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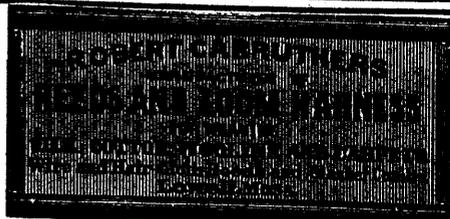
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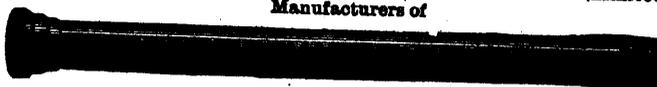
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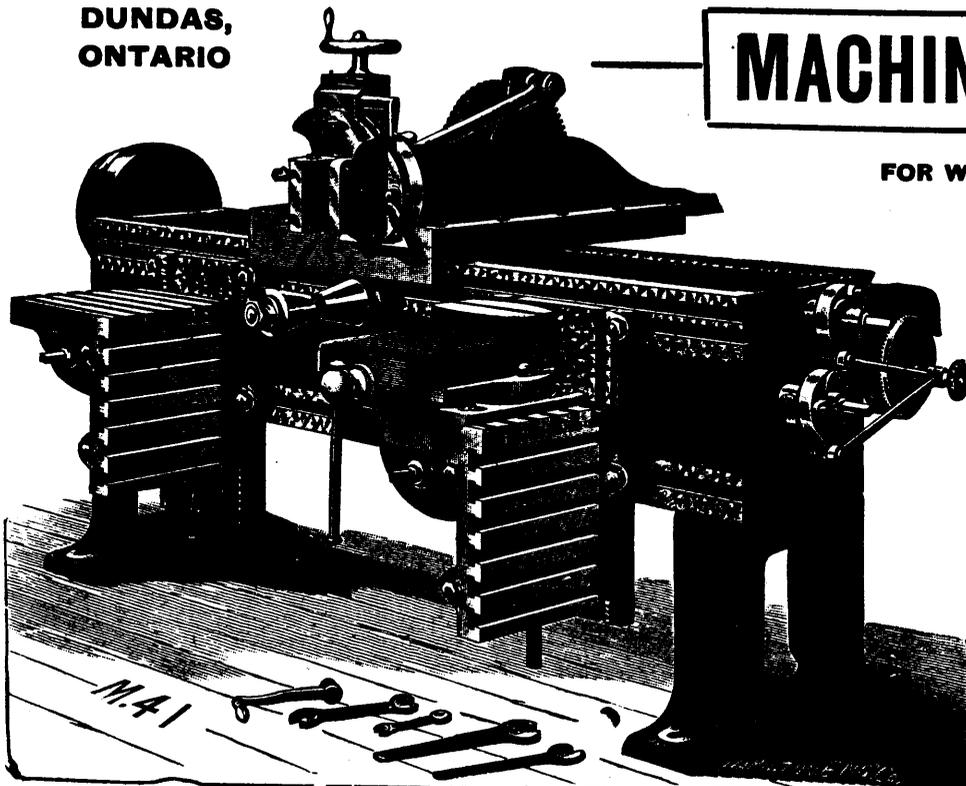
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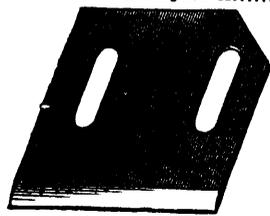
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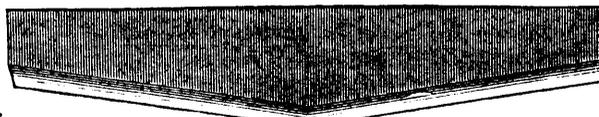
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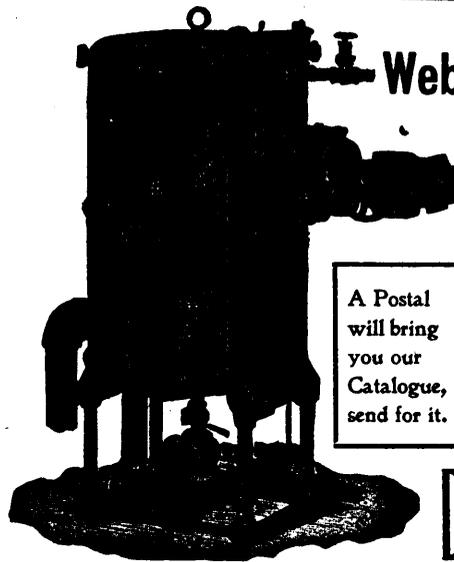
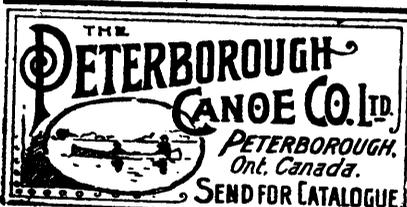
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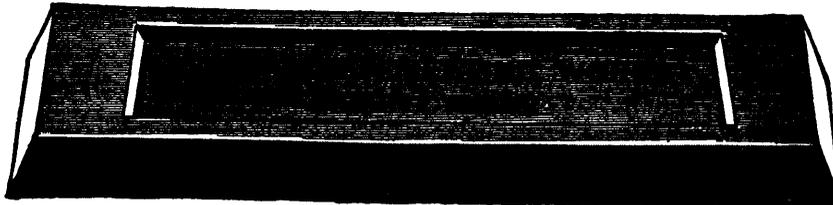
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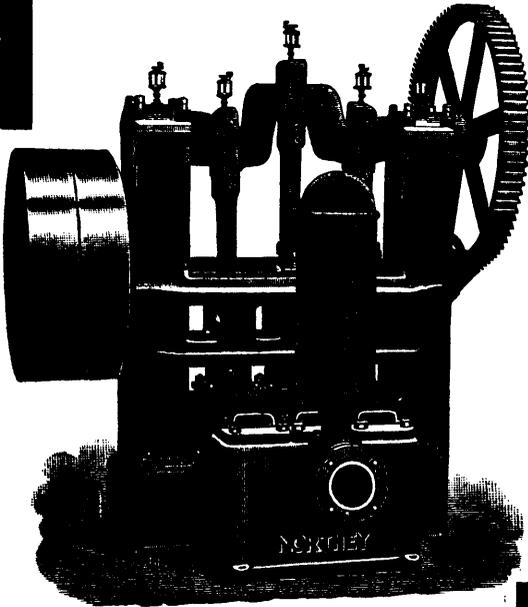
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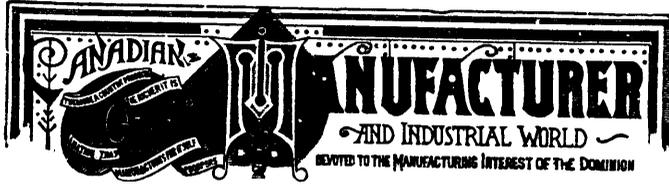
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PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

**The Canadian Manufacturer Publishing Co., Limited.**

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**MESSRS. DAVISON & CO.,**

164 Federal Street, Boston, Mass.  
AGENTS FOR UNITED STATES.

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J. J. CASSIDY, Editor and Manager

**NEW CANADIAN INDUSTRIES—STEEL RAILS AND STRUCTURAL SHAPES.**

February 18, 1902 should always be remembered as a red-letter day in the industrial history of Canada as being the date when the first stage in the manufacture of steel rails in this country was reached at the works of the Algoma Steel Co., at Sault Ste. Marie, Ont.; for it was on that day and in those works that the first blow of Bessemer steel was made, which will be, in a few days, manufactured into rails which are to be laid upon the road-bed of a Canadian railway. The credit for this event is due to Francis H. Clergue, president of the Algoma Steel Co.

For many long years THE CANADIAN MANUFACTURER has advocated the adoption of some policy in Canada which would result in the manufacture of rails, beams and other structural forms of steel. Such policy was urged upon our law makers in season and out of season, but not until the last few years have these suggestions been acted upon; and too great credit cannot be given to the Ontario Government, when, under the administration of Sir Oliver Mowat, in 1894, a liberal bonus was offered upon the production of pig iron, made in Ontario of ores raised in Ontario. This was the inducement which led to the erection of a blast furnace at Hamilton, and later of one at Midland; since which first event the Provincial Government, under the premiership of Sir Oliver, the late Hon. Mr. Hardy, and Hon. G. W. Ross, the present incumbent, has done all that could have been hoped for from it to develop the industry. This encouragement was supplemented by the Dominion Government in a similar direction, and which has accomplished so much for the industry, not only in Ontario but in Nova Scotia also; and it is quite accurate to say that the greatest credit is due to the part Sir Wilfrid Laurier and his Government have taken in the matter.

This journal has always contended that the manufacture of rails and other structural forms of steel could not be profitably carried on in Canada in the absence of an efficient protective tariff upon such articles; and that is our contention to-day. Canada, as we know, is not only a large consumer of rails, but of structural steel also. Hitherto all our wants were supplied from abroad, largely from the United States; and now that we are about prepared to produce these articles at home, it is imperative that our policy should be similar to that of the United States under which the iron and steel industries have assumed such immense proportions. We

**The Canadian Manufacturer**

**Reaches all the Blast Furnaces, Iron and Steel Works, Rolling Mills, Manufacturers of Iron and Wood-Working Machinery, Steam Engines and Boilers, Pumping and Mining Machinery, Electric Machinery and Appliances, Machinery Dealers and Steam Fitters' Supplies, all Hardware Dealers, Cotton, Woolen, Knitting and Yarn Mills, Pulp and Paper Mills, etc., in Canada.**

have knowledge that Canadian iron masters propose in the near future, to begin the manufacture of several forms of steel besides rails, and certainly adequate tariff protection should be extended to them.

The encouragement now granted by the Dominion Government for the manufacture of iron and steel in Canada consists partly in bounty, which, under the law, commences to decrease in April, and which will be extinguished in April, 1897; and partly in Customs duties.

In proportion to the existing tariff as a whole, the encouragement to the iron and steel industry, as affecting the different lines of articles now being made, is satisfactory. It would very naturally be fatal to the successful establishment of other lines not included in the protection we now have, if the encouragement in the form of Customs duties, which are meant to conserve the home market to our manufacturers should be limited to the few lines hitherto made by them. The growing development of the country, and its natural expansion, requires that lines of manufacture not hitherto attempted should receive at least as much encouragement as those already in existence, else the whole scheme of building up an iron industry of national importance, would be severely crippled. In view of the encouragement already embodied in the tariff, and the beneficial results flowing from it, it should not be necessary to urge arguments to show the great importance of such an industry; and we submit that the only logical and possible course for the Government to pursue is to extend the provisions of the tariff from time to time, as occasion may require, so as to afford the same ratio of protection as now to any new lines of iron and steel that may be undertaken by our manufacturers. These latter must, of necessity, go into the unoccupied fields as rapidly as capital can be secured, to the end that Canada may supply her wants from domestic sources.

The annual consumption of pig iron and iron products in Canada is, approximately, about 800,000 tons, of which only about 30 per cent. finds its origin in Canadian blast furnaces. Steel rails and heavy sections of structural steel form a very large part of the products of iron used in Canada, every ton of which has been, to the present time, imported from other countries, produced by foreign labor. We have at last, however, arrived at a stage of development when this condition will be changed. Canadian railroads can be equipped with steel rails, the product of Canadian material and Canadian labor; and materials for our bridges, large office buildings

and structural work generally can also be supplied from the same domestic sources.

As we have mentioned, the new mills at Sault Ste. Marie are now completed to the point where they will immediately commence to turn out both steel rails and structural steel. A very large expenditure of capital has been made there, reaching into many millions of dollars, and further expenditures will of necessity have to be made before the works are fully completed. The establishment of the works of the Algoma Steel Co. is and will be of the greatest benefit not only to Ontario but to the whole country. At Sydney, N.S., a steel rail mill is about to be constructed; and as has already been recorded in these pages, steel billets and blooms are now being made there; while at New Glasgow, Hamilton, Midland, Deseronto, and elsewhere similar expansion is in evidence.

This whole question is therefore a live one to Canada, and it is imperative that something be done at the present session of the Dominion Parliament, to re-arrange the tariff so as to cover such of these new lines as are not now provided for by it. Later on, when the manufacture of plates is undertaken, the tariff should be extended so as to adequately cover that article, but at present it is absolutely necessary in the case of rails and structural forms, seeing that works are now in actual operation for producing them. To deal at once with this matter the Government need not undertake any extended revision of the tariff, if they do not now desire to do so, but simply to announce that the same ratio of duties shall be applied to these articles as to other similar ones in the iron and steel schedule. The extension of the duties in this direction will not injuriously affect consumers; and as regards steel rails, the railroads cannot offer reasonable opposition. Indeed it would be vastly in their interest that the home industry be sustained, as they would be largely benefitted in the increased demand for transportation of raw materials and finished products. They would secure long hauls instead of having to divide profits with American roads in the delivery of American rails; or, as in many cases, practically losing the carrying trade altogether, as in the case of German and Belgium rails as at present.

The following facts regarding the iron and steel industry of Canada, may be timely in connection with the questions under discussion in this article. They are obtained from the preface to the fifteenth edition of the "Directory to the Iron and Steel Works of the United States and Canada," collated by Mr. James M. Swank, General Manager of the American Iron and Steel Association, and just now coming off the press. Mr. Swank says:

Canada now has 14 completed blast furnaces, 4 building, and 4 projected. The completed and building furnaces have an annual capacity of 958,000 gross tons of coke pig iron, 7,300 tons of charcoal and pig iron, and 125,000 tons of charcoal pig iron. The total annual capacity of all these furnaces is 1,090,300 gross tons. There are now in Canada 18 completed rolling mills and steel works, and two building. Of the steel works, 1 makes steel in a special Bessemer converter, 1 makes Tropenas steel, and 2 standard Bessemer steel plants are being built; 4 make open-hearth steel, and 1 open-hearth steel plant is being built. The annual capacity in ingots and castings of the completed steel plants and of those in course of erection is as follows: Standard Bessemer, Tropenas, and special Bessemer, 301,400 gross tons; open-hearth, 537,000 tons; total, 838,400 tons. The annual capacity of the rolling mills in rolled products is 981,900 tons. The Directory fully describes all these Canadian enterprises.

