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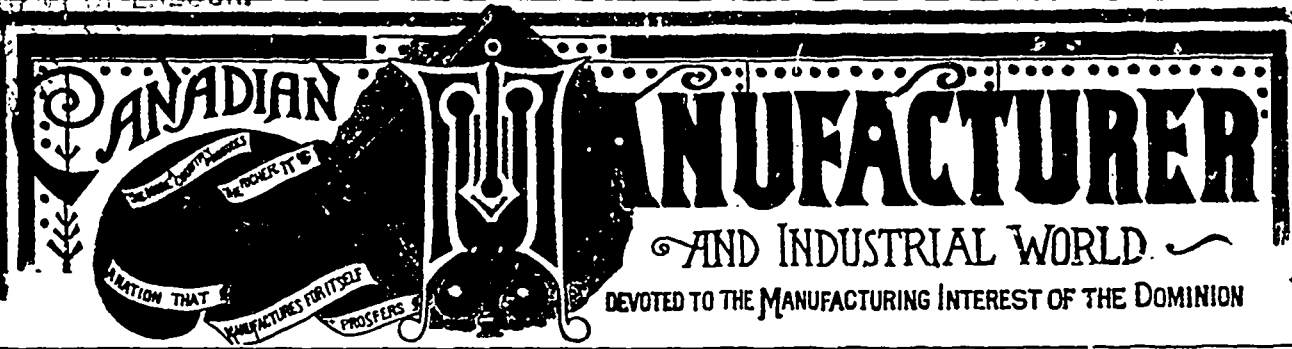
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TORONTO, JANUARY 15, 1904.

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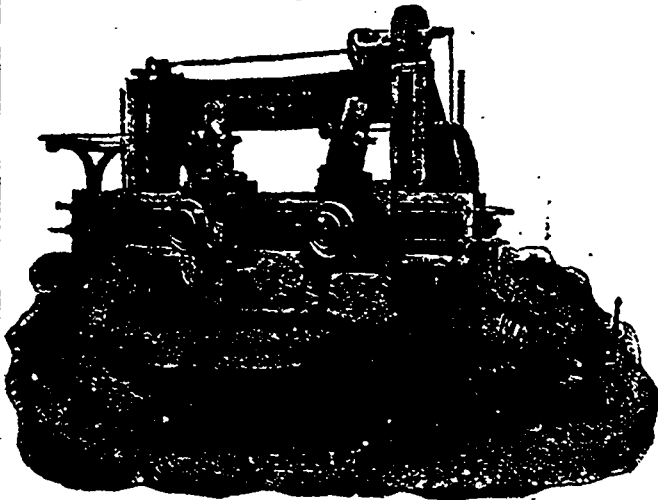
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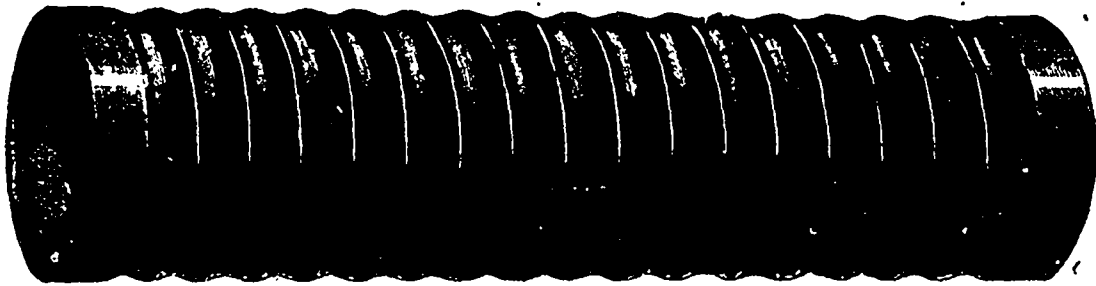


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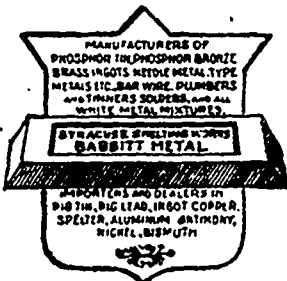
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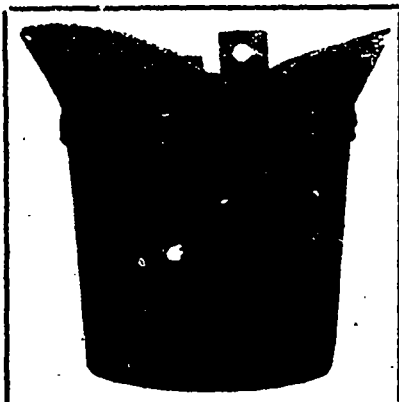
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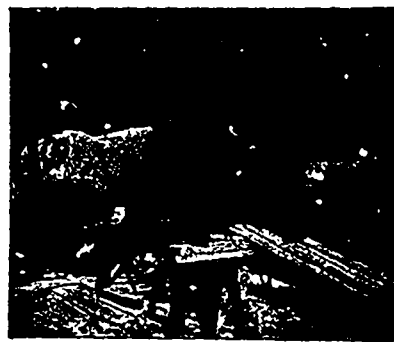
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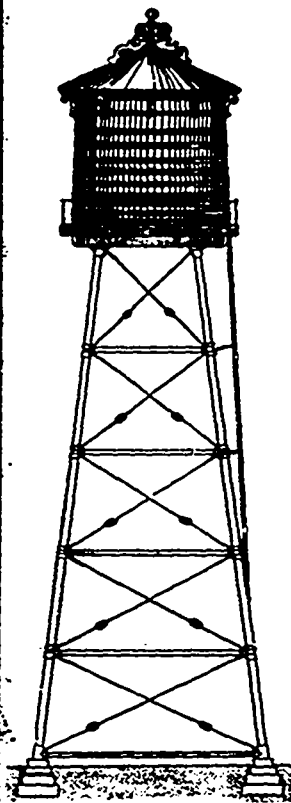
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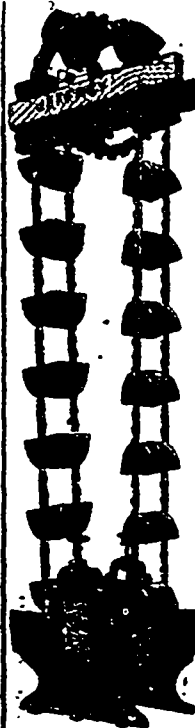
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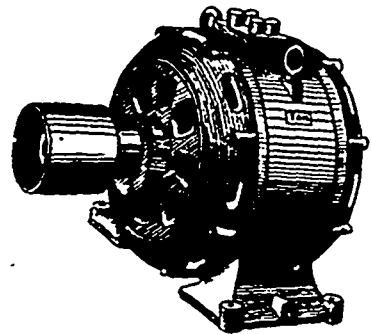
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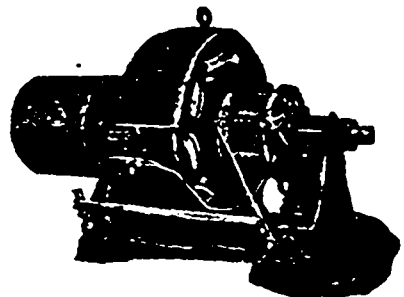
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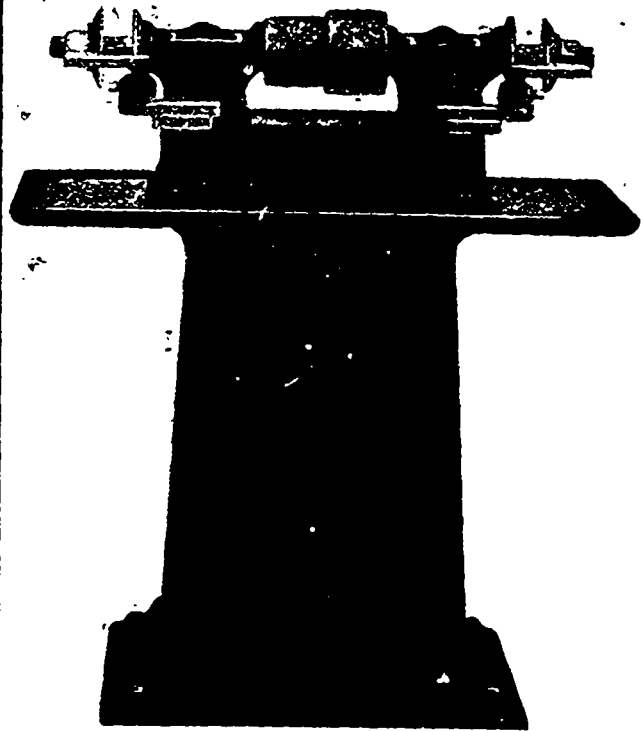
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Classified IndexPage 39
Index to AdvertisersPage 46

CANADIAN "RENEGADES."

The London Times of December 26 publishes a letter from Colonel George T. Denison, of Toronto, president of the British Empire League in Canada, in which he points out that there is a feature in connection with Mr. Chamberlain's fiscal campaign in Great Britain that astonishes the Canadian people. He has observed with great interest the progress of the movement in favor of preferential-tariff, and is greatly pleased with the spirit Mr. Chamberlain has shown, and with the wisdom and ability of his speeches; but to many Canadians it is a revelation to watch the methods of his opponents, one feature of which applies specially to Canada. Some prominent English politicians, he says, have been declaring that the colonies are not on Mr. Chamberlain's side, and while he does not undertake to speak on behalf of the other colonies, he points out some facts to show what he says the Canadian position really is.

He mentions that in 1891 both Houses of the Canadian Parliament passed an address to the Imperial Government asking that the German and Belgian treaties be denounced, which prevented preferential trade arrangements between the various parts of the Empire; that in 1892, Mr. Alexander McNeill moved a resolution in the Canadian Parliament, which was passed, offering preferential trade with Great Britain if she would do likewise; that in 1897 Canada actually gave a tariff preference to Great Britain, which, after the denunciation of the German and Belgian treaties, was increased to 33½ per cent.; that the Parliament has granted tariff preference to sugar produced in the British West Indian Islands; that at the Imperial Conference in 1902, a resolution was passed in favor of preferential tariff, Sir Wilfrid Laurier offering that if Great Britain would reciprocate, Canada would give still further preference on lists of selected articles; that at the Congress of Chambers of Commerce of the Empire, held in Montreal last year, it was apparent that all the Canadian delegates were a unit in favor of Mr. Chamberlain's policy; that the Canadian Manufacturers' Association had passed a resolution supporting Mr. Chamberlain, and that the Boards of Trade of many of the principal cities and towns of Canada had passed similar resolutions.

In the face of all these facts, Colonel Denison says he is astonished when reading the statement that Canada is not in favor of Mr. Chamberlain, and the only pretence, in his opinion, that these men can use as a salve to their consciences

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is that some people in Canada, and some renegade Canadians in England say that they are not in favor of preferential tariff. These British politicians use the sayings of some of these renegade Canadians to prove that the Canadian people are against Mr. Chamberlain, and this in the face of the evidence which is here mentioned. Why these renegades talk as they do is something Colonel Denison desires to find out. He says that when they express themselves as they do, they work against our Empire—against the Empire because Mr. Chamberlain is on the side of the Empire. The Colonel does not, he says, undertake to say that every man who opposes Mr. Chamberlain is an enemy of the Empire, but he does say that every enemy of the Empire in the world is opposed to Mr. Chamberlain.

Of course this is the official ipse dixit of the president of the British Empire League in Canada; and Canadians must understand that if they do not accept it, they are to be known as "renegades."

Colonel Denison has never been considered a free trader in principle, but he seems to be an Imperialist who is willing to sacrifice anything to achieve Imperial Federation. But at the risk of being considered renegades, there are many Canadians who hold Canada and Canadian interests above those of Great Britain and Imperial Federation. It cannot be that the motives that actuated the members of the Dominion Parliament and the other organizations mentioned in the ways pointed out by Colonel Denison, were that free trade within the Empire would be the ultimate result of these acts; and it is ridiculous to suppose that when the Canadian Manufacturers' Association passed a resolution supporting Mr. Chamberlain, they did so with their eyes open to the belief that that gentleman's scheme embodied free trade within the Empire. But we know that in his speech at Glasgow Mr. Chamberlain suggested that should his scheme be adopted it would be expected that Canada, in thankfulness therefor, would agree to discourage her manufacturers from entering upon any new productive enterprises such as British manufacturers might be engaged in. It is true that some sensible friend suggested that the proposition was too rank and unsavory for Canadians to swallow, but the idea was promulgated nevertheless. Mr. Chamberlain made a speech at Leeds on December 16, in which he held up the government and management of the United States as something for the British people to imitate, a proposition which Colonel Denison

no doubt approves of. He said that "the United States has a common constitution, a common system of defence and a common commercial bond; why should we not have all these things too? It is our business to try and secure them." The "common commercial bond" Mr. Chamberlain alluded to is the fact that all the states of the union surrender their individual rights to the general government in making tariff and excise laws, imposing duties upon imports, making treaties, etc.—in fact, a zolverein under which absolute free trade exists between the different states; and in alluding to it Mr. Chamberlain said: "Why should we not have all these things too? It is our business to try and secure them. It may be impossible to secure such a union, but posterity would never forgive us if we lost even the slightest chance to secure it. In order to succeed in this great task, it is not only a stone which we have to put in place, but a whole edifice we have to build; and our policy must be continuous and persistent—it must be a national policy. Now the opportunity has arisen to place one brick, one corner stone, one arch of the great edifice we wish to rear. The opportunity has come from our colonies. They have shown a desire for reciprocal preference. It is not free trade. I wish it were, but it is an approach to it, and that is something. You cannot expect the vane to be put on before the steeple has begun to be built; and if we get this near to commercial union, why should we despair of going further in time?"

This is Mr. Chamberlain's scheme, and how does Colonel Denison like it? Loyalty to the Empire, according to Colonel Denison, means that Canada is to accept a free trade zolverein arrangement as her contribution to Imperial federation. She is to restrict her investments in manufacturing industries in favor of British manufacturers; and to become a hewer of wood, a drawer of water, and a producer of raw materials and food stuffs for the United Kingdom, as all the other colonies are to do. If Canadians accept this proposition they may be considered good Imperial Federationists, and if they do not accept it they are to be branded as "renegades."

Colonel Denison will discover sooner or later that Canada abounds in such renegades. Mr. Chamberlain's scheme won't go down with them.

CANADA FIRST.

An esteemed correspondent who is the head of an important Canadian manufacturing industry, thinks that in the tabulated statement which was published in the December 18 issue of this journal, in which the values of a selected list of 200 dutiable articles were given which were imported into Canada in the fiscal year 1903, from Great Britain under the preferential tariff and from the United States under the general tariff, and the total values of the same articles imported from all countries, we excluded certain items which, had they been included, would not have put Great Britain in so unfavorable a light. He says that, upon the face of it, our selected list favors the idea that the preferential tariff is a failure, which is far from being the case, and that it is not in the interest of Canada nor of Canadian manufacturers to so consider it, as long as their interests are properly safe-guarded. It is an undoubted fact, he says, that large quantities of American manufactures are "dumped" into Canada to the severe injury of both Canadian and British manufacturers, and that the evil is growing rapidly in regard to both United States and German goods.

We will premise our remarks by saying that we are more interested in the welfare of Canada than that of Great Britain, United States, Germany, or any other country. There are

social and political ties which bind us more closely to the Mother Country than to any other people; and Great Britain knows, as we know, that when brave men are in demand to protect and defend the integrity of the British Empire, Canadians are always to the front in the noble cause. Canada is always ready to pour a rich libation of blood and treasure upon the altar of British freedom and integrity.

In the forced struggle for industrial and commercial life, however, Canada cannot forgo any advantages she may have or win in maintaining the high and proud position to which she has attained by sacrificing any of her opportunities for the sake of building up any other country, not excepting Great Britain, except it be incidentally.

It has been frequently argued in these pages that if a tariff preference is shown by Canada to Great Britain, it should only be when a similar favor was shown by that country to Canada, a quid pro quo arrangement that should not particularly distress any Canadian industry. For several years Canada has extended preferential treatment to British goods imported into this country, and in other ways shown her desire to cultivate the closest possible trade relationship with the Mother Country; but these advances have not been recognized nor encouraged by those who have been benefitted by them, although quite willing to be thus benefitted, and to-day barriers are raised against the entry of Canadian cattle into the British market, without the shadow of a valid excuse for doing so. Mr. Chamberlain and his friends are canvassing the Kingdom in an endeavor to educate the people up to the idea of bringing about some sort of preferential trade within the Empire—a chimera that may assume a much more definite and tangible form sometime in the sweet bye-and-bye, but which, most probably, will never be more than a chimera. If Great Britain needs Canadian help to fight her battles, or sinews of war to strengthen her defences, Canada stands always ready to perform her duty, but it is commercial folly to perpetuate a condition which, in many respects, is of no benefit to Great Britain, and in many other respects is a decided injury to Canada.

We have heretofore pointed out that in a selected list of 200 lines of dutiable goods imported into Canada in 1903, of a total value of \$50,812,770, our imports from Great Britain under the preferential tariff amounted to only \$4,702,490, or 9.3 per cent. Our correspondent points out that this statement favors the idea that the preference is a failure, which, he says, is far from being the case; in proof of which he enumerates a list of other articles imported from Great Britain, the values of which prove to his mind that the preference is a good thing for both countries, and should be maintained and enlarged. In his selected list, choosing such items as show strongest for his argument, he enumerates a number of manufactures of iron and steel, the total value of which amounts to \$5,613,363, of which Great Britain supplied \$3,383,072; of certain other articles valued at \$2,242,873, from Great Britain, \$1,150,270, and of textile fabrics, valued at \$21,690,000, from Great Britain \$14,879,457. The aggregate value of this list amounts to \$29,546,238, Great Britain, under the preference, being credited with \$19,412,799, or about 68 per cent. Of course this improves the showing somewhat; but, as we have heretofore shown, while the total value of dutiable goods imported into Canada in 1903 amounted to \$136,796,065, Great Britain's share was only 30.8 per cent. The goods enumerated in our correspondent's list are no more important to the comfort and welfare of the people of Canada than the goods enumerated in our previous list; but it will be observed that the imports of \$14,879,457 worth of textile fabrics from Great Britain under

the preferential tariff has almost destroyed the textile industry of Canada.

With the exception of textile fabrics, we do not agree with our correspondent that the large quantities of American and German goods imported into Canada is an evil to either Canadian or British manufacturers. In a general way our manufacturers have time and again expressed satisfaction with the tariff as it now is: that upon textiles and some forms of iron and steel being sadly in need of revision. Industrial establishments are being operated to their utmost capacity and are entirely unable to meet the demands made upon them, the claim being made that the manufacturers are handicapped by scarcity of skilled labor. Why, then, is it a misfortune that the needs of the country which cannot be met by home establishments should be supplied from abroad? And why should it be deemed an evil that American and German goods are supplanting British goods in the Canadian market? Certainly Canada should not be retarded in her prosperous career by carrying the dead weight of Britain's behindhandedness. If British manufacturers observed the methods of production in vogue in the United States and Germany, she would not require a tariff preference to enable her to keep to the front in the race for business—if she does not observe them Canada should not be the sufferer therefrom.

