED:** A Saving in Fuel of 30 per cent. over Return Tubular Boilers.  
A Saving in Fuel of 50 per cent. over any Cast Iron Heater.

...Catalogue Free.

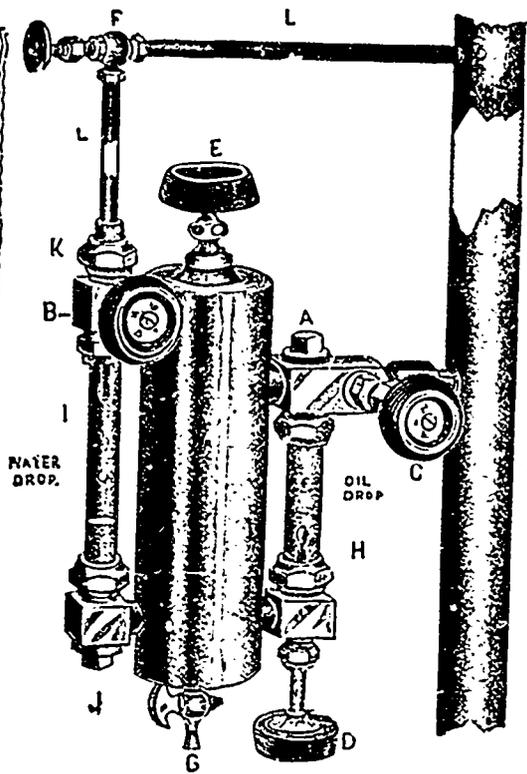
**THE IMPROVED AUTOMATIC INJECTOR,**

Pat. by T. J. CARROLL.

No.	Price.	GAL. PER HR. IN PRESS.	SIZE OF PIPE CONNECTION.	HORSE POWER.
15	1.75	300	2	10 to 15
20	2.00	500	3	15 to 20
25	2.25	700	4	20 to 25
30	2.50	900	5	25 to 30
35	2.75	1,200	6	30 to 35
40	3.00	1,500	8	35 to 40
45	3.25	1,800	10	40 to 45
50	3.50	2,100	12	45 to 50
55	3.75	2,400	14	50 to 55
60	4.00	2,700	16	55 to 60



REDUCED PRICES OF Michigan, Eagle, and Queen Lubricators.



SIZE.	BRASS.	NICKEL.
1 Pint	\$1.50	\$5.00
1 Quart	3.00	10.00
1 Gallon	6.00	20.00
1 Barrel	12.00	40.00
1 Tank	18.00	60.00

For STATIONERY, MARINE, PORTABLE and LOCOMOTIVE BOILERS Simple, Reliable, and Durable. Range 20 to 150. Will lift 20 feet. A written guarantee with each Injector for two years.

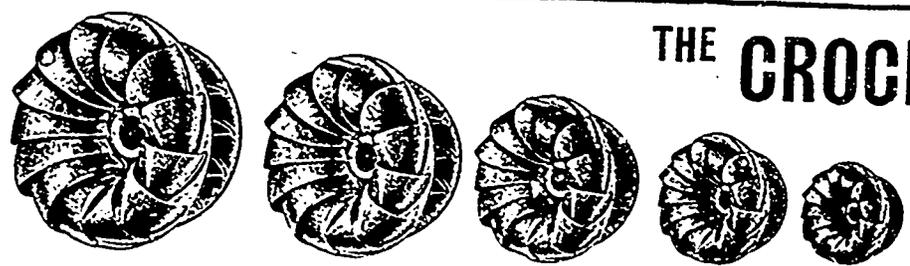
**HAMILTON BRASS MFG. CO., Limited,** 259 to 265 James Street North HAMILTON, ONT.

**BRYANT . . . ELECTRIC . . . SUPPLIES . . .**

By special arrangement with the manufacturers, we are placing in stock on Montreal, a complete line of Bryant specialties, including K. W. Rosettes, Bryant Sockets, Branch Blocks, etc., etc. Our catalogue B. showing Bryant goods is now ready, and is the most complete catalogue ever published for the Canadian trade. Write for one.

**The IMPERIAL INCANDESCENT LAMP** IS WINNING FAST FRIENDS WHEREVER USED.

**JOHN FORMAN, 644 CRAIG ST., MONTREAL.**



**THE CROCKER IMPROVED . . . TURBINE.**

A HIGH-GRADE, MODERN WHEEL—ECONOMICAL AND EFFICIENT IN THE HIGHEST DEGREE  
The best combination of hydraulic science with practical results now on the market. Complete Water Power Plants built and installed.

**The JENCKES MACHINE CO.,** 28 Lansdowne St., SHERBROOKE, Que.

SEND FOR OUR NEW CATALOGUE JUST ISSUED.  
It will interest you.  
Our Prices will Please,  
and to Purchase  
Our Machinery will Pay you.

Mr. John A. McIntosh, of Boston, and Mr. Fred. M. Boyle, of New York, passed through Toronto recently en route to Dyea. Messrs. McIntosh and Boyle have concluded a contract with the Peterboro Canoe Co. for almost their entire output for the present season and intend establishing a depot at the head of Lake Linderman for the sale of the Peterboro canoes. Mr. Frank Weir of Peterboro accompanied the two Americans as far as Toronto.

The Gould, Shapley & Muir windmill factory at Brantford, is in ashes. Loss about \$20,000. Belt friction is supposed to have caused the fire.

Buffalo despatches state that the pan-American Exposition scheme has been shelved for the present "owing to the unsettled condition of the public mind on account of Spanish-Cuban complications, and the consequent apprehension of war." This is rather a sudden termination to a scheme that has occupied column after column of the American papers, and was apparently worked out to a very fine degree of perfection in point of detail.

The business of the Paul Frind Woollen Co., has been carried on by Mr. Geo. Reid, in this city. He has changed the firm name to Geo. Reid & Co., and will transact business under that name in future at his premises 118 Duke Street, Toronto.

The Newfoundland authorities are reported as having perfected arrangements whereby the internal resources of the colony will be extensively developed at an early date. The contractor, a Mr. Reid, agrees to operate the entire railway system of the colony, some 600 miles, for fifty years, in return for a land subsidy of 2,500 acres a mile. It is expected that \$15,000,000 will be expended in carrying out the plans.—Bradstreet's (New York).

The British American Light and Power Co., are seeking incorporation to erect and maintain electric or gas lighting or heating systems and telegraph and telephone lines in the Yukon country and northern British Columbia.

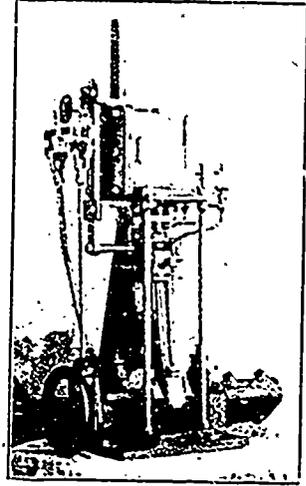
The Thompson Electric Company of Hamilton are about to amalgamate with the Toronto Electric Motor Company. They will apply for a charter to do business, with \$50,000 capital. A three-story and basement addition, ninety-five by fifty feet will be made to the rear of their present building on Pearl street. A travelling crane will run the whole length of the shop and each machine will be connected with a separate motor, making a thoroughly complete and up-to-date establishment.

Reeve Underhill is fitting up the old Campbell carpet factory at Markham, as a boot and shoe factory. About fifty hands will be employed at first.

**ALBERT BELL ENGINE WORKS**

DUNNVILLE, ONT. Makers of

**YACHT ENGINES, 1 H.P. to 50 H.P.  
Safety Water Tube BOILERS  
PROPELLER WHEELS  
Stationary Engines and Boilers**



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**THE LONDON EMERY WORKS CO.,** 10, 12 VINE ST., CLERKENWELL, LONDON, E. C.

CLOTH AND PAPER.  
GLASS & FLINT PAPER.  
"Atlas Brand"

"FLORA" Knife Polish  
in 30, 61, & 1 Tins.

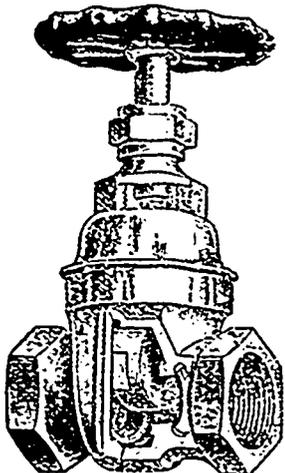
Ground, Washed & Flour

WHEELS of highest  
quality for general  
& special purposes.

Grinding Machinery.



The WEBBER Patent  
**Straitway Valve**

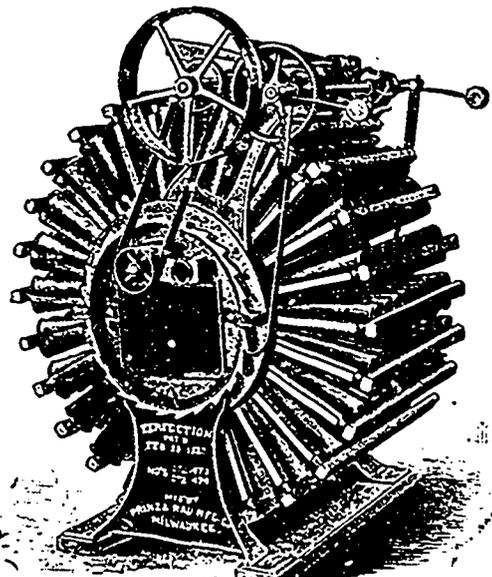


FOR.....  
Steam,  
Water  
or  
Gas..

EVERY  
VALVE  
TESTED.

**The Kerr Engine Co., (Limited),**  
WALKERVILLE, ONT.  
Sole Manufacturers for Canada. Send for  
Price List.

## The Perfection Dust Collector.



Patented

The only machine with a perfect Automatic Cloth Cleaning Device.

We Guarantee it to collect absolutely all the Dust, and discharge the air free and clean.

We Guarantee it will not make any back pressure against the fan.

**Wm. & J. G. Greey,**  
2 CHURCH ST.,  
**TORONTO, ONT.**

Sole Licensees for Canada.