In June, 1898, Canada had only 8 completed blast furnaces and 1 furnace was in course of erection. Only 2 or 3 of the completed furnaces could be called large furnaces. Since the date mentioned the Dominion Iron & Steel Co. has built

4 large blast furnaces and a large steel plant at Sydney, Nova Scotia. Other new iron and steel enterprises have in the meantime been undertaken in Canada, some of which are now in operation and others are approaching completion.

The production of pig iron in the Dominion of Canada, as ascertained from the manufacturers by the American Iron and Steel Association, amounted in the calendar year 1901 to 244,976 gross tons, as compared with 86,090 tons in 1900, 94,077 tons in 1899, 68,755 tons in 1898, 53,796 tons in 1897, 60,030 tons in 1896, 37,829 tons in 1895, and 44,791 tons in 1894. The statistics of the Association do not go back prior to 1894. Of the production last year 228,893 tons were made with coke and 16,083 tons with charcoal. The production of Bessemer pig iron, included above, amounted to 29,577 tons. Neither spiegel nor ferromanganese was made.

On December 31, 1901, the unsold stocks of pig iron in Canada amounted to 59,472 gross tons, as compared with 12,465 tons at the close of 1900, and 9,932 tons at the close of 1899. Of the unsold iron on hand on December 31, 1901, 54,563 tons were coke pig iron, and 4,909 tons were charcoal pig iron.

On December 31, 1901, there were 14 completed furnaces in Canada and 4 furnaces were in course of construction. Of the completed furnaces 7 were in blast and 7 were idle on the date named. During 1901, 4 furnaces were erected by the Dominion Iron & Steel Co., at Sydney, Cape Breton, Nova Scotia, three of which were blown-in in 1901. The fourth furnace was put in blast in January, 1902. Of the 14 completed furnaces 9 were equipped to use coke for fuel, 4 charcoal, and 1 charcoal and coke.

#### LET US HAVE INDUSTRIAL PEACE.

At the meeting of the Canadian Manufacturers' Association held in Montreal last November, in the course of business the report of the Special Committee which had previously been appointed to consider the methods of management of The Labor Gazette was read and adopted. The report stated that the executive of the Association had a year before decided to subscribe to The Gazette for all the members; that when the question of renewal came up, the executive, having regard to numerous complaints on the part of members as to the management and influence of it, refused to renew the subscription, and referred the whole matter to a special committee to report to the annual meeting. The report of this special committee recited that it found decided room for objection to the definition of labor implied in the general character (?) of The Gazette. Labor conceived in its proper sense, is not limited to the employe, but embraces the whole field of industrial and commercial life. Industrial interests are essentially one; and this narrow definition of labor was calculated to militate against the recognition of this community of interest, which is the basis of the relation between employer and employe. The committee also found that the system under which local information was secured for The Gazette was not such as to guarantee to the country at large the most serviceable reports. Numerous objections had been raised by members against incomplete and biased information. It was also of the opinion that a monthly issue of The Gazette, as at present, was calculated to encourage the publication of much ephemeral material, and to militate against attention being given to the issue of matter of more permanent value; therefore a quarterly issue of The Gazette would be in the best interests of all classes of labor. (The grammar and the conclusions are as reported in Industrial Canada).

During the discussion of the report a member asked whether the Department of Labor sends out to the manufacturers a form to be filled in—he had never gone to the trouble, he said, of filling in one of them, but put it in the waste-paper basket, and wanted to know if that was the course that the manufacturers were usually pursuing. Chorus of voices—"The waste-paper basket."

It is to be regretted that what we conceive to be a most important matter to both the manufacturers and to their employes should have been disposed of in so flipant a manner. The Labor Gazette is published by the Department of Labor, under the direction of a Minister of the Dominion Government; and the editor is a man experienced in such work. Those for whose benefit The Gazette is published are not only the employes in factories and laborers engaged in construction word generally, but for their employers also, and the information appearing in it from month to month is quite as valuable to one as to the other; and there is no force in the argument of the committee that because the definition of the word "labor" as viewed from the so-called standpoint of The Gazette differs from that of the committee, the executive of the Association did well to deprive the members of the Association of information of undoubted value to them. Suppose the word "labor" does embrace the whole field of industrial life, is not the construction put upon it by The Gazette included therein? And if the Government see proper to discuss in it only one phase of the subject; and to ask manufacturers to assist in making the work valuable, why should they throw it into the waste-paper basket? The Association cannot but admit that the organization of the Department of Labor, and the publication of The Gazette were undertaken by the Government with the desire that some of the friction that frequently occurs between capital and labor in Canada might be averted or pacified; and it is discouraging to be told that the efforts made in that direction are not at all appreciated. Strikes and lockouts in the United States have cost the parties concerned on both sides, millions of dollars in the last few years, and even much bloodshed, and Canada has not been free from such disastrous consequences; and it is to be observed that since the date of the Montreal meeting, there has been a coming together of the discordant elements in the United States, which resulted in the organization of a capital-labor arbitration commission which promises to effect much good. This commission is composed of such men as C. M. Schwab, Senator Hanna, Oscar Strauss, S. R. Callaway, H. H. Vreeland, J. D. Rockefeller, Samuel Gomper, John Mitchell, F. P. Sargent, T. J. Shaffer, ex-President Grover Cleveland, Archbishop Ireland, Bishop Potter, President Eliot, of Harvard, and others. Some of these men are manufacturers; others are leaders in labor organizations; and others are statesmen, clergymen and business men who willingly give their time and abilities to bringing about a better feeling than had previously existed; nor do they consign to the waste-basket the matters which are brought to their attention; and it is reckoned that a thousand million dollars and two million workmen are represented in the discussions of the commission. If such leading men, in various walks of life, such as these mentioned, can harmonize the interests of capital and labor, and thus avert strikes and lockouts, they will accomplish that for which not only their country, but the whole civilized world will thank them. And surely if the Department of Labor can accomplish anything in this direction, it would deserve the thanks of both the manufacturers and labor element of Canada.

#### "AMERICAN."

On a recent occasion the Montreal Star, speaking of the influx of capital into Canada, and its investment in manufacturing and other industrial enterprises, alluded to it as "American" capital, whereupon Mr. Jas. P. Murray, of Toronto, castigates The Star in a severe manner because of its

misuse of the name. He tells the editor in a somewhat lengthy communication, that he continually refers to the residents of the United States as "Americans" notwithstanding no less important an organization than the Canadian Manufacturers' Association "has passed resolutions against this common error, and has also gone to considerable expense in endeavoring to bring Old Country newspapers and periodicals into line"—whatever that may mean. Probably, Mr. Murray says: The Association "did not deem it necessary to specially bring the Canadian press into taking the matter up, as it would naturally be supposed the Association would be supported in this without solicitation." His nightmare consists in the idea that "there is a well understood intention among the people of the United States to Americanize Canada; and this is to be worked, he says, from two sources—United States capital is to be invested in as many Canadian enterprises as possible, meaning investment of enough capital to control them; and the settlement in Canada of United States citizens who will refuse to become Canadians, but who will continue as they are now doing to urge for a low tariff on United States manufactures coming into this country.

What terrible fellows, these United Statesers, who come to Canada to live, bring their wealth which they invest in Canadian enterprises, and reach through their propaganda of "education, persuasion, interference, disturbance and aggression," their aim of absorption and Americanization regarding which Mr. Murray is so solicitous. And well he might be, for he says that every newspaper in Canada which speaks of these intruders and schemers as "Americans" is helping them in their nefarious designs; in fact it would be quite likely that these Yankees "will buy up certain of the Canadian press, and so start the education. The buying of the railways being one of the steps towards absorption." Among the remedies for this deplorable condition overhanging Canada, according to Mr. Murray, is "urging British capital to come our way, if only to half the extent that the United States invest; urge for the British emigrant; be true to ourselves; call the United States what it is; make settlers be Canadians not only by residence but by oath, and allow no aliens to hold property in Canada." We would get more emigrants to come to Canada, Mr. Murray says, "if we were truer to ourselves. Emigrants leave their country to get employment and make money; but while we allow aliens to hold property in Canada and agitate for low tariff, so long will our industries remain few;" and these are the methods by which Mr. Murray would put what he elegantly calls the "Kibosh" on all idea of the absorbing of Canada by the Yankees. His ideas may not be expressed quite as grammatically as the late Mr. Lindley Murray would have suggested, but they have the quality of being both emphatic and drastic.

The Star was, no doubt, completely squelched under the "Kibosh" of Mr. Murray's letter, but it has the temerity to remark that that gentleman appears to imagine that the ignominious sequel to the heroism of Brock and his soldiers could be averted if we would only refuse to call the people of the United States "Americans." There is something mystical in his trust in the power of a name. However feeble his faith may be along other lines, it is majestic here. He seems to think that the Munroe doctrine has something to do with the magic word. To the United States this continent is to be "America," which is an atrocious design, and, but for their nefarious plotting it might, The Star presumes, be Africa or even Asia. Mr. Murray's timorousness is due chiefly, it says, to the coming into Canada of American

capitalists, who become, not a sordid dividend-seeker, but a patriot and an Imperialist, deep in a great conspiracy, leagued with statesmen living and statesmen dead, sworn brother with his own workman whom he smuggles in past the customs officers—a conspiracy for the aggrandisement of the American Union, let stocks fall where they will.

We do not know under what pleasant skies Mr. Murray first saw the light of day—whether he is a Canadian from choice or because he could not help it; but he seems to hold the people of this country in very low estimation when he intimates that because they speak of their neighbors as "Americans" instead of "United Statesers" they are likely to become "Americanized" and their country become a portion of the American Union; and he certainly has a low opinion of Canadian newspapers when he declares that every one of them which speaks of our neighbors as "Americans" is helping the process of absorption, and that the opinion of some of them are a purchaseable commodity. It is regrettable, too, that "no less an organization than the Canadian Manufacturers' Association should devote any portion of its energies and wealth in advancing Mr. Don Quixote Murray's wind-mill fight against the word "American."

#### ST. CLAIR-ERIE SHIP CANAL.

Renewed talk about the construction of a canal connecting lakes St. Clair and Erie through Canadian territory by private enterprise should call forth the strongest protestations from the people against what might be considered an outrage upon them; and it should also stir up the Government to at once enter upon the construction of the work as an important feature of our already well established canal system. The work should never be allowed to be in the hands of any trust, combine, syndicate, corporation or of an individual or association of individuals; but it should be, and that as quickly as possible, in operation as the property of the Canadian Government.

The Detroit river connects Lake St. Clair with Lake Erie. It is twenty-seven miles long. It is crooked and tortuous and full of islands, reefs and shoals. Its current is swift. At Detroit it is constantly crowded with vessels. Several lines of passenger and car ferries continually cross, and thus add to the obstructions already impeding the traffic. It presents the most difficult piece of navigation in the chain of lakes. The losses occasioned by vessels grounding on the shoals or sinking in the narrow channels, thus stopping all navigation both ways until removed, and by fogs, have been estimated to exceed on an average one million dollars a year, and in many recent years have exceeded twice that sum. The depth of the water in the channel is much affected by the winds, a gale often lowering it three feet, thus stopping all deep-laden vessels. The river debouches into Lake Erie through a funnel-shaped mouth, studded with islands and shoals, which offer much obstruction to navigators. In the spring and fall winds blowing up Lake Erie pack great masses of ice among these islands and shoals at the mouth of the river, where it is held and added to by the ice floating down the river, the season of navigation being often thus shortened by several weeks.

To obviate these difficulties it is proposed to cut a canal thirteen and a half miles in length through the low-lying neck of land which separates Lake St. Clair from Lake Erie. The physical conformation of the land is singularly favorable for this undertaking. The whole route has been carefully surveyed and engineers' reports obtained. The cutting is of

the simplest kind of excavation, and offers no engineering obstacles whatever. The soil through which the cut is proposed to be made consists of clay, free of rock or boulders. Frequent borings along the route show the underlying rock to be more than twenty feet below the bottom of the deepest cut. A clear, straight, electrically lighted channel to give a uniform depth of 21 feet, with a width of 156 feet on the surface and 72 feet on the bottom, and a long-needed harbor of refuge at the Lake Erie end would be required.

Before inter-lake commerce had attained its present enormous proportions, small vessels of shallow draught were sufficient to handle it. Of recent years great changes in the lake fleets have been brought about by the deepening of the channels and the demands imposed by the traffic. Experience has demonstrated that the largest vessels are the cheapest freight-carriers. Smaller vessels are unable to compete, and are being every year supplanted. The great bulk of lake freight is now carried in large steamers, some of them over 500 feet in length, and of as deep a draught as the channels will permit. To such vessels the shallow and crooked channels of the Detroit river, necessitating sharp turns in a swift current, prove every day an increasing menace to safety. Accidents and groundings mean delay and serious loss not only to the unlucky vessel herself, but a detention of the whole fleet in both directions, by reason of the obstruction, temporary or prolonged, as the case may be, of the single channel.

To run so dangerous a channel as the Detroit river by night or in a fog is no easy matter. Yet thick fogs are frequent during the vessel season; and while they last, under present conditions, nothing remains but to anchor, no matter how costly the loss of time may be.

The canal once built, the Detroit river and its dangers need no longer concern the navigator, the vessel-owner, the shipper or the marine underwriter.

Leaving the St. Clair Flats Canal at the mouth of the St. Mary's river, vessels will steer a straight course through Lake St. Clair to the opening of the new canal, nineteen miles distant, with abundant depth of water and plenty of sea room, and continue the same course straight through the proposed St. Clair and Erie Canal to Lake Erie. A speed of six miles an hour could be maintained throughout the entire length of the canal, unimpeded by locks, none being necessary. Emerging from the canal, the vessel is at once in deep water in Lake Erie, beyond all islands and shoals.