A poet hath said of a brave, self-reliant man what might with equal correctness be said of Canada:

Here's a smile for those who love us,
And a frown for those who hate;
And what're the skies above us,
Here's a heart for every fate.

If the tariff should be revised, as some think it should be, let it be done on commonsense lines. Let it be a commercial olive branch to be held out to commercial friends, and a commercial two-edged sword to commercial enemies. Let there be minimum rates of duty in favor of commercial friends, and maximum rates against commercial enemies, and leave it with other countries to determine under which schedule their products may find entrance into Canada. That is the method observed in Germany, France, Russia and many other countries, and that is the method Canada should adopt. Under that method Great Britain would find a tariff preference to which Canadians would not object, and under it the United States, Germany and other commercially unfriendly countries would find greater obstacles in "dumping" their goods into the Canadian market than they now do.

But under any and all circumstances let the minimum tariff be sufficiently high to give efficient protection to every Canadian manufacturing industry.

CANADA'S ABILITY TO FEED HUNGRY BRITAIN.

Mr. George Johnson, Dominion statistician, has supplied a letter to Bradstreet's, explaining the ability of Canada to supply the wants of the United Kingdom with wheat. The London Statist had published an article showing that the world's wheat consumption is growing much more rapidly than the production, and that Canada cannot develop her wheat areas economically without a much larger mileage of railways than she now has at command, and that therefore Canada in the near future will still be able to supply only a very small portion of the increasing quantity of wheat needed to meet the world's increasing consumption. Bradstreet's, in commenting on the Statist's conclusions, especially that relating to Canada's productive capacity, says that those conclusions will not receive assent in Canada nor in the United

States, which country has reason to know of Canada's abilities in the line of wheat raising.

Mr. Johnson, discussing this matter in his letter to Bradstreet's says:

Is the Statist's idea a sound one, viz., that Canada cannot produce wheat in a proportionately increasing degree without a large increase in the mileage of the railways? Is it true that an increase in the railway mileage would be a work of long time and one demanding large expenditure?

In Manitoba there are 2,200 miles of railway. A strip of land five miles on each side of the railways would give 14 million acres of land. Ten miles on each side would not be considered an unreasonable haul for wheat. But take five miles, and at the rate of production of wheat in Manitoba during the past 18 years, i.e., 18.65 bushels per acre, the production would be 261,000,000 bushels, or 60,000,000 bushels more than the United Kingdom has imported in any year from all the wheat exporting countries of the world. In the North-West Territories there are 5,100 miles of railway. A strip of land five miles on each side would mean another 14,000,000 acres, another production of 261,000,000 bushels, and another surplus over and above the demand of the United Kingdom of 60,000,000 bushels. Take Ontario with its 7,200 miles of railway—a strip of land one mile wide on each side would give 8,250,000 acres. The average of fall wheat during 21 years is 22 bushels per acre. The 9,250,000 acres would yield enough for the demand of Great Britain and 2,000,000 bushels over.

The imported wheat supply required to supplement the home grown and feed the inhabitants of the British Isles looks large. It is 201,000,000 bushels a year. It is really not an overwhelming quantity when the extent of the wheat lands of Canada is considered. The land area of the three provinces of Quebec, Ontario and Manitoba and the four southerly territories of Assiniboia, Alberta, Saskatchewan and Athabaska is equal to 777,000,000 acres. This does not include British Columbia and its Peace River district, nor Keewatin, Mackenzie, Yukon, Ungava and Franklin, in most of which more or less wheat can be grown, sufficient to make up for any area in the other portions of Canada not, from one cause and another, able to grow wheat.

Mr. Johnson gives a diagram covering sixty-seven uniform squares, one of which is shaded, each square representing eleven and one-half million acres of land, either one of which, he says, is sufficient to grow all the wheat Great Britain has called for annually thus far in her history—that the shaded square would have capacity to grow sufficient wheat to give the Motherland the yearly supply it now draws for the whole world.

Continuing Mr. Johnson says:

The Canadian Pacific Railway Co. and the Hudson Bay Co., with the millions of acres they possess, could in a single year sow and reap such a block of land. The energy that sent an army across the uncultivated wastes of the north-west and built a railway from ocean to ocean in five short years could call another army into existence to plow and plant and reap a wheat plot, such as would be required, in two or three years. If Sir William Van Horne was given the contract to supply the two hundred million bushels of wheat the United Kingdom wants, he could organize an industrial army in a single winter. The men are on the continent. A call sent throughout the United States would bring to his help more men than he would want. The machinery for extensive farming is now as perfect as possible. Steam and electricity are utilized, so that one man can do the work ten or twenty did a score of years ago. With all the splendid modern equipment modern farming procures with ease and as a matter of course, there would be no difficulty in filling such a contract, given the money to supply the men, the machinery and the seed.

Let us see how far we have already got toward the goal of 200,000,000 bushels. The wheat acreage in Manitoba alone in 1902 was 2,040,000 acres, and that acreage yielded 53,000,000 bushels of wheat. Four times that acreage, at the Manitoba rate of 1902 per acre, would yield all that Great Britain requires, with 20,000,000 bushels over. And Manitoba contains 64,000,000 acres of land surface from which to select the

8,000,000 acres required. In 1889 Manitoba had 623,245 acres under wheat. Without any stimulation, just by ordinary operations of settlement, the development has been from 623,245 acres to 2,100,000 acres, and the production from 7,200,000 to over 53,000,000 bushels.

In Canada railway building is unlike construction in England. The Canadian Pacific Railway was built in advance of settlement, and if the demand was created it could be duplicated in much shorter time than it was originally constructed.

Branch lines could be built by the Canadian Pacific at as rapid a rate as they built the main line. In one year, 1886-87, Canada built 1,000 miles of railway. A tract of five miles on each side of a thousand miles of railway would bring 6,500,000 acres of land within easy distance for transportation purposes of the main artery to the seaboard, and on the prairies of the Canadian north-west a thousand miles of railway could be built in a single season. The Canadian Pacific Railway could be herring-boned with side railways by one army, while another army planted the wheat alongside of the lateral extensions.

NO MORE APRON STRINGS.

A question that seems to be uppermost in the minds of many Canadians is as to what this country can offer or give to Great Britain in the way of tariff exemptions to obtain special tariff favors in the British market. For a number of years we have been allowing a rebate of one third the duties on British goods entering the Canadian market, which, except in the case of certain textiles, has not increased our imports from that country to any appreciable extent. An element of the people seem to have gone daft over the desire for Imperialism, seeing in it the only hope of peace, success, and all the other good things to be desired for the country. They seem to think that unless Canada is closely attached by apron strings to the Mother Country all sorts of disasters await us. We are never to attain to national manhood, never, because it would not be agreeable to the Mother Country for us to do so; and ways and methods are always being sought by which we can show our appreciation to the old lady for what she has done for us. And she has done so much. We glory in the apron string arrangement, and like a good child as we are, without objection, allow her to dispose of what belongs to us whenever it suits her convenience to do so, or at the behest of another to propitiate him. The matter now under consideration is now much more can Canada give to the Mother Country—how much further are our manufacturing industries to be sacrificed as an inducement towards imposing duties upon foreign grain and merchandise going into Great Britain, such products from Canada going in duty free. The good mother seems delighted that a result of our preferential tariff has been to flood this country with woolen goods, although the process has virtually ruined a home industry that has for years supplied the people with blankets, carpets and clothing. That is a result of the preference that has done and is doing infinite harm to Canada. But the preference has not increased the demand in Canada for British manufactures of iron and steel, which condition is sought to be amended by doubling the duty on such articles coming from other countries, thus unnaturally forcing trade from acceptable channels for the sake of giving undue tariff advantage to British manufacturers. Should we do such a thing? For sixty years Great Britain has gloried in free trade, and now that she is awakening to the folly of Cobdenism, it is proposed that Canada shall assist her lethargic manufacturers to drive her more energetic competitors from selling us their goods. If we owe Great Britain anything for what she has done or is doing for us, even if it be consenting to the despoiling of us of our territory, let us pay her in money, but away with the idea of preferential tariffs accorded to her and withheld from other countries.

AS TO HORSES:

A deputation of Canadian horse breeders waited upon the Dominion Government a few days ago to request that increased duty be imposed upon horses imported into Canada from the United States. They say that there is too great disparity between the respective tariffs of the two countries, which operates to the great disadvantage of the Canadian interest.

The Canadian duty on horses is 20 per cent. ad valorem. In 1903 there were 29,598 horses imported into Canada from the United States, valued at \$790,169, the duty collected upon which was \$158,033, the average value of each horse being \$26.70, and the duty \$5.34. In the same year Canada exported to the United States only 1,879 horses valued at \$336,519, the average value of each horse being about \$179. The United States duty on horses is \$30 each, which means that that country collected \$56,370 duty on the 1,879 imported Canadian horses.

The even rate of 20 per cent. ad valorem imposed by the Canadian tariff, the equivalent of only \$5.34 on each horse, allows the importation of the poorest and lowest grades of animals; while the specific duty of \$30 each imposed by the United States tariff is a virtual prohibition of any but the best animals going into that country.

No wonder, then, that Canadian horse breeders object to the unequal arrangement. Were the Canadian tariff on horses the same as the American tariff, the imports from that country last year would have paid duty to the extent of \$887,940 instead of only \$158,033; or, had these imports been restricted because of a higher tariff, the difference would have been in favor of Canadian horse breeders.

Ultra protectionists in the United States say that should there be reciprocity in natural products, a market of eighty millions of people would be open to Canadian horse breeders, which would be to the disadvantage of American horse breeders. As it is, it requires a tax of \$30 per head to restrict the demand for Canadian horses in that market; but it does not seem to occur to them that Canada, becoming weary of the unequal arrangement, will most probably and properly impose an equal duty on American horses, thus restricting the market for such horses in this country.

CANADIAN STEEL AND IRON.

The Dominion Government were waited upon a few days ago by president J. H. Plummer and director Wm. McMaster, of the Dominion Iron & Steel Co., and two reports are given out as to the objects of the visit.

One statement is to the effect that these gentlemen conferred with the Government with regard to the elucidation of the existing bounty system. This report reads:

"In a short time the company expects to be turning out wire rods at their rolling mills at Sydney, N.S., and it was as to the payment of the bounty on this product especially that the directors conferred with the Trade and Commerce Department and the Auditor-General. Parliament last session passed an Act granting a bounty of \$6 a ton on rolled, round wire rods not over three-eighths of an inch in diameter, when sold to wire manufacturers for use in making wire in their own factories in Canada, the further stipulation being that the wire must be 'manufactured in Canada from ingredients of which not less than 50 per cent. of the weight consists of pig iron made in Canada.' The bounty of \$3 per ton on structural iron and rolled plates provides that it must be 'sold for consumption in Canada.' The Act also empowers the Govern

ment to make regulations for the carrying out of these bounty payments; and in view of the complexities involved in the conditions it will not be very easy to frame them so as to be workable under all circumstances. It was in connection with these regulations that the directors of the Dominion Iron & Steel Company conferred with the department."

The second statement as to the visit of these gentlemen to Ottawa reads: "The interview was in regard to a revision of the tariff that will enable them to compete with iron and steel products from the United States. It is claimed that the American iron masters are selling steel billets, steel rails and other products in Canada at prices that are from 20 to 25 per cent. less than are exacted in the domestic market. The consequence of this, according to the Canadian manufacturers, is that American steel billets are now being offered as low as \$20 per ton in Canada, whereas a year ago or less Canadian manufacturers were asking and getting all the way from \$24 to \$28 per ton for pig iron. In American steel rails the same applies, for to-day rails from United States mills are being offered anywhere from \$4 to \$8 per ton cheaper than they can be bought for in the country on the other side of the line."

Regarding this matter a Montreal paper says:

These gentlemen, together with all other Canadian iron and steel manufacturers, wish a revision and an altering of the tariff, so that they may be given a protection against American and German makers, to the extent at least of allowing them to enter the trade on something like even terms.

With the slowing down of the demand for steel rails, wire rods, structural steel and like products in the United States, the great factories in the Republic are prepared to dump their products into Canada at anywhere from 10 to 25 per cent. less money than they ask for the same article from their own people, right within a stone's throw of their own mills.

The present bounties paid to Canadian manufacturers which are declining each year, and which disappear entirely in July, 1907, are looked upon by the manufacturers as only a temporary arrangement at best, and one which is by no means giving all the results hoped for.

Manufacturers in Canada state, however, that tariff or no tariff these bounties must stand as they are until the arrangement comes to its natural end. Mills have actually been established for the manufacture of wire rods, structural steel and rolled plates, and are to-day, or will very shortly, be receiving the benefit of the bounties. Therefore, it would be no more or less than a breach of contract to alter them at this stage. However, this is a matter which an adjustment of the tariff could easily overcome.

The Montreal manufacturers believe that it will be necessary to go through the schedule from end to end, so that no class of items shall be benefitted at the expense of others.

EDITORIAL NOTES.

The Montreal Herald, illustrating some of the features of the Dominion trade returns, presents a diagram in which is shown a small plow representing the exports of agricultural implements for six years under the Foster tariff, valued at \$3,356,145; and a larger plow representing the exports of such articles during six years under the Fielding tariff, valued at \$10,874,924. In 1903 our exports of agricultural implements were valued at \$2,284,904, and our imports at \$3,447,134, our imports exceeding our exports by \$1,162,230.

Canadian duty on horses, 20 per cent. ad valorem, an average of \$5.34 specific. United States duty on horses, \$30, specific. Why not reciprocate and make the Canadian duty \$30 also?

Canadian exports of agricultural implements in 1903 were valued at \$2,284,904, and imports of such articles at \$3,447,134.

Dr. Hanel, the head of the commission that is now about starting for Europe to investigate the smelting of iron ores and the making of steel by electricity, has also been instructed to examine and report upon the different peat plants which are in operation in the old world. The making of compressed peat for use as fuel has been introduced to some extent in this country, but does not seem to have achieved the same success that it has on the other side of the Atlantic, notwithstanding the fact that we have large deposits in Ontario, Quebec and other parts of Canada.

A law of Newfoundland reads:

When and as soon as changes have been made in the tariff of the kingdom of Portugal as will admit into that country fish the product of Newfoundland at the same rate as fish the product of the kingdom of Norway is admitted therein, the government shall by proclamation in the Royal Gazette reduce the duty on port wine from \$1.80 to 90 cents a gallon.

Speaking of Mr. Chamberlain's proposed fiscal policy for Great Britain, Mr. A. B. Aylesworth, K.C., one of the Canadian Commissioners on the Alaska boundary business, is reported as giving it as his opinion that Mr. Chamberlain will not win his point in the coming elections, but may do so four years hence. He said:—"The people of England will have to be educated to protection before they will vote in favor of any change in their tariff laws, and I think the time too short in which to place matters before them. I believe, however, that the leaders in this protection movement in Great Britain will eventually win the English people to their way of thinking, but it will take time."

The amalgamation of the five labor organizations of Toronto, recently consummated, begins a new epoch in the history of Toronto unionism, combining as it does 15,000 working men, directed by a council consisting of 350 members.

The Berlin National Zeitung states that Great Britain has informed Germany that in commercial matters Canada must not be regarded as a foreign country. It is held in Berlin, therefore, that it depends on Britain whether the trade relations between Germany and Canada are satisfactory or not. Perhaps the Zeitung does not understand the matter accurately. Whether Germany regards Canada as commercially a part of Great Britain, it is certain that she imposes her maximum duty on Canadian goods entering that country, while goods from Great Britain pay only the minimum duty. If Germany has objections to paying the surtax on goods entering Canada, she must discuss and settle the matter with Canada, not with Great Britain.

An excellent showing is made by the Dominion of Canada with respect to trade failures in 1903. These numbered 978 last year, against 1,110 in 1902, and 1,341 in 1901. Total liabilities were \$7,552,724, against \$10,934,777 in 1902, and \$10,811,671 in 1901. Total assets were \$4,872,422, against \$7,772,418 in 1902, and \$7,086,823 in 1901.

The Canadian Post Office Department has issued a notice declaring that no letter, packet, parcel, newspaper, book or other thing sent or sought to be sent through the post office by or on behalf of any person engaged in the business of printing books or pictures of an immoral or seditious or scurrilous character, or the business of an illegal lottery, so-called gift concern, or other similar enterprise offering prizes or concerning schemes devised or intended to deceive and defraud the

public for the purpose of obtaining money under false pretences, or in the business of selling or in anywise disposing of counterfeit money or "green goods," or of drugs, medicines, instruments, books, papers, pamphlets, recipes, prescriptions, purporting to bring about a criminal operation or to show how such an operation may be accomplished, will be deemed mailable matter.

A year ago, during the time of the coal strike in the United States, and the distressing scarcity of coal, the Congress removed the duty on bituminous coal. The Act went into effect on January 15, 1903, and was to continue for one year. That time has now expired, and the duty is again being imposed.

The reports of the engineers of the Toronto-Niagara Power Co., show rapid progress on the work, and also show that the estimates of the engineers were conservative, and that the full amount of power estimated will be available at all times and that the character of the works ensures their upkeep for the minimum of expense. A large portion of the right-of-way between Niagara and Toronto has been secured, and it will also be suitable for a high speed electric railway line. The other departments of the company's undertakings make an equally satisfactory showing.

Owing to the falling off in the production of crude petroleum in Canada, a demand is being made upon the Government to reduce the duty on the crude article from five cents to two cents a gallon. This is to allow the importation of crude oil from the United States to keep the Canadian refineries in full operation. Determined opposition is raised to the demand by a section of the producers in the Ontario oil district and by the Petrolea refinery, the only rival in Canada of the Imperial Oil Company's refinery at Sarnia. A committee of producers agreed to recommend a change in the tariff, but a general meeting of producers held a few weeks ago refused to accept the recommendation, and discharged the committee. The vote was a narrow one, so that the producers seem to be pretty well divided as to the advisability of interfering with the present tariff. There is unanimity of opinion on one point, and that is that the duty of five cents a gallon on refined oil must not be touched. There are 10,000 wells in the Petrolea field, but these are only giving about half as much oil as they did six years ago. Within the same period the importation of American refined oil has doubled.