James Ross, manufacturer of confectionery, London, Ont., has been burned out.

Rheumo & Belanger's foundry, in Montreal, recently suffered damage by fire.

The Winnipeg & Fort Alexander Railway is applying for incorporation.

Robert Fraser has sold his quarry at Green Hill, N.S.

The Nova Scotia Steamship Co., of Halifax, is seeking incorporation.

Frank Bayer is retiring from Power & Co., Halifax, N.S.

D. K. McLaren, 24 Victoria Square, Montreal, informs us that their western branch is open in the Imperial Block, Galt, where a full stock of belting, card clothing, and mill supplies is on hand.

J. Fleury's Sons, of Aurora, manufacturers of cultivating implements and stock-raisers' machines, report the best trade for many years, with a large increase in Ontario and double the business in Manitoba.

The Ottawa, Arnprior & Parry Sound Railway will have lake steamer connection with Duluth and Chicago during the coming summer. A Cleveland concern will put five first-class boats on this route.

La Compagnie du Telephone de Metis, of St. Octave de Metis, Que., is applying for incorporation.

The Gould Cold Storage Co., of Montreal, is applying for incorporation.

Andrew Allan, Hugh McLennan, Thos. A. Crane, Alexander Paterson, and Alexander MacDougall, all of Montreal, desire to be incorporated as The Montreal Grain Elevating Company, with a capital stock of \$300,000.

The Provision Supply Company, of Montreal, are seeking permission to strike off the word "Montreal" from their firm name, and increase their capital to \$200,000.

The Fuel Lumber Company, of Toronto, has dissolved, but the business will be continued under the same name by Mr. Joseph Davis.

The Nova Scotia Lumber Company, of Sherbrooke, N.S., whose sawmill was destroyed by fire last summer, are erecting a new mill situated about one and a-half miles below the village. The machinery therein will consist of gang, rotary, lath, planing and shingle machines, requiring about 140 horse power to operate them. The company expect to manufacture about 10,000,000 feet of lumber this year. The bulk of the lumber manufactured at this mill is towed in rafts a distance of about 20 miles to the harbor of Liscomb for shipment.

The Sherbrooke Cigar Co., Sherbrooke, Que., are seeking incorporation.

Osgoode Glove Works, of Galt, Ont., report so many orders that they have had to secure larger premises.

The town of Kingsville have taken over the natural gas plant, which has been operated by a private company. The price was \$18,000.

Messrs. Munroe & Cassidey, Toronto, announce that the bookbinding business they have been carrying on will be conducted henceforth under the firm name of Wilson, Munroe & Cassidey.

The Windsor, N.S., Foundry Co. has secured temporary premises and is carrying on business almost as usual. The works will be rebuilt.

Plans have been prepared for the erection of a new theatre and opera house near St. John's gate, Quebec City. Its estimated cost is \$60,000.

Ontario letters of incorporation have been granted to:—The Midland Elevator Co., Limited, of Port Huron, Mich., with a capital of \$180,000; The Cowan-Ramsay Co., Limited, with a capital of \$50,000, to deal in teas, coffees, sugars, etc.; The General Engineering Co., of Ontario, Limited, with \$40,000 capital; The Toronto Wine Co., Limited, with \$24,000 capital; The Addington Horse Association, Limited, with a capital of \$2,500.

THE - - - -

# WM. HAMILTON MANUFACTURING CO., Limited

MANUFACTURERS OF

## THE "RELIANCE"

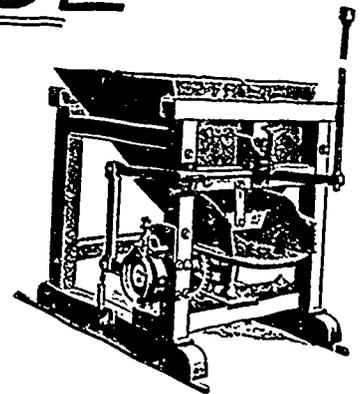
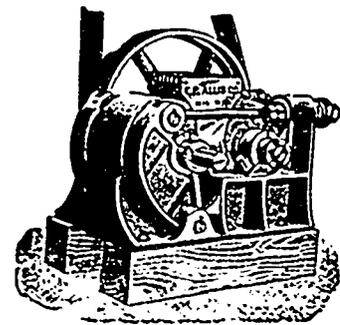
### Mining, Milling

AND

### Smelting Machinery

FOR THE DOMINION OF CANADA

(Under License from The E. P. ALLIS CO., Milwaukee, Wis.)



Crushers, Rolls, Jigs, Concentrators, Screens, Stamps, Pumps, Compressors, Hoists, Boilers, Engines, Water Wheels, Etc.

Branch Office . . . .

VANCOUVER, B.C.

PETERBOROUGH, ONT.

Among the applicants for Dominion incorporation are:—The Ship Bristol Co., Limited, with a total capital stock of \$5,000; The Ship Ontario Co., Limited, with a total capital stock of \$3,000; The Ship Africa Co., Limited, with a total capital stock of \$5,000; The Ship Hamburg Co., Limited, with a total capital stock of \$10,000; The Ship Persia Co., Limited, with a total capital stock of \$5,000; The Ship Plymouth Co., Limited, with a total capital stock of \$5,000; The Ship British America Co., Limited, with a total capital stock of \$2,000; The Ship Swansea Co., Limited, with a total capital stock of \$4,000; The Ship Avon Co., Limited, with a total capital stock of \$2,000; and The Ship Austria Co., Limited, with a total capital stock of \$10,000. The same applicants are behind each company. The headquarters of all will be Hantsport, N.S., and they want power to acquire, build, and own ships, and carry on business as ship owners and common carriers by sea. One of the incorporators is Geo. W. Churchill, of Hantsport, N.S.

Great Falls, on the St. John River, N.B., seems likely to be developed as a water power. The Hayes, Woodman & Melter

Co., and the Band Manchester Co., are the interested parties, and pulp mills are among the proposed enterprises.

The maple sugar season in the eastern townships has already begun and an unusually large run is likely to result.

F. A. Knapp, the inventor of the roller boat, is in Montreal, where he proposes to construct an ocean-going roller boat during the summer. He is organizing a company with a capital of \$1,000,000 to float the scheme.

The Montreal Witness announces that Mr. Adolphe Trempe, 40; St. Paul street, Montreal, has prospected an area of pure magnetic iron, ten acres long and five acres wide. This big deposit is in Wexford township, in Terrebonne county, four miles from the railway station at Piedmont.

The manufacturer's committee of Brantford city council propose a general exemption from all but school taxes for all machinery and tools in local factories employing more than a certain number of hands.

St. Thomas, Ont., will build a new city hall. Here is a chance for architects.

G. W. Richardson is seeking the customary privileges in connection with a gas works which he proposes to establish in Rossland, B.C.

The Burrow, Stewart & Milne Co., Limited, of Hamilton, are applying for a charter. They propose to make stoves, furnaces, scales, and general hardware. Capital \$250,000.

The employes of the rope department of the B. Greening Company's wireworks, Hamilton, presented their foreman, Mr. Chas. A. Herald, with a very handsome set of shaving instruments.

John Armstrong has begun the manufacture of confectionery in Montreal.

The Gananoque Furniture and Undertaking Company's premises in Gananoque, Ont., suffered considerable damage by last week's fire, from which J. G. Gibson's tannery and glove works also had a narrow escape.

The Griffiths Cycle Corporation, of Toronto, have shipped a large consignment of Leader bicycles to Paris, France. This is the result of a sample shipment last season, which speaks well for the excellence of the wheel.

# MACHINERY and EQUIPMENT

FOR

# Mines

\*\*\*\*\*

MANUFACTURED BY

Canadian Rand Drill Co.,  
MONTREAL.

## A. KLIPSTEIN & CO.

122 PEARL STREET, NEW YORK.

## Anilines, Dyestuffs and Chemicals.

DELIVERY MADE AT NEW YORK, MONTREAL OR HAMILTON.

## WRIGHT & DALLYN,

AGENTS,

HAMILTON, ONTARIO.

## Pure Chemicals

Phosphorous,  
Sal. Ammoniac,  
Muriate Ammonia,  
Sal. Soda,  
Bicarb. Soda,  
Hyposulphite Soda, Epsom Salts.

FINEST QUALITY.

Manufacturers Prices and Terms.

Arthur P. Tippet & Co.,  
MONTREAL.

Canadian Agents.

## ABBEY IMPROVED CHILLED SHOT CO.

(LIMITED)

NEWCASTLE, GREAT BRITAIN.

THIS SHOT IS NOW MADE BY A NEW PROCESS.

Samples sent on application.

Read the following Reports on our New Make of Shot:—  
*Sporting Goods Review* states:—"The size and shape of pellets are good and are exceedingly hard. We understand that the demand for this shot has considerably increased and gaining in favor with sportsmen, to whom its excellence of manufacture appeals."

*Arms and Explosives* states:—"For soundness and general regularity of surface the pellets possess a very high degree of excellence."

W. W. GREENER, "the Great Authority on the Gun," speaks highly of Chilled Shot, and strongly recommends it in preference to soft shot.

Keep your Belts from Slipping and Preserve them by using  
**STICK FAST**  
**BELT DRESSING.**



Guaranteed to keep any Belt from slipping the moment it is applied; also to keep Belts from cracking.  
 This Dressing will save you power and money.  
 Give it a trial order. Hundreds of testimonials from users.

**H. R. RIDOUT & CO.,**  
 Railway, Mill, Foundry and Engineers' Supplies,  
 22 ST. JOHN STREET, MONTREAL.

**ELECTRIC REPAIR & CONTRACTING CO.**

GEO. E. MATTHEWS, Manager. 621 LaSalle Street, MONTREAL. TEL. 2177.

COMPLETE ELECTRIC PLANTS INSTALLED.  
 ELECTRIC APPARATUS OF ALL KINDS REPAIRED ON THE SHORTEST NOTICE.  
 Armatures Rewound for all Systems. Commutators Re-filled.  
 Write us, our Prices are reasonable and work good.

**FOR SALE!**

Premises recently occupied by THE A. S. WHITING  
 MANUFACTURING CO., CEDAR DALE.