Using the present route through the Detroit river the distance from the foot of the St. Clair Flats Canal to an offing in Lake Erie opposite the mouth of the proposed canal is 111 miles. By means of this canal this distance is but 32 miles, the saving in distance being 79 miles.

On account of shoals and bends, the fastest freighters hardly make ten miles an hour through the Detroit river, under the most favorable circumstances. The time they consume in the passage is about eleven hours to a point in Lake Erie opposite the canal. With the new canal, allowing for all possible detentions, but four to five hours would be required to place the vessel in the same position. The saving in time by the canal would thus approximate six or seven hours, or, say, twelve to fourteen hours on the round trip.

For slower vessels, the gain would be even more. A steamer and consort, averaging eight miles an hour, would consume fourteen hours traversing the present Detroit river route, while by the canal they would reach the same point in but five hours, thus effecting a saving of eighteen hours on each round trip. Vessels from Chicago or Duluth to Buffalo

consume on an average nine to ten days, and complete twenty-one to twenty-two trips a season. If we assume that only half a day is saved on each round trip, it is evident that at least eleven days would be saved each season, or more than enough for one complete round trip.

Since the time consumed and the distance run would be the same for the 21 round trips by the present route as for the 22 by way of the proposed canal, the outlay for fuel, wages, insurance and other charges would be equal, it is therefore apparent that the gross freights for the extra round trip would be clear net profit for the vessel-owner. Lower rates of premium would be exacted by the insurance companies on vessels avoiding the Detroit river, long regarded by lake underwriters as one of the most dangerous channels in the entire chain of lakes. But an important factor of profit, independent of all the above, remains to be considered in the lengthening of the season of navigation.

In the earliest and latest trips every season lake vessels encounter ice. In the open lakes it causes little trouble. In the St. Clair river and in Lake St. Clair the ice is easily broken, as it has but little tendency to mass. At the western end of Lake Erie, however, where the prevailing winds drive the ice floes among the islands at the mouth of the river, the ice is piled up in ridges of considerable thickness, and these ridges completely bar the passage of vessels, which are often caught there in the ice and have to be released at considerable expense. This trouble occurs every year.

The new canal would obviate this. Throughout its whole length the ice would be broken as easily as in the St. Clair river. Since the point of entrance of the canal into Lake Erie is 25 miles to the eastward of the islands and shoals at the mouth of the Detroit river, it would always be free from massing ice. The new canal, therefore, would enable navigation to be opened earlier each year and kept open longer. If we assume the very moderate estimate of one week's lengthening of the season at each end, the gain to the lake carrying trade would of itself be very important, as the earliest and latest trips usually bring a freight rate in excess of the ordinary season's rate.

It is officially estimated that over forty million tons of freight now pass through the Detroit river annually. The average freight rate on the lakes is very nearly one mill per ton per mile. The annual saving to the lake marine by using the new canal, if we assume that only one-half the vessel tonnage passing Detroit availed itself of the shorter route, would amount to one and one-half million dollars. If from this we deduct the tolls paid at the rate of five cents per ton for the round trip, should the Government exact such a toll, there would remain a net saving for each year of one million dollars.

It is certain that the new canal once open for navigation no vessel could afford to take the longer and more dangerous route through the Detroit river if her competitors chose the shorter. The larger vessels would of necessity use it. The deep waterway of 21 feet will soon be completed all the way from Chicago and Duluth to the foot of the St. Clair Flats Canal. It will be many years, if ever, that any such depth can be obtained in the Detroit river, since there is but 17 feet under most favorable circumstances over the Bar Point Shoals, which are entirely in Canadian waters. Enormous sums would require to be spent to remove these shoals to a uniform depth of 21 feet. To save 79 miles each trip, except by the construction of the new short cut, is beyond the power of money.

To make a more exact computation and to indicate the advantage to the vessel-owner from using the new proposed canal, let us take the case of a three thousand ton lake steamer which will carry 5,400 gross tons cargo. This estimate, we are informed, has been substantiated by a comparison of 56 steamers and barges. Call the load only 5,000 tons. Allow her a maximum speed of 12 miles on open lake and under 10 on river. Time consumed to cover the 110 miles, 11 hours. Through the proposed St. Clair and Erie Canal the time would be only four hours—but put it at five. Here is a saving of six hours each way or half a day on the round trip.

What, then, is the saving in money? Remembering that this trip is a clear saving in a season, and that the gross freights earned are clear profit, we compute:

5,000 tons at 85c. net per ton.....	\$4,250
Return freight.....	1,000
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Total receipts, extra trip.....	\$5,250
Deduct tolls for season, 22 round trips, 3,000 tons, at 5c.....	3,300
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Amount saved to vessel.....	\$1,950

Now, take the case of a steamer and barge. They will make eight miles through lake and river, and the same time through the canal as the steamers alone:

10,000 tons at 85c. net per ton.....	\$8,500
Return freight.....	2,000
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Total receipts, extra trips.....	\$10,500
Tolls for season, 16 round trips, 6,000 tons at 5c.....	4,800
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Amount saved.....	\$5,700

As before stated, the above computations take no notice of the increase in the length of the season of navigation. If this lengthening would add another additional trip, the above savings would be more than doubled.

The channel cut in 1883 through Hay Lake, at a cost of nearly two and a quarter million dollars, saves less than 11 miles in the run through the St. Mary's river. This channel is crooked and but little, if any, better than the old one. But so important is the saving in distance considered that it now practically takes all the traffic, and the former channel may be said to be abandoned.

If, then, navigators prefer the new channel, even with its many bends and the necessity of running through by ranges during the day and by range lights at night, because of the 11 miles saved, how much greater would be the advantages to them of the St. Clair and Erie Canal, with its absolutely straight and direct course, and its saving seven times as great as that in the Hay Lake Channel? In these days of competition, the straightest, deepest and shortest channel must draw the traffic. To compete at all, vessel-owners must have every facility that can be afforded or which their rivals make use of.

Since there is clear water all through every winter across Lake Erie east of Point Pelee to the south shore, a line of car ferries could be easily run to the Erie mouth of the canal from Cleveland, Painsville and Lorain. Coal could thus be transported to the canal without breaking bulk the year round.

According to United States Government reports the vessel tonnage passing Detroit was, in 1894, more than 24,000,000 tons, and in 1900, over 40,000,000 tons, all but about 10 per cent. of which, we are informed, was through freight and had no reference to the local trade of that city.

Is there any ground for expectation that the above rate of expansion will not be steadily maintained? On the contrary, the vast capital now employed in shipbuilding on the lakes means nothing else than an increase in tonnage each year, keeping pace with the increasing demands of a prosperous trade and the steady advance of the entire country in wealth and population. A tonnage double to-day what it was in 1884 may be confidently and conservatively predicted to double itself again before this decade is passed.

A charter has been procured which gives power to the company holding it to appropriate the land necessary to construct the canal, and some \$50,000 has been already expended upon surveys and preliminary engineering and other work, but no estimates are published as to the expected cost of the undertaking.

From the description of the surroundings it would not be high, and no doubt the exploiters of the company, had they the canal in their own management, and it in good operation, would possess an exceedingly soft snap. Should they be allowed to charge as little as five cents per ton dues, and should only 40,000,000 tons per year pass through the canal, the income to them would be \$2,000,000 per year. Like all other corporations, however, they would impose their tolls according to the ability of the traffic to pay, and five cents per ton would not begin to measure the mark. The cost of maintenance would not be great, and the net revenue to the company would be equal to the capitalization of \$25,000,000 at 6 per cent. Of course it would not cost the quarter part of \$25,000,000 to construct the canal; but if it should, the Government could borrow the money at say 3½ per cent., and the interest on that amount at that rate would amount to only \$875,000 per year, a toll of a little more than two cents per ton would pay.

#### HAND IN HAND THEY GO.

At a recent political meeting at Weston, Ont., near Toronto, Hon. E. J. Davis, Ontario's Minister of Crown Lands, alluding to the policy of development observed by the Ross Government, in developing important manufacturing and industrial enterprises in the northern and western portion of the province, paid a deservedly high tribute to the policy of tariff protection to our manufacturing industries.

Why was it, Mr. Davis asked, that the policy of the Government had added so very much to the advantage of the City of Toronto and of Toronto Junction? It was because it was a policy of development, which made for the utilization of all the vast natural resources possessed by the province. During the past two years under that policy there had been the greatest development that has ever taken place in the province, and the indications were that during the next four years, the development will be greater than it has ever been before. All this meant great things for every riding in the province.

The farmers of the province, he said, were reaping the advantage of that development, for more of their products, such as oats, hay, pork, etc., were being sent to New Ontario in enormous quantities to supply the demand from the men who are working in the lumber shanties, in the saw-mills and in connection with the mining industries and the great manufacturing industries in operation and under construction at Sault Ste. Marie, Sudbury and many other points throughout that new section of the province. The business men and the manufacturers of Toronto and Toronto Junction also experienced the advantages of this development, and every city was feeling the increasing throb of trade and commerce which

comes from these new channels which have been opened up. On making enquiries at the Soo a few weeks ago he learned that every city almost in old Ontario had been sending enormous quantities of machinery and manufactured goods to that section of New Ontario. It was a good sign of the times to see the business men and the mechanics in these great centres of industry recognizing the results of the policy of the Government.

The mineral development, Mr. Davis said, had been most extraordinary during the last two years, the output of nickel has more than doubled, the pulpwood industries are increasing rapidly, and the indications were that in the course of a couple of years four or five large pulp mills would be in operation, employing in the aggregate several thousands of men.

#### NEW ONTARIO.

Mr. Thomas Southworth, director of colonization for the province, has published an exceedingly interesting pamphlet on New Ontario as a field for settlement. The pamphlet has been prepared for the purpose of sending to all parts of the continent with a view to setting forth the advantages offered by Ontario for settlement. According to the publication, Ontario has a total land area of 219,650 miles or 140,516,000 acres, all lying within the great grain belt of North America. The magnificent natural resources in the fertility of the soil, the wealth of its mineral deposits and the value of the timber in the new district are all commented upon.

The pamphlet says: "There are several considerations to be borne in mind which will indicate the superior claims of New Ontario as a field for colonization over any other part of the continent. One of the most important of these is the diversity of industries established or in the course of establishment. Many parts of the country are rich in timber and the growing demand throughout the world for paper renders extremely valuable the spruce forests with which large areas are covered. The spruce and other pulpwood timber growing on the portion of the territory known as New Ontario is reputed to be 228,000,000 cords.

"The climate of New Ontario compares favorably with that of the Western States. The severity of the winter is tempered by the large areas of water, and the amount of forest covering which intercepts the sweep of the winds.

"Regarding taxation, this is said: "Owing to the great extent of her natural wealth and the policy adopted from the outset of conserving the public interest in the provincial timber and mineral resources, Ontario is in the unique and fortunate position of being able to dispense with provincial (or state) taxation.

"The drawbacks are carefully enumerated that the prospective settler may know what he will have to tackle in going into the new district to make a home for himself. In the first place, the new settler needs to understand that his enterprise involves much hard, rough work for comparatively slight returns at the outset and for some time to come. He must also be prepared to dispense with many conveniences and luxuries easily obtainable even by the poor in an older community, but unprocureable in a bush settlement."

#### RHODESIA.

Canadian manufacturers who may be aspiring to do an export trade with Africa, will no doubt be interested in the commercial possibilities of Rhodesia.

Situated in the heart of the Dark Continent, bounded on every side by the colonies of Great Britain, France, Germany,

Portugal, and Belgium, lies a country as yet but little known, controlled by a great stock company famed for its commercial and political enterprises in South Africa. The Chartered Co., with a capital of \$22,000,000, is to Rhodesia what the East India Co. was once to India.

Rhodesia is divided into two parts—Mashona and Matabeleland south of the Zambesi and Northeast and Northwest Rhodesia north of that river. The whole country is extraordinarily rich in mineral treasures. Apart from the gold mines, which in spite of the war and scarcity of labor yielded during 1900 nearly 166,000 ounces, there are silver, copper, tin, antimony, arsenic, lead, and coal.

Railroad building in Rhodesia, according to German reports, is making rapid progress. The stretch from Buluwayo northward to Salisbury will soon be completed, thus connecting Cape Town by rail with Beira, the seaport town of Portuguese Gasaland. The great Cape-Cairo Railway, planned by Mr. Cecil Rhodes—an enterprise of immense importance to all Africa—will intersect Rhodesia from north to south. There are already some 3,000 miles of roadway, with intervening cart roads, built in South Rhodesia.

In regard to agriculture, much remains to be done. The rich soil is eminently adapted to growing corn, oats, potatoes, tobacco, and even coffee. The vast territory adjacent to the head waters of the Zambesi and its tributaries forms the Mississippi Valley of Africa. It has a great future, and the next ten years will witness a large emigration, not only to Rhodesia, but to England's other South African colonies as well. It will be the policy of the Chartered Co., and of the British Government to encourage English settlers to locate in these colonies. The discovery of gold in South Africa induced many Americans to locate on the Rand. The opening up of vast tracts of land favorable to farming may produce similar results.

After the war is over, there will be a great demand for corn planters, harrows, cultivators, reapers, mowers, hayrakes, seeders, plows, disks, threshers, cornshellers, wagons, carriages, carts, harness, saddles, windmills, and every other piece of machinery or utensil necessary to run a farm. South Africa as a farming country has a future, and the British Government, from a political point of view, will make doubly welcome settlers of the English-speaking race; and no doubt Canadian manufacturers of agricultural implements would be able to capture a good share of the business of Rhodesia, if it were properly looked after.