It is really surprising what a number of people are still uncertain as to the exact meaning of the phrase, "preferential tariff," says Commercial Intelligence. We frequently receive letters from correspondents containing queries about the Canadian Preferential tariff, which show that the writers have but a very imperfect acquaintance with the subject they write about. A Canadian business man called on us last week who had just completed a tour, in the course of which he had visited most of the leading manufacturing firms in England, and he told us that he had come across many firms who did not understand that they were entitled to a reduction of 33½ per cent. from the duties imposed by the Canadian tariff. Others understood that there was a preference of 33½ per cent., but were so hazy as to the meaning of the term that they did not recognize that in the case of goods which, let us say, were taxed at 30 per cent. ad valorem, the advantage to an English as against a foreign firm of exporters was one-third of the 30 per cent., i.e. 10 per cent. Our Canadian

visitor explained, however, that he had been remarkably well received, and that everywhere the greatest possible interest was taken in Canadian trade. The manager of one large firm told him that his firm did business with almost every foreign country, and with practically every British Colony except Canada. He declared himself to be anxious to open business relations with Canadian firms, not only with a view of extending his business, but because he thought he ought to do so for patriotic reasons. We believe that this is a very general view, and that there is in the United Kingdom a very decided feeling in favor of the cultivation of closer trading relations with the Dominion. Moreover, the time is ripe for such a movement. Unfortunately, there is a serious obstacle to be overcome. We refer, of course, to the contiguity of the United States. A Canadian man of business usually takes his holidays in the United States; the ambitious young manager, who wishes to introduce the best methods into his works, takes train to the nearest American industrial centre to obtain the information he needs; foremen are engaged from the United States. In short, the whole tendency is towards following American practice rather than British, and it is therefore only to be expected that, despite the sentiment in favor of British goods in Canada, there should be a wide-spread, if unconscious, bias in favor of American methods and American machinery, which must be prejudicial to British interests.

Increasing attention is happily being paid to the aims and aspirations of Canada, and to the potentialities of that great partner in the British Empire, says the London, England, Chamber of Commerce Journal. It is not intended to recapitulate here the great natural resources and capabilities of the Dominion—these are well known to every schoolboy—but we desire to place before our readers certain considerations concerning the great Daughter State which merit the attention of the Legislature and of the nation generally. Apart from the Imperial aspect and the benefit to Canada itself, it is to the interest of this country to encourage suitable emigration from the United Kingdom to the Dominion, in co-operation with the recognized Canadian agencies on both sides of the Atlantic, and even, perhaps, by the aid of the State. In support of this assertion, we put forward the three following reasons:—Firstly, increased population for Canada would mean a greater production there of grain, meat, dairy products, fruit, and other commodities, for which the Dominion is so eminently suited. This would tend to bring about a gradual solution of the question of our food supplies, for which many of us think we are now too dependent upon the foreigner. Secondly, from a purely selfish point of view, it is to our interest to direct the stream of emigration to Canada rather than to foreign countries like the United States, because the former is, per head of the population, a much more important consumer of the products of the United Kingdom. This is borne out by the fact that Canada takes roughly 30s. per head of the produce and manufactures of the United Kingdom, whereas the United States merely purchases about 5s. worth. And yet we are constantly neglecting this possibility of developing our oversea markets, and are exporting British brain and muscle to the United States, on the average of the last ten years, at the rate of 175,000 persons per annum, as against only 36,000 persons to Canada. In a single decade, therefore, there has been a loss to the British producer on the above figures of a market worth something like two millions sterling, which he would have secured had that flow of emigration to the United

States been diverted to Canada. Thirdly, an increased population in Canada will furnish a grand source from which to draw for Imperial maritime and land defence; while the richer she becomes by the development of her resources, and by increasing her import and export trade, for which population is the greatest desideratum, the more certainly there is of substantial contributions from Canada to the defence expenditure of the Mother Country as part of a homogeneous Imperial policy. There is a distinct feeling, not only in Canada, but in Australia and New Zealand, that more should be done in this direction, and a very little encouragement would lead to valuable contributions to the cost of defence, which contributions would gradually increase in volume until they became an important factor in the Budget of this country. Therefore it is insisted that both the manufacturer and the tax-payer of the United Kingdom have a material interest in promoting an increase of British population in Canada.

So many lessons are appearing in the investigation of the causes of the awful theatre disaster in Chicago that it begins to be doubtful if half of them will be learned. The changes that ought to be made in the manner of doing this and that are so numerous that it is inevitable that many of them will be ignored and others forgotten. But there is one thing which The Press believes should be done as soon as possible not only in all theatres everywhere but in all hotels, office buildings and large business houses. The "sprinkler" system should be adopted. In many business houses the phrase needs no explanation. There the "sprinkler" system has been tried and not found wanting. The main trouble with the Chicago theatre, after all has been said and done, was with the human end of the equation. A great deal has been said about the failure of the asbestos curtain to drop. And a great deal more has been said, much of it wisely enough, about the need of more appliances. But the loss of life would have been comparatively small if only the theatre employes had made proper use of the appliances that actually were available. Here is the chief beauty and recommendation of the "sprinkler" system. It does not depend upon human management in a critical emergency—the very time when human resources are most liable to fail. It is automatic. It is essentially a system of pipes, the valves of which are opened by the heat of a fire and which thereupon proceed without human intervention of any sort to deluge the room in which they are located with water. Had there been a contrivance of this sort in the Iroquois theatre, the fire would never have got farther than the stage, and could not have done much damage even there. It is the very kind of a system that is called for at times of excitement when men are prone to do the thing they ought not to do and to leave undone the things that they ought to do. As before remarked, this automatic "sprinkler" system should be installed in every theatre, where it is exceptionally fitted to meet safety requirements. Its installation should not be restricted to theatres, however; but in hotels it is an indispensable precaution, and the system should be in every large business establishment.

Mr. John Coates, Chairman of the Council of the Dominion Board of Trade, some time ago wrote Hon. Joseph Chamberlain asking if he could see his way clear before long to address a gathering of representative Canadian business men on the possibility of securing, by preferential arrangement, a greater development of trade within the Empire. The letter assured

him of an enthusiastic welcome if he could come to Canada, to which Mr. Coates has received the following reply from Mr. Chamberlain: "I have the honor to acknowledge receipt of your letter of November 17, inviting me to speak at a meeting in Ottawa. I appreciate the compliment thus paid me, but regret that pressure of engagements in this country makes it impossible for me to accept at the present time. I have visited the Dominion on two previous occasions, and hope that I may later have another opportunity, and may be able to see for myself something of the astonishing progress which has been effected during the last few years."

The Board of Control have presented to the Toronto City Council a memorandum on the question of electric power, from which the following facts are taken: The total power available at Niagara is 5,500,000 h.p. The capacity of the existing plants and those under construction on both sides of the Falls is 675,000 h.p., or 12.5 per cent. of the total. There are still at least four highly desirable power sites available in Queen Victoria Park without touching on the scenic effects of the park, with a capacity of 350,000 h.p. The 375,000 h.p. now in process of development by Canadian companies is considerably in excess of the demand in Ontario for many years to come. Toronto consumes 30,000 h.p. Average all-round cost of power per horse-power per annum to Ontario consumers is \$35. It could be delivered from Niagara at a maximum cost of \$15. The annual saving to Ontario consumers would be \$3,000,000, or, capitalized at 4 per cent. \$75,000,000.

The preference which Canada will receive after March 31 under the New Zealand tariff will be a valuable advantage to this country on a number of lines. For the present, according to the statements of a number of Toronto manufacturers, Canadians are too busy to be much concerned about far-away markets, and New Zealanders need not be surprised if they are not inundated with Canadian commercial travellers. The recent sudden and rapid development of the home market found Canadian manufacturers more or less unprepared, and they are only now catching up with the domestic demand. Nevertheless, inquiries are expected to come from New Zealand, as that trade will tend this way under the new tariff, and eventually a good business will be done. New Zealand's custom is worth seeking. In 1901 the island imported from all countries goods to the value of \$57,513,858. Of this \$33,511,044 came from Great Britain, \$6,887,599 from the United States, about \$10,000,000 from Australia, and only \$205,266 from Canada. Some of the principal items of imports from all countries in which Canada should be interested are as follows: Boots and shoes, \$1,027,912; cottons, \$2,290,097; fruits, fresh and dried, \$1,143,277; cutlery, hardware and ironmongery, \$1,406,768; tools and implements, \$682,321; machines (including sewing machines) and parts thereof, \$3,158,418; railway materials, \$3,225,894; whiskey, \$833,811; woolens, \$1,696,841; coin and bullion, \$2,260,562; "all other articles," \$19,013,800.

The new year issue of the Daily News of Nelson, B.C., contains a very comprehensive and carefully prepared review of the mining industry of British Columbia. The review is based upon authentic information obtained largely at first hand by reliable writers engaged by The News for that express purpose; and affords useful data for reference in dealing with the mining industry in that important section of the Dominion.

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.

The Anglo-American Oil Co., Chatham, Ont., have been incorporated with a capital of \$100,000, to prospect for oil, construct pipe lines, pumping plants, etc. The provisional directors include Wm. McIntosh, J. A. McIntosh, Toronto, and D. S. Robb, London, Ont.

The new building by-law, which is shortly to be submitted to the Toronto City Council, will contain very different regulations regarding theatres from those in the present by-law. As in New York, every theatre built after the by-law is passed will be required to have a lane on either side of it. If the theatre has a seating capacity of 1,000, the lanes must be seven feet wide; between 1,000 and 1,800, eight feet, and over 1,800, ten feet. All theatres must be fitted with fire-proof asbestos drop curtains and faulight over the stage so that if a fire starts on the stage the opening of the faulights will keep the flames and smoke from the auditorium. The by-law will provide also that there must be at least two exits for every floor on each side of a theatre, and from the balcony and gallery exits there must be constructed fireproof stairways.

The Maple Leaf Woolen Mills Co., Markham, Ont., have built a new dye house and installed considerable new machinery.

The National Woolen Mills, Streetsville, Ont., will instal another set of cards.

The Empire Carpet Co., whose mill at St. Catharines, Ont., was destroyed by fire, have taken the building formerly occupied by the Ontario Felt Co., at Dundas, Ont. The mill is being equipped with new machinery, and will be in operation shortly.

The Grand Trunk Railway freight shed at New Hamburg, Ont., was destroyed by fire January 6.

The Schierholtz Zinkann Co., Waterloo, Ont., have been incorporated with a capital of \$50,000, to manufacture furniture, etc. The provisional directors include E. Schierholtz, E. Zinkann, Waterloo, and H. S. Zinkann, Berlin, Ont.

Messrs. Sterling Bros.' boot and shoe factory at London, Ont., was destroyed by fire January 6.

The A. B. Saylor Canning Co., Bloomfield, Ont., have been incorporated with a capital of \$40,000, to manufacture

canned fruits, meats, etc. The provisional directors include A. B. Saylor, C. H. Saylor and C. M. Yarwood, Hallowell, Ont.

The Clifton House Hotel Co. have purchased from Mr. J. T. Bush the Clifton House property at Niagara Falls, Ont., at a cost of \$105,000, and will erect a large hotel on the lot.

The stern wheel steamer which the Hudson Bay Co. are building on the Peace river for their river service will be 110 feet long, 22 feet beam, with estimated draught, loaded, of 21 inches. Her machinery will consist of one pair of direct-acting paddle-wheel marine engines, of 10 inches cylinder diameter and 48 inches stroke, and two horizontal fire-box type marine boilers 48 inches by 18 feet, supplying steam at 200 pounds pressure.

Mr. T. R. Jones, of the A. L. 282 Gold Mine in Western Ontario, states that that company have ordered the machinery for a ten stamp mill and increased mining plant.

Work of installing the arc lighting equipment of the Welland Canal is now under way. It is proposed to place an arc lamp of 2,000 candle power, alternating current, enclosed, every 500 feet along the canal, with six lamps at each lock. Contract for the poles has been given to Joseph Battle, Thorold, Ont., and tenders will shortly be called for the electrical supplies, including arc lamps, transformers and transmission line material. The terminal station is to be located at Thorold. It is proposed to install three-phase circuits for distributing the current to the motors for operating the lock gates, weirs, bridges and yard shops. The Lincoln Electric Light & Power Co., St. Catharines, Ont., have been given a ten years' contract to furnish the electrical energy. The plans for the complete equipment of lighting the canal were prepared by Roderick J. Parke, Toronto.

Mr. Chas. H. Fisk, Detroit, Mich., attorney for the Detroit Tunnel Co., has presented a petition to the City Council for a franchise to build a tunnel across the Detroit River. Mr. Fisk proposes using what is known as the McBean system, which is, in brief, building through the river. With this system, instead of tunneling under the river, the course for the tunnel would be dredged out, and it would be constructed therein.

In this way it would not be necessary to go so deep and would not be so expensive in construction. The tunnel is to contain double tracks in two separate tubes of steel, each tube twenty-three feet, outside diameter, and nineteen feet, inside diameter.

The Sangamon Electric Co., Springfield, Ohio, will open a factory for the manufacture of electric motors at Kingston, Ont.

The Clyde Forks Lumber Co's. mill at Clyde Forks, Ont., was destroyed by fire January 5. Loss about \$10,000. The mill will be reconstructed.

Mr. W. J. Findlay, whose paper mill at Strathcona, Ont., was destroyed by fire recently, will commence operations again at an early day.

The Dominion Government have placed an order at Barrow-in-Furness, England, for the construction of a steel twin-screw steamer 200 feet long by 25 feet beam, for the fishery protection service on the Atlantic coast. This steamer is to be fitted with a search light of 4,000 candle power and will have an armament of Maxim-Nordenfeldt quick-firing guns.

The steamer to be constructed by the Poison Iron Works, Toronto, for the fishery protection service on Lake Erie will be 176 feet long and 22 feet beam, with a gross tonnage of 540 tons. The hull will be of steel, fitted with twin-screw engines that are to develop a speed of 16 knots an hour, without forced draft. Accommodation will be provided for a crew of forty-five men.

The addition to the Guelph Carpet Mill Co's. plant at Guelph, Ont., is completed. They have installed eight new carpet looms and will put in considerable other machinery, including an improved electric lighting plant. A new boiler house will also be built, in which two 115 h.p. boilers and a 115 h.p. engine will be installed.

The Wabash Railway Co. will locate their Canadian workshops in St. Thomas, Ont.

The National Club, Toronto, will erect a new clubhouse on the site of the Robinson House in Bay Street at a cost of \$60,000.

The Twin City Shoe Co's factory at Waterloo, Ont., was partially destroyed by fire December 27.

The Hamilton Street public school building at Toronto was destroyed by fire January 4. Loss about \$25,000.

The Kemp Mfg. Co., Toronto, have purchased land adjoining their present extensive works, and will greatly enlarge their plant.

A by-law has been voted on favorably at Chatham, Ont., granting a bonus of \$50,000 to The Chatham, Wallaceburg & Lake Erie Railway Co., which will operate an electric railway extending northward from Chatham to Wallaceburg, and in the other direction to Rondeau, on Lake Erie.

The Carney Lumber Co., Massey, Ont., have been incorporated with a capital of \$500,000, to manufacture lumber, etc. The provisional directors include Jas. S. Lovell, Wm. Bain and R. Richardson, Toronto.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

The Northern Light Mining & Development Co., Port Arthur, Ont., have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include John Gonska, J. H. Hill and Gustave Collatz, Duluth, Minn.

Messrs. W. E. Chalcraft & Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture clothing, etc. The provisional directors include George Randall, Waterloo, Ont.; E. S. Howard and C. K. Burt, Toronto.

The Canadian Coopers Mfg. Co., Galetta, Ont., have been incorporated with a capital of \$100,000, to manufacture cooperage stock, lumber, etc. The provisional directors include A. H. Royce, G. C. Royce and Jas. Goldthorpe, Toronto.

The Canada National Land & Development Co., Toronto, have been incorporated with a capital of \$150,000, to erect buildings, etc. The provisional directors include A. C. Bedford-Jones, C. Jones and R. B. Beaumont, Toronto.

The Skedden Brush Co., Hamilton, Ont., have been incorporated with a capital of \$40,000, to manufacture brushes, brooms, etc. The provisional directors include E. Skedden, G. Skedden and D. Garson, Hamilton.

The Trent Power Co., Trenton, Ont., have been incorporated with a capital of \$500,000, to construct and operate works and appliances for the production of electric and pneumatic power. The provisional directors include D. Gilmour, R. Weddell, Trenton, and Hon. S. H. Blake, Toronto.

W. J. Thompson, Youngstown, N.Y., is considering the establishment of a chinaware factory in Ontario at a cost of about \$100,000, which will give employment to about 175 hands.

The Ottawa, Ont., City Post Office building was partially destroyed by fire January 4. Loss about \$40,000.

The Windsor Avenue Methodist Church at Windsor, Ont., was destroyed by fire January 4. Loss about \$25,000.

The Commercial Hotel at Arthur, Ont., was partially destroyed by fire January 4. Loss about \$500.

The Universal Knitting Machine Co. of Ontario, Limited, Toronto, will change their name to The Universal Knitting Co., Limited.

The Eugenia Falls Water Power & Electric Co., Eugenia, Ont., have been incorporated with a capital of \$500,000, to generate and supply electricity for lighting and heating purposes, etc. The provisional directors include A. O. Hogg, Oakwood, Ont., Thos. McLaughlin and H. R. Morton, Toronto.

The Purdom, Gillespie Hardware Co., London, Ont., have been incorporated with a capital of \$20,000, to acquire the business of James Reid & Co., and to manufacture hardware, etc. The provisional directors include John Purdom, Wm. B. Gillespie and Alex. Purdom, London.

The Corundum Refiners, Limited, Toronto, have been incorporated with a

capital of \$1,000,000 to carry on a mining, milling and reduction business. The provisional directors include H. P. Coburn, J. H. Tilden, Hamilton, Ont., and J. H. Jewell, Toronto.

Plans have been completed by Mr. J. W. Gray, architect, Toronto, and tenders will be invited for the erection of a new college building for St. Andrew's College, this city, to accommodate 300 boys.

The National Cash Register Co., Dayton, Ohio, have formally opened their Canadian factory. The plant comprises a four-story building and is located at 98 Lombard Street, Toronto.

The Rainy River Lumber Co., Rainy River, Ont., have been incorporated with a capital of \$1,000,000, to manufacture lumber, woodenware, etc. The provisional directors include Thos. H. Shevlin, E. L. Carpenter and Wm. F. Brooks, Minneapolis, Minn.

Messrs. Church & Watt, Limited, Simcoe, Ont., have been incorporated with a capital of \$40,000, to manufacture saddlery, hardware, robes, etc., and to acquire the business of W. A. Watt and J. W. Church. The provisional directors include J. W. Church, Simcoe; W. A. Watt and T. E. Richards, St. Mary's, Ont.

The Ontario Lead & Zinc Co., Port Arthur, Ont., have been incorporated with a capital of \$600,000, to carry on a mining, milling and reduction business. The provisional directors include E. C. Kennedy, Superior, Wis., J. A. McIntosh and A. R. Clute, Toronto.

The Double Use Mitten Co., a United States incorporation, have been licensed to manufacture gloves, etc., in Ontario, with a capital of \$75,000. H. G. Smith, Dundas, Ont., is their attorney.

The Smith Mfg. Co., Toronto, have been incorporated with a capital of \$40,000, to acquire the business of The Smith Wool-Stock Co., and to manufacture wool-stock, etc. The provisional directors include Geo. Smith, G. H. Smith and Alex. Burns, Toronto.

The Cornwall Paper Mfg. Co., Cornwall, Ont., will receive tenders for the erection of a stone and a brick building and other works at Mille Roches, Ont.