Consisting of Valuable Water Privileges, Buildings,  
 and about Twenty Acres of Land.

APPLY TO...

**H. R. LUKE, Oshawa, Ont.**

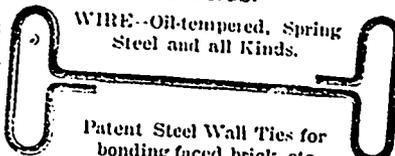
**CLEVELAND WIRE SPRING CO.,**  
 CLEVELAND, OHIO, U.S.

**TEMPERED STEEL MACHINE  
 SPRINGS.**



Tempered Steel Machine Springs  
 A Specialty.

SPECIAL SPRINGS  
 of all description  
 to order, and for  
 Upholstery,  
 Furniture, Beds,  
 Chairs, etc. Close  
 prices upon appli-  
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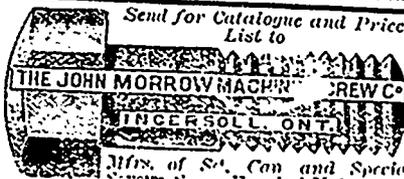


Patent Steel Wall Ties for  
 bonding faced brick, etc.

**WANTED**

Mechanics, Engineers and Firemen to  
 enclose ten cents in stamps for Work-  
 ing Model of Valve for Steam Engines.

Address, **H. F. LOWE, M.E.,**  
 Patent Solicitor,  
 Confederation Life Bldg., Toronto, Canada.



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 DISTRICT AGENT  
 Toronto and District.

**Royal-Victoria Life**  
 (HEAD OFFICE MONTREAL)  
 5 King Street West, - TORONTO.

**Leitch & Turnbull**

Canada Elevator Works,  
 Queen and Peter Streets, Hamilton, Ont.

Patent Safety  
 Hydraulic  
 Hand and  
**POWER ELEVATORS**  
 Telephone Connection.

**KERR**

**Water Motors**

1/8 to 20 HORSE POWER.

Noiseless Running, Require No Atten-  
 tion, operated with water at a  
 pressure of 30 pounds  
 and upwards.



Reliable intend-  
 ing purchasers can  
 have our Motors  
 on trial by writing  
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 able, power re-  
 quired and class of  
 work to be done.  
 Our Motors are  
 sold on their mer-  
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 low.  
 Enquiries sollec-  
 ited and cheerfully  
 answered.

... WRITE US ...

**KERR WATER MOTOR CO.,**  
 NIAGARA FALLS, CANADA

The Knowles Bicycle Company, Limited,  
 of Brantford, is seeking incorporation. Cap-  
 ital \$50,000.

The Ingersoll-Sergeant Drill Company, of  
 Montreal, have issued very handsome new  
 catalogues showing various types of air com-  
 pressors for different purposes.

Brantford is to have an accession in the  
 shape of the Chalcraft & Serow Company,  
 who will engage in the manufacture of  
 screws, nuts and bolts.

Peter Minuk and A. G. Bellmare have  
 registered as proprietors of the Manitoba  
 Miner Shoe Company, of Winnipeg, Man.

The Canadian Typograph Company of  
 Windsor, Ont., shipped a consignment of  
 seventy-five bicycles to South Africa last  
 week. This makes a total of four hundred  
 they have already shipped the African  
 market this year.



Metal Ceilings are now being  
 recognized as the most desirable  
 covering for Private Houses,  
 Club Rooms, Public Buildings,  
 etc. They are very handsome  
 in appearance, will not crack  
 and fall off, and compare favor-  
 ably in price with any good  
 ceiling.

Fully illustrated catalogues  
 sent on request. Estimates fur-  
 nished on receipt of plans.

**The Pedlar Metal Roofing Co.**  
 OSHAWA, ONT.

**CARBONIZER**

A neutral sub-  
 stance, harmless  
 to animal fibre  
 or tissue, while it destroys burrs, etc., as  
 efficiently as acid. It leaves the wool in  
 fine condition. Manufactured by the

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Manufacturers of

**BOOK AND FINE PAPERS**

# CONSUMPTION CURED

"I continued to exist (can hardly say I lived) until the fall of 1892, when a lady (Mrs. Alex. Kidd, of Warsaw, Ont.) who had been cured of hemorrhage of the lungs by your Consumption cure, Cannabis Sativa, urged me to try it. Accordingly I got a package and took it, but something had for a long time been working in my system which prevented this package from taking hold as it should have done. This "something" developed into Nervous Neuralgia, and for seven weeks held me in torment. I immediately got two more packages of the Remedy and began taking it, upon which there ensued a regular battle between the Cannabis Sativa and the Nervous Neuralgia, and I verily believe that were it not for the Remedy, I would have inevitably succumbed to that disease. The results are incalculable. It is over a year since I have taken any of the medicine; but since then I have not had the slightest touch of Asthma, Catarrh, Inflammation, Bronchitis or Congestion. I have had an attack of neuralgia, but it was comparatively light; my spirits have revived, my body has become robust (I now weigh about 150 lbs.) my system is stronger, my color brighter and fresher, dyspepsia has little or no power over me. I am happy working hard every day. All of these blessed results I attribute, under God, to the efficacy of the Cannabis Sativa, or East India Consumption Cure. I know of other cures that it has wrought, but consider none so marvellous as mine."

I am yours very gratefully,  
 Rev. WM. H. STEVENS, Paisley, Ont.

"I cannot tell you what a change one package of Cannabis Sativa wrought in me. I had a terrible cough, was low spirited, and had no strength; my skin was dry and covered with dark brown spots. My friends had no hope that I would get better. They said it was no use sending for the Remedy; but I had been cured of Catarrh by it, and recommended it to others who had been benefited by it. I commenced improving as soon as I began taking the Remedy and when it was gone my cough was nearly gone, and in a few weeks I was able to work as well as ever. The spots left my skin and have not returned. I do not feel any pain in my lungs as I used to for years, and never since my childhood have I been through a winter without rheumatism until now; I have not had a touch of it this winter. I wish you every success, and ask God to bless you in the good work you are doing."

Mrs. JOHN ELLIOTT,  
 Richard's Landing P.O., Ont.

Consumption can be cured; surely and permanently cured. Many cases are on record to prove this statement. Many cases that were given up as hopeless by eminent physicians have been cured by DR. STEVENS' CANNABIS SATIVA REMEDY—nature's specific for all ills of the throat and lungs. So much faith do I place in the efficacy of CANNABIS SATIVA REMEDY; so positive am I that it will cure Consumption, Catarrh, Asthma, and all diseases of the throat and lungs, that I will send a package sufficient for twelve days' treatment absolutely without cost, duty prepaid, to every sufferer who will send me an accurate statement of his or her case. I do not say that one package will effect a complete cure, but believe so much benefit will be derived from it that the treatment will be continued until a complete cure is brought about.

## FREE

W. A. NOYES, 820 Powers Block, Rochester, N. Y.

The Lancaster Machine Works, Lancaster, Ont., have been appointed agents for the friction driving devices of the Moore & White Company, of Philadelphia.

North Cyprus, Man., is arranging to bonus to the extent of \$10,000 a flour mill and elevator.

The Beaver File Works, Levis, Que., will henceforth be operated by Messrs. Marcan & Janteau under the firm name of The Mechanics' Star File Manufacturing Co.

J. Wilson, of the St. Catharines foundry, has received an order for a large quantity of wire cable for use in the British Columbia mines.

A new building is to be constructed by St. Charles College, Sherbrooke, Que.

We understand D. Richards & Co., of Woodstock, Ont., are about to erect an addition, 90x40, to their soap factory.

A Vancouver hardware firm have placed an order with the London Foundry Company for four carloads of small hardware for miner's purposes.

It is said that the G.T.R. are about to build a hotel in Quebec to rival the historic Chateau Frontenac.

The Queen City Oil Company, Limited, have secured fine premises in the new building at the northwest corner of King and Yonge streets, Toronto.

The Nelson, (B.C.,) Iron Works are very busy making and repairing mining machinery.

A \$30,000 theatre is to be built at St. Roche's, Que.

The Walkin's wing of Kingston General Hospital is to be rebuilt at an estimated cost of \$12,000. For plans apply to secretary.

Ald. Arthur Denison, Toronto, has passed the Walkerton Town Hall and accepted it from the contractors.

Fifty wheels have been sent to Austria this year by the Welland Vale Bicycle Co., of St. Catharines.

The Grandby Rubber Co's factory at Quebec is being enlarged. Contractors, Neil & Kent. Cost, \$6,500.

A new single span iron bridge is to be built over the Rassin river at South Lancaster.

When Were Your

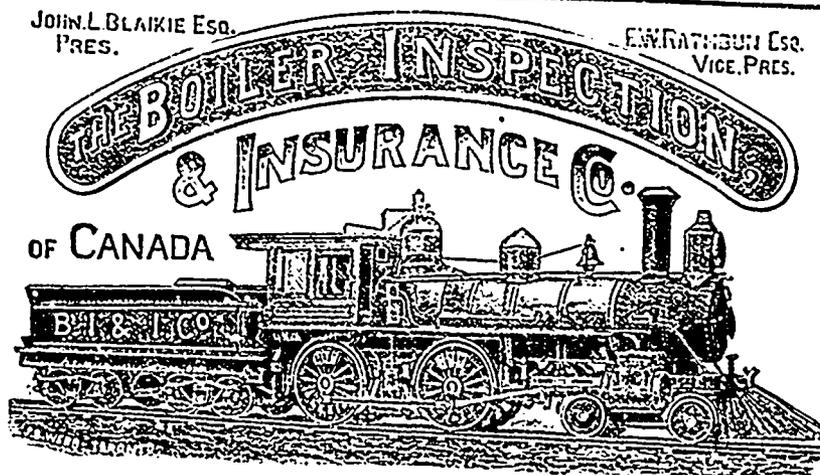
## BOILERS

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 A. FRASER, Secretary-Treas.