#### EDITORIAL NOTES.

We are informed that a person claiming to act on behalf of the Canadian Manufacturers' Association in soliciting advertisements for Industrial Canada, its official organ, has made statements concerning THE CANADIAN MANUFACTURER which are maliciously false. Perhaps it would be well for the Association to restrain their reckless representative. If the organ cannot be supported by the Association except by money obtained from advertising, it should be permitted to die; if the advertising cannot be had except by malicious misrepresentations, the sooner it dies the better for the credit of the Association.

Alluding to a recent pronouncement of the Canadian Manufacturers' Association, The Canadian Gazette, of London, England, says:

As for the pro-British preference the woolen manufacturers clearly do not like it, for they ask for "a net duty of thirty per cent. upon woolens instead of a duty of thirty-five per

cent., with the tariff preference of one-third off." This is all very well, but if the preference is good policy for Canada as a whole, it is not easy to see how any one class can be exempted from its operation.

Admitting that the preference is a good policy for Canada, regarding which there is a variety of opinion, seeing that Great Britain refuses to allow any preference whatever in favor of Canada, which is emphatically a jug-handled arrangement; while some of our industries may not be seriously handicapped by it, without doubt the Canadian woolen industry is being strangled by its anaconda like grip. Our woolen manufacturers have never asked to be exempted from the operation of the preference, but they seriously object to being choked to death by it.

We are in receipt of another letter from Mr. G. Glenson Smith, manufacturers' agent at Port Elizabeth, Cape Colony, South Africa, who informs us that trade is looking up greatly in that country, the belief being that the war will be over within a few months. Many of the Rand mines have been re-opened; the Johannesburg stock exchange has resumed operation; refugees are returning, and everything points to a great boom in business at an early day. Port Elizabeth, Mr. Smith says, is the nearest port to many of the interior cities and towns, such as Johannesburg, Bulawayo, Bloemfontein, Kimberley, etc. Mr. Smith was for a number of years a resident of Canada, when he was connected with some of our best manufacturers of woven and knit goods. The products of some of these concerns are now handled by him, and he trusts ere long to transfer considerable of the trade of his section Canada-ward, which heretofore has been going elsewhere.

American Trade, the organ of the National Association of Manufacturers of the United States, publishes the following item:

Three importers of staves at Cette, France, are said to have contracted for from 12,000,000 to 15,000,000 American staves, for delivery at Cette and Bordeaux in the year 1902. An Austrian business man has negotiated this business, and a special agent of the Cette firms is in the United States to survey and classify shipments. The c.i.f. prices at Cette range from 54 to 56 francs (\$10.42 to \$10.80) per 100 staves.

Knowing that Canada produces most excellent timber for the manufacture of staves, the home consumption coming almost exclusively from this source, we find in the returns that the value of our exports of staves in 1901 were valued at \$400,267, and of stave bolts at \$7,217, none of which went to France but chiefly to the United States. The American Trade Index gives the names of a number of stave manufacturers in the United States, but the Canadian Trade Index makes no mention of this important industry; although, it has been announced, thousands of copies of it have been distributed in France and other European countries where staves are in strong demand.

Auditor General McDougall has sent us a copy, in two volumes, of his report for the year ending June 30, 1901, in which it is shown that the bounties bestowed by the Dominion Government for the production of iron in Canada for that year was \$351,259, an increase of \$112,962 over the previous year. These bounties were apportioned as follows:—Canada Iron Furnace Co., Three Rivers, \$16,614; Midland Iron Works, \$59,169; Deseronto Iron Co., \$27,468; Dominion Iron & Steel Co., Sydney, \$55,287; Electric Reduction Co., \$1,173; Hamilton Iron & Steel Co., \$12,455; John McDougall & Co., \$2,379; Nova Scotia Steel & Iron Co., \$66,711. There was paid out in bounties on iron puddled bars \$16,708, an increase of \$6,581. The Hamilton Steel & Iron Co. received the whole amount. The bounties on steel ingots amounted to \$100,057, or \$35,697 in excess of the year previous. The Hamilton Steel & Iron Co. received \$28,310, and the Nova Scotia Steel Co. \$71,746.

## 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, belt- ing, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalies, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

Hon. Mr. Tarte has announced in the Dominion Parliament that the branch of the royal mint, shortly to be established in Canada, will be erected upon Nepean Point, Ottawa, and will cost about \$300,000.

A fact that must interest a coal mining province like Nova Scotia is the existence in south-eastern Assinaboa of lignite coal. This does not affect our interests immediately or to any degree, says the Maritime Merchant, for we have no market that far west, and it is unlikely that coal will very soon come east to compete seriously with our bituminous article. The price, however, is very low—\$1.60 per ton for car lots at the mine, on which basis it can be delivered to consumers in Winnipeg at \$4.50. At present the matter is more of passing than material interest, but it is gratifying to know that that part of the country has access to such a cheap fuel supply in view of the fact that it would else be subject to the despotic American coal monopoly, or under the necessity of drawing its fuel wants from distant parts of Canada at high expenses in the way of freights.

The Algoma Tube Works, Sault Ste. Marie, Ont., has been incorporated with \$30,000,000 capital to carry on the businesses of iron-master, steel-maker, coke and charcoal manufacturer, iron-founder, etc. The provisional directors include E. V. Douglas and W. P. Douglas, both

of Philadelphia, Pa., and F. H. Clergue, Sault Ste. Marie.

The corporate name of the Robert McCausland Stained Glass Co., has been changed to Robert McCausland, Limited.

The Hamilton Electric Light & Cataract Power Co., Hamilton, Ont., has increased its capital stock from \$3,750,000 to \$4,000,000.

The McLachlan Electric & Gasoline Motor Co., Toronto, has changed the corporate name to McLachlan Gasoline Engine Co.

The Canadian Northern Railway Co. will build a new passenger and freight dock at Port Arthur, Ont., to cost about \$40,000. Vigers & Co., Port Arthur, have received the contract.

The Meaford Mfg. Co., Meaford, Ont., has been incorporated with \$50,000 capital to manufacture furniture, sashes and doors, etc. The provisional directors include P. W. Arnold, Wiarton, Ont., and G. A. Turner, Brucefield, Ont.

The Beaverton Brick & Tile Co., Beaverton, Ont., has been incorporated with \$17,000 capital to manufacture cement blocks, pottery, etc. The provisional directors include Benjamin Madill and Andrew Snelgrove, both of Beaverton.

The Associated Boards of Trade of British Columbia, in convention at Kalso, a few days ago, passed a resolution asking the Dominion Government to modify the \$8 per ton on pig lead produced in

Canada so that for the first year the full amount, \$100,000, be disbursed, providing 15,000 tons of lead be produced during the first year. Should there be less than 15,000 tons produced the first year then the rate allowed for that year shall be \$7 per ton instead of \$8 as at present, and providing furthermore that the bounty for each of the succeeding years shall be at the rate of \$5 per ton, but such bounty shall not exceed \$100,000 per year as at present.

Messrs. Cowan & Co., Galt, Ont., have been incorporated with \$100,000 capital to manufacture wood working machinery, engines, boilers, pulleys, pumps, shafting, etc. The provisional directors include William Cowan, A. B. Cowan, and J. L. Cowan, all of Galt.

An invention has just been completed by Professor C. E. Anthony, San Diego, Cal., by which the immense kelpbeds of the ocean are to be utilized in the manufacture of paper. The invention consists of taking the seaweed and forming into a pulp, from which paper of the finest quality can be manufactured equal even to the finest linen paper, which, though a product of the chemist's laboratory, it greatly resembles. Not only has Professor Anthony succeeded in making a suitable paper-pulp from kelp, but he declares that the pulp can be produced at 50 per cent. of the cost of other pulp.

The car shops of Rhodes, Curry & Co., Amherst, N.S., were destroyed by fire February 21. Loss about \$30,000. They will be rebuilt immediately.

Messrs. H. V. & F. Dewar, St. George, N.B., will erect a pulp mill at that place.

A new tannery will be erected at Fredericton, Ont., by the John Palmer Co.

It is reported from Vancouver that considerable quantities of platinum have been found in the gold-mining districts of British Columbia. The presence of this valuable metal in any quantity was first discovered by the American consul at Vancouver in some specimens of gold which had been brought to him to be refined. In many of the mining districts of British Columbia and the Yukon Territory, he asserts, large amounts of platinum and kindred metals must have

## Pneumatic Tools and Appliances ARE GREAT MONEY SAVERS.

Air Hoists,  
Baggage Hand-  
lers, Agitation  
of Liquids or  
Syrups in Re-  
fineries.  
Cushion and Car-  
pet Cleaners,  
Chipping Tools  
for use by Ma-  
chinists, Boiler  
Makers, Stone-  
cutters and  
Marble Works.  
Calking and Drill-  
ing, Air Brushes

### INGERSOLL-SERGEANT

PISTON AIR COMPRESSORS FOR ALL DUTIES  
INLET

THE JAMES COOPER MFG. CO. LIMITED

299 St. James St., Montreal

BRANCHES - - ROSSLAND, B.C. RAT PORTAGE, Ont. HALIFAX, N.S.

Pneumatic  
Augers,  
Punches,  
Hammers,  
Rammers,  
Rotary Drills,  
and Augers.  
Reversible  
Boring Machine,  
Flue Cutters,  
Rollers and  
Welders,  
Air Lift Pumps,  
Jacks,  
Paint Spreaders,  
Bolt Nippers.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

been thrown away by miners who do not know platinum when they see it. With the present high price of platinum, it is thought that it will pay prospectors to be on the look out for the metal, which doubtless exists in considerable quantities in British Columbia.

The buildings of the New Hamburg Mfg. Co., New Hamburg, Ont., were destroyed by fire March 1. Loss about \$27,000.

The McPherson Frog & Switch Co., Niagara Falls, Ont., will build a factory at a cost of about \$40,000, and employ about fifty men.

The Arthabaska Water & Power Co., Montreal, has been incorporated with \$150,000 capital to produce electricity for heat, light, power, etc. The charter members include B. B. Stevenson, G. W. MacDougall, and G. H. Bethune, all of Montreal.

The Hull Brewing & Malting Co., Hull, Que., has applied for incorporation with \$10,000 capital, to manufacture malt, beer, ale, etc. The applicants include F. S. Mattman, Ottawa; and F. A. Labelle and H. E. Laflamme, both of Hull.

Messrs. E. M. & A. Allan Co., Manufacturers' Agents, 34 Yonge Street, Toronto, are young and energetic Canadians just establishing themselves in business, and who will, without doubt, achieve the success they strive for and deserve. They are not novices, but experienced travellers who have business acquaintance in

about every important commercial centre in Canada.

D. S. Perrin & Co., London, Ont., have been incorporated with \$250,000 capital to manufacture biscuits, confectionery, etc. The provisional directors include D. S. Perrin, H. P. Allen, and C. W. McFarland, all of London.

La Compagnie de Laiterie Saint Laurent, St. Prosper, Que., has applied for incorporation with \$50,000 capital to manufacture centrifugal creamers, butter and cheese boxes, etc.

The Imperial Plaster Co., Toronto, has been incorporated with \$75,000 capital to manufacture plaster, cement, lime, etc. The provisional directors include A. F. MacLaren, Stratford, Ont.; and W. A. Bradshaw and J. W. Auld, Toronto.

The Dominion Cereal Co., Peterborough, Ont., has been incorporated with \$1,000,000 capital to manufacture cereal products, etc. The provisional directors include E. W. McNeil, J. S. Lovell and Miller Lash, all of Toronto.

The International Linseed Co., Montreal, has applied for incorporation with \$500,000 capital to manufacture linseed oil, etc. The applicants include F. E. Lyster, Chicago, Ill.; and Peers Davidson and T. J. English of Montreal.

Jones & Moore Electric Co., Toronto, have recently sold motors to the following: Toronto Lithograph Co., T. Eaton Co., Arlington Hotel Co., Mason & Risch Co., L. Rawlinson, S. Longstreet, T.

Clayton, H. W. Petrie, all of Toronto; Winnipeg Machinery Co., Winnipeg, Man.; Vancouver Electric Co., Vancouver, B.C.; Pratt & Trenwitt, Sault Ste. Marie, Ont.

THE CANADIAN MANUFACTURER is in receipt of an enquiry for names of builders of gasoline and electric pleasure yachts and launehes. Our correspondent wishes information re yacht about 18 feet long, capable of accommodating 7 or 8 persons and another 25 feet long to accommodate about 20 persons. Particulars on application.

The establishing of an enormous plant at Montreal by the Canadian Pacific Railway Co., for the manufacture of locomotives, etc., may be taken as an indication of the great strides Canada is making these days as an iron and steel manufacturing country. Subsidiary to the making of iron and steel, we are to have great industries where iron and steel will be the principal raw material used. The big shops, it is said, will give employment to about 5,000 men, and manufactures heretofore largely imported will henceforth be made at home. When these shops are in operation, the company will not be obliged to depend upon foreign manufacturers for supplies, who, as in the case of the past season, were not able to furnish the company with locomotives, etc., when they were so badly needed.—Winnipeg Commercial.

The new Canadian Pacific Railway Co's shops at Montreal will turn out

## Don't Bother About the Price!



There is no excellence without its cost, and when we tell you that a

### BURT EXHAUST ...HEAD...

meets its own cost, pays its own bill by its savings, is there any reason to worry about getting it paid for when it actually pays for itself?

Saves roofs from rotting, walls from being disfigured, saves repair bills. Saves fuel, saves annoyance if your exhaust pipe is a noisy one.

Write for booklet.