The Temiskaming & Northern Ontario Railway Commission have awarded a contract for 6,000 gross tons of 80-pound steel rails to Charles Cammell & Co., Sheffield, England. They are also inviting tenders for rail fastenings.

A company organized to manufacture table and floor oilcloth, employing 45 hands at the start, desire to hear from Canadian towns or Boards of Trade prepared to give substantial inducements. Mr. J. A. C. Harris, Hamilton, Ont., is interested.

The County of Haldimand, Ont., will have a bridge constructed over Oswego Creek. W. H. Fairchilds, Simcoe, Ont., is the engineer.

Mr. Ross, Montreal, the electrical expert who was employed by the Niagara Power Commission, has been engaged by the Preston, Ont., Council to estimate the values of the two electric light plants there, also the cost of a new plant.

The International Copper Co., New York, which control the Canadian Copper Co.'s plant at Sudbury, Ont., have awarded to the Robb Engineering Co., Amherst, N.S., a contract for a 300 h.p. direct connected tandem compound engine to be installed at the Sudbury works.

The City of Toronto will ask authority of the Ontario Legislature to issue by-laws covering the following expenditures, most of which have already been carried out: Cattle Market improvements, \$20,000; erection of western garbage destroyer, \$9,500; harbor cribwork foot of Bay Street, \$27,000; Queen Street Subway widening, \$8,000; water works, new house service, \$50,000; Berkeley Street Fire Hall, \$37,000; new northern stables, \$6,500; No. 1 Police Station alterations, \$15,000; Yonge Street Fire Hall, \$7,000; Dundas Street Fire Hall, \$8,000; Exhibition buildings, \$12,000; Yonge Street wharf reconstruction, \$7,000. Total, \$205,000. A number of debenture by-laws are submitted for validation. They include the following: \$175,000 for 15,000,000 gallon engine, for main pumping station; \$17,507.99 for asphalt pavement laid in 1902; \$12,628.17 for concrete sidewalks laid in 1902; providing \$17,000 for enlargement of the Isolation Hospital; providing \$65,000 for enlarging public school sites, and \$17,000 for enlarging public school buildings; providing \$5,000 for improvements to Harbord Collegiate. Permission is also sought to pay \$11,000 towards the cost of constructing a sewerage system in the east end.

The Dominion Government are inviting tenders for the construction of an extension of the south entrance pier at the Sault Ste. Marie Canal.

The Brantford & Erie Railway Co. will apply for incorporation to build a line of railway from Brantford, via Waterford and Simcoe, to Port Dover, with a loop line from Waterford, via Delhi and Lyndoch, to Simcoe, Ont.

The Barrie Carriage Co., Barrie, Ont., are inviting tenders for the erection of a brick or cement factory.

Plans have been prepared by H. P. Smith, architect, Kingston, Ont., for a new convent building to be erected at Perth, Ont.

Belleville, Ont., will vote on a by-law to raise \$50,000 with which to repair and operate the gas works of that city.

H. P. Smith, architect, Kingston, Ont., is preparing plans for a general hospital building at Smith's Falls, Ont.

A by-law to raise \$10,000 for new cement sidewalks was passed in Stayner, Ont.

John Ansley, Wingham, Ont., is inviting tenders for the construction of four steel bridges in the County of Huron.

E. S. Brennan & Co., Hamilton, Ont., will erect a large sawmill on their new limits in the Township of Osborne.

The total receipts of grain at Port Arthur, Ont., for the crop season were 6,715,046 bushels and the shipments were 6,410,478 bushels. The receipts at Fort William, Ont., were 9,972,590 bushels

and the shipments 10,023,863 bushels. Grain this season was principally shipped on Canadian vessels via Canadian ports, only about 1,000,000 bushels going by way of American boats to Buffalo. This is said to be the smallest amount of grain ever taken from the Canadian head of the lakes by American vessels and is a result of the large number of new Canadian boats now being operated on the Great Lakes.

Considerable interest attaches to the discovery at the Tip Top mine, New Ontario, formerly supposed to be a copper-gold proposition, of an ore body which is rich in nickel, the metal occurring in a schistose gangue material very different from the nickeliferous pyrrhotite of the Sudbury mine. And whereas the Sudbury nickel ores are pyrrhotite enriched with nickel and copper, the present discovery at the Tip Top contains little or no copper, its valuable contents consisting of nickel and cobalt, the former running about 7 per cent., or more than double the nickel contents of the Sudbury ores.

An electric street railway will be constructed in Petrolia, Ont.

The Quebec Steamship Co., have placed an order with a Sunderland, England, firm for a twin-screw 5,000 ton freight and passenger steamer. She will have the following dimensions: Length, 425 feet; breadth, 50 feet; depth 36 feet 6 inches; and will be fitted with triple expansion engines, 26 inch 42 inch and 71 inch cylinders by 48 inch stroke, to which steam will be supplied by three double ended and three single ended boilers at a pressure of 200 pounds to the square inch. Accommodation will be provided for 240 saloon, 32 second-class, and 48 third-class passengers.

The block occupied by Dr. Ed. Morin wholesale druggist, and Messrs. McCall & Shebyn, wholesale dry goods, Quebec city, was destroyed by fire January 1. Total loss about \$230,000.

In order to show their appreciation of the services rendered by Mr. R. B. Angus to the Canadian Pacific Railway ever since their inception, the board of management have decided to name the new car shops under construction in Montreal "the Angus shops."

The Dominion Government have approved the plans for the construction of a system of two-story steel freight sheds in the Montreal harbor, which will cost about \$2,500,000.

The Canadian Inspection Co., Montreal, have been incorporated with a capital of \$10,000, to inspect railroad, bridge and structural materials, and to deal in metallurgical and engineering supplies. The provisional directors include Thos. S. Griffiths, L. J. Street, and P. C. Ryan, Montreal.

Messrs. Hodgson Brothers, Limited, Montreal, have been incorporated with a capital of \$250,000, to acquire the business of Hodgson Brothers, and to carry on a general warehousing and storage business. The provisional directors include A. J. Hodgson, H. A. Hodgson and W. H. A. Olive, Westmount, Montreal.

The Montreal Transportation Co.,

Montreal, have been incorporated with a capital of \$500,000, to carry on a forwarding and transporting business, etc. The provisional directors include B. McLennan, G. M. Kinghorn, and A. E. Ogilvie, Montreal.

La Compagnie des Terrains de Maison-neuve, Limited, Montreal, have been incorporated with a capital of \$20,000, to erect buildings, etc. The provisional directors include L. J. Arthur, J. S. Lamarche and J. S. Buchan, Montreal.

The D. A. McPherson Produce Co., Montreal, have been incorporated with a capital of \$200,000, to acquire the business of D. A. McPherson & Co., and to manufacture implements, machinery, etc. The provisional directors include D. A. McPherson, Sr., D. A. McPherson, Jr., and A. N. Stewart, Montreal.

The Foster-Brown Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture envelopes, paper, stamps, etc. The provisional directors include Wm. F. Brown, C. F. Brown and H. Booth, Montreal.

The Mount Royal Club house at Montreal was destroyed by fire January 5. Loss about \$200,000.

Two story steel sheds will be constructed on the Montreal wharves by the harbor commissioners of that city.

The Dominion Bag Co.'s factory at Montreal, was damaged by fire December 29. Loss about \$5,000.

The pattern storage building of the Laurie Engine Co., Montreal, was destroyed by fire January 6. Loss about \$20,000.

John C. Kaine, Quebec city, has purchased a valuable timber limit from Ives Bouillion, Tadousac, Que. He will utilize this property for the manufacture of pulp wood.

Messrs. Hodgson, Sumner & Co., Limited, Montreal, have been incorporated with a capital of \$1,000,000, to acquire the business of Hodgson, Sumner & Co., and to manufacture dry goods, fancy goods, etc. The provisional directors include J. Hodgson, Geo. Sumner and James Garduer, Montreal.

La Societe J. B. Rolland et Fils, Montreal, have been incorporated with a capital of \$200,000, to carry on a stationery, printing and binding business. The provisional directors include E. Rolland, J. Rolland and L. Labrie, Montreal.

Messrs. Alex. McArthur & Co., Montreal, have been incorporated with a capital of \$180,000, to manufacture paper, tar, pitch, etc. The provisional directors include C. McArthur, D. J. Munn and J. M. G. Lockerby, Montreal.

Wm. Kearney and others, of Montreal, will erect an eight-story hotel building on the site of the Oxford Cafe, that city.

The Ogilvie Flour Mills Co, have entered into an agreement with the Montreal Harbor Board, by which they will enlarge the tail race at the waste basin at Windmill Point, Montreal. The work will cost \$6,500, of which the Harbor Board will contribute \$2,700, the remainder to be paid by the company. They agree to build a concrete culvert of

the required size, and to renew 95 feet of the present wall, and will utilize the increase in the head of water to increase their power.

The Brown Machine Co., New Glasgow, N.S., have recently installed a number of coal screening equipments for different coal mining companies in Nova Scotia. They have a thoroughly equipped plant, including machine shop, pattern shop, etc., and do a variety of work connected with the equipment of coal mines and industrial plants.

The Electro Manganese Co., have entered into an agreement with the New Brunswick Government for the lease of Grand Falls water power for a period of 36 years, and will manufacture ferro-manganese from bog ore. They are now operating a plant at Shawinigan Falls, Que.

It is reported from North Sydney, N.S., that the Dominion Iron & Steel Co., are negotiating with a large American concern engaged in the manufacture of sulphuric acid for the sale of their 99 years' lease of exceedingly valuable iron pyrites areas in Labrador. The areas are situated at Roussel Bay, about 90 miles from Cape Chidley, the most northerly point of Labrador. The vein is said to extend over a mile back from the mountain which overlooks the sea.

The St. John, N.B., city council are inviting tenders for the construction of a new ferry steamer of the following dimensions: Length over all, 140 feet; breadth, moulded 34 feet, over guards, 49 feet; depth from baseline to top deck beam amidships, 12 feet, 11 inches. The engines are to be of the compound type, with three cylinders; electric lighting will be supplied, and steam steering gear provided. The hull will be of steel, and will be a double ender, having a screw at each end.

The Temiskaming & Northern Ontario Railway, are having built 100 flat cars by Rhodes, Curry & Co., Amherst, N.S., for delivery in May. An order has also been placed for 50 box cars.

The Canadian Westinghouse Co., have received orders from the Prince Edward Island Railway to equip 13 locomotives, 33 passenger cars and 117 freight cars with air-brakes.

Rhodes, Curry & Co., Amherst, N.S., have added an axle plant to their works with a capacity of 100 axles a day.

Owing to the presence, at Cheverie Hants County, N.S., of large quantities of salt water and rock fissures, the boring for oil has been discontinued at the original place, and the plant has been moved to about a mile to the Northward, where boring is again commenced.

Hon. R. Drummond places the coal shipments of the province of Nova Scotia at 4,700,000 tons, an increase of 35,000 tons. The shipments of the Nova Scotia Steel & Coal Co. increased 200,000 tons, while those of the Dominion Coal Co., owing to the fire in one of the collieries, fell off 120,000 tons. Mr. Drummond predicts that this year Nova Scotia's coal shipments will pass the 5,000,000 mark, and that at the beginning of 1904 the

province will be in a position to ship 7,000,000 tons.

A company of Canadian and United States capitalists have made an arrangement with the government of Newfoundland, whereby the company will receive from the government of the colony a bounty upon every ton of fish taken in Newfoundland, and exported to the Dominion and the United States. They will begin operations next summer with a fleet of steamers manned by Newfoundlanders, and expect to ship ten carloads of fish daily, most of it to Western Canada. The fish will be landed at North Sydney, N.S., and shipped in refrigerator cars over the Intercolonial Railway. In addition to fresh fish they will deal in cured boneless fish, and manufacture the refuse into by-products, such as oil, glue and fertilizer. The headquarters of the company at North Sydney, N.S., will be inspected by the Minister of Marine and Fisheries.

The Dominion Coal Co. are making preparations to open two more collieries, one at Big Glace Bay and the other at Low Point, N.S. The plant at Dominion, now closed down, will be removed to Glace Bay, but Victoria Mines (Low Point), will be given an entirely new equipment. There they have a seven-foot seam of clear coal, and Mr. Hiram Donkin, who has been making the surveys, says the supply is practically inexhaustible.

A number of capitalists, with H. M. Whitney, of Boston, Mass., at their head, are contemplating the formation of a company for the development of coal and iron areas in Cape Breton, and to establish a large steel plant in connection with same. It is said that the company will purchase the coal areas of the Cape Breton Coal, Iron & Railway Co.

Mr. R. J. Matheson's flour mill at Dartmouth, N.S., was destroyed by fire a few days ago. Loss about \$5,000.

The Board of Works, St. John, N.B., are considering the extension of the waterworks system to Sand Point, at a cost of about \$12,700.

The Brandon, Man., experimental farm have shipped 20 large cases of exhibits for the St. Louis fair. These were filled with grain in the straw and grasses. Earlier in the season several cases of preserved fruits and vegetables were forwarded for the same purpose. Later on, a large collection of threshed grain collected from all parts of the province will be sent.

Mr. P. Hogan, Savanne, N.W.T., has purchased the holdings of the Savanne Lumber Co. The mill will be removed near to Kashebowie, on the Canadian Northern Railway.

W. G. Fonseca will erect a four-story hotel building in Winnipeg, Man.

The Emerson, Hague Mfg. Co., Winnipeg, Man., will apply for authority to change their name to Hague, Armington & Co., Limited.

The Consumers' Limestone Quarry Co., Winnipeg, Man., have been incorporated with a capital of \$38,000, to manufacture builders' and contractors' supplies. The

provisional directors include J. O. Manger, S. A. Hofto and E. O. Kundson, McIntosh, Minn.

Messrs. W. Gibbins & Co., Winnipeg, Man., have been incorporated with a capital of \$2,000, to manufacture grain, etc. The provisional directors include W. T. Gibbins, W. C. Graham and Wm. Watson, Winnipeg.

Messrs. Hembings & Traub will operate a lumber yard and sash and door factory at Didsbury, N.W.T.

Messrs. May Bros., formerly of Ottawa, Ont., are establishing a sash and door factory at Saskatoon, N.W.T.

The Western Trading Co., Shoal Lake, Man., have been incorporated with a capital of \$90,000, to carry on a general trading business, and to operate boats, barges and vessels, etc.

The Berthery building, owned by C. T. Boulton, at Carman, Man., was destroyed by fire January 5. Loss about \$30,000.

A company has been formed at Edmonton, N.W.T., to bore for natural gas there, gas to be supplied to the municipality at a price equal to coal gas, with coal at \$2.50 per ton.

The Manitoba Hardware & Lumber Co., Virden, Man., have purchased J. B. Cain's hardware business at that place.

The Ryan & Goodland Co., Limited, St. Boniface, Man., have been incorporated with a capital of \$50,000, to acquire the business of Ryan & Goodland, and to manufacture tweeds, flannels, blankets, etc. The officers of the company are John Ryan, president; H. T. Goodland, managing director; A. E. Levy, secretary-treasurer.

The Indian Industrial School, Fort Qu'Appelle, N.W.T., was destroyed by fire January 4. Loss about \$40,000.

The North-West Coal & Coke Co. will commence development work in the spring on their property in Alberta, N.W.T. Their holdings consist of 28,000 acres of coal land situated on the north fork of Old Man's River, about 15 miles north of the Canadian Pacific Railway. Several seams of high-grade coking coal, ranging from 5 to 35 feet in thickness, have been located in the territory controlled by the company.

The new hotel and depot which the Canadian Pacific Railway are about to erect in Winnipeg, Man., will be 213x203 feet, eight stories high.

The Dominion Meat & Cattle Ranching Co., Calgary, N.W.T., have been incorporated with a capital of \$190,000, to carry on a cold storage business, and to manufacture meats, etc. The provisional directors include A. A. Steed, Calgary, and J. R. L. Starr, and J. H. Spence, Toronto.

The Imperial Elevator Co., have completed a 60,000 bushel elevator at White-wood, N.W.T., and one of the same capacity at Griswold, Man.

W. A. Elliott, architect, Brandon, Man., is inviting tenders for the erection of a brick and stone church building, 85x60 feet.

J. S. Dennis, engineer in charge of the Canadian Pacific Railway irrigation work

in Alberta, Calgary, N.W.T., is inviting tenders at once for the construction of the main canal, which will be 35 miles long and 60 feet wide, and calls for the removal of 250,000,000 cubic feet of earth.

Theo. Bertrand, secretary-treasurer, St. Boniface, Man., will receive tenders for supply of the following materials: 760 tons of water pipes, 18 special castings, 29 hydrants and 28 valves, one pumping engine, capacity 1,000,000 gallons per 24 hours, two boilers, 70 h.p., and feeding pumps.

A brick church building will be erected at Kenton, Man. J. T. Hudson, Ralph-town, Man., is interested.

The Telford Lumber Co., Prince Albert, N.W.T., have been incorporated with a capital of \$368,000, to manufacture timber, and to construct and operate saw mills, etc. The provisional directors include J. N. Telford, D. H. Telford, and J. W. Telford, Prince Albert.

The John Arbuthnot Co., Winnipeg, Man., extensive lumber dealers, have purchased from A. R. McLennan & Co., of Wabigoon, Ont., the balance of last season's cut, and all of this year's cut.

The Canadian Pacific Railway Co., will erect a wharf at Vancouver, B.C., for the New England Fish Co., and the International Ice & Cold Storage Co.

The Zala Consolidated, Limited, have been incorporated at Victoria, B.C., with a capital of \$600,000, to carry on a mining, milling and reduction business.

The International Ice & Storage Co., Limited, Vancouver, B.C., have been incorporated with a capital of \$100,000, to acquire the business of the International Ice & Storage Co., and to construct ice factories, refrigerating works, etc.

Messrs. V. H. Baker and Ryan & McNab, Cranbrook, B.C., have purchased from the Kootenay Valley Co., the timber on 10,000 acres of land and 800 acres of land for a mill site.

The Fraser River Coal Co., have been incorporated at Victoria, B.C., with a capital of \$10,000, to carry on a mining and refining business.

The Hardscrabble Hydraulic Gold Mines, Limited, have been incorporated at Victoria, B.C., with a capital of \$90,000, to carry on a mining, smelting and reduction business.

The Ship Brodick Castle Co., have been incorporated at Victoria, B.C., with a capital of \$45,000, to acquire the ship "Brodick Castle."

The Great Northern Lumber Co., have been incorporated at Victoria, B.C., with a capital of \$25,000, to manufacture lumber, etc.

The Bridge River & Lillooet Gold Mining Co., have been incorporated at Victoria, B.C., with a capital of \$750,000, to carry on a mining, milling and reduction business.

The Great West Lumber Co., have been incorporated at Victoria, B.C., with a capital of \$100,000, to carry on a general lumbering business.