JOHN L. BLAIKIE ESQ.  
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**METALLIC LETTERS AND FIGURES,**

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**LETTERS AND FIGURES** already  
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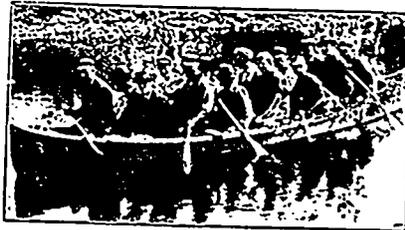
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Apply to **EDWARD JEFFERSON & BRO.**

28 Strawberry St., Philadelphia Pa., U.S.A.

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J. B. FARRAR & SONS, Halifax, England.

**Canoes for Alaska and Gold Regions**

This cut is one of our 19 foot, No. 69xx  
Canoes, and shows carrying capacity.  
Write for our catalogue and discounts.

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DYNAMOS,**

Hand-Feed and Automatic..... **ELECTRIC LAMPS,**

Cinematographs,  
Telephones and Graphophones

WRITE FOR PRICES.

**A. SCHNEIDER & CO.,**

21 and 26 Pearl St., Toronto.

J. Hanburg, Brandon, Man., is negotiating with the town for privileges in connection with a wood-working factory which he proposes to erect at a cost of \$20,000.

The Dominion Bridge Company will build the superstructure of the new bridge from Hull to Nepean Point. The bridge will carry a railway track, two electric car tracks and a sixteen foot roadway on each side. Its estimated cost is \$750,000.

John McDougall, Caledonian Iron Works, Montreal, will commence work on new machine shops early this spring. The building will be 130x80 feet.

Ridgetown is offering a bonus to W.E. Hall to remove his furniture factory from Galt to Ridgetown.

St. John, N.B., wants 3,116 tons of cast iron pipe, twelve and twenty-four inch. Information may be obtained from A. Chapman Smith.

The Drummond County's Railway contract for fifty box cars has been awarded to Rhodes, Curry & Co., Amhurst, N.S.

Essex County, Ontario, will have a new bridge over the Canal, cost \$1,732, and another over the Bell, cost \$1,099.

A large brick machine shop and foundry are almost complete at the Three Rivers, Que., Iron Works.

Dartmouth, N.S., is being asked for a bonus by a pulp-mill syndicate.

The New Brunswick Government have asked for tenders for a new breakwater at Centreville, N.B.

Ashcroft, B.C., will employ electricity for lighting and for pumping at the town water-works.

Orillia, Ont., proposes to use power from Ragged Rapids for street lighting and power plants.

Electrical contractors will have a chance at a contract involving from \$80,000 to \$100,000, when the Dominion Government installs its new power house at Ottawa, to supply all the government buildings. The annual gas bill amounts to some \$23,000, and it is thought a saving of \$13,000 yearly can be made by electricity. About 4,000 incandescent lights will be comprised in the system, which will also furnish power for electric fire pumps.

Letters patent have been issued incorporating James Kendry, manufacturer, and Alexander Elliott, wholesale merchant, both of Peterboro; William Arthur Hungerford, of Belleville, miner, and John Bell Hay, agent, Francis Charles Flannery, broker, and Charles Mills Pardee, civil servant, all of Toronto, as the Toronto Smelting Company, limited, with a capital stock of \$99,999, in 25c. shares.

S. Leonard & Sons, Dundas, are about to install a one hundred light incandescent plant made by the Canadian General Electric Company.

The Oasekeag Stamping Co., Hampton, N.B., have purchased a two hundred light incandescent plant from the Royal Electric Company.

Sydney Electric Light and Gas Company, of Sydney, C.B., are making extensive alterations in their plant.

W. B. Davey has undertaken the work of lighting Grand Forks, B.C., with electric light.

Three Rivers, Quebec, is negotiating with the North Shore Power Company, to run the water-works by electricity.

C.P.R. shops are busy turning out new passenger coaches to supply the demand for rolling stock caused by the boom in business and extension of the western service.

Fitzpatrick Bros., New Glasgow, N.S., have contracted to build sixty miles of the Midland Railway from Windsor to Truro, N.S.

The steamer Tecumseth is having a new boiler plant installed at the Bertram Engine Works, Toronto.

A new oil field has been struck at Croton in Bothwell county.

The St. Thomas Street Railway have awarded to the Ottawa Car Company a contract for cars, and to the Robert Armstrong Engineering Company, Amherst, N.S., the contract for an engine.

C. H. Bower has the contract for building the Cobourg, Northumberland and Pacific Railway from Cobourg to Tweed.

J. R. Scott has contracted to have an incandescent arc plant installed in Napanee, Ont., within a year.

J. E. Clark, of Dutton, Ont., has sold out his foundry to Lain Bros.

The Montreal Street Railway Company is in receipt of a contract from the Street Railway Company in Kingston, Jamaica, for the construction of twenty electric motor cars.

Toronto merchants are rejoicing over the establishment by the Grand Trunk of a through railway service from Toronto to Parry Sound.

The Arlington Bicycle Co., of Montreal, have dissolved.

The Toronto Can Co. and the Toronto Machine Screw Co., 109 1/2 Adelaide street west, Toronto, suffered about \$2,000 damage by fire from an unknown cause on March 11th. Both companies were insured.

The Kerr Engine Company, of Walkerville, are issuing a new catalogue, of which we hope soon to be able to give our readers some information.

Letters patent have been issued, incorporating Albert Roberts Pyne and Robert Allen Pyne, physicians; Henry Mortimer East, barrister-at-law; Giles Saunders Ransom, manufacturer, and Andrew Nelson, builder, all of Toronto, as the Muskoka Beaver Mining Company, Limited, with a capital stock of \$490,000 in \$5 shares.

The Fensom Elevator Works, Duke street, Toronto, have been awarded the contract for the freight and passenger elevators in the new customs house and post office building in Victoria, B.C.

A blaze at Galt caused a loss to J. E. Bond, livery, and John Skelley, cigar manufacturer.

Blight Bros., stationery supplies, and Ed. Mack, tailor, Toronto, suffered loss by fire last week.

Michie's big grocery, King street, Toronto, was damaged to the extent of \$25,000 by an early morning blaze on March 5th.

Edouard Lecompte has established a saw and grist mill at Stanfold, Arthabaska county, Quebec.

The MacFarlane Milling Co., Sherbrooke, are putting in an electric transmission plant to run their elevator at G.T.R. station, from power generated at their mills.

Richard Smith, Sherbrooke, Que., has built for the Royal Pulp and Paper Co., Angus, Que., a seventy-two inch double cylinder paper machine, with twenty-one dryers, reels, winders and slitters complete. This is said to be the first complete paper machine ever built in Canada.

The American Patent and Investment Co.,

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Patents obtained. Patents sold on commission. Provincial rights sold. Most actual sales. Best results. Quickest work. Honest Treatment. Oldest company. Reliable references. All patent business promptly attended to. Valuation and prospects of any patent furnished on application.

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Almost Entirely Prevents Condensation of Steam when Passing Through the Pipes

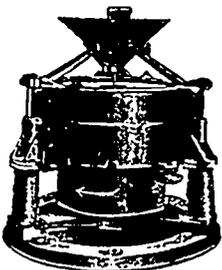
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ASBESTOS GOODS.

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**ROCK**

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**MILLS**

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FRENCH BUHR AND ESOPUS STONES. *Sent for Circular.*

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is a guarantee.

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**Westinghouse**

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### Direct Current Multipolar Generators and Motors

Laminated Steel Pole Pieces.

Fixed Commutation Point—

No Sparking.

Self Aligning—Self Oiling

Bearings.

Standard Sizes, 3—4 H P up.

Compact Design,

Strength,

Rigidity.

Big Overloads,

Highest

Efficiency.

Ventilated

Winding,

Lowest

Temperature,

All Coils

Machine Formed,

Separately Insulated.

New York, Boston, Chicago, Philadelphia, St. Louis, San Francisco, Buffalo, Syracuse, Atlanta, Tacoma, Mountain Electric Co., Denver. For Canada, Ahearn & Soper, Ottawa. Westinghouse Electric Co., Ltd., 32 Victoria Street, London.

Charters have been granted to the Wellington Lime Co., Limited, of Guelph, and the Hamilton Tar Distilling Co., Limited, of Hamilton, Ont.

C. S. Schmidt & Co., manufacturing wire mattresses, at Owen Sound, have dissolved partnership. The business will be carried on by Elizabeth Tighe, under the firm name of Tighe & Co.

Fire in Toronto has caused loss to Robert Carrie, Dane & Halford, R. H. Howard & Co., P. C. Larkin & Co., and Sampson, McCuaig & Co.

J. & R. Weir, Montreal, have secured the agency for Canada for the Fitzgibbons vertical boiler for marine and stationary purposes, and are now building four of these boilers 150 h.p. each for the St. Jean De Dene Hospice, Long Point, Que.

Cherry Bros. flouring mill at Galt, was wrecked by Sunday's flood, and the stonework of the mill have suffered considerable damage.

We are in receipt of a neat memento from the officers and owners of the Defiance Machine Works, Defiance, Ohio. It is in the shape of four handsome photogravures of Peter Kettnering, President of the company, and the younger scions of the house of Kettnering, Messrs. William, Ransom and Charles, the Secretary Treasurer, General Superintendent and General Sales agent. The four faces have a remarkable similarity, and a glance at them reads one the secret of the success of the Defiance Machine Works in the invention and construction of wood-working machinery. The idea is a good one and we are rapidly becoming personally acquainted with the Messrs. Kettnering as they gaze down upon our sanctum wall.

The Victoria Machinery Depot Company, has been incorporated, to do business at Victoria, B.C.

The town of Galt will need a new upper bridge, a recent freshet having damaged the old one to the extent of \$15,000.

The Sherbrooke Yarn Co., Sherbrooke, Que., are putting in a lot of new machines to manufacture underwear.

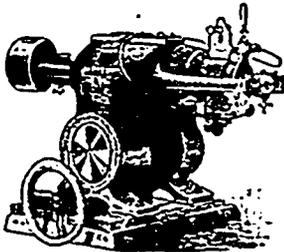
W. H. and W. J. Blackhouse, have succeeded Wm. Gordon in his sash and door factory at Udora, Ont.

The American Stoker Co., of Brooklyn, N.Y., have established an agency in Montreal, where they will supply their celebrated under-feed stokers for the Canadian trade.