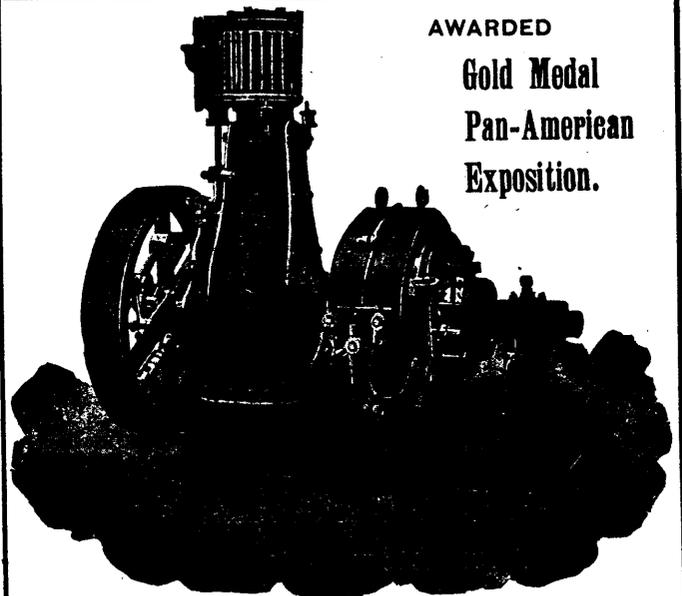
**THE BURT MFG. CO.,**  
AKRON, OHIO, U.S.A.

LARGEST MFRS. OF OIL FILTERS IN THE WORLD

## BUFFALO HIGH SPEED ENGINES

HORIZONTAL  
VERTICAL  
BELTED

SIMPLE  
COMPOUND  
DIRECT CONNECTED

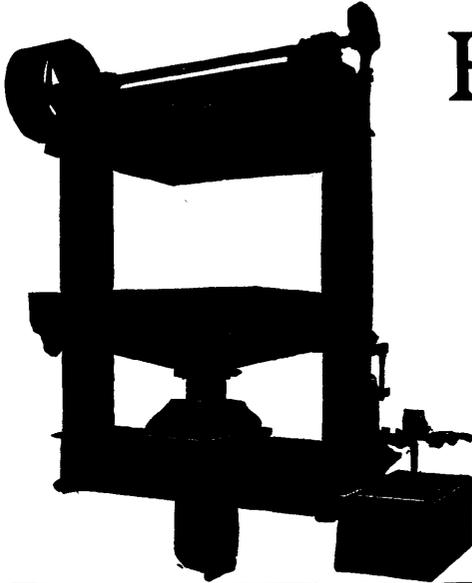


AWARDED

Gold Medal  
Pan-American  
Exposition.

**BUFFALO FORGE COMPANY,**  
BUFFALO, N.Y., U.S.A.





# Hydraulic **PRESSES**

We Build Presses  
for...

**PRESSING VENEERS,  
TANNERS' USES  
BALING, Etc.**

SEND FOR  
CATALOGUE  
AND PRICES

## William R. Perrin & Company

TORONTO, - CANADA

The American Machinist says that at a recent dinner held in New York, and attended by engineers, a manufacturer of engines in Canada read the following letter received by him some time ago from a French-Canadian customer: Dear Sir:—Le engine which I procur from you for drive thrash machine he is all rite correc and he work much more quiet as thrash machine all but one thing which is place in wheel and is mak for drive le valv which work front and back for admit le steam out an in le cilindar. My brother Philip who is certificate engineer at Montreal, he call hit le gouverneur as he cant mak hit work to. Le engine he run correc all day like clock but when we stop him by shut trottle valve le gouverneur he mak some bad noise more worse as thrash machine. Mon frere Philip he try tight le spring but wich hit mak le engine go like two forty horse an cause him run fas then slow lik winmill. Nex mon frere he loose le spring—mon dieu—I think that time le gouverneur he smash his self in little piece. All my man come scare and all these man have stack hees dud til engine be fix. S'il vous plait send explanation how repair those trouble an mak me satisfy in all respec. —Your friend, \_\_\_\_\_."

Hamilton's experience with the Canadian cement men has been an illustration

of the fact that there must be an immensely good thing in cement for Canadians. Three years ago the city paid the Canadian company it dealt with something like \$2.50 per barrel. Two years ago the price paid was \$2.44, and last year, when the Lehigh firm came in the field the Canadian price was still around the \$2 mark. This year the Canadian price has been brought down to \$1.69. As a matter of fact, there is very good evidence to show that it costs about 60 cents to make a barrel of cement in Canada. Boomers for new Canadian cement companies say that it can be made for 37 cents, but when they say it they are looking for stock takers. It is said that two years ago an Owen Sound company paid a dividend of about 90 per cent., and last year 70 per cent. At this rate the aldermen do not think that the Canadian companies need much bonusing. —Hamilton Spectator.

The Sturtevant exhaust head is designed to separate the water and oil from exhaust steam by the utilization of centrifugal force. The head is attached in a vertical position directly to the top of the exhaust pipe from which the steam passes up to the internal branch pipes and is discharged tangentially within the case. It is thus given a vigorous whirling motion and the entrained water—likewise the oil—is thrown outward with great

force, strikes the cool sides and trickles down to the outlet at the bottom. The steam now perfectly dry, finds ready escape through the central opening above, which the water cannot reach because of the opposing action of centrifugal force. As water weighs nearly 1,600 times as much as exhaust steam, and as centrifugal force is proportional to the weights of the bodies in motion, it is evident that the force acting upon the water is nearly 1,600 times that exerted upon the steam. The process of separation is thus rendered both positive and absolute by the simplest application of nature's laws. These heads contain no baffle plates to rattle loose, produce no back pressure upon the engine and insure perfect separation. There is no spray; no rotting roofs. The case and pipes are of heavy galvanized iron, 16 to 20 gauge according to size, all external joints are close-riveted and soldered, and the internal pipes are double braced.

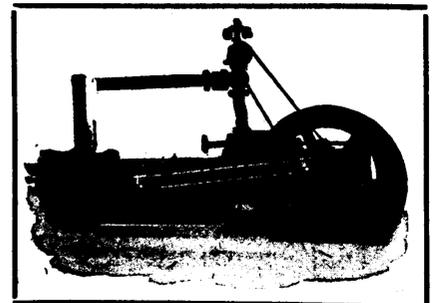
The Buffalo Forge Co., Buffalo, N.Y., are building a large and interesting fan to be used for mine ventilation by the Modoc Coal Mining Co., Glouster, Ohio. This fan is an immense one with 250-inch housing of the three-quarter type, and is constructed throughout of steel plate rigidly stiffened and braced. The blast wheel or rotating element of the fan is of special design. It is to be driven by a

**BOILER, RAILWAY and MACHINE SHOPS** CONTEMPLATING THE USE OF

## PNEUMATIC TOOLS

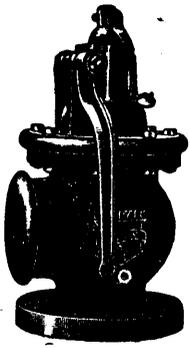
WILL DO WELL TO COMMUNICATE WITH US BEFORE  
INSTALLING PLANT

SEND FOR OUR **AIR COMPRESSORS** ALL STYLES AND SIZES  
CATALOGUE OF



**CANADIAN RAND DRILL CO.** Montreal and Sherbrooke

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A  
VALVE  
YOU  
CAN  
RELY  
ON  
  
SEND  
FOR  
PRICES

## CROSBY STEAM APPLIANCES EXCEL

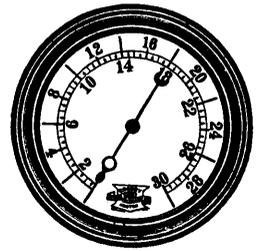
Steam Engine indicators.  
Recording Gages.  
Revolution Counters.  
Pressure and Vacuum Gages.  
Lubricators, etc.



Stationary and Marine Valves.  
Water Relief Valves.  
Blow-off Valves.  
Globe and Angle Valves  
Single Bell Chime Whistles.  
SEND FOR CATALOGUE

**CROSBY STEAM GAGE and VALVE CO.**  
BOSTON, NEW YORK, CHICAGO, LONDON

A TRUTHFUL GAGE  
IS THE  
ONLY GOOD GAGE



direct connected horizontal engine at a speed in the neighborhood of 150 revolutions per minute. The fan will deliver 125,000 cubic feet of air per minute at ordinary working speed. This is one of many typical mine ventilating plants which are constantly being built and installed by this company.

An agreement has been arrived at between T. M. Kirkwood, Toronto, and the City Council of Belleville, Ont., for the operation of the rolling mills. The city will pay Mr. Kirkwood \$5,000 per annum for two years and exempt the works from taxation. The works will be capable to produce 7,000 tons of bar iron per year.

The Northern Elevator Co., and the Winnipeg Elevator Co., will erect a main elevator of 500,000 bushels capacity in Winnipeg, Man.

The new Science building for the University of Toronto, will be four stories high with a frontage of 258 feet. The easterly wing will be 190 feet and the westerly one 90 feet in length.

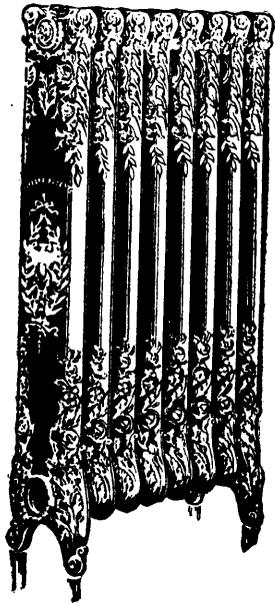
A. C. Lariviere, Montreal, has been incorporated with \$10,000 capital to manufacture vehicles of all kinds. The charter members include J. A. F. C. dit Lariviere, J. E. Charbonneau and George McNally, all of Montreal.

The Royal Albert Bridge connecting Montreal and Longueuil, Que., will be constructed by the Atlas Construction Co., and the Montreal Bridge Co. The estimated cost of the bridge, with its terminals, is \$10,000,000. The total length of the bridge is to be 8,800 feet. The main span, a cantilever, which will be the largest of its kind on the continent, will be 1,260 feet long. The height of

the bridge above the water will be 150 feet, and its width 83 feet, divided as follows: A double track railway, 26 feet; a double track electric railway, 22 feet; a double highway, 23 feet and two side-walks, 12 feet. The weight of steel in the structure will be about 74,000,000 pounds, and there will be 90,000,000 yards of masonry.

The Chapman-Dart Co., Montreal, has applied for incorporation with \$20,000 capital to manufacture druggists sundries and supplies. The applicants include Fraser Chapman, H. J. Dart and J. N. Chapman, all of Montreal.

The Boas Felsen Co., Montreal, has applied for incorporation with \$25,000 capital to manufacture mantles, cloaks, etc. The applicants include A. B. Boas, Morris Felsen and M. W. Davis, all of Montreal.



Send for Catalogue on  
up-to-date Heating.

## WARM UP YOUR

# Buildings

WITH

# “Safford Radiators”

They are the triumph of the century.  
In demand the world over.

Made in countless sizes and every possible shape,  
and in a variety of styles, plain and ornamental, sufficient to suit the most exacting.

**THE DOMINION RADIATOR CO., Limited,**  
**TORONTO**

HEAD OFFICE, - - DUFFERIN STREET

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# THE BEST PIPE THREADING and CUTTING-OFF MACHINES

Are Made by the **ARMSTRONG MFG. CO., BRIDGEPORT, CONN.**

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools.  
 Send for Catalogue 27. **Factory: BRIDGEPORT, CONN.** **New York Office: 139 CENTRE STREET.**

Wm. MacKay, Ottawa, recently purchased from J. R. Booth, the timber limits located on the River Amable du Foud for \$655,000 which it is estimated, contains about 125,000,000 feet of timber.

The spoke factory of E. H. Phelps & Co., Merriton, Ont., was destroyed by fire February 19. Loss about \$60,000.

The window shade factory of the Menzie Mfg. Co., Toronto, was destroyed by fire February 20. Loss about \$100,000.

The factory of the Merchants Dyeing & Finishing Co., Toronto, was destroyed by fire February 20. Loss about \$90,000.

The Alaska Feather & Down Co., Montreal, has increased its capital from \$50,000 to \$100,000.

The Canadian Office & School Furniture Co., Preston, Ont., will erect a large addition to their factory.

St. Cunegonde, Que. will erect a town hall at a cost of about \$30,000.

The waterworks and electric light system, Kingsville, Ont., will be extended.

Brockville, Ont. will spend \$50,000 for improvements to its gas and electric light plant.

Sherbrooke, Que. will have an abattoir of the Hobey Packing Co.

The Taylor & Pringle Co., Owen Sound, Ont., has been incorporated with \$150,000 capital to manufacture syrups, vinegar, cider, canned fruits, etc. The provisional directors include William Taylor, J. C. Pringle and S. J. Robb, of Owen Sound.

The Gee Electrical Engineering Co., Toronto will increase their capital from \$10,000 to \$50,000.

The Northern Elevator Co., Winnipeg, Man., will erect a grain warehouse of 200,000 bushels capacity. The present elevator has capacity to contain 100,000 bushels giving a total capacity of 300,000 bushels.

The farmers in the vicinity of Russell, Man., are applying for incorporation with \$20,000 capital to erect a 30,000 bushel elevator.

The St. Lawrence & Chicago Steam Navigation Co., has increased the capital from \$200,000 to \$500,000.

A steel freight steamer is being built at Toronto for the St. Lawrence and Chicago Steam Navigation Co., which is 260 feet long, 43 feet beam, and 25 feet deep, with a cargo capacity of 3,000 tons or 115,000 bushels.

The Hiram L. Piper Co., Montreal, has applied for incorporation with \$40,000 capital to manufacture railway supplies, electrical supplies, etc. The applicants include H. L. Piper, Toronto, and James Carruthers and William Carruthers, of Montreal.

The Cockshutt Plow Co., Brantford, Ont., will expend about \$50,000 for improvements to their factory.

F. H. Malcolm, Vancouver, B.C., will erect a can factory at False Creek, B.C.

Ballantyne & Co., Preston, Ont., will erect an addition to their foundry 60x40 feet, two stories high.

The soap works of Pugsley, Dingman & Co., Toronto Junction, Ont., will be enlarged by the erection of a 70x40 foot addition, two stories high.