The Silver Cup and Great Western Companies, Trout Lake, B.C., the former owning the Silver Cup group and the latter

the Nettie L. group, are putting in a twenty-stamp combination silver mill, so arranged that ores from the two mines can be treated simultaneously, and yet be kept separate right through the mill. A hydro-electric plant is being installed near by to develop electric power for operating this mill.

Mr. Theodore Ludgate, has completed a large mill near Chamaious on Vancouver Island, B.C. He is lighting the town, also his mill and yards with electricity.

Rossland Power Co. are erecting a mill for the treatment of ores from the War Eagle and Centre Star mines, Rossland, B.C. The total area to be covered by the mill building is 360x105 feet. A stone building 100x26 feet, 700 feet of trestling to carry the railway track over the ore bins, 32 feet high.

The Victoria Sealing Co., Victoria, B.C., declared a dividend of 50 cents a share on last season's work, when their schooners took 17,423 skins, 11,714 off the British Columbia coast and in the Behring Sea and 5,709 off Cape Horn. The profits were \$28,000. They will send out about 20 schooners this spring off the British Columbia coast, and two vessels will be sent within a few days to Japan.

Messrs. P. Burns & Co., will establish a meat packing plant and stock yards at Vancouver, B.C.

The West Coast Pulp & Power Co., Vancouver, B.C., will erect a new pulp mill.

The Montreal & Boston Copper Co.'s smelter, at Boundary Falls, B.C., have made extensions, a third furnace having been put in and other preparations made for enlarging the treatment capacity of the works.

The Dunbar Fire Brick Co., Dunbar, Pa., manufacturers of high grade fire clay and silica brick, and of bee-hive and by-product coke ovens, have just finished the construction of 250 coke ovens for the Crow's Nest Pass Coal Co., Crow's Nest Pass, B.C. The fire brick for these ovens were shipped to destination from Dunbar, Pa., the freight upon which was about \$800 per car load.

In the modern industrial railway equipment where turn-tables are used for outdoor work there is always a temptation to set the turn-tables upon too shallow a foundation, the result being that they are thrown out of line by the influence of the frost. In the new plant of the B. F. Sturtevant Co., at Hyde Park, Mass. where special turn-tables of their own manufacture have been very successfully introduced in connection with their industrial system, each turn-table rests at the top of a brick circular well with 8 inch walls extending to a depth of 4 feet or below the frost line. These walls are set upon hard-pau and the centre filled with loose stones providing perfect drainage. The first winter's experience has shown them to be absolutely uninjured by frost.

Mr. James McEvoy, geologist to the Crow's Nest Pass Coal Co., Fernie, B.C., reports the growth of Fernie and other

neighboring towns to be very substantial and business brisk. The great increase in the output of the coal mines is the principal cause of the prosperity, the monthly pay-roll now amounting to over \$100,000, and the daily output for the last week was 3,400 tons. Besides the coal mining there are other industries, such as saw mills, manufactories, etc., which add materially to the growth of the town. Generally speaking, the Kootenay country has picked up in a remarkable way during the last few months, and it is felt that the long period of depression which has visited the metal mining camps is at an end.

The announcement is made from Rossland, B.C., that the White Bear Mine will shortly commence shipping operations. The company are installing adequate hoisting and compressor plants, and have ordered from the Canadian Ore-Concentration Co., a 100-ton Elmore mill.

One of the features of the new plant of the B. F. Sturtevant Co., at Hyde Park, Mass., peculiarly indicative of the permanent character of the new works now under construction, is the steam tunnel 4½ feet in width, and 6½ feet high, extending from the power plant to the most remote part of the manufacturing buildings, a total distance of about 800 feet. This tunnel, which is of concrete construction, will not only accommodate all of the steam piping, but also the electric wires for power, light, telephone, standard time clock, and other service, together with oil, hot water and other pipes for general distribution to the various buildings of the plant. None of these features of the equipment will be carried above ground at any outdoor point. While the expense of such an installation is necessarily large, the convenience of access for changes and repairs will in the future much more than offset any fixed charges thereon.

INDUSTRIAL PUBLICATIONS.

The Pennsylvania Fire Brick Co., Beach Creek, Pa., manufacturers of brick and tile of all shapes and for all purposes, have sent us a very useful and convenient desk pad. At the top of each page there is a memo. alluding to their products. We are informed that the capacity of their works is 50,000 fire brick per day.

The National Electric Co., Milwaukee, Wis., manufacturers of electrical machinery, air brakes, etc., have sent us a very handsome office calendar for 1904, upon which is a beautiful reproduction in colors of the head of "Cosette" from a painting by A. Asti.

The McCullough-Dalzell Crucible Co., Pittsburg, Pa., manufacturers of crucibles, stoppers, and all articles containing plumbago, have sent us a handsome office calendar for 1904, in which is shown a view of the extensive works of that company.

The United Typewriter Co., Toronto, have sent us a very handsome 1904 calendar, upon which is a picture of a beautiful woman posed in the attitude of contentment, meaning that all users of

the Underwood machine are ever in a state of contentment.

The American Steam Gauge & Valve Mfg. Co., Boston, Mass., have sent us their 1904 calendar, upon which is illustrated a line of gauges dated for every ten years from the year 1854, indicating the output of their gauges in those years; which shows that in the year 1854 the output was 5,000, and for the present year will be 100,000, this speaks well for the American Steam Gauge & Valve Co.

The Chicago Pneumatic Tool Co., have sent us a copy of the decision rendered by Judge Archibald in the United States Circuit Court of Appeals for the Third Circuit, in the case of Joseph Boyer vs. Keller Tool Co., and Philadelphia Pneumatic Tool Co., filed December 21, 1903. The opinion of Judge Archibald sustains the validity of the Boyer patent No. 537,629, issued April 16, 1895, now the property of the Chicago Pneumatic Tool Co., and declares the pneumatic hammers manufactured by the Keller Tool Co., and sold by the Philadelphia Pneumatic Tool Co., to be an infringement of claims 42, 45, 46, 47 and 48 in said patent, and awarding a decree for an accounting and a perpetual injunction against the further manufacture, sale or use of the infringing tools. Injunctions will, therefore, we are informed, be issued against the defendants and all other manufacturers, dealers in and users of such infringing tools.

Feilden's Magazine, 104 High Holborn street, London, England, devoted to constructional, electrical and steam engineering, which has been a welcome visitor to this office ever since its inception several years ago, will, with its January issue, abandon its old name and adopt the more expressive one of The Engineering Review, at above address.

The Methodist Magazine for January opens its fifty-ninth volume with a strong number. Among the admirably illustrated articles are Morley's "Life of Gladstone"; a travel sketch of the little known country of Uruguay; "Lawlessness and Fanaticism in the United States," and Bunyan's "Pilgrim's Progress," by the Editor. A character study of Stephen Grellet, a review with ample citations of Kipling's "Five Nations"; a touching story of Scottish life by David Lyall; other serial and short stories, science notes, current topics, with numerous cartoons, make a very attractive programme.

One of the finest and most comprehensive illustrated catalogues which has reached this office this season is that just issued by the American Clay-working Machine Co., of Bucyrus, Ohio, manufacturers of clay-working machinery and appliances, equipments of clay-working plants, pottery and cement making machinery, etc.

The 1904 catalogue of the Knowles Steam Pump Works, 114-118 Liberty street, New York City, is a book of about 150 pages, showing nearly half as many full-page illustrations of different types of direct-acting steam pumps for boiler feeding, mine drainage, water-works service, etc., also electric and belt-driven

pumps, artesian well pumps, air compressors and ammonia pumps, both fly-wheel and direct-acting, jet condensers, relief valves, air and circulating pumps, wrecking pumps, vacuum pumps, sugar-house pumping machinery, etc., in fact, pumping machinery of every type and for every purpose found in engineering work.

The Cincinnati Punch & Shear Co., Cincinnati, Ohio, have sent us their illustrated catalogue descriptive of the machinery manufactured by them, which includes bending and straightening rolls, punching machines, coping machines, rolling mill and tin mill machinery, multiple punches, gate and universal shears, sheet doublers, etc. They are prepared to furnish estimates on machines for special purposes, and would be glad to correspond in regard to such.

The Imperial Vise Co., Galt, Ont., have favored us with literature having reference to their new drill vise with universal jig attachment which has become very popular in progressive machine shops. The company inform us that they have recently filled orders for ten of these tools for the Canadian General Electric Co., Toronto, and twelve for the John Bartram & Sons Co., Dundas, Ont.

The Globe Machine & Stamping Co., Cleveland, Ohio, have sent us a circular card having reference to the "Globe" oval and circle cutting and marking machine for engravers, printers, artists and photographers use. It cuts out or marks correctly circles and ovals of any length and width.

The Pilling Air Engine Co., Bucyrus, Ohio, of which Mr. J. L. Pilling is general manager, have issued several very fine illustrations of their line of air-tools, air-hoists, etc., with appropriate literature describing the same.

The Cleveland & Automatic Machine Co., Cleveland, Ohio, have sent us an attractive circular having reference to their "Cleveland Automatic" turned lathes. These machines are made in sizes from 1-4 inch to 2 3-4 inch Chuck Capacity, and are particularly adapted to the rapid, accurate and economical production of multiple parts from the rod or bar, and also for chucking and automatically finishing castings from the smallest to 6 or 7 inches diameter.

PERSONAL.

Mr. Charles Raymond, the designer and perfecter of the well-known Raymond sewing machine, died at his residence in Guelph, Ont., on January 4, aged 78 years. Mr. Raymond was one of the "Old Guard" of the Canadian Manufacturers' Association, having become connected with it more than twenty-five years ago, and for many years was one of its staunchest and energetic supporters. He was identified with a number of important manufacturing industries in Guelph, and was one of the most conspicuous of the Captains of Industry who have done so much to build up Canada.

Mr. Thomas Cyprian Frenyear, sales manager of the new Canadian Westing-

house Co., died of typhoid fever at Fort William, Ont., on December 10. For several years he was in the employ of the Thomson-Houston and Brush Electric Companies, with his headquarters in Buffalo. In the fall of 1895 he entered the employ of the Westinghouse Electric & Mfg. Co., and was connected with their sales office until November, 1903, when he was placed in charge of the sales department of the new Canadian company with headquarters in Toronto. In announcing the death to the officials of the Westinghouse Co., Vice-President Taylor said: "The management desires to place on record its thorough appreciation of his able and loyal service and of the loss to the Westinghouse interests by the untimely removal of a young and zealous official whose future seemed so full of promise."

The fifth annual meeting of the Engineer's Club, of Toronto, was held at their rooms in King Street on January 14 for the election of officers for the ensuing year. On November 1 last the club included 105 resident and 20 non-resident members. The list of members is being revised and a copy transmitted to the Canadian High Commissioner, at London; and members who desire the branch of engineering in which they are actively engaged to appear on such list, are requested to communicate the same in writing to the secretary of the club without delay.

In the current issue of the Bulletin announcement is made of the election of Joseph Wharton as president of the American Iron and Steel Association. Mr. Wharton and the late B. F. Jones and the late Andrew Wheeler had been for years the active counselors of General Manager James M. Swank in the supervision of the association's work. The Bulletin, in referring to the death in the past year of President B. F. Jones, Vice President Abram S. Hewitt and Treasurer Andrew Wheeler, speaks of the election of Mr. Wheeler's son, Andrew Wheeler jr., as treasurer, and of the continuance in office of Wm. Metcalf, as vice-president, and of David Reeves, as auditor.

Messrs. Steel, Nacey & Hynd, marine architects, consulting engineers and surveyors, Western Reserve Building, Cleveland, Ohio, inform us that they have taken over the business lately conducted by Mr. Robert Logan, that city, as marine architect, etc., and are prepared to furnish designs and specifications for all classes of lake vessels, machinery, boilers, etc.; to superintend construction, make appraisals, valuations, etc.

Mr. Robert Bury, of Messrs. Robert Bury & Co., hardwood merchants of Liverpool, England, is in Canada, visiting the saw mills and merchants interested in exporting hardwoods to the old country. He informs us that within the past few years he has built up a large trade in this direction.

Mr. N. S. Braden, formerly manager of the Westinghouse Electric & Mfg. Co.'s District Office at Cleveland, Ohio, has been appointed sales manager of the new Canadian Westinghouse Co., Limited, and assumed the duties of that office on

January 1, 1904. Mr. Braden succeeds the late Thomas C. Frenyear, who died on December 10 of last year. Mr. Frenyear's office was at Toronto, but Mr. Braden will make his headquarters at Hamilton, Ont.

The foundry and machine shops at Lachute, Que., heretofore carried on by Messrs. McQuat & McRae, will, in the future, be conducted by Messrs. T. McQuat & Son, Mr. J. McRae having retired from the business.

UNKNOWN CANADA.

Three recently-published items of news suggest how much there probably still remains to be revealed of the resources of our own country. The first of these related to the discovery in New Brunswick of a mineralized vein of gold, copper and other deposits, which the Provincial geologist described as 300 feet wide and one of the largest bodies of ore ever discovered. Here, in one of the longest-known parts of the Dominion, resources so extensive have hitherto escaped notice. The interview with Mr. John Galt, C. E., in our recent issue, discloses a case of a similar kind. On the edge of Banff National Park a valuable and extensive deposit of anthracite coal of good quality has been located, and every preparation is being made to bring the commodity into use. The seam will be worked from a point within two miles of the main line of the Canadian Pacific Railway. There are few parts of the Rockies which have been more commonly traversed than Banff Park and its vicinity for the past fifteen years or more and yet this valuable coal deposit has remained hidden until quite recently. When it is considered how small a part of that sea of mountains is known, it need occasion no surprise, as knowledge of it extends, to hear frequently of fresh discoveries adding to the wealth and industry of the Pacific Province.

Among recent despatches there was one telling of the discovery of the richest gold field that has yet been prospected in British Columbia. Further news of this new Eldorado will be awaited with interest. False alarms from that region are not unknown, and until more definite intelligence is received it can only be hoped that it is true. When the Grand Trunk Pacific opens up a country in the northern interior of the Province that is almost wholly untouched and untested, we may look for many additions to the wealth-producing finds of the prospector, the explorer, and the railway builder.

It is to the latter that Ontario is indebted for the most recent discovery of economic minerals. The navies of the line of the Temiskaming Railway uncovered deposits of nickel and copper far richer, we are told on the best authority, than anything as yet made known to us; so much so, indeed, that the Government thought proper to withdraw the lands from settlement or location until further investigation can be made. It is not so many years since the Sudbury region itself became known, the greatest deposits

of nickel in the world. Another equally notable find were the deposits of corundum in Central Ontario. In the far north extensive seams of lignite have been located and tested showing them to possess commercial importance. The whole region through which the Grand Trunk Pacific will pass is quite as little known as Northern British Columbia. There is no saying what search and knowledge may reveal to us there.—Toronto Globe.

MUNICIPAL UNDERTAKINGS.

During the last session of the Legislature the House decided to obtain information regarding the municipalities conducting reproductive undertakings, from 1898 to 1902. Returns have now been received from many cities, towns and villages in Ontario, and the following statistics have been compiled therefrom:

The municipal waterworks systems were conducted on a paying basis in cities generally, and on a losing basis in towns and villages. Gas plants, where operated, showed a surplus. Electric lighting was a losing business in cities and successful in towns and villages. The figures given are for the average of the years 1898 to 1902.

The total capital invested in reproductive undertakings by cities was \$11,061,001; by towns, \$7,547,309, and by villages \$520,637, the combined total being \$19,083,947.

Brockville had gone in for conducting her own reproductive undertakings on a broader scale than any other municipality. They had there their own waterworks, gas, and electric lighting plants, and in each case they had invested more capital than any other town. Altogether, they had \$391,811.79 invested, with average annual working expenses of \$32,020.52, and income of \$63,760.04, showing an average annual profit of \$31,739.52.

There were 12 cities, 53 towns and 16 villages conducting their own waterworks. Of the cities, Toronto had the largest amount of money invested in waterworks, namely, \$4,171,151.54. The average working expenses, including repayment of principal and interest charges, of the system in Toronto was \$403,411.46 a year, and the income was \$379,234.50, showing an average deficit of \$24,126.96 per annum. Brockville had \$241,811.19 invested in waterworks, the largest amount for a town. The average working expenses were \$22,823.92, and the income was \$26,114.50, showing an annual profit of \$3,290.58. Of villages, Hintonburg headed the list for waterworks, having \$85,000 invested. The average working expenses were \$6,644.06, and the income was \$3,253.61, showing an average annual deficit of \$3,390.45.

In cities the total capital (inclusive of borrowed capital) provided by the corporations for municipal waterworks was \$10,905,423, in towns \$3,800,855.61, and in villages \$392,679.41.

The average annual income from municipal waterworks was \$1,008,755 in cities, \$283,146.08 in towns and \$25,-

222.86 in villages. The average annual working expenses, including a sinking fund, for municipal waterworks in cities was \$892,301.66, in towns \$290,864.12, and in villages \$41,953.65.

No cities had their own gas plants.

Brockville and Kingsville were the only towns with gas plants of their own. Brockville had the largest amount of money invested in their plant, namely, \$85,000. The average working expenses were \$20,070.34, and the income was \$24,070, showing an annual profit of \$4,000.

The capital provided by the two towns for municipal gas lighting amounted to \$112,000. The average income in these two towns was \$29,785.10, against working expenses of \$26,028.48, showing an average annual profit of \$3,756.62.

Three cities, 23 towns and 8 villages had their own electric light plants. Woodstock had the largest amount of money invested in electric light among the cities, namely, \$40,000. The average annual working expenses were \$7,551.90, and the income was \$7,613.62, showing an average annual profit of \$61.72. Brockville headed the towns, with \$65,000. The average working expenses were \$12,375.20, and the income was \$13,575.20, showing an average annual profit of \$1,200; Dundalk headed the villages, with \$65,000 invested. The average working expenses were \$1,572.90, and the average annual income was \$1,580, showing an average annual profit of \$7.10.

The capital provided for electric lighting by cities amounted to \$81,573, by towns \$587,355.52, and by villages \$121,565.

The average annual income from electric lighting plants in cities was \$7,613.62, in towns \$184,803.57, and in villages \$11,247.75. The average working expenses of the same in cities was \$16,418.13, in towns \$107,581.54, and in villages \$17,893.21.

There were no municipalities, as yet, with their own electric power plants, nor any with their own telephone service. Gananoque and Lindsay had their own harbors, docks and piers. Gananoque had \$3,000 invested thus, and Lindsay \$2,000. The average annual working expenses of both together were \$900. The return did not give the income. Of other unclassified undertakings, Niagara Falls among the towns and Shelburne among the villages reported they had one or two in operation, with capital invested amounting to \$8,000 in Niagara Falls and \$6,392.85 in Shelburne. The income and working expenses were not given.

CALCIUM CARBIDE FOR SUBMARINE BOATS.

The Cologne Germany Gazette states that the peculiar property of calcium carbide of rapidly developing acetylene gas when brought in contact with water, has led to its utilization as an effective means for raising and sinking submarine boats. The boat is supplied with an ordinary gas generator and a water tank, whose contents serve as ballast.