Murray & Williams, engineers, Montreal, have lately built one of their 8 h.p. Tregurtha boilers to go to the Klondike. The advantage of this boiler is that it can be taken apart and shipped in sections. This firm have also shipped lately a 20-inch boiler of the same build to England, and a 35-inch for Africa.

The Alexander-Gibson Railway and Manufacturing Company, of Marysville, N.B., is applying for incorporation.

## Jones & Moore Electric Company



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### Dynamos and Motors

Direct Connected or Belt Driven.

COMPLETE PLANTS INSTALLED

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A few Second-hand Machines in stock.

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Streets

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Acids — Commercial and  
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Mixed Acids for Explosives.

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Copperas, Muriate Tin,

Tin Crystals, Acetic Acid, Nitrate  
Iron, Bisulphite Soda,

Acid Phosphate for Baking Pow-  
ders and General Chemicals.

Fertilizers, etc

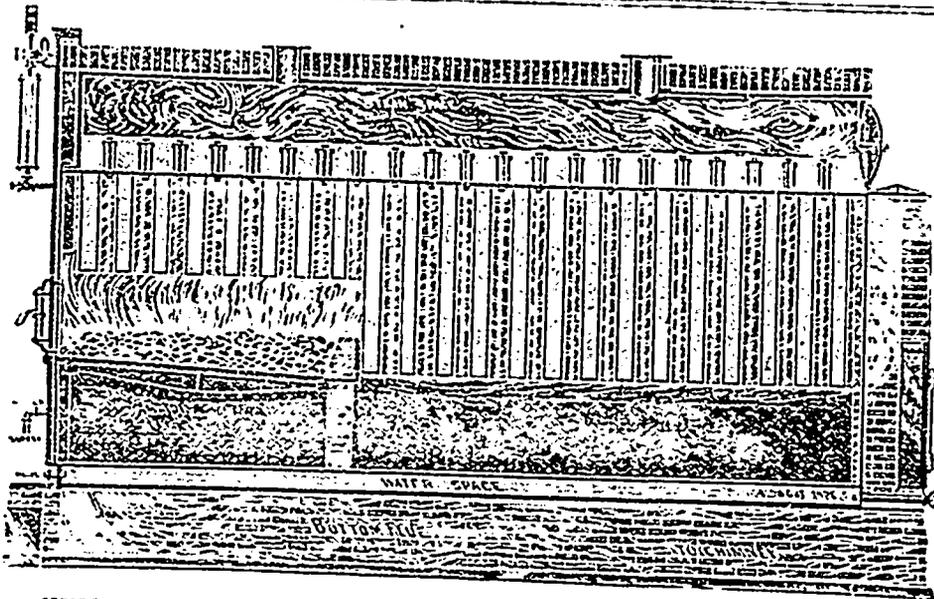
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ONT.

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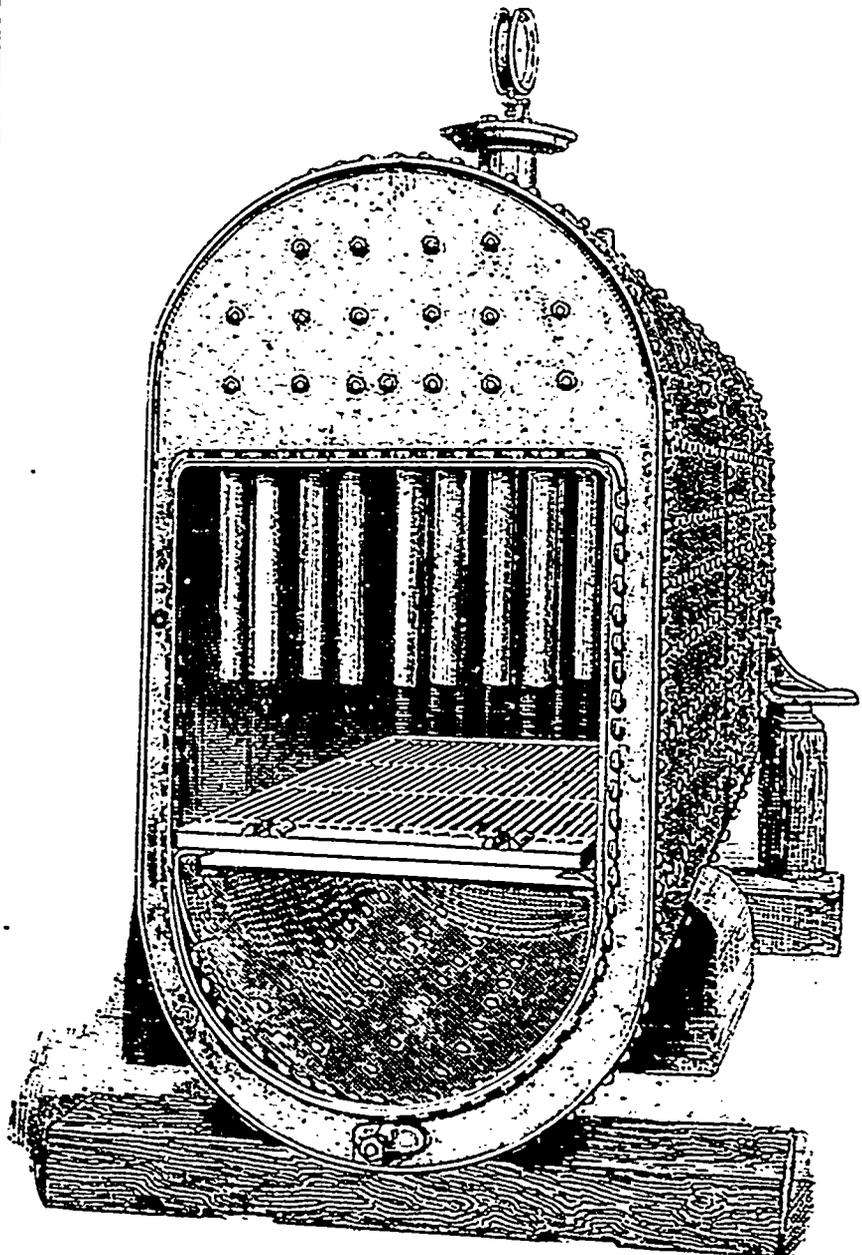
upward above the level of the crown sheet to any desired height. It is sometimes desirable to thus increase the steam space where large volumes of steam are required at one time, which occurs in various industries. No steam drum is used on these boilers. This is a great advantage over most water-tube boilers as well as many other types, as a steam drum elevated far above and away from the hottest fire can of itself act only as a condenser, as it is the tendency of steam to cool and condense immediately on leaving the direct action of the fire. In the Kingsley boiler the tubes, being vertical and short, liberate steam very freely, and without friction or impediment, which in all water tube boilers with inclined tubes, causes a large percentage of water to be carried up with the steam. This is also one reason why this boiler produces dry steam even under the heaviest forcing. By those who have not investigated, an argument may be advanced regarding the deposit of sediment in the tubes. This, the manufacturers claim, may conclusively be answered by referring to boilers which have been in use for upwards of ten years. One

**KINGSLEY WATER-TUBE BOILERS.**

The importance to manufacturers of having the best procurable boiler is undoubted. The accompanying article contains information of interest to most of our readers and THE CANADIAN MANUFACTURER is glad to be able to furnish them with accurate details of an invention the merits of which many of them will be glad of an opportunity to investigate.

The Kingsley patent water-tube boilers, herewith illustrated, are constructed with two shells—an outer and an inner. The outer shell has vertical parallel sides and semi-circular top and bottom. The inner shell is fixed parallel to the sides and bottom of the outer shell, by means of two flanged heads and numerous stay-bolts, leaving a uniform space about four inches wide between the two shells, extending the full length of the boiler. The crown sheet is horizontal, and extends continuously the entire length of the boiler. It is flanged down three inches along each side for its entire length, and forms the top of the inner shell by being riveted to it along each side. The tubes are threaded at their upper ends with standard pipe threads, and are screwed into the crown sheet. The bottom ends of the tubes are plugged with one-quarter inch iron and are then welded solid. The tubes are made of standard two-inch iron lap-welded pipe. They are short enough in the fire-box to leave an ample combustion chamber, and are longer behind the bridge wall. Any tube can be readily screwed in or out of the crown sheet without touching any other tubes. The crown sheet is strongly stayed by stay-bolts, screwed simultaneously at various angles, into the semi-cylindrical top of the outer shell and into the crown sheet. These stay bolts and those connecting the two shells are headed on each end. The parts of the two flanged heads forming the ends of the steam chamber are likewise stayed by rods screwed simultaneously into each, these rods being headed at each end or fitted with nuts.

The water is contained in the tubes, and in the space between the shells, and extends up a few inches over the crown sheet. As this water surface extends unbroken for the full length and width of the boiler, no rapid fluctuations of water level can take place, although the boiler is a very rapid steamer. It is possible to supply any capacity of water or steam space by extending the outer shell



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PERSONS GOING TO OR RESIDING IN

**THE YUKON DISTRICT** may secure policies from

*The Manufacturers' Life Insurance Co.,*

Free from all restrictions and subject to one condition only WITHOUT EXTRA PREMIUMS.

Apply **GEORGE A. STERLING**, Secretary, Head Office, Toronto, or to your local agent  
**GEORGE GOODERHAN**, President. **J. F. JUNKIN**, General Manager.

## Pressed Spikes.

Washers

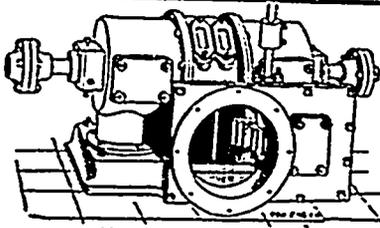
Rhode Island Horse Shoes.

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Horizontal Type.

Water Wheel Governor, Machine Dressed Gearing, Pulleys, Shuffling and Bearings.  
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.... FOR ALL PURPOSES....

HORIZONTAL AND VERTICAL  
BUILT IN 44 SIZES.