Alexander Fleck, Limited, Ottawa, has been incorporated with \$50,000 capital to manufacture steam engines, boilers, pumps, etc. The provisional directors include Alexander Fleck, J. G. Fleck, and A. W. Fleck, all of Ottawa.

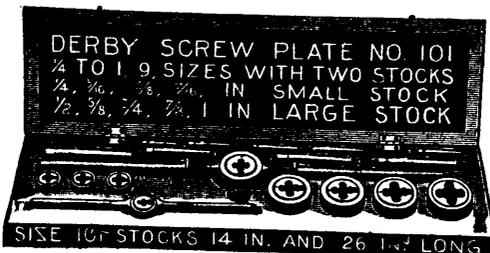
The Dominion Harness Co., Port Elgin, Ont., has been incorporated with \$40,000 capital to manufacture harness, trunks, valises, etc. The provisional directors include E. H. Schiedel and B. F. Chapman, of Port Elgin; and A. B. Chapman, Wiarton, Ont.

Captain Wolvin will build an elevator at Quebec City at his own expense.

There is a report to the effect that the Dominion Iron & Steel Co., and the Dominion Coal Co., both of Sydney, N.S., will amalgamate.

The Metal Shingle & Siding Co., Preston, Ont., state that their metal ceilings are specially appropriate for office use. They are very ornamental and sanitary, keep out the dust and can be washed as often as desired. They cost very little more than plaster, and do not crack and fall off. The metal ceilings are put on right over the plaster and nothing can damage them save the destruction of the building. The firm states that during the past season they have fitted up a large number of offices and showrooms, and would refer any enquirers to some of their work.

The universal satisfaction given by our **DERBY and REECE SCREW PLATES**, cutting from 1/16 to 1/2 inch, including all the machine screw sizes, has created a demand for a plate made on the same principle, to cut bolts to 1 inch in diameter. To meet this demand we have brought out these sizes.



**BICYCLE SCREW PLATES, REECE SCREW PLATES, DERBY SCREW PLATES, BLACKSMITH'S STOCKS AND DIES, BLACKSMITH'S IMPROVED SCREW PLATES, HAND TAPS, MACHINE TAPS, PIPE TAPS, EVERY KIND OF TAPS AND DIES.**



**BUTTERFIELD & CO., - Rock Island, Que.**

**RICE LEWIS & SON, LIMITED, Hardware and Metal**

**MACHINIST TOOLS, PIPE FITTINGS,**

**Bar Iron, Steel, Boiler Plate Tubes COMPLETE STOCK OF STOCKS AND DIES. PIPE VICES.**

**STILLSON AND TRIMO WRENCHES.**

**STEAM PIPE.**

**CORNER KING AND VICTORIA STREETS, - - - TORONTO.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# THE GEE ELECTRICAL ENGINEERING CO.

11 COLBORNE STREET, TORONTO.

LIMITED

WE have a Factory equipped with the very latest and best machines for the building of

## Dynamos, Motors,

AND ALL.....  
ELECTRICAL  
APPLIANCES

We have every facility for repairing. We guarantee all our work. We keep a large staff of competent electricians and wiremen, and are in a position to do Electrical Work of every description. We wire Residences, Business Houses, Factories, etc. We have on hand a large stock of

ESTIMATES AND PLANS SUBMITTED.

Electrical Fittings, Arc Lamps, Telephone Bells, Etc.

The Fensom Elevator Co's works, Toronto were damaged by fire February 22. Loss about \$8,500.

The Rat Portage Lumber Co. will erect an addition to their mills at Rainy River, Ont.

Messrs. Williams & Wilson, successors to A. R. Williams & Co., Montreal, have sent us a circular having reference to the solid woven hair belting, manufactured by Turner Brothers, Rockdale, England, for when they are Canadian agents. This belting is made in two brands, "Tower" and "Gripwell;" in single thickness from 2 to 24 inches wide, and double thickness from 2 to 30 inches wide, sizes up to 16 inches wide being kept in stock in Montreal warehouse.

Messrs. Williams & Wilson are also Canadian agents for the asbestos packings, jointings, yarn, cordage, cloth, etc., manufactured by Messrs. Turner Brothers, and will take pleasure in sending samples and in giving all other information.

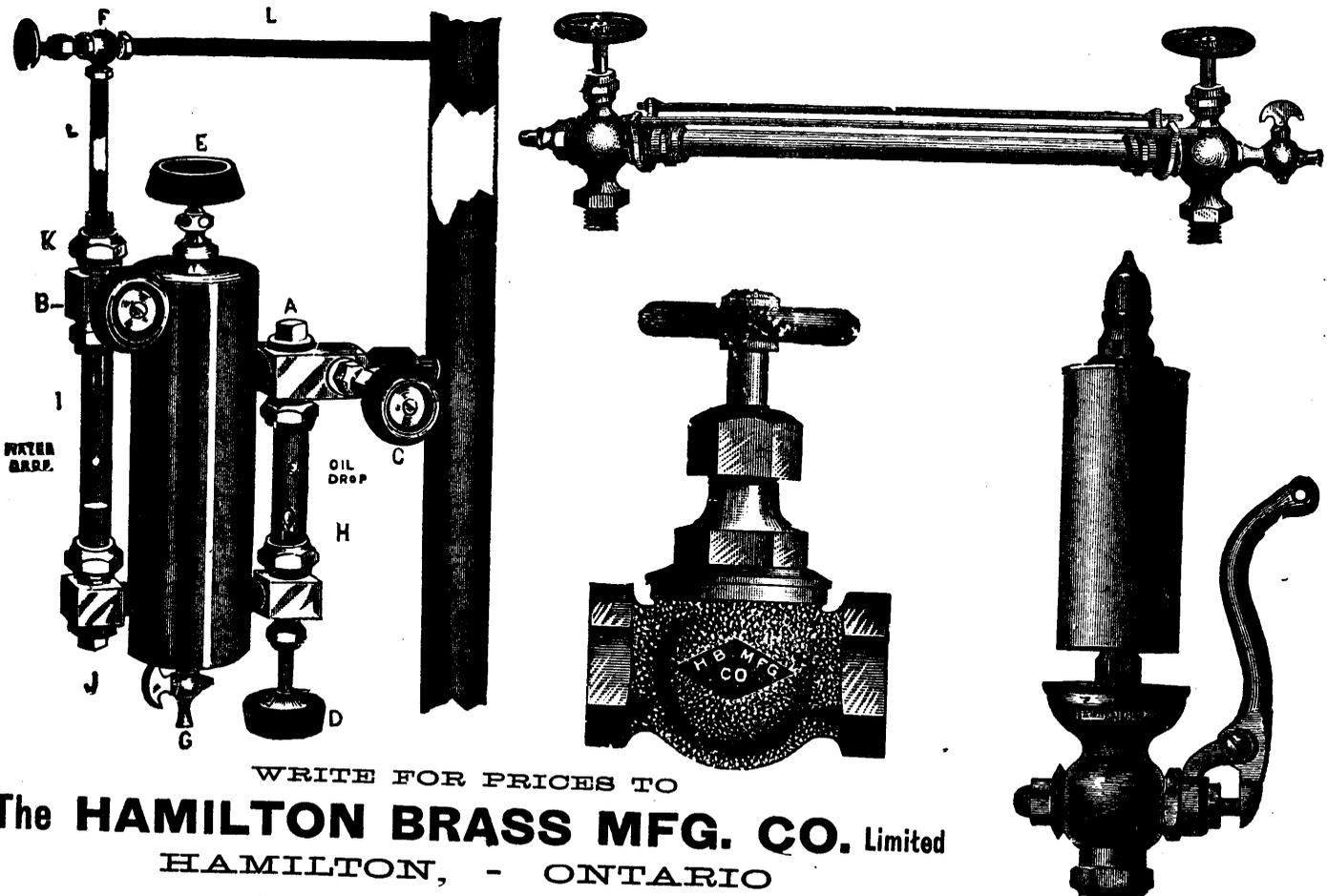
H. W. Petrie, general machinery dealer, Toronto, has sent us a copy of his Monthly Stock List of machinery, tools, power, etc., in which is enumerated hundreds of articles which are ready for inspection, a full and complete description of which will be given upon application. The index of the list contains the names of all the articles enumerated.

The Peterborough Canoe Co., Peterborough, Ont., recently shipped two steam launches that had been made to the

order of Bishop Girouard, of the Roman Catholic diocese of Athabasca-Mackenzie. One is a boat 60 feet long with 12 feet beam, and is for service on the Peace river. It will go in sections by rail to Edmonton, and from thence four hundred miles over land to the Peace river, where it will be again put together. The other craft is 30 feet long. It goes to Edmonton and from there to Athabasca Landing. It will be for service on Little Slave Lake.

Messrs. Gale & Sons will rebuild their wire mattress factory at Waterville, Que.

Tenders will be received until March 17, by J. A. Bell, St. Thomas, Ont., for the erection of two steel bridges to be built over the Thames river.



WRITE FOR PRICES TO

The HAMILTON BRASS MFG. CO. Limited  
HAMILTON, - ONTARIO

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

George Archbold, Ph.D., lately attached to the Imperial Starch Co., Prescott, Ont., has sent us a brochure written by him upon the manufacture of maize or corn starch, originally published in the Journal of Chemical Industry of London, England, in January last. The subject is illustrated with explanatory diagrams of an ideal starch factory, is treated very exhaustively and cannot but be of great value to any who are or may be interested in the manufacture of starch. Included among the many scientific subjects upon which Dr. Archbold has written is "The Real Starch Factories," or "How Nature Manufactures Starch in Vegetable Tissues," and "The Best and Most Economical Commercial Methods for the Extraction of Pure Starch from Cereals," etc., and "The Manufacture of Glucose," (illustrated) being a competitive dissertation for the Gold Medal and Diploma of the Royal Society of Science, Letters and Art, of London.

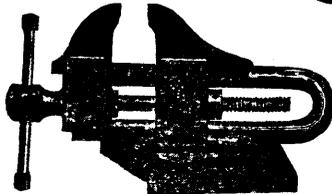
The Bourne-Fuller Co., of Cleveland, Ohio, has recently added to the line of material which it carries at its warehouse in that city a stock of all standard sizes of beams, channels, angles and tees, in long lengths, and is providing facilities for cutting to lengths when required. The new warehouse, erected during the past year, is one of the most complete in the Central West, covering an area of 300 x 150 feet, with railroad facilities on two sides capable of handling at one time twelve or more cars, and on the street fronts of accommodating any number of teams. In addition to the ground covered by this warehouse, the company has recently acquired adjoining land giving yard room about 330x300 feet, on which the stock of structural material is being accumulated. A steam driven crane with 50-foot boom has been provided for handling this material, and present plans include the addition of electric cold saws and other appliances for cutting rapidly and cheaply all structural shapes. In addition to the structural material the warehouse includes a stock of sheets, bars, hoops and bands, wrought iron pipe, rivets, Norway iron, and all other material in the comprehensive line handled by this company.

The factory of the Dunnville Planing Mill, Dunnville, Ont., was destroyed by fire recently. Loss about \$5,000.



**Page Metal Ornamental Fence.** We now make ornamental, very showy and surprisingly cheap. It is just what is wanted for door yards, division fences in town lots, grave yards, orchards, etc. It is 20 cts. PER RUNNING FOOT. Painted and retails at only 20 cts. PER RUNNING FOOT. Just think of it. Let us send you full particulars. We also make farm fence, poultry netting, nails and staples. The Page Wire Fence Co., Limited, Walkerville, Ont. 8

**WARR'S PATENT Steel Yoke Vises**



The weakness of all vises, made entirely of cast iron, is their tendency to break at the point where the strain is greatest, viz.: the junction of the front jaw with the slide or yoke.

This difficulty is completely overcome in WARR'S VISE, in which the yoke or slide is made of one piece of cold rolled wrought steel shafting cast into the front jaw.

This method of construction produces a vise that is practically unbreakable, of great strength and solidity; easy running, by virtue of the highly polished surface of the steel yoke; efficient and convenient in every particular.

The slide being narrow affords plenty of space on either side for the handling of long work perpendicularly, which cannot be done with other vises. Prices and all particulars on application. SOLE MAKERS:—

**The JAMES SMART MFG. CO., Limited**  
BROCKVILLE, ONTARIO, CANADA.

**"SCIOTO" FIRE BRICKS**

are the best. WHY NOT USE THEM?

More extensively imported into Canada than any others made in the United States. One million now sold for Spring delivery to Ontario. Special inducements. Write to-day.

MANUFACTURED BY

**THE SCIOTO FIRE BRICK COMPANY, - Sciotoville, Ohio, U.S.A.**

One of the oldest firms in the States

Canadian Representative: **STANYON ENGINEERING CO., 402 McKinnon Bldg., Toronto, Ont.**

Established 1834.

Incorporated 1900.

**The J. A. Gowdey Reed and Harness Mfg. Co.**

Manufacturers of

**LOOM REEDS FOR SILK, COTTON, WOOL AND LINEN WEAVING,**

Metal Reeds a Specialty.

Reeds for Carpet Weaving.

Reeds for Wire Weaving.

40 CLIFFORD STREET, PROVIDENCE, R.I.

**Schoellkopf, Hartford & Hanna Co.,**

BUFFALO, N.Y.

**Aniline Colors, Dyestuffs, Chemicals**

Manufacturers of

NEW YORK, BOSTON, PHILADELPHIA, PROVIDENCE, CHICAGO,

MILWAUKEE, CINCINNATI, KANSAS CITY, NEENAH, WATERTOWN.



Capacity  
3-32 to 1 1/4  
inches.

Style "K"

**The "NEW YANKEE" Drill Grinder**

SAVES 50 PER CENT. OF TIME IN ADJUSTMENTS

COMPLETELY  
SELF-  
CONTAINED

OUR machines require no wrench, measuring instruments or gauge saws. We have entirely done away with them. Any amount of clearance desired can be obtained instantly. Drills can be ground to do more and better work. Send for Catalogue showing 10 styles, and full explanation of machines grinding from No. 60 to 5 inches.