The upper part of the tank is connected with the gas reservoir of the generator by a pipe so that gas can escape into the tank. The tank and the generator have pipes at the bottom opening into the sea water. The upper parts have vertical pipes for the escape of the gas.

If the reservoirs (the tank and the reservoir of the generator) are filled with water, the boat sinks.

After the introduction of a carbide cartridge into the gas generator an immense quantity of gas is formed at once, which forces the water through the lower pipe into the sea. After opening the cock in the connecting pipe, the gas enters the tank and fills it by forcing out the water. The boat now rises to the surface, remaining there until the gas is allowed to escape from both reservoirs, which causes them to be again filled by sea water.

If the boat has sunk deeper than desired, the introduction of a sufficiently large carbide cartridge into the generator will make the boat rise to the proper level. The apparatus is quite simple and works reliably, doing away with air and water pumps.

OPPORTUNITIES.

The following enquiries have been received at the offices of the High Commissioner for Canada in London, and at the Canadian Section of the Imperial Institute, London, England.

1164. A London contractor and importer is looking out for Canadian supplies of hemlock or pine railway ties and maple and hickory skewers.

1165. Selling agencies in Canada for English houses in almost any line of business, are wanted by a gentleman who is shortly returning to Montreal.

1166. A resident of Belfast, Ireland, claiming to have a good connection with the wholesale and retail trades in the North of Ireland has requested to be furnished with the names of Canadian exporters of bacon, cheese and butter.

1167. A firm of manufacturers and publishers of chromo almanacs, show cards, etc., desires to hear from wholesale printers and stationers in Canada likely to take up their goods.

1168. Enquiry is made respecting the possibility of opening up a trade with Canada in writing inks and pure rice starch.

1169. A West of England firm of brush manufacturers and dealers in woodenware are seeking supplies of broom and fork handles in basswood. They also import washing boards, clothes pegs and other similar woodenware.

1170. A Belfast, Ireland, firm would like to correspond with Canadian exporters of produce, fruit, cheese, hams, canned goods, etc., with a view to selling these goods on a commission among buyers in Ireland where a large and safe trade is to be done.

1171. A well known firm of glue manufacturers wish to get into touch with Canadian buyers of this article.

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Every day in the year single and round trip excursions via the Chicago, Union Pacific and North Western Line. Through first-class Pullman and tourist sleeping cars daily, to points in California and Oregon. Personally conducted excursions from Chicago to San Francisco, Los Angeles and other Pacific Coast points, leaving Chicago on Tuesdays, Wednesdays, Thursdays and Fridays. Lowest rates, shortest time on the road. Finest scenery. For maps, illustrated folders and rates, wire B. H. Bennett, 2 King street East, Toronto.

THE LEAD BOUNTIES.

Replying to enquiries received, the following is the Canadian law granting bounties in the production of lead:

That it is expedient to repeal chapter 8 of the statutes of 1898 entitled, "An act to provide for the payment of boun-

ties on lead refined in Canada," and to enact as follows:

1. The Governor-General-in-Council may authorize the payment of a bounty of 75 cents per 100 pounds on lead contained in lead-bearing ores mined in Canada, such bounty, to be paid to the producer or vendor of such ores, upon evidence that such ores have been smelted in Canada: *Provided*, That the sum to be paid as such bounty shall not exceed \$500,000 in any fiscal year: *Provided, also*, That when it appears to the satisfaction of the minister charged with the administration of this act that the standard price of pig lead in London, England, exceeds £12 10s. (\$60.83) per ton of 2,240 pounds, such bounty shall be reduced proportionately by the amount of such excess.

2. Payment of the said bounty may be made from time to time to the extent of 60 per cent of the full bounty authorized subject to adjustment at the close of each fiscal year. If at the close of any year it

shall appear that during the year the quantity of lead produced on which the bounty is authorized exceeds 33,333 tons of 2,000 pounds, the rate of bounty shall be reduced to such sum as will bring the payments of the year within the limit mentioned in section 1.

3. If at any time it shall appear to the satisfaction of the Governor-in-Council that the charges for transportation and treatment of lead ores in Canada are excessive, or that there is any discrimination which prevents the smelting of such ores in Canada on fair and reasonable terms, the Governor-in-Council may authorize the payment of bounty at such reduced rate as may be deemed just on the lead contained in such ores mined in Canada and exported for treatment abroad.

4. The said bounties shall cease and determine on the 30th day of June, 1908.

5. The Governor-in-Council may make regulations for carrying out the intention of this act.

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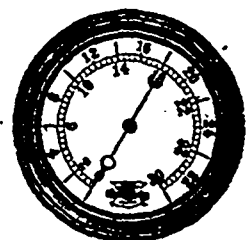
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NEW GAS-GENERATING PLANT.

To the increasing popularity of the gas engine and the decided economy found to result from the use of "producer-gas" instead of illuminating gas for this motor must be attributed the attention lately given to the producing machinery itself with the view of improving and cheapening it. One very obvious objection to the gas-producing plant as usually constructed is that a steam boiler is always necessary, for steam is required in the process. This, with the ordinary gas holder, constitutes a cumbersome lot of machinery, occupying a large amount of space. The boiler itself adds very much to the cost of the plant and introduces other evils inseparable from steam generation. These impediments to the more rapid adoption of the gas engine have been considerably lessened by the "suction gas-generating plant," which has been introduced by J. E. H. Andrew & Co., Stockport, England. There is no steam boiler required in this arrangement, nor is there any need for a gas holder. Any steam that is required is vaporized by the heat of the generator itself, and as it is not under pressure there is nothing

to fear on the point of safety. It is hardly possible to describe the working of the apparatus without sectional drawings; but, as its name implies, the engine itself "sucks" its own gas from the generator as soon as it is set to work. The coke scrubber is a vessel through which the gas is drawn, and it is thus freed from dust and cooled by a stream of cold water, which is sprinkled in the top of the vessel. After passing through the coke scrubber the gas is ready for use by the engine. The engine itself continues to draw gas as long as it is at work, so that the gas used is no more than is required by the load on the engine, and there is no gas generated when the engine is stopped. The many advantages of this apparatus must be obvious, for, besides occupying but a small space, it is really extremely economical in maintenance.

COKE OVENS IN BRITISH COLUMBIA.

The Crow's Nest Pass Coal Co. of British Columbia, of which President J. J. Hill, of the Great Northern Railway is the principal stockholder, have built during the past year 160 new ovens near

Fernie, and at the present time have about 1,000 coke ovens in blast. The coke finds a ready market at the Northport smelter, and a large amount of it is shipped to smelters in Montana and other places. Much more could be sold if it was possible to manufacture it.

The work of building the ovens was done by Harry Oldland, Uniontown, Pa., and the cost of construction of each oven is about \$1,000. The brick are secured from the Dunbar Fire Brick Co., Dunbar, Pa., and it is claimed that the brick delivered at British Columbia cost about \$75 per thousand. Mr. Oldland is of the opinion that a brick plant in that section would be a profitable investment.

The Crow's Nest Pass Coal Co. was to have built 250 ovens last year, but the brick could not be shipped fast enough, so that only 160 were finished. Mr. Oldland will return next April to complete the work. Business in that section of the country is very brisk, and wholly unlike the coke trade in the east.

The coke made in British Columbia is of good quality and runs about 91 per cent. in carbon. This is higher than the Connellsville coke, but it is not as strong.

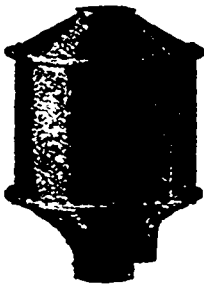


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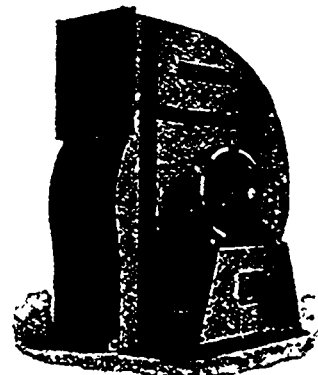
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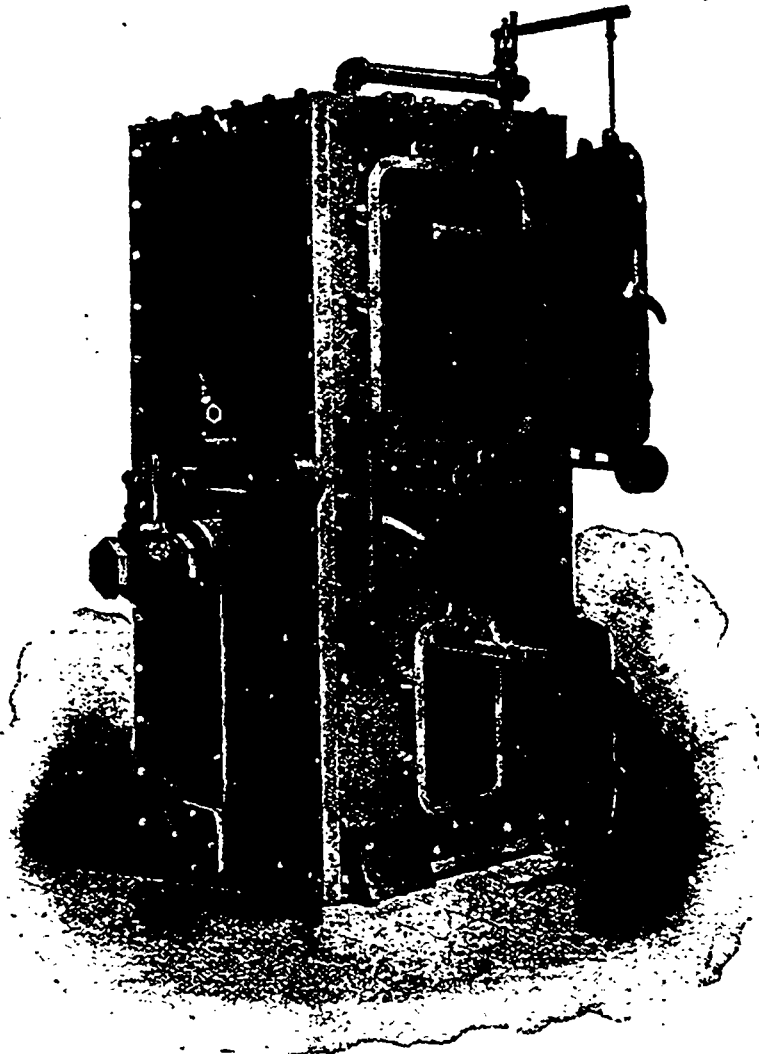


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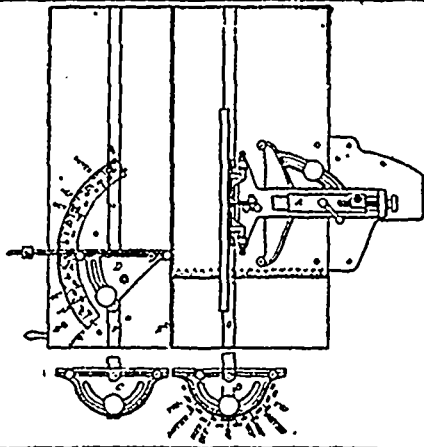
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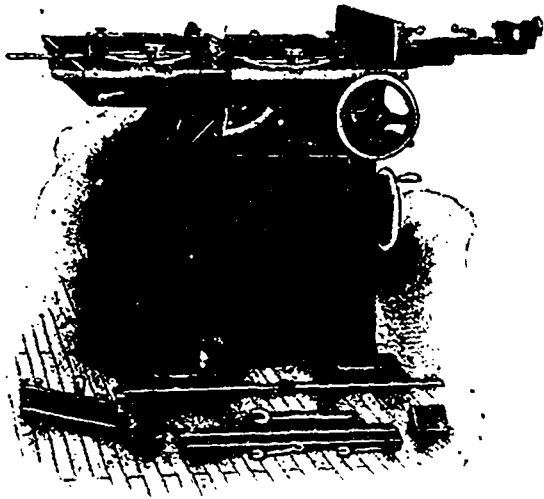
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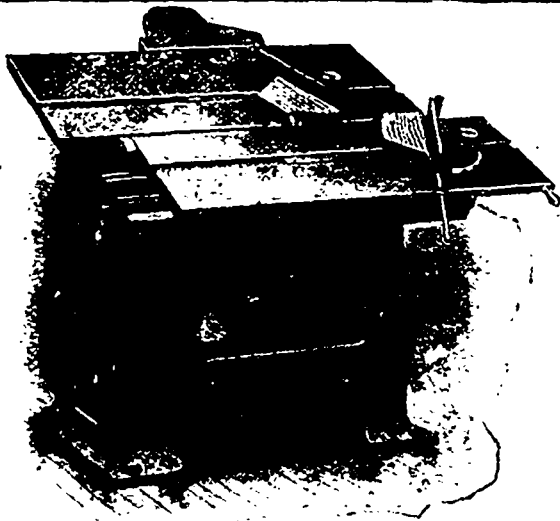
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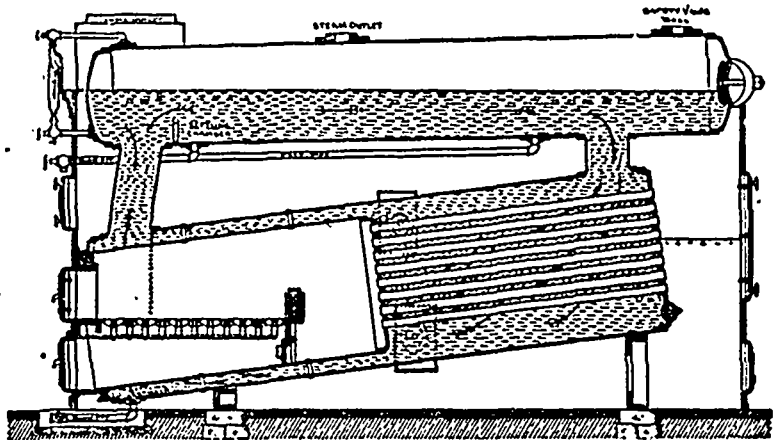
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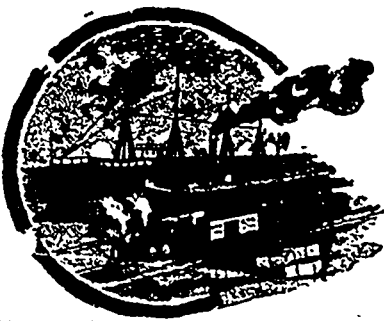
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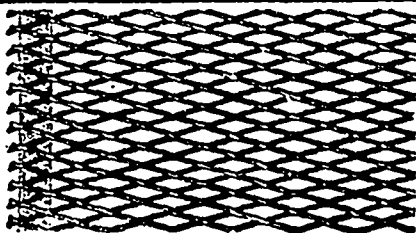


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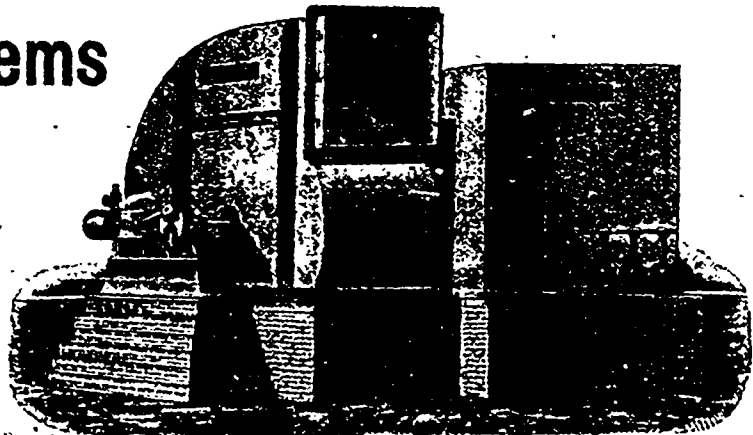
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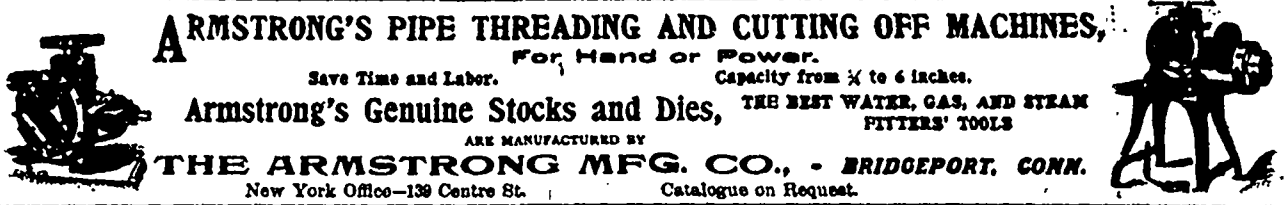
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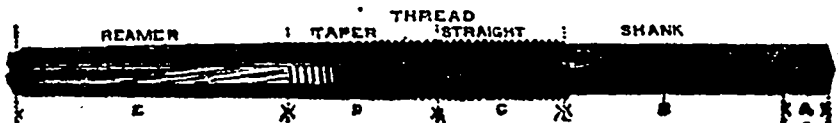
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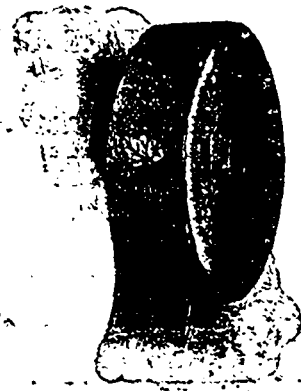
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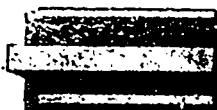
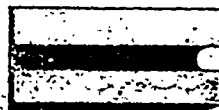


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Rosendale Belting Co., Toronto.
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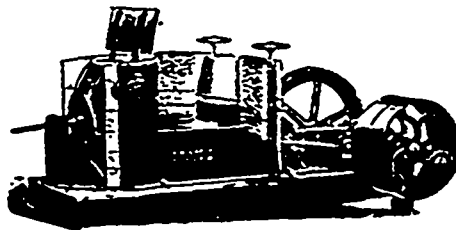
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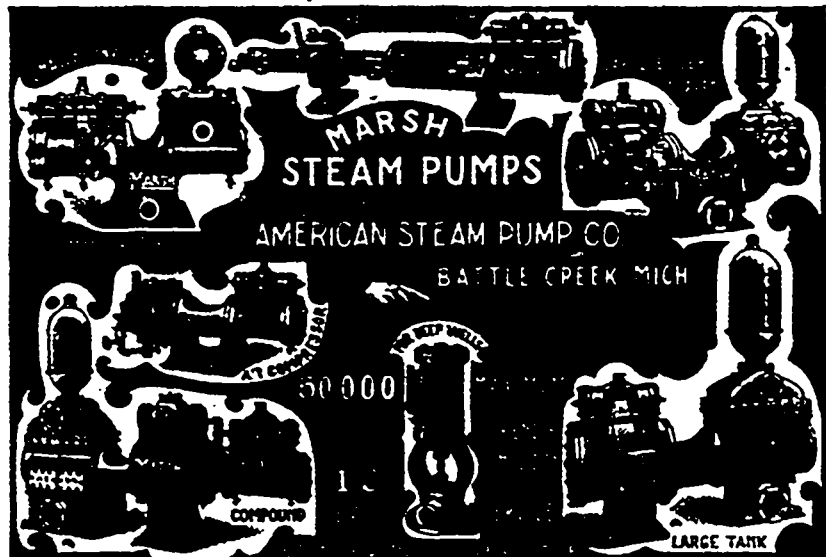
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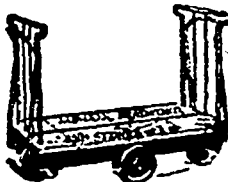
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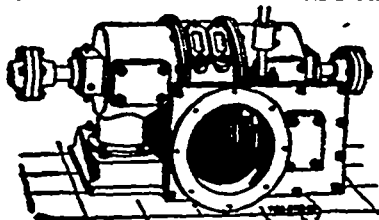
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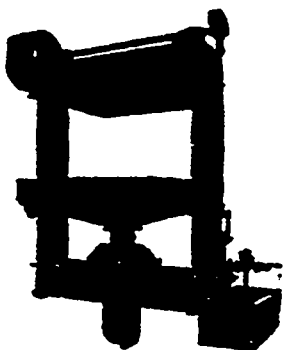
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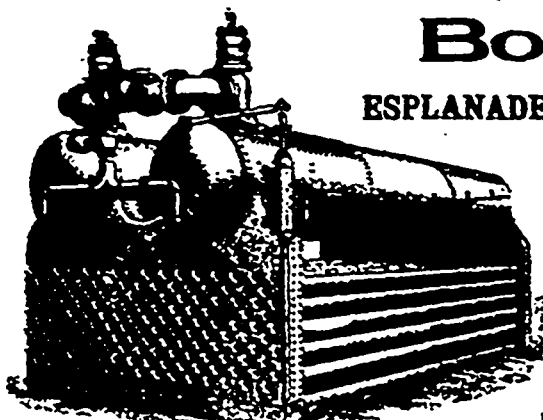


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(CONTINUED).