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

of these in Chicago, being fed on the dirtiest of feed water, has been in use for nine years. The users, a short time ago, wrote: "We have never had any trouble with the tubes filling with scale or sediment; but, on the contrary, we think they are brighter than new." Hundreds of tubes have been screwed out and examined for sediment, in various parts of boilers which have been running for different periods, and have been found perfectly clean; in fact, any scale formed in manufacturing the tubes appears to be loosened and removed by the ebullition and rapid currents when the boiler is under steam. After such investigations there can be no reasonable doubt on this point.

The reason for this exceptional cleanliness of the tubes is said by the makers to be clear when we consider the construction of the boiler. The feed-water, entering at the front of the boiler, between the shells, below the level of the grate bars, in passing up becomes intensely heated before reaching the crown-sheet. It is well known that water heated to a few degrees above the boiling point, parts with most of its impurities, as mud and carbonates of lime, and at a temperature of about 300 degrees Fahr., equal to 52 lbs. steam pressure, it can no longer retain in solution the sulphates of lime, magnesia, etc., which form the much-dreaded scale in boilers. In this boiler, these impurities being separated by the intense heat, precipitate into the space between the shells at the bottom of the boiler, where the heat is not sufficient to bake them into scale, and whence they can be washed out occasionally through the hand-holes. This boiler is, therefore, by its construction, stated to be a perfect feed-water purifier; and no sediment or scale can gather in the drop-tubes, because only purified water reaches the crown sheet, from which the tubes are supplied.

The boiler, being internally fired, has the fire-box entirely surrounded with a water-jacket. The incandescent gases from the fuel, passing up among the short tubes in the fire-box, are drawn backward among the long tubes to the end of the boiler, whence they divide and return, half on each side, between the outer shell and the brick casing toward the front of the boiler. From this point the now nearly exhausted gases can either be carried by means of a saddle over the front of the boiler direct to the chimney, or they can pass down into a flue under the boiler along to its back end, and thence to the chimney. There is no appreciable difference in economy of evaporation between these two methods of circulation of the gases. The tubes are "staggered" in the crown-



HAMILTON, CAN.

Catalogue on Application.

# THE DIFFERENCE

The difference in taking down a section of line shaft, removing couplings, etc., and putting on solid iron pulley and then putting all back in place, and in putting on a "REEVES" Patent Wood Split Pulley, leaving the shaft unmolested, will in nearly every case pay for the "REEVES" entire.

**REEVES PULLEY CO., Pearl St., - Toronto, Ont.**

GET OUR CATALOGUE.

shoot and are spaced at such distances that the gases which pass zig-zag and strike each tube at right angles, while being confined on all four sides by the water-jacketed shell of the boiler, lose nearly all their available heat before they are returned on the sides. For this reason this boiler can be operated also as a locomotive boiler. The gases are passed out of the chimney only sufficiently hot to insure a good draft. This boiler requires the same size of chimney as any other type of boiler. For hot-water heating for buildings there is no change in the construction of the boiler, the steam space being simply filled to the top with water. The fuel economy is the same as for steam purposes. The circulation of the water is the most direct that can be desired, as there is a continual uninterrupted rise from bottom to top of the boiler. For marine purposes there is no change in the essential design of the boiler, the difference being in details and setting, as the brick casing could not be used. It has been installed for the highest pressures, and is as easily cleaned and as durable as any boiler made. The economy of installation is apparent when we note the claim that this boiler occupies one-third less ground area than the other ordinary types of horizontal water-tube boilers, or the return-tubular boilers, and less than one-half their cubic contents. It requires only six and one-half feet in height. The brick casing is used only for the return gases, and hence never requires renewing. As there is no firebrick furnace to renew periodically, the repairs are reduced to an absolute minimum. It is not necessary to refer to the exceptionally high evaporative economy of this boiler, as this could be readily predicted from its construction.

THE UNIVERSAL ELECTRICAL DIRECTORY.  
J. A. BERLY'S, 1898.

Contains the names of the members of the electrical and kindred industries throughout the world.

The amount of work entailed in its compilation has considerably increased. It has been most thoroughly revised and

the British Alphabetical Section now comprises about 9,918 distinct names; Continental Alphabetical Section about 7,872 distinct names; American Alphabetical Section about 4,080 distinct names; Colonial Alphabetical Section about 1,924 distinct names; a total of 23,794, approximately 1,136 names of individuals and firms more than were contained in the book for 1897.

For simplicity and facility of reference it is divided into four groups, namely: British, Continental, American and Colonial, which are again sub-divided into alphabetical and

classified sections. In the case of the British a geographical section is given, making in all nine sub-divisions.

In addition to the new names incorporated in the present issue, much financial information is given, the telegraphic addresses and local telephone numbers are given, and the total of pages added to the work is 70 as compared with that of 1897, making in all about 1,100 pages entirely of directory matter.

It is therefore the largest, as it is the oldest Electrical Directory in the world. The price is six shillings.

## The Packard Electric Co., Limited.

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# Lamps and Transformers

Sole Agents for SCHEEFFER RECORDING WATT METERS  
ST. CATHARINES, ONT.

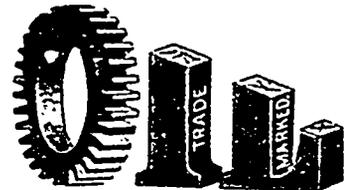
## “CAPITOL” CYLINDER

CAN'T BE BEAT.

## “RENOWN”

ENGINE

FOR FINE ENGINE RUNNING.



The QUEEN CITY OIL CO., Limited - - TORONTO.  
SAMUEL ROGERS, President.

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Manufacturers of....

## OIL-CLOTHS OF EVERY DESCRIPTION

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Office and Works

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Woolen Mill for Sale. Two Sets of Machinery.

IN GOOD RUNNING ORDER.

ELECTRIC LIGHT PLANT IN CONNECTION.

ALL WILL BE SOLD AT A BARGAIN.

Address VASSAR WOOLEN COMPANY,  
VASSAR, MICH., U.S.A.

**WATER POWER AND ELECTRICITY.**

The great Lachine rapids light Montreal and provide the motive power for its street cars; the Chaudiere waters do the same for Ottawa, besides supplying saw and other mills, but both are only called upon to give a tiny part of their energy; while the waters which roll to waste in the Chats Rapids are not at present called upon for any human service. And these specimens of Canada's waterpower are repeated over an enormous area in Ontario and Quebec. Supposing Canada to be ten times as thickly populated as it is, and presuming also the satisfactory accomplishment of the experiments towards transmitting electric power long distances without too great loss of energy, every town could be lit and all its street cars run, every

mill and factory set humming, every house lit and heated, nay, every railway train could be run, by the force which lies in the rapid currents of Canada's waterways. That, at any rate, is the deliberate opinion of electricians who have travelled in the Dominion.

From this cause alone Canada's future greatness should be assured. For just as the industrial greatness of the nineteenth century has largely laid with the nations which had the greatest stores of coal in their countries, so, with the passing from steam to electricity, there seems little reason to doubt that the greatness of the twentieth century will lie, ceteris paribus, within the reach of those communities which possess the most abundant water power. And no country in the world is so richly endowed with torrents as is Canada. —London Mail.

**ELECTRIC ORE SEPARATION.**

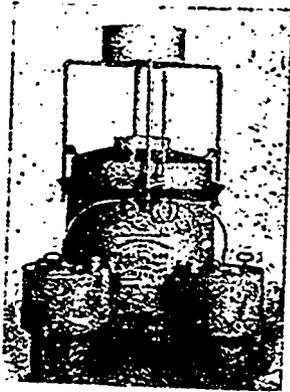
Electricity is the great wonder-worker of the age. Every day we read of new triumphs almost wizard-like, that make us doubt our senses, and seem almost to be the acme of electric science. Yet they are but milestones on the march of progress that knows no end. THE CANADIAN MANUFACTURER is glad to be able to present to its readers a brief description of the invention of a clever young Canadian electrician, Mr. Thomas J. Murphy, 7 Cheneville street, Montreal—one of the most novel applications of electricity to the aid of man.

It is nothing more nor less than a method of separating gold from sand by electricity in such fashion that Klondikers may hereafter prosecute their search for wealth as easily in the winter time as in summer. At present, the golden sand may be robbed of its treasure only when water may be used, or for about three months of the year. By the adoption of Mr. Murphy's invention, the sand may be made to give up its gold as easily with the thermometer away below the zero mark as it does when the mosquitoes are buzzing about one's ears in the heat of the short sub-Arctic summer.

The apparatus is not at all complicated. It consists of a number of pieces stamped from sheet iron with a star-shaped punch. These star-shaped sheet iron plates are mounted on a spindle which revolves at high speed, while they are strongly magnetized by a current of electricity. Directly underneath the revolving magnet is a stationary one. Through this magnetic field the sand, gravel, etc. is carried upon moving plane surfaces going in the opposite direction to the revolving magnet. As the metal particles are carried towards the rapidly varying and intense magnet field, electric currents are set up in them, which for the time being cause them to exhibit magnetic properties similar to iron, in consequence of which they can be attracted by the magnet. Throwing gold, silver, copper, etc. on one side of the stationary magnet, the sand, rock or dirt falling on the other side.

Mr. Murphy's device is so simple, so easily controlled and of so little cost that its success would mean the revolutionizing of the mining industry. Its advantages are so multifarious and so apparent that it is unnecessary to enlarge upon them here. It will now be in order for European contemporaries to reprint our brief description and give the credit of this Canadian invention to American brains.

**Hamilton Acetylene Gas Machine.**  
SIMPLE, ECONOMICAL, DURABLE AND SAFE.



Adapted for PRIVATE HOUSES, OFFICES, STORES, CHURCHES, or any building where a clear, bright and steady light is required.  
300 in use in Dominion of Canada.  
Address Communications to  
**HAMILTON ACETYLENE GAS MACHINE CO., Limited.**  
71 York Street, HAMILTON.

**LIGHT YOUR FACTORY WITH**

**LUXFER PRISMS**



"The latest device for

**LIGHTING**

dark rooms and offices

**By Daylight**

For catalogue and estimates write to

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58 Yonge Street, - TORONTO.