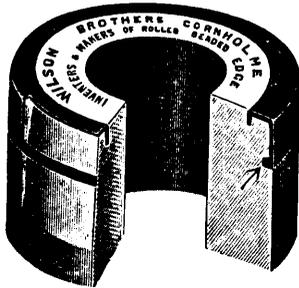
**JOHN LUMSDEN & CO., 375 St. James St. MONTREAL**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The "Keith" gas light, which attracted so much attention when used for lighting the grounds of the Glasgow Exhibition, has been selected for illuminating the avenues in the grounds of the forthcoming exhibition at Turin, Italy, "Keith" compressors and burners of

190,000 c.p. having been ordered for that purpose from the Blackman Export Co., 70 Finsbury Pavement, London, E.C., England. We understand that it is the intention of the Gas Company of Turin to place at the disposal of their customers complete equipments of the "Keith"

apparatus on sale or hire, confidently expecting that although the new light consumes but half the gas required by the ordinary incandescent mantle, yet its cheapness, combined with its extraordinary brilliancy and purity, surpassing every other known means of lighting by gas or electricity will stimulate the general application of gas lighting and thus recoup the company by an aggregate increase of consumption.



ESTABLISHED 1823  
**WILSON BROS. BOBBIN CO. LIMITED** (1900)

45 GOLD MEDALS AND DIPLOMAS

HIGH CLASS WORKMANSHIP.  
 SEVENTY YEARS' REPUTATION.

**BOBBIN AND SHUTTLE MANUFACTURERS**

Telegrams—"WILSONS, CORNHOLME,  
 ADDRESS— A B C AND A I CODES.

**Cornholme Mills, - TODMORDEN.**

BRANCH WORKS—  
**LIVERPOOL AND ST. HELENS**

OFFICE AND SHOWROOMS—  
**14 Market Place, Manchester, Eng.**

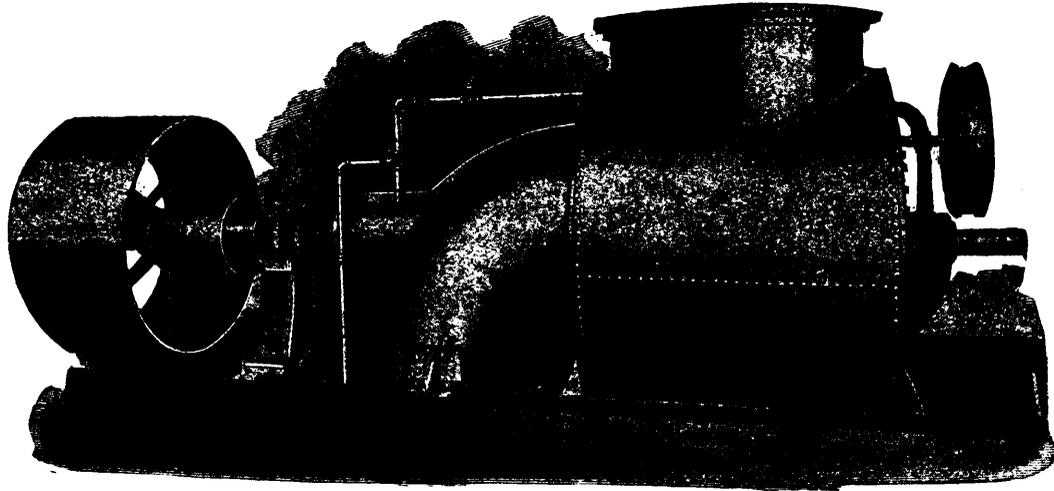


F. Sandford, Fenelon Falls, Ont., is installing an electric light plant. The order has been given to the Jones & Moore Electric Co., Toronto.

The Canada Shingle Mill Co. is erecting a large plant at Hastings, B.C. with capacity to cut about 600,000 shingles every twenty-four hours.

The Atlantic Pulp & Paper Co., Ottawa, has been incorporated with a capital of \$3,000,000 to manufacture pulp and paper. The company propose to erect a plant capable of turning out 22,000 tons of newspaper print a year. The directors include W. C. Edwards, C. H. Waterous, Brantford, Ont.; A. J. H. Eckardt, Toronto; R. H. Thompson, Buffalo, N.Y., and Mr. Wardrope, Montreal.

The Cyclone Woven Wire Fence Co., Toronto, has applied for incorporation with \$300,000 capital to manufacture wire fences, fence machines, etc. The applicants include J. H. Wilcox and Henry Buckel, of Toronto; and John Buckel, New Hamburg, Ont.



The above engraving represents a style of setting sometimes adopted in connection with our

**CROCKER PATENT TURBINE**

Under some conditions it is particularly well adapted to Pulp or Paper Mill use, also for operating Belt Driven Dynamos in Street Railway and Lighting Plants.

Remember, we undertake contracts for complete plants, built and installed, thus insuring to the purchaser uniformity, perfect adaptation of parts, and a single responsibility to be considered.

Our Bulletin No. 200 will interest owners of water power and prospective users. Free on request.

**THE JENCKES MACHINE CO.,**

28 Lansdowne Street,

**SHERBROOKE, QUE.**

BRANCH OFFICES

81 York St., Toronto.  
 Halifax, N.S.

18 Victoria Sq., Montreal.  
 Rossland and Greenwood, B.C.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# COAL JAS. H. MILNES & CO. COKE

WHOLESALE DEALERS IN  
**Best Grades of STEAM COALS.**  
**Best Grades of BLACKSMITHS' COALS.**  
**Best Grades of FOUNDRY COKES.**

Shipments made direct from Mines to any point in Canada. Write for quotations.

Head Office: 78 QUEEN ST. EAST TORONTO. Docks: Esplanade, Foot of Yonge

**THE GEE ELECTRICAL ENGINEERING CO.**

The Gee Electrical Engineering Co., Toronto, manufacturers of dynamos, motors, etc., also manufacture direct current generators, arc lamps, rheostats, switches, etc. They make a specialty of outside wiring for lighting, telephone, bells, etc. The Gould storage battery is also manufactured by them. Mr. W. Gee, the managing director of the company, possesses a thorough knowledge of the electrical business. The company now occupy the entire premises at 11 Colborne street, and arrangements are under way for further extension.

**A NEW CANADIAN INDUSTRY.**

The directors of the Wire & Cable Co., Montreal, have decided that, in addition to their large factory now under construction on Lusignan street, to erect a large office and storage building in rear of the factory, and facing on Guy street. The company, in taking possession shortly of their new factory, will, with the new plant, be enabled to undertake for the first time in Canada, the manufacture of lead cable. Owing to the particular use to be made of the new factory, it differs in construction from any yet put up in or around the city. The ground floor of the factory covers an area of thirty thousand square feet, and the first and second floors will have each an area of six thousand four hundred square feet.

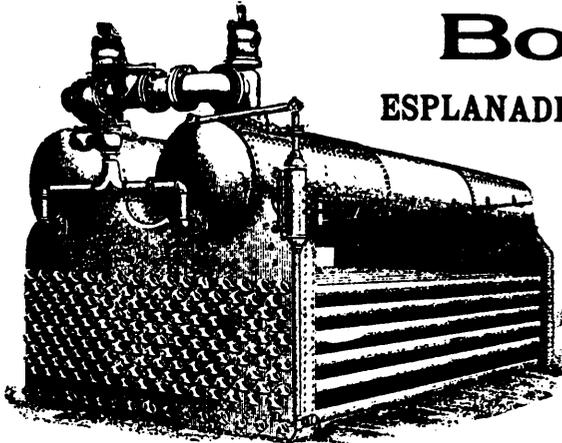
The new works, besides embracing departments for the manufacture of lead covered cables for telephone and power purposes, will also contain wire drawing and annealing departments, a rubber insulating department and a trolley wire plant. It is also the intention of the company to manufacture weather-proof

wire and cables. The upper floors will be used entirely for the covering of fine wires and the manufacture of electro magnets.

The power plant is to consist of two B. and W. 300 h.p. boilers and a Robb-Armstrong tandem compound engine directly connected to a Western Electric

## The Canadian Heine Safety Boiler Co.

JOHN J. MAIN, MANAGER.



ESPLANADE (Opp. Sherbourne St.) TORONTO

HIGH-CLASS Water Tube Steam Boilers..

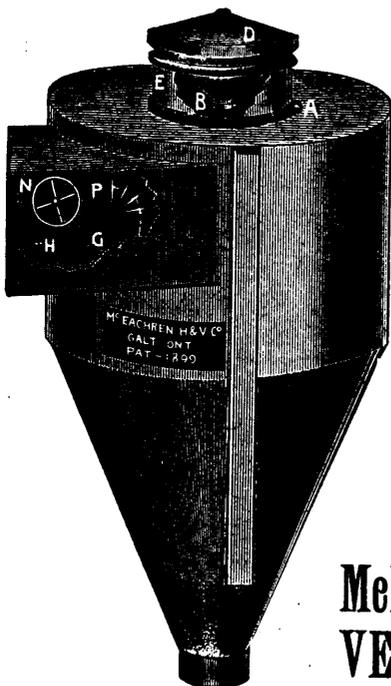
FOR ALL PRESSURES DUTIES AND FUEL

From 75 to 600 H.P. Each

**REFERENCES :**

The Toronto Electric Light Co., Limited; The T. Eaton Co., Limited; The Massey-Harris Co., Limited; The Gutta Percha Rubber & Mfg. Co.; The Wilson Publishing Co., Limited; Sunlight Soap Co.; Dominion Radiator Co.; Central Prison, Foresters' Temple, Toronto City Hall, Canada Biscuit Co.; Confederation Life Co. (all of Toronto, where Boilers may be seen working); also Orillia Asylum, Orillia, Ont., and LaPresse Publishing Co., Montreal.

N.B.—We do not make small Boilers



## Dust and Shavings Separators

FOR WOOD REFUSE

The air carrying the refuse enters the separator at the top and whirls around inside. The shavings being heavier than the air are carried by centrifugal force to the outer shell of the separator and they then take up a spiral path for the outlet at the bottom, the air passing out of the opening at the top.

Write us for prices and particulars of Separators, Fans, Etc.

**McEACHREN HEATING and VENTILATING CO., GALT, ONT., CANADA.**

IN THEIR NEW FACTORY . .

32, 34, 36, 38 and 40 DUNDAS STREET

THE . . .

**Electrical Construction Co. OF LONDON, Limited**

Beg to call the attention of their patrons to their removal to a more commodious and up-to-date factory, where, with improved facilities, they can guarantee even better attention and satisfaction than ever before.

Don't buy before getting their prices, when purchasing Dynamos, Motors, Fixtures or Supplies.

Quotations Supplied on Application.

PHONE 1103

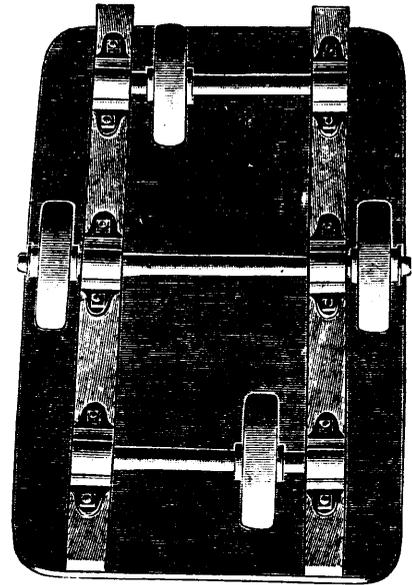
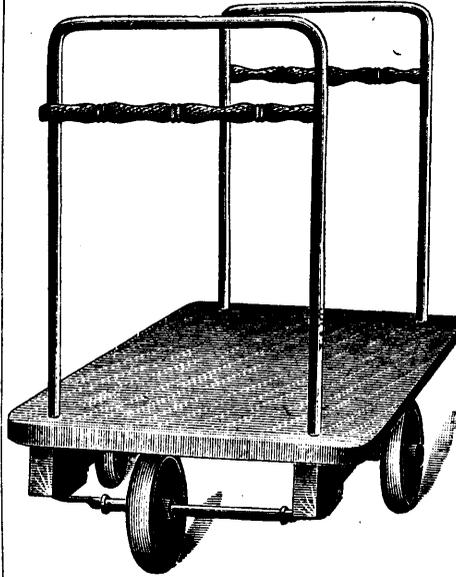
Co. generator. There will also be a Westinghouse generator set of 300 h.p. The works will contain an electric elevator, which is being specially manufactured by the Otis Elevator Co., New York. The new company will fill all contracts with the Bell Telephone Co. The Wire and Cable Co. will take possession of their new factory early in April. —Montreal Star.

#### THE SLINGSBY TRUCK.

One of the neatest and most ingenious schemes for the benefit of manufacturers, that has lately come to our notice, is a truck, two illustrations of which are here shown. A feature about this truck is, that the wheels on the centre axle are placed so far apart that great stability is given to it; another important feature being in the wheels at the ends, which in addition to rotating in the usual way, move laterally on the axles, which allow the truck to revolve like a top and turn in its own length. The truck is operated very easily, is most substantially built, will run either way, and by a simple device in the construction of the wheels do not cut the floors, which is one of the great objections to trucks of this character.

We are pleased to notice that the firm of H. C. Slingsby, of Bradford, England, who have one of the largest truck factories in the world, have lately enlarged their business and started a Can-

adian factory in Montreal, for the manufacture of all sorts of trucks, using this patented running gearing as a special feature of them. Special trucks are made for bottling and labeling, for holding bottles, for bakers, confectioners, shoe manufacturers, ware-house men, etc., and they even go so far as to manufacture a truck for the distribution of hot meals in hospitals. We understand they also make a special feature of their rubber tired wheels, which are so arranged that the rubber can wear entirely away before



the tire will come off or before the wheel will cut into the floor, as so many other rubber tired wheels do.