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Metallic Hooping Co., Toronto.
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Sheldon & Sheldon, Galt, Ont.
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- Caps.**
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- Castings (Iron and Brass.)**
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- Cement**
Canadian Portland Cement Co., Deseronto, Ont.
Owen Sound Portland Cement Co., Owen Sound, Ont.
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- Chain Making Machinery (Welded Coil Chain)**
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Bourne-Fuller Co., Cleveland, Ohio.
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Archbold, Dr. Geo., Prescott, Ont.
Heya, Thos. & Son, Toronto.
Wentz, R. F. Engineering Co., Toronto.
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Pittsburgh Coal Co., Pittsburgh, Pa.
- Coal Cutting Machines**
Jeffrey Mfg. Co., Columbus, Ohio.
- Coal Tipples.**
Jeffrey Mfg. Co., Columbus, Ohio.
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Greening, B. Wire Co., Hamilton, Ont.
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Dunbar Fire Brick Co., Pittsburgh, Pa.
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CLASSIFIED INDEX.

(CONTINUED).

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 Jeffrey Mfg. Co., Columbus, Ohio.
 Perrin, William R., & Co., Toronto.
 Stevens, Alfred J., Toronto.

Copper Materials

Greening, B. Wire Company, Hamilton, Ont.
 Samuel, M. & L. Benjamin & Co., Toronto.
 Syracuse Smelting Works, Montreal.
 Wire & Cable Co., Montreal.

Corrugated Iron and Steel.

Scalfo, Wm. B. & Sons Co., Pittsburg, Pa.

Corundum.

Canada Corundum Co., Toronto.

Corundum Wheels.

Canadian Corundum Wheel Co., Hamilton, Ont.
 Hart Corundum Wheel Co., Hamilton, Ont.
 Rice Lewis & Son, Toronto.

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McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Crayons

Lowell Crayon Co., Lowell, Mass.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
 McCullough-Dalzell Crucible Co., Pittsburg, Pa.
 Samuel, M. & L. Benjamin & Co., Toronto.
 Syracuse Smelting Works, Montreal.

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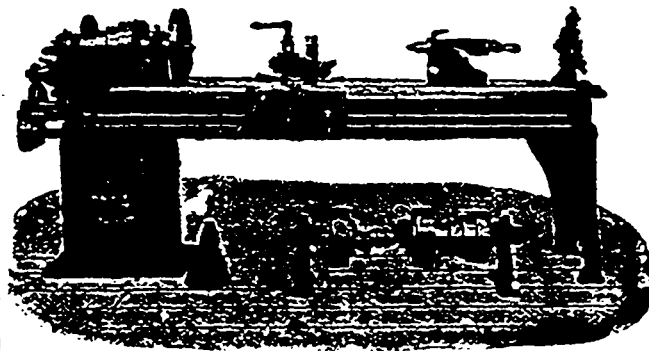
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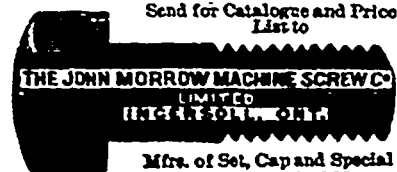
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Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

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Electrical Construction Co., London, Ont.
Kelsch, R. S., Montreal.
Morgan Construction Co., Worcester, Mass.
Parke, R. J., Toronto.
Perrin, Wm. R. & Co., Toronto.
Simpson, T. T., Deschenes, Que.
Vogel, C. H., Ottawa.
Wentz, R. F. Engineering Co., Toronto.

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Electrical Construction Co., London, Ont.

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DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Electric Engineering & Supply Co., Montreal.
Jones & Moore Electric Co., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

Engineers (Mechanical)

Carrier, Laine & Co., Levis, Quebec.
Darling Bros., Montreal.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Kelsch, R. S., Montreal.
Kerr Engine Co., Walkerville, Ont.
Morgan Construction Co., Worcester, Mass.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Wentz, R. F. Engineering Co., Toronto.

Engineers (Mill and Hydraulic)

Vogel, C. H., Ottawa.

Engineers (Mining)

Hays, Thos. & Son, Toronto.
Mills, S. D., Toronto.

Engineers and Contractors.

Jeffrey Mfg. Co., Columbus, Ohio.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Engines and Boilers

Babcock & Wilcox, Limited, Montreal.
Canadian Heine Safety Boiler Co., Toronto.
Cowan & Co., Galt, Ont.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hyde Bros. & Co., Pittsburg, Pa.
Leonard, E. & Sons, London, Ont.
McDougall, R. Co., Galt, Ont.
Petroleum Iron Works Co., Washington, Pa.
Robb Engineering Co., Amherst, N.S.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.
Stratford Mill Building Co., Stratford, Ont.
Williams, A. R., Machinery Co., Toronto.

Engravers

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

Exhaust Heads

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

Exporters

Canadian Export Co., Toronto.

Factory Sites

Central Ontario Power Co., Peterboro, Ont.

Files

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

Financial

Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postlethwaite, Toronto.
Ontario Collection Association, Toronto.

Fitters

Burt Mfg. Co., Akron, Ohio.
Darling Bros., Montreal.
Perrin, Wm. R. & Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Fire Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Scioto Fire Brick Co., Sciotoville, Ohio.
Wynn, W. H. & Co., West Decatur, Pa.

Founders

Canada Foundry Co., Toronto.
Cowan & Co., Galt, Ont.
Garthorne-Thomson Pipe & Foundry Co., Hamil-
ton, Ont.

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Karch, H. W., Hespeler, Ont.
McDougall, The F. Co., Galt, Ont.

Foundry Facing

Hamilton Facing Mill Co., Hamilton, Ont.

Galvanized Iron and Steel.

Leslie, A. C. & Co., Montreal.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Galvanizing

Brantford Plating Co., Brantford, Ont.
Ontario Wind Engine & Pump Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls
Ohio.

Gas and Gasoline Engines

Goldie & McCulloch Co., Galt, Ont.
Morrison, T. A. & Co., Montreal.
Stratford Mill Building Co., Stratford, Ont.

Gas Plants

Siche Gas Co., Toronto.

Gas Producers.

Morgan Construction Co., Worcester, Mass.

Generators

Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Grasses Cups

Penberthy Injector Co., Detroit, Mich.

Grinding Machinery

Canadian Corundum Wheel Co., Hamilton, Ont.
Hart Corundum Wheel Co., Hamilton, Ont.

Grinding Pans

Carlins, Thomas Sons Co., Allegheny, Pa.

Hand Traveling Cranes

Morgan Construction Co., Worcester, Mass.

Hardware

Butterfield & Co., Rock Island, Que.
Cooper, James, Montreal.
Empire Machine & Metal Stamping Co., Toronto.
Garthorne, John J., Toronto.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Rice Lewis & Son, Toronto.
Ryall Machine Screw Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.

Heating and Ventilating

Darling Bros., Montreal.

Leonard, E. & Sons, London, Ont.

Sheldon & Sheldon, Galt, Ont.

Stevens, Alfred J., Toronto.

Sturtevant, B. F., Co., Boston, Mass.

Hydraulic Accumulators

Morgan Construction Co., Worcester, Mass.

Hydraulic Cranes

Morgan Construction Co., Worcester, Mass.

Hydraulic Machinery

Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jencks Machine Co., Sherbrooke, Que.
Morgan Construction Co., Worcester, Mass.
Perrin, Wm. R. & Co., Toronto.
Wilson, J. C. & Co., Glencora, Ont.

Iron and Steel Specialties

Abbott, William, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Brown & Co., Paris, Ont.
Dodge Mfg. Co., Toronto.
Eareh, H. W., Hespeler, Ont.
Leslie, A. C. & Co., Montreal.
Meadors, Geo. B. Wire, Iron & Brass Works Co.,
Toronto.

McDougall, R. Co., Galt, Ont.

Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Petroleum Iron Works Co., Washington, Pa.

Rice Lewis & Son, Toronto.

Ryall Machine Screw Co., Montreal.

Samuel, M. & L. Benjamin & Co., Toronto.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Lamps—Electric

Forman, John, Montreal.

Packard Electric Co., St. Catharines, Ont.

Lathes

Gertram, John, & Sons Co., Dundas, Ont.

London Machine Tool Co., London, Ont.

McDougall, R. Co., Galt, Ont.

Williams, A. R., & Co., Toronto.

Leather Belting

Canadian Oak Belting Co., Brockville, Ont.

Fleming, W. A. & Co., Montreal.

McLaren, D. R., Montreal.

Rice Lewis & Son, Toronto.

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

Lubricators

Penberthy Injector Co., Detroit, Mich.

Machinists.

Worth & Martin, Toronto.

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CLASSIFIED INDEX.

(CONTINUED).

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Cooper, James, Montreal.
Goldie & McCulloch Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Ryall Machine Screw Co., Montreal.
Worth & Martin, Toronto.

Machine Tools

Abbott, William, Montreal.
Bortram, John, & Sons Co., Dundas, Ont.
Darling Bros., Montreal.

Malleable Iron Castings

McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Ontario Malleable Iron Co., Oshawa, Ont.
Smith's Falls Malleable Castings Co., Smith's Falls, Ont.
Walkerville Malleable Iron Co., Ltd., Walkerville, Ont.

Metal Gates

Pago Wire Fence Co., Walkerville, Ont.

Metal Shears

Morgan Construction Co., Worcester, Mass.

Metal Specialties

Brantford Plating Co., Brantford, Ont.

Metal Stamping

Empire Machine & Metal Stamping Co., Toronto.

Metallurgists.

Mills, S. D., Toronto.
Wentz, R. F. Engineering Co., Toronto.

Mill Machinery and Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Cooper, James, Montreal.
Cowan & Co., Galt, Ont.
Darling Bros., Montreal.
Fleming, W. A., & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hay, Peter Knife Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Karch, H. W., Hespeler, Ont.
Leonard, E. & Sons, London, Ont.
London Machine Tool Co., London, Ont.
McDougall, R. C., Galt, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Penberthy Injector Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Robb Engineering Co., Amherst, N.S.
Ryall Machine Screw Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Spence, R. & Co., Hamilton, Ont.
Stratford Mill Building Co., Stratford, Ont.
Wilson, J. C., & Co., Glenora, Ont.

Mining Machinery

Canadian Rand Drill Co., Sherbrooke, Que.
Cooper, James, Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Perrin, Wm. R. & Co., Toronto.
Williams, A. H. Machinery Co., Toronto.

Motors and Dynamos

Canadian General Electric Co., Toronto.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.

Novelty Manufacturers.

Worth & Martin, Toronto.

Nozzles.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Office Furniture and Supplies

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

Oils and Lubricants

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

Oil Cups

Penberthy Injector Co., Detroit, Mich.

Oil Filters

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

Oil Tanks

Petroleum Iron Works Co., Washington, Pa.

Paints and Colors

Bellhouse, Dillon & Co., Montreal.
Fleming, W. A., & Co., Montreal.
Gely Aniline & Extract Co., New York City.
Klipstein, A., & Co., New York City.
Mearns, Cornelius & Co., Montreal.

Paper Manufacturers

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

Patents

Budden, Hanbury A., Montreal.
Case, Egerton R., Toronto.
Fetherstonhaugh & Co., Toronto.
Patent Exchange & Investment Co., Toronto, Ont.

Pattern Shop Equipments

American Machinery Co., Grand Rapids, Mich.

Perforated Metals

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

Phosphorizers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Pig Iron

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

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Rice Lewis & Son, Toronto.

Pipe (Riveted Iron and Steel.)

Scalfe, Wm. B. & Sons Co., Pittsburg, Pa.

Pipes and Tubes

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.
Montreal Pipe Foundry Co., Montreal.
Rice Lewis & Son, Toronto.
Samuel, M. & L. Benjamin & Co., Toronto.

Plaster

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

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Rice Lewis & Son, Toronto.
Samuel, M. & L. Benjamin & Co., Toronto.
Scalfe, Wm. B. & Sons Co., Pittsburg, Pa.

Plating

Brantford Plating Co., Brantford, Ont.

Plumbago

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Pneumatic Tools

Chicago Pneumatic Tool Co., Chicago, Ill.
Jenckes Machine Co., Sherbrooke, Que.

Pointer Rolls (For Rods and Wire.)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Portland Cement

Canadian Portland Cement Co., Deseronto, Ont.
Owen Sound Portland Cement Co., Owen Sound, Ont.
Rathbun Co., Toronto.
St. Lawrence Portland Cement Co., Montreal.

Power-Electric and Water

Central Ontario Power Co., Peterboro, Ont.

Power Plants-Equipments

Canadian General Electric Co., Toronto.
Darling Bros., Montreal.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Jones & Moore Electric Co., Toronto.
Leonard, E. & Sons, London, Ont.
Perrin, Wm. R. & Co., Toronto.
Phillips, Eugene F. Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Stevens, Alfred J., Toronto.
Sturtevant, B. F., Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Wilson, J. C., & Co., Glenora, Ont.

Presses (Tire, Sewer Pipe, Nozzles and Sleeves.)

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

Pulleys

Darling Bros., Montreal.
Dodge Mfg. Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Wilson, J. C., & Co., Glenora, Ont.

Pumps and Pumping Systems

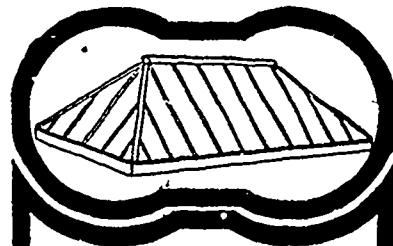
Downie Pump Co., Downieville, Pa.

Purifiers

Cowan & Co., Galt, Ont.
Goldie & McCulloch Co., Galt, Ont.
Scalfe, Wm. B. & Sons Co., Pittsburg, Pa.

Purifying System (Water.)

Darling Bros., Montreal.
Scalfe, Wm. B. & Sons Co., Pittsburg, Pa.



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(CONTINUED).

Railroads

Chicago & North-Western Ry., Toronto & St. Paul, Minn.
Quebec Central Railway, Sherbrooke, Que.

Railway Supplies.

Algoma Steel Co., Sault Ste. Marie, Ont.
Cooper, James, Montreal.
Gartshore, John J., Toronto.
Greening, B. Wire Co., Hamilton, Ont.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugene F., Electrical Works, Montreal.

Rivets

Bourne-Fuller Co., Cleveland, Ohio.

Roll Lathes

Morgan Construction Co., Worcester, Mass.

Rolling Mills

Morgan Construction Co., Worcester, Mass.

Rolling Mill Engineers

Morgan Construction Co., Worcester, Mass.

Roofing

Metallco Roofing Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tube

Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

Shafting

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

Shear Knives

Carlin's, Thomas Sons Co., Allegheny, Pa.
Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel)

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Smoke Stacks.

Petroleum Iron Works Co., Washington, Pa.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Softening Systems (Water.)

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Solder

Syracuse Smelting Co., Montreal.

Stamps & Stencils

Hamilton Stamp & Stencil Works, Hamilton, Ont.

Stand Pipes.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Steam Gauges

American Steam Pump Co., Battle Creek, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Penberthy Injector Co., Detroit, Mich.
Williams, A. R., Machinery Co., Toronto.

Steam Pumps

American Steam Pump Co., Battle Creek, Mich.
Darling Bros., Montreal.

Goldie & McCulloch Co., Galt, Ont.
Leonard, E. & Sons, London, Ont.
Williams, A. R., Machinery Co., Toronto.

Steam Separators

Darling Bros., Montreal.

Steam Specialties

Darling Bros., Montreal.
Penberthy Injector Co., Detroit, Mich.

Steam Valves

American Steam Pump Co., Battle Creek, Mich.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Williams, A. R., Machinery Co., Toronto.

Steel Plants

Morgan Construction Co., Worcester, Mass.

Steel Rails

Algoma Steel Co., Sault Ste. Marie, Ont.
Cooper, James, Montreal.
Drummond, McCall & Co., Montreal and Toronto.

Steel Shafting

Darling Bros., Montreal.
Dodge Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Wilson, J. C. & Co., Glenora, Ont.

Stocks and Dies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Rico Lewis & Son, Toronto.
Worth & Martin, Toronto.

Stoppers.

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Structural Steel.

Abbott, William, Montreal.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Iron and Steel.)

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Tees

Bourne-Fuller Co., Cleveland, Ohio.

Textile Manufacturers

Canadian Colored Cotton Mills Co., Montreal.
Cantlie, James, A., Montreal.
Dominion Oil Cloth Co., Montreal.
Hamilton Cotton Co., Hamilton, Ont.
Morris, D. Sons & Co., Montreal.
Relcho & Co., Bradford, England.
Smith Wool Stock, Toronto.
Storey, W. H., & Sons, Acton, Ont.

Tin

Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Syracuse Smelting Works, Montreal.

Tin Plates

Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.

Tool Steel

Abbott, William, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.

Trucks

Morgan Construction Co., Worcester, Mass.
Siligby, H. C., Montreal.