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**CENTRAL STATION MANAGERS!**

**A GOLDEN OPPORTUNITY**

Are you desirous of purchasing

*Arc Lighting Machinery,  
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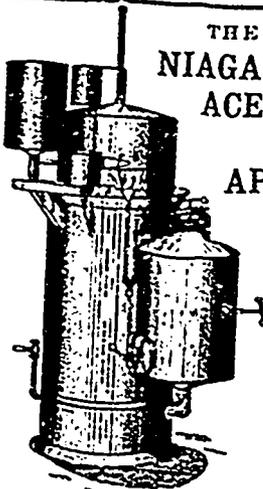
*Water Wheels, or Shafting?*

If so, you cannot afford to miss this opportunity. Owing to extensions necessitated at our generating station we are obliged to discard the above-mentioned material. Communicate with us at once for all information and particulars.

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**MONTMORENCY ELECTRIC POWER CO.,**  
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**THE NIAGARA FALLS ACETYLENE GAS APPARATUS**



Patented in Canada, United States and Great Britain.

This is the only machine perfectly automatic in its action, requiring no attention. Machines made in 10 sizes costing \$15 and upwards.

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For Private Dwellings, Business Houses, Churches, Public Halls and Offices.

For particulars write to the

**NIAGARA FALLS ACETYLENE GAS MACHINE CO. LIMITED.**  
NIAGARA FALLS, ONT.

**ELECTRICITY IN CHURCH.**

There has recently been erected in St. Augustine's Church, Brooklyn, N.Y., a very elaborate and handsome altar. In the centre of this altar is a costly tabernacle for the sacrament. This being constructed of solid silver and gold and studded with many large diamonds is worth many thousands of dollars, and is a source of constant worry to its caretakers. To reduce the risk of any tampering to the lowest possible limit a special and unique safe has been constructed, which is opened and closed by electric power. The construction is so effective that the whole installation is of considerable interest.

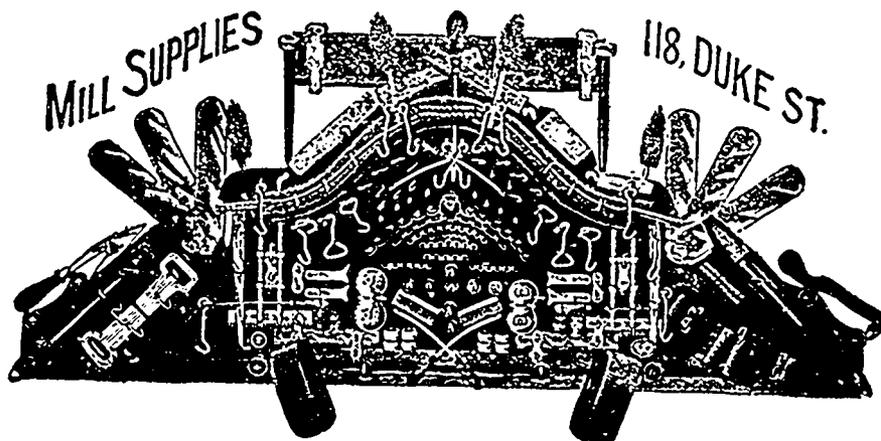
The tabernacle is placed within a richly carved marble baldacchino, the supporting columns being angels with swinging censers. In the spandrels of the arches are reliefs of the four apocalyptic figures and also the missal and the chalice. Within this baldacchino it was considered necessary to con-

struct a burglar-proof steel safe, which should be capable of ready opening and closing on all of the three sides from which the tabernacle can be seen from the church. The problem was undertaken by Mr. E. Stancliff, and solved as follows: Around the tabernacle and inside the marble structure there is placed a solid steel safe in the shape of a vertical cylinder surmounted by a dome, the whole being about 2½ feet in diameter and approximately four feet high. This safe is made of Harveyized steel plates, one inch in thickness and forming three leaves, each spanning 120° about the axis of the cylinder and curving over at the top to a point at the apex of the dome. The rear leaf is stationary, the other two being capable of rotation about the axis of the cylinder, the three being firmly pinned together by a heavy bolt at their topmost points in the axis of rotation. The two side leaves meet, when closed, at the front in a tight-fitting scarf joint, and, in opening, revolve around into positions behind the stationary rear leaf. The three leaves are of slightly different diameters, and mounted on different centres, so that when the two side leaves are folded back they slide into positions overlapping each other and the third leaf, allowing an opening of 240°, by which the front and sides of the tabernacle can be freely seen. These leaves are covered with gold leaf, and give no visible indication of their strength and solidity. The rolling leaves being very heavy are mounted on ball and roller bearings, and are turned by solidly built worm gears, placed below the altar table, and driven by belting from a motor in the basement.

The motor is controlled by a magnetically operated switch, actuated by currents passed through push buttons beside the tabernacle, with automatic devices for cutting off the current when the doors reached their limiting positions in either direction. The starting of the motor is rendered smooth and even by the insertion of a rheostat, cut out by a solenoidally driven arm, rotated by a plunger in an oil chamber. The whole of the operating mechanism, including the motor, is enclosed in a steel chamber built of three-eighths inch plates, and provided with a combination lock on the door. Many parts of the mechanism are connected with a burglar alarm circuit, which runs to the nearest police station, so that tampering with any of the apparatus will immediately send in an alarm. The floor of the safe is mounted on vulcanized fibre, and separated by a very slight clearance from the steel walls about it. Any attempt to force the walls will bring the two in contact, and close the burglar alarm circuit, and any drilling of the walls will affect the same through the iron chips which will fall across the narrow gap. In this way practically perfect immunity from any risk of damage is assured.

The motor used for the purpose is a specially wound low-speed two-pole motor running at 400 revolutions, and is also used for driving a special set of blower and exhaust fans intended for the purpose of dusting the elaborately carved marble of the altars. An air blast attached to the pressure pipe is used for starting the dust, and a powerful exhaust inlet carried with the blast draws in the dust-laden air, and prevents the settling of the dust on other parts. This gives far more satisfactory work on the delicate marble carvings of the altars than the crude, old-fashioned method of the feather duster. Special electrically driven fans are also to be installed in the church for ventilating purposes.—Electrical World.

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RIM... (REID'S PATENT).

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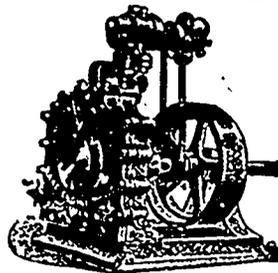
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**The Dake Engine**

For Running Dynamos in



Small Isolated Plants.

**CONTRACTORS' HOISTS**

STEADY AND EVEN MOTION,

ALSO FOR  
Attachment Direct to Fans, Blowers, Centrifugal  
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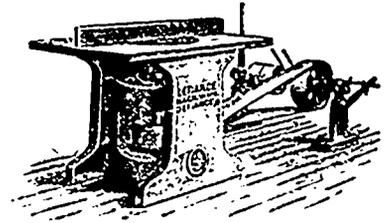
SHERBROOKE, QUE.

Succeeding

THE PHELPS MACHINE CO., Eastman, Que.

**A SANDPAPERING MACHINE.**

Illustrated herewith is an article of machinery which no large wood-working establishment can afford to be without. It is the Disc Sandpapering Machine which has been designed for polishing woodwork. It is used



largely by wagon and carriage makers to polish vehicle bodies, seats, axles, sandboards, poles and double-trees. It is equally valuable for the use of furniture and agricultural implement factories—in fact, for polishing any flat surfaces on lumber. It will do the work better and at a great saving over hand finishing.

The table, of iron, is cast in one piece and planed true and smooth on top. It is 48 inches wide, 66 inches long. The hole in its center for the polishing disc is bored out true. The fence, or gauge, running lengthwise, and in the center of the table, enables two operators to work on the machine at the same time.

The vertical spindle carrying the sand-disc is of steel, 2 7/16 inches in diameter, and it runs in large self-oiling bearings, which are enclosed to prevent the admission of dust or dirt, and it is provided with a vertical adjustment to regulate the depth of cut, which can be effected while the machine is in motion.

The polishing disc is 36 inches in diameter, and covered with a yielding material over which the sandpaper is placed, and securely stretched by a friction ring pressed below the cutting surface. By this device the sandpaper can be quickly removed when worn out.

The counter is furnished as follows: Shaft, 1 11/16 inch by 48 inches long. Two No. 2 ball and socket floor stands. Driving pulley 14 inches by 5 inches; tight-and-loose pulleys, 10 inches by 5 inches; speed, 700 rotations per minute. The Defiance Machine Works, Defiance, Ohio, U.S.A.

**Hamilton Blast Furnace Co.**

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**HIGH GRADE  
PIG IRON**

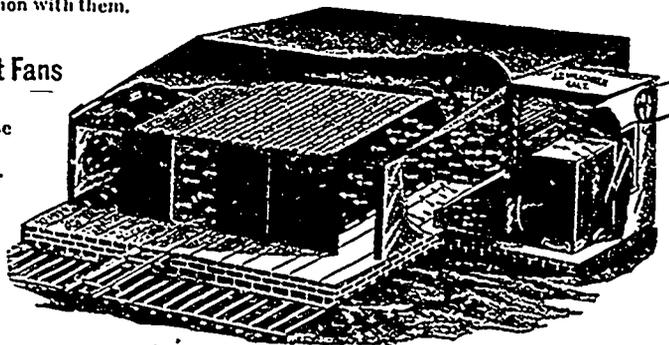
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They are quick-drying,  
Economical with Steam  
and it requires less power to  
drive our fan in connection with them.

**ARE THE BEST**

**Steel-plate Exhaust Fans**

For removal of refuse  
from Wood-working  
and other machinery.



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**SECOND-HAND FANS AND HEATERS**

For Lumber Dry Kilns for sale at reasonable figures.

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GALT, ONTARIO.