Trucks (Wire Mill Supplies)

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

Tubs (Cleaning and Coating Wire)

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Turbines

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

Typewriters and Supplies

United Typewriter Co., Toronto

Valves

American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Williams, A. R., Machinery Co., Toronto.

Ventilators

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

Wagons and Carriages

Hore, F. W., & Son, Hamilton, Ont.

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

Water Filters and Filtering Systems.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Water Gauges

Penberthy Injector Co., Detroit, Mich.

Water Softening and Purifying Systems.

Scaife, Wm. B. & Sons Co., Pittsburg, Pa.

Water Tanks

Caldwell, W. E. Co., Louisville, Ky.
Petroleum Iron Works Co., Washington, Pa.

Water Towers

Caldwell, W. E. Co., Louisville, Ky.

Weaving Machinery

Karch, H. W., Heepeler, Ont.

Wire Mill Supplies

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.

Wire and Wire Rope

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.
Samuel, M. & L. Benjamin & Co., Toronto.
Wire & Cable Co., Montreal.

Wire Cloth

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

Wire Drawing Machinery

Morgan Construction Co., Worcester, Mass.
Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CLASSIFIED INDEX.

(CONTINUED).

Wire Fencing
Page Wire Fence Co., Walkerville, Ont.

Wire Netting
Page Wire Fence Co., Walkerville, Ont.

Wire Rod Reels
Morgan Construction Co., Worcester, Mass.

Wire Specialties
Empire Machine & Metal Stamping Co., Toronto.
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.

Page Wire Fence Co., Walkerville, Ont.

Wire Testing Machinery
Morgan Construction Co., Worcester, Mass.

Wood-Working Machinery
American Machinery Co., Grand Rapids, Mich.
Carrier, Laine & Co., Levis, Que.
Cowan & Co., Galt, Ont.
Karch, H. W., Hespeler, Ont.
London Machine Tool Co., London, Ont.
Sheldon & Sheldon, Galt, Ont.

Zinc
Leslie, A. C. & Co., Montreal.
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INDEX TO ADVERTISEMENTS.

Where the follo is not given the Advertisement appears at intervals.

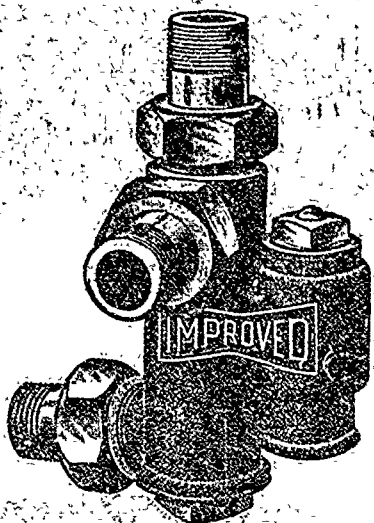
See Classified Index Beginning on Page 39

ofc..... outside front cover.

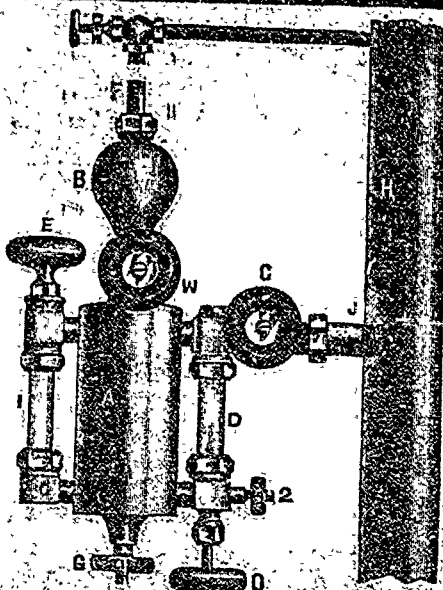
obc.....outside back cover.

| | | | | | |
|---|-----|---|-----|--|--------|
| Abbott, William, Montreal..... | 41 | Edwards, R. J., Toronto..... | 45 | Neff & Postlethwaite, Toronto..... | 13 |
| Agriculture, Ontario Minister of, Toronto..... | 45 | Electrical Construction Co., London, Ont..... | 13 | Northern Aluminum Co., Shawinigan Falls, Que., and Pittsburgh, Pa..... | 13 |
| Albert Mfg. Co., Hillsborough, N.B..... | 8 | Electric Engineering & Supply Co., Montreal..... | 41 | Nova Scotia Steel & Coal Co., New Glasgow, N.S..... | 4 |
| Algoma Steel Co., Sault Ste. Marie, Ont..... | 4 | Empire Machine and Metal Stamping Co., Toronto..... | 14 | Oakey, John & Sons, London, England..... | 3 |
| American Machinery Co., Grand Rapids, Mich..... | 32 | Expanded Metal & Fireproofing Co., Toronto..... | 31 | Ontario Collection Association, Toronto..... | 9 |
| American Steam Pump Co., Battle Creek, Mich..... | 39 | Fetherstonhaugh & Co., Toronto..... | ofc | Ontario Malleable Iron Co., Oshawa, Ont..... | obc |
| Archbold, Dr. Geo., Prescott, Ont..... | 39 | Firstbrook Box Co., Toronto..... | 45 | Ontario Wind Engine & Pump Co., Toronto..... | 43 |
| Armstrong Mfg. Co., Bridgeport, Conn..... | 35 | Fleming, W. A. & Co. Montreal..... | 37 | Owen Sound Portland Cement Co., Owen Sound, Ont..... | 8 |
| Babcock & Wilcox, Limited, Montreal..... | ofc | Forman John, Montreal..... | 14 | Packard Electric Co., St. Catharines, Ont..... | 12 |
| Bank of Hamilton, Hamilton, Ont..... | 44 | Gartshore, John J., Toronto..... | 9 | Page Wire Fence Co., Walkerville, Ont..... | 34 |
| Barber, Wm. & Bro., Georgetown, Ont..... | 42 | Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont..... | 11 | Parke, Roderick J., Toronto..... | 9 |
| Bellhouse, Dillen & Co., Montreal..... | 42 | Geigy Aniline & Extract Co., New York, N.Y..... | 45 | Patent Exchange & Investment Co., Toronto..... | 9 |
| Benson, W. T. & Co., Montreal..... | 11 | Goldie & McCulloch Co., Galt, Ont..... | 3 | Penberthy Injector Co., Windsor, Ont..... | 2 |
| Bertrian, John & Sons Co., Dundas, Ont..... | 11 | Greening B. Wire Co., Hamilton, Ont..... | 6 | Pennsylvania Fire Brick Co., Lock Haven, Pa..... | 8 |
| Blagden, Waugh & Co., London, E.C., England..... | 45 | Gutta Percha & Rubber Mfg. Co., Toronto..... | ofc | Perrin, Wm. R. & Co., Toronto & Chicago, Ill..... | 40 |
| Bourne-Fuller Co., Cleveland, Ohio..... | 5 | Hamilton Brass Mfg. Co., Hamilton, Ont..... | 47 | Peterborough Canoe Co., Peterborough, Ont..... | 45 |
| Bradstreets, Toronto and New York..... | 4 | Hamilton Cotton Co., Hamilton, Ont..... | 37 | Petrie, H. W., Toronto..... | 37 |
| Brantford Plating Co., Brantford, Ont..... | 41 | Hamilton Facing Mills Co., Hamilton, Ont..... | obc | Petroleum Iron Works, Washington, Pa..... | 7 |
| Bristol Co., Waterbury Conn..... | obc | Hamilton, Wm. Mfg. Co., Peterborough, Ont..... | 10 | Phillips, Eugene F., Electrical Works, Montreal..... | 13 |
| Brown & Co., Paris, Ont..... | 41 | Hamilton Stamp & Stencil Works, Hamilton, Ont..... | 39 | Pittsburgh Coal Co., Pittsburgh, Pa..... | 5 |
| Brunner, Mond & Co., Northwich, England..... | 11 | Hart Corundum Wheel Co., Hamilton, Ont..... | 14 | Quebec Central Railway, Sherbrooke, Que..... | obc |
| Budden, Hanbury A., Montreal..... | 9 | Hay, Peter Knife Co..... | 36 | Queen City Oil Co., Toronto..... | ofc-35 |
| Burt Mfg. Co., Akron, Ohio..... | 30 | Heys, Thomas & Son, Toronto..... | 9 | Reiche & Co., Bradford, England..... | 41 |
| Butterfield & Co., Rock Island, Que..... | 33 | Holden, Arthur P., Toronto..... | 45 | Rice Lewis & Son, Toronto..... | 35 |
| Caldwell, W. E. Co., Louisville, Ky..... | 10 | Hore, F. W. & Son, Hamilton, Ont..... | 39 | Robb Engineering Co., Amherst, N.S..... | 33 |
| Canada Corundum Co., Toronto..... | 2 | Hyde Bros. & Co., Pittsburg, Pa..... | 42 | Rosendale Belting Co., Toronto..... | ofc |
| Canada Foundry Co., Toronto..... | 36 | Imperial Oil Co., Petrolca, Ont..... | 35 | Rountree Publishing Co., Birmingham, Ala..... | 45 |
| Canada Iron Furnace Co., Montreal..... | 5 | Industrial Publication Co., New York, N.Y..... | 45 | Ryall Machine Screw Co., Montreal..... | 41 |
| Canadian Casualty & Boiler Assurance Co., Toronto..... | 39 | Industries, Youngstown, Ohio..... | 45 | Samuel, M. & L. Benjamin & Co., Toronto..... | 5 |
| Canadian Colored Cotton Mills Co., Montreal..... | 36 | International Safety Solvent Co., Providence, R. I..... | 45 | Scaife, Wm. B. & Sons Co., Pittsburg, Pa..... | 5 |
| Canadian Corundum Wheel Co., Hamilton, Ont..... | 29 | Jeffrey Mfg. Co., Columbus, Ohio..... | 10 | Scioto Fire Brick Co., Sciotoville, Ohio..... | 8 |
| Canadian Export Co., Toronto..... | 33 | Jencks Machine Co., Sherbrooke, Que..... | 47 | Sheldon & Sheldon, Galt, Ont..... | 34 |
| Canadian General Electric Co., Toronto..... | 12 | Jones & Moore Electric Co., Toronto..... | 13 | Sicho Gas Co., Toronto..... | 13 |
| Canadian Heine Safety Boiler Co., Toronto..... | 40 | Jones, J. L., Engraving Co., Toronto..... | 44 | Simpson, T. T., Deschenes, Que..... | 9 |
| Canadian Manufacturer Pub. Co., Toronto..... | 15 | Karch, H. W., Hespeler, Ont..... | 39 | Slingsby, H. C. for Canada, Montreal..... | 40 |
| Canadian Oak Belting Co., Brockville, Ont..... | 36 | Kelly's Directories, Toronto and London, England..... | 45 | Smith Woolstock Co., Toronto..... | 42 |
| Canadian Office & School Furniture Co., Preston, Ont..... | 45 | Kelsch, R. S., Montreal..... | 9 | Smith's Falls Malleable Castings Co., Smith's Falls, Ont..... | obc |
| Canadian Oils Elevator Co., Hamilton, Ont..... | ofc | Kerr Engine Co., Walkerville, Ont..... | 43 | Sponce, R. & Co., Hamilton, Ont..... | 45 |
| Canadian Portland Cement Co., Deseronto, Ont..... | 8 | Klipstein, A. & Co., New York, N.Y..... | 11 | Steel Age, Pittsburg, Pa..... | 45 |
| Canadian Rand Drill Co., Sherbrooke, Que..... | 33 | Leonard, E. & Sons, London, Ont..... | 3 | Stevens, Alfred J., Toronto..... | 9 |
| Cantile, James A., Montreal..... | 9 | Leslie, A. C. & Co. Montreal..... | 4 | Storey, W. H. & Son, Acton, Ont..... | 9 |
| Carlin's, Thomas Sons Co., Allegheny, Pa..... | 7 | Lewis, Rice & Son, Toronto..... | 5 | Stratford Mill Building Co., Stratford, Ont..... | 29 |
| Carrier, Laine & Co., Lewis, Que..... | obc | London Machine Tool Co., London, Ont..... | 41 | Sturtevant, B. F. Co., Boston, Mass..... | 30 |
| Case, Egerton R., Toronto..... | ofc | Lowell Crayon Co., Lowell, Mass..... | 44 | Syracuse Smelting Co., Montreal and New York..... | 6 |
| Cassella Color Co., New York and Montreal..... | 11 | Maryland Casualty Co., Toronto..... | 35 | Toronto & Hamilton Electric Co., Hamilton, Ont..... | 13 |
| Central Ontario Power Co., Peterborough, Ont..... | 38 | Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto..... | 10 | Toronto Iron & Brass Bedstead Co., Toronto..... | 42 |
| Chicago & North-Western Railway, B. H. Bennett, General Agent, Toronto..... | 3 | Metallic Roofing Co., Toronto..... | 10 | Toronto Paper Mfg. Co., Cornwall, Ont..... | 42 |
| Chicago Pneumatic Tool Co., Toronto and Chicago, Ill..... | 7 | Mills, S. D., Toronto..... | 9 | Turner, Vaughan & Taylor, Cayahoga Falls, Ohio..... | 33 |
| Continental Iron Works, New York, N.Y..... | 6 | Milnes, J. H. & Co., Toronto..... | 5 | United Electric Co., Toronto..... | obc |
| Cooper, James, Montreal..... | 9 | Montreal Pipe Foundry Co., Montreal..... | 4 | United Typewriter Co., Toronto..... | 36 |
| Cowan & Co., Galt, Ont..... | 34 | Morgan Construction Co., Worcester, Mass..... | 33 | Vogel, C. H., Ottawa..... | 9 |
| Crosby Steam Gauge & Valve Co., Boston, Mass..... | 29 | Morrison, T. A. & Co., Montreal..... | 9 | Walkerville Malleable Iron Co., Walkerville, Ont..... | ofc |
| Darling Bros., Montreal..... | 31 | Morrow, John, Machine Screw Co., Ingersoll, Ont..... | 41 | Wardlaw T. D., Toronto..... | 11 |
| DeLano-Osborn Engineering Co., Toronto..... | 9 | McArthur, Cornello & Co., Montreal..... | 41 | Wentz, R. F. Engineering Co., Toronto..... | 9 |
| Dixon, Jos., Crucible Co., Jersey City, N.J..... | 41 | McCullough-Dalzell Crucible Co., Pittsburg, Pa..... | obc | Wilby, P. H., Toronto..... | obc |
| Dodge Mfg. Co., Toronto..... | 34 | McDougall, R. Co., Galt, Ont..... | 30 | Williams, A. R. Machinery Co., Toronto..... | 39 |
| Dominion Belting Co., Hamilton, Ont..... | 36 | McKinnon Dash & Metal Works Co., St. Catharines, Ont..... | ofc | Winn & Holland, Montreal..... | 11 |
| Dominion Oil Cloth Co., Montreal..... | 39 | McLaren, D. K., Montreal and Toronto..... | 36 | Wilson Bros. Bobbin Co., Todmorden, England..... | 40 |
| Dominion Wire Rope Co., Montreal..... | 4 | | | Wilson J. C. & Co., Glenora, Ont..... | 40 |
| Downie Pump Co., Downsville, Pa..... | 4 | | | Wire & Cable Co., Montreal..... | ofc |
| Drummond, McCall & Co., Montreal, Que..... | 4 | | | Worth & Martin, Toronto..... | ofc |
| Dun R. G. & Co. Toronto..... | 44 | | | Wynn, W. H. & Co., West Decatur, Pa..... | 9 |
| Dunbar Fire Brick Co., Pittsburg, Pa..... | 8 | | | | |

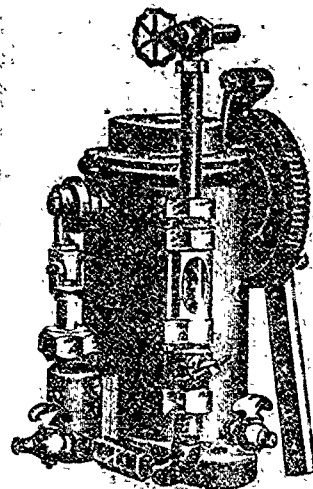
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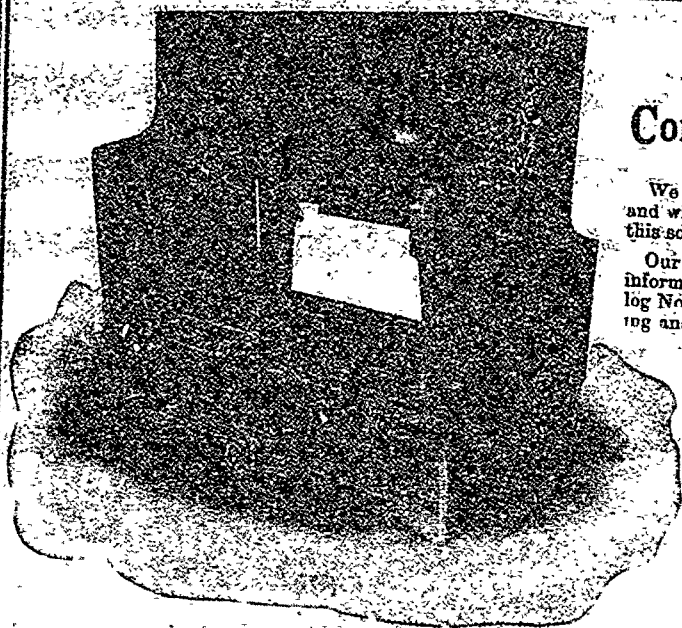
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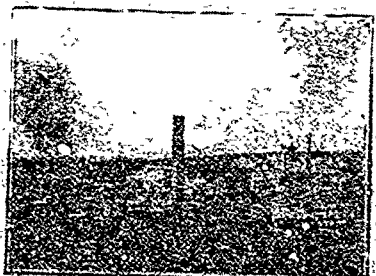
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CLASSIFIED INDEX

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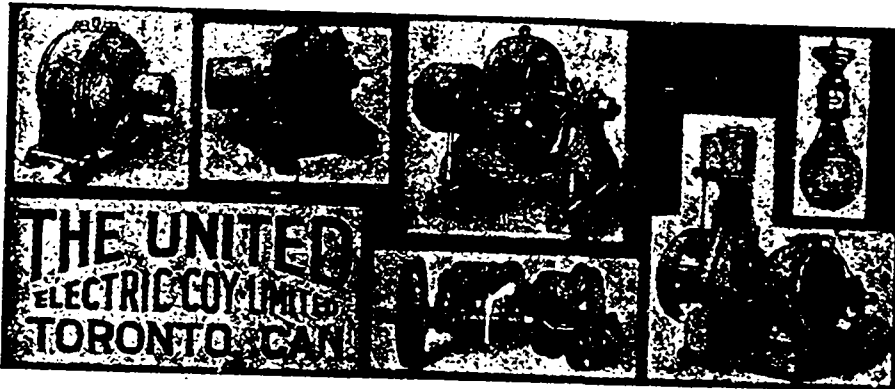
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