**MUNICIPAL OWNERSHIP AND NIAGARA POWER FOR TORONTO.**

For some time past the city of Toronto, Canada, has been discussing a municipal electric light plant, but at the latest official meeting on the subject, the mayor made some very sensible and level-headed remarks. An engineer's report had shown how small was the amount the city could expect to save, at the best, but the mayor pointed out that it was very absurd for the city to invest in a large power generating plant just at the moment when Niagara power might be said to be literally knocking at the door. The availability of that power for Toronto cannot be questioned, the distance between Niagara and the city being only some 75 miles. The generation of current on the Canadian shore at the Falls is cheap and easy, and the figures made by some of the leading engineers in this country, based on a potential of not more than 25,000 volts, prove that the matter has entered into "practical politics" for the progressive city on Lake Ontario. Each day, electrical engineers know better how to

handle these large currents and high voltages, and Toronto can well afford to wait the lapse of the few years now standing between her and Niagara power.

It will be noted that the mayor of Toronto puts the matter of a municipal plant on a commercial basis. So did Mayor Wurster, of Brooklyn, the question of city water works:

"The mayor was then asked if he believed it would be more advisable to buy the water supply for the city outright than to secure it by leasing of water privileges. In reply he said: 'It is purely a matter of business. If it can be shown that the city can buy water cheaper than the cost of pumping it then it would be profitable to buy it, for under such agreement the seller would have to deliver the water to the city. It is a purely business matter, the same as if a man in one line of business requires certain material in conducting that business. If he could buy it from a man who has a plant for manufacturing it, at a less cost than it would be for him to manufacture it himself, he would not be much of a business man if he did not avail himself of the opportunity to buy the material.'"

The commercial test is certainly as good as could be applied. There are others, but such plants must be judged by their fruits, and we must confess our inability to find other fruit, as a general thing, than deficit, or failure, or inefficiency, or obsolete apparatus, or all shortcomings mixed up together. Mr. Dodge, in our current issue, makes out a case for the Philadelphia gas works. All we will say, in comment, is that alarming figures were presented to the public before the lease of the works was made, and that

amongst other items, it was shown that one man in private gas works elsewhere was expected to do comfortably the work done by eight municipal workmen in Philadelphia. In 1883 a committee of the leading citizens presented a memorial to the Pennsylvania Legislature saying: "Philadelphia is now recognized as the worst-paved and worst-cleaned city in the civilized world. \* \* \* Inefficiency, waste, badly paved and filthy streets, unwholesome and offensive water, and slovenly and costly management have been the rule for years past throughout the city government." The little statement following Mr. Dodge's article shows that pretty much the same complaint—not by us however—is made to-day. It is the same everywhere, with a steadily downward pressure, no matter how good some administrations and some individual officers may prove. Just lately, the Lighting Commission in a western city has been standing up bravely against the desire of aldermen for more lights in their respective districts. Does anybody doubt that sooner or later, those lights or others equally needless will be strung up? The opportunity to bribe constituents in this fashion is a great temptation, and helps explain why municipal enterprises are so often costly and disastrous.—The Electrical Engineer, New York.

It is being urged upon the Minister of Militia, that the Government should carry out its original plan and enlarge the Toronto Armouries so as to provide quarters for local cavalry and artillery corps. Should the Government, as seems probable, decide to take action in this direction, there will be a number of valuable contracts opened.

## The Pulsometer STEAM PUMP

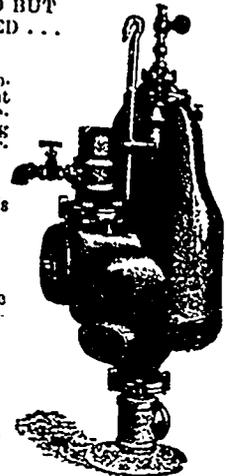
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NEVER EQUALLED . . .

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The handiest, simplest and most efficient steam pump for general Mining, Quarrying and Contractors' purposes.

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Muddy or Critty Liquids  
Handled without wear.

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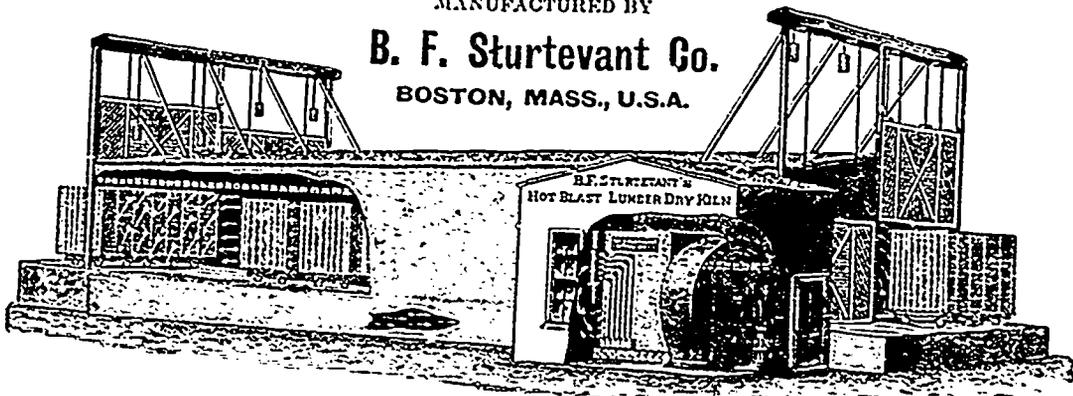
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# The Sturtevant Progressive Lumber Dry Kiln

Complete .  
Plans . .  
Furnished .  
With . .  
Each . .  
Apparatus.

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Absolutely  
Safe .

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**FIRE  
RISK**

**QUICK DRYING**  
Economical in  
use of steam.

## THE STURTEVANT Steel Plate Exhaust Fans

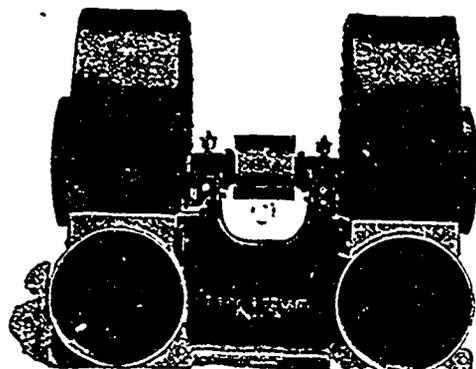
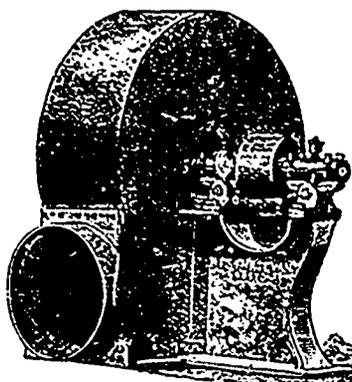
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from Wood-working Machinery

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**Rubber Belting?**

IF SO, BUY THE BRANDS MADE BY

**The CANADIAN RUBBER COMPANY of MONTREAL**

CAPITAL \$2,000,000.

**Manufacturers of all Kinds of Rubber Goods****ONTARIO BRANCH—Cor. Front and Yonge Streets, TORONTO.****Patent for Sale.****JUBILEE  
SMOKE  
CONSUMER**

This new apparatus is the sole one which destroys completely smoke and gases of every kind.

It is the only one which can be adapted to locomotive and steamboat boilers, as well as to boilers used in factories, workshops, etc.

THE JUBILEE gives entire satisfaction, its work being perfect.

The Canadian, British and American outright would be sold, if a reasonable offer was made, on account of the professional business of its owner.

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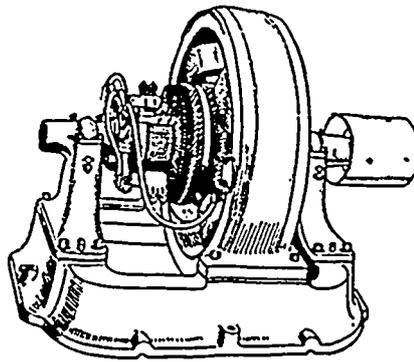
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HAMILTON, ONT.,

beg to announce that in future it  
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Phone 958TORONTO, ONT.,  
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Phone 1214

From 8 to 100 K. W.

103 105, 107, 109 Adelaide Street West, Toronto, or to  
R. E. T. PRINGLE, 216 St. James St., Montreal.**TORONTO****ELECTRIC****MOTOR****COMPANY**

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Montreal, Radnor and Three Rivers

Manufacturers of the well-known

## "C.I.F." Three Rivers Charcoal Pig Iron

Suitable for Car Wheels, Cylinders and Fine Castings, where the utmost strength is required.

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN OR AMERICAN CHARCOAL IRON.

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From 1 in. to 12 in. Diameter.

BELL AND SPICOT. FLANGED. TURNED AND BORED

And Everything Necessary for a

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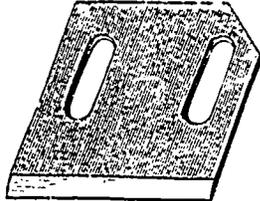
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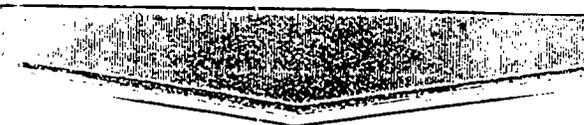


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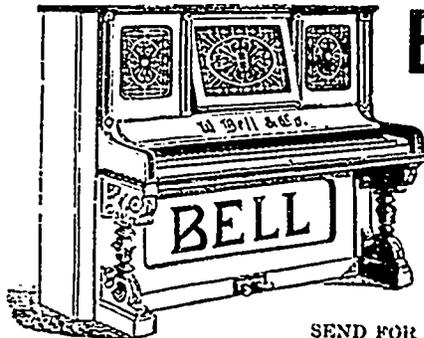
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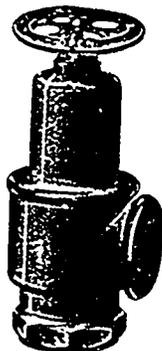
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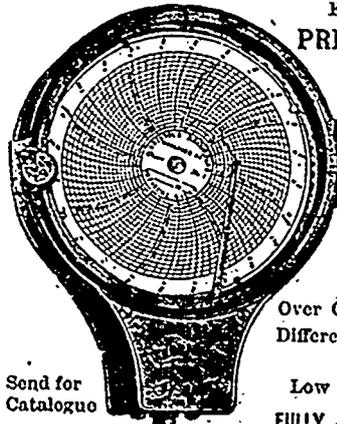


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