#### MINERAL PRODUCTION OF BRITISH COLUMBIA.

An advance report made by the provincial mineralogist of British Columbia has been issued, giving an approximate estimate of the mineral production of the Province for the year 1901. The estimate is based upon the actual returns of most

# LATHE, PLANER and SHAPER TOOLS

THE CHAMPION TOOL HOLDER, saves its cost in thirty days time.

THE WESTERN DIAMOND POINT TOOL.

THE CHAMPION CUTTING OFF TOOL.

THE SOLID HOLDER THREADING TOOL.

THE CHAMPION SQUARE THREAD TOOL.

THE CHAMPION PLANER TOOL.

THE CHAMPION EXPANDING MANDREL,

A Cylinder of Steel as flexible as India Rubber

A necessity to every machinist.

**SEND FOR CATALOGUES**

## LAURIE ENGINE CO.

*Machinery Supplies and  
Tool Warehouse*

321 ST. JAMES STREET, - - MONTREAL, QUE.

of the mines, and for those mines from which returns have not been received, it is based upon their approximate output for the past year. They are not given as the final statistics, which cannot be made up till about April 1. In calculating the value of the products, the average price for the year in the New York metal market has been used as a basis. Roughly speaking, the increase over 1900 is 25 per cent. on gross value of output of the Province. There has been an increase in the production of all except placer gold and lead. The tonnage of ore mined from lode mines has increased a little more than 57 per cent. The gross value of the copper output has increased 206 per cent. over 1900, the gain being largely in Vancouver Island mines, which have greatly developed the past year. The lode-gold output has increased 36 per cent. and silver 14 per cent. The official figures are as follows :

Mineral.	1900.		1901 (estimated).	
	Quantity.	Value.	Quantity.	Value.
<b>Gold :</b>				
Placer, ounces .....	68,986	\$1,278,724	48,204	\$892,500
Lode, ounces .....	167,153	3,453,381	227,696	4,704,200
Silver, ounces .....	8,958,175	12,309,200	4,685,718	2,624,902
Copper, pounds .....	9,997,080	1,615,289	30,736,798	4,951,698
Lead, pounds .....	68,358,621	2,691,887	50,529,260	1,970,641
Coal, tons (2,240 pounds) ..	1,439,595	4,318,785	1,529,210	4,587,630
Coke, tons (2,240 pounds) ..	85,149	425,745	134,760	673,800
Other Materials .....		251,740		309,080
<b>Total .....</b>		<b>\$16,344,751</b>		<b>\$20,713,501</b>

**CRAMP STEEL COMPANY.**

The secretary of the Cramp Steel Co., Collingwood, Ont., furnishes the following information as to the progress they are making toward the erection of their steel works. The company has purchased and paid for the following plant, which will be installed this spring :

Bessemer steel plant, consisting of two 7-ton converters, capable of turning out six hundred tons of Bessemer steel daily, three cupolas for smelting pig iron, blowing engines for converters, hydraulic pumping plant, and everything complete.

This plant, when installed, will contain valuable labor-saving devices and improvements, specially designed for our company, which will make it the most modern and up-to-date plant in the world. In an emergency the output can be raised to 800 tons of steel daily.

Also an open-hearth plant to consist of two furnaces, with an output of 100 tons of the finest quality of steel daily. The open hearth plant is designed to manufacture nickel steel, if necessary, and it will be complete and modern in all its appointments. It will have gas producers, cranes, etc., and a specially designed charging apparatus.

There will also be soaking pits, with the necessary appliances for taking care of the steel ingots as they are poured from the steel furnaces, and keeping them hot until their turn comes to be rolled down by the blooming train. In this pit furnace building there will be an ingot stripping device, which is a distinct advance on anything used for that purpose elsewhere.

The blooming train will be two high-rolls with reversing engines and hydraulic tables, capable of rolling ingots 22x22 inches square down to 4x4 inch billets. These rolls are driven by a pair of reversing engines of 2,000 h.p. The reversing and starting gear of these engines is so massive it has to be operated by hydraulic power, controlled by the engineer.

When the ingots are rolled to 4x4

inches square, they will be delivered at the end of the table to a massive hydraulic shear which will slice them off in to any desired length. These billets will be loaded on cars and shipped to rolling mills or for export, or will be run into the bar mill, adjoining.

The bar mill will have two furnaces, with waste heat boilers to raise the temperature of the billets. When heated, the billets will be rolled into flats, squares and rounds from 4x4 inches down to 3-8 inch. Three trains of rolls, driven by powerful engines, will do this. One train is three high known as an 18 inch mill. It will roll from a 36 pound rail down to inch stuff.

Another mill is what is known as a Belgan mill, 12 inch, and another 10 inch. The latter mills will look after the small stuff, and will be modern high speed, and unequalled anywhere in their class.

The power for the plant will be generated in a power house by 12 large boilers.

The machine shop will have forges, steam hammer, two of the largest and most modern type of lathes, planer, screw machines, foundry, for casting moulds, with the necessary appliances,

# FIRE-PROOF GLASS WINDOWS

THAT ARE FIRE-PROOF

These windows in a fire-proof building, complete the security, and in any building will thoroughly prevent the spread and advancement of the fiercest flames.

Better than iron shutters (even if they happened to be closed at the needed time); fire-proof glass remains intact, resisting both the intense heat of the fire and the action of water.

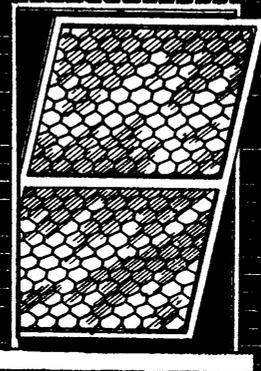
Many practical tests have proved it's efficiency.

Used in conjunction with our hollow sheet-metal frames and other fire-proof fittings, it gives the most perfect protection available.

It's adoption lessens insurance rates.

If you want to know more about "fire-proof windows," write us, it's an interesting subject.

... THE ...  
**Metallic Roofing Co.,**  
TORONTO. LIMITED.



# Zanzibar Paints

Made in all Colors

**Rust Proof.**  
**Decay Proof.**  
**Fire Proof.**

FOR  
Bridges, Roofs,  
Factory Buildings,  
Structural Iron Work,  
Warehouses, Etc.

USE  
**Zanzibar Crucible Black**  
For Smoke Stacks, Boilers, Steam Pipes,  
Furnace Cupolas, Etc.  
Extraordinary High Fire Test.  
Elastic and Durable.

Absolutely will not Blister, Peel Off or Chalk.

Manufactured by

**THE ZANZIBAR PAINT CO., Limited, TORONTO, CANADA.**

a large, standard gauge locomotive, one narrow gauge locomotive, and a locomotive crane, capable of raising 7 tons.

There will also be a laboratory building, for which an excellent plant has been purchased, drying oven buildings, office, etc., in fact everything to make a complete, modern up-to-date steel plant.

It is also the intention of the company to commence the erection of a 250-ton blast furnace early in the spring, and they are also negotiating for the purchase of a beam mill that will roll anything from a 22-inch girder down, including, 100 pound rails and girder rails for electric railways, angles and bulbs for shipbuilding and bridge work.

## THE CANADIAN GENERAL ELECTRIC CO.

At the recent annual meeting of the Canadian General Electric Co., Toronto, it was decided to apply for power to increase the capital from \$2,000,000 to \$3,000,000. The directors' report states as follows:

New buildings and plant have been added to the Peterborough works, the Montreal works have been reorganized, and a 1,200 h.p. water power secured at Peterborough. The foundry business has grown considerably, 300 men being employed, and the completion of the new plant at Toronto Junction in the summer will enable the company to handle the greatly-increased business in prospect.

The assets and liabilities are as follows:

ASSETS.	
Patents and contracts . . . .	\$190,000 00
Factory plants at Peterborough, Montreal and Toronto Junction . . . . .	710,162 43
Patterns and drawings . . . .	45,000 00
Machinery and tools . . . . .	229,980 60
Cash . . . . .	21,241 41
Accounts receivable . . . . .	430,873 13
Notes receivable . . . . .	35,057 97
Brantford St. Railway Co. . . .	120,000 00
Canada Foundry Co. stock . . . .	299,220 00
Merchandise . . . . .	638,781 22
Expenditure on contracts . . . .	58,108 23
Insurance unexpired . . . . .	3,700 00

Total . . . . . \$2,782,124 99

# Dodge Manufacturing Co.,

OF TORONTO, LIMITED

## ENGINEERS, FOUNDERS, MACHINISTS

**W**E manufacture a full line of Power Transmission Machinery, complete outfits our specialty. Our Modern Foundry, Machine Shops and Wood Shops, with a competent Engineering Staff, place us in the best position for the handling of large contracts for

### Factory and Mill Equipment.

We have the largest and most modern plant in the Dominion, exclusively devoted to the manufacture of Power Transmission Appliances. Call and see us.

ASK FOR OUR B6 CATALOGUE.

**DODGE MANUFACTURING CO., Toronto, Canada**

**LIABILITIES.**

Capital stock.....	\$1,800,000 00
(the remaining \$200,000 was sold in January.)	
Accounts payable.....	235,993 66
Canadian Bank of Commerce special (Nassau power plant and Canada Foundry purchase).....	203,451 06
Reserve Fund.....	365,000 00
Contingent account.....	100,000 00
Profit and loss.....	77,680 27
<b>Total.....</b>	<b>\$2,782,124 99</b>

The directors were re-elected as follows: W. R. Brock, M.P., president; H. P. Dwight, first vice-president; Fred-eric Nicholls, second vice-president and managing director; Hon. Geo. A. Cox, J. K. Kerr, K.C., Rodolphe Forget, W. D. Matthews, H. S. Holt, E. B. Osler, M.P., Robert Jaffray, James Ross, and Sir W. C. Van Horne.

**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.

NOTE.—Those who may wish to correspond with any of these enquirers can obtain the names and addresses by applying to the CANADIAN MANUFACTURER, Toronto. No charge for giving information. When writing refer to the numerals opposite the enquiries, and enclose two-cent postage stamp for reply.

693. A Manchester firm desires to get into communication with Canadian importers of woollen goods of the lower qualities.

694. An enquiry is made from London for particulars of good slate quarries in Canada, in working order, adjacent to ports or waterways, by an agent who can sell large quantities if prices are competitive.

695. Enquiry for roofing slates of durable quality, from Canada, has been received from a correspondent in the north of England.

696. A Hamburg, (Germany), house have asked for names of packers and exporters of dried cod, haddock, stock fish, in the Maritime provinces of Canada.

697. A Dublin grain, corn, and flour and produce broker wishes to obtain the

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34 Yonge Street, - Toronto, Canada

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Experienced travellers reach all the principal Cities and Towns in Canada.

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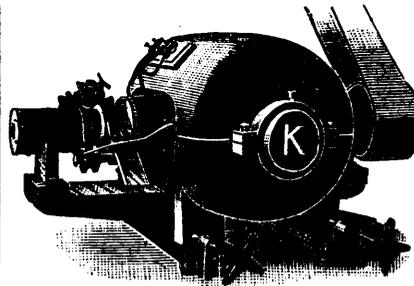
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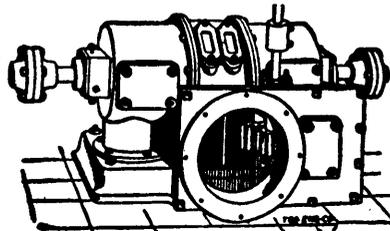


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- INDUCTION MOTORS.
- DYNAMOS for Incandescent and Arc Lighting.
- DYNAMOS for Electro-plating and Electrotyping.
- ELECTRIC CONTROLLERS for Elevators.
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Horizontal Type.

**"LITTLE GIANT" TURBINE**

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HORIZONTAL AND VERTICAL.  
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Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings.  
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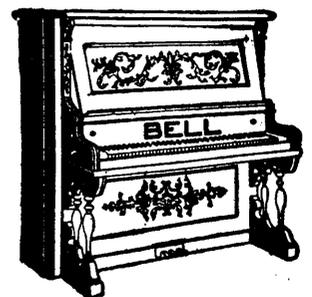
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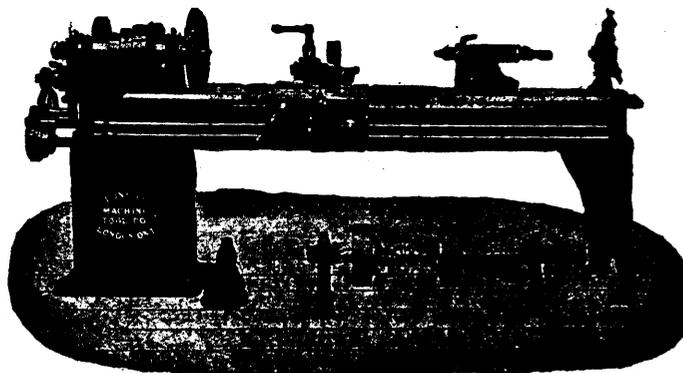
**THE BELL ORGAN AND PIANO CO., LIMITED**

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LARGEST MAKERS IN CANADA.



**The London Machine Tool Co., LONDON, ONT.**



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- LATHES,
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- PRESSES.

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CUPOLAS

## FOUNDRY EQUIPMENT

CRANES

E. A. WALLBERG, C.E.

Temple Building, TORONTO

Merchants Bank Building, MONTREAL

direct agency for a good Canadian firm of millers.

698. Enquiry has been made for names of Canadian dealers in motor-carriages and similar goods.

699. A correspondent at Cork (Ireland) has asked to be furnished with a list of millers and firms exporting oatmeal from Canada.

700. An application has been received from a Bradford, England, merchant for the names of importers of yarns, either worsted, mohair, cotton, silk or fancy.

701. An important firm of cotton-waste merchants and agents desire to get into communication with users of this material in Canada.

702. A firm of wholesale and export druggists' sundriesmen wish to hear of probable buyers in Canada of such specialties as they manufacture, tooth pastes, disinfectants, etc.

703. A forage company in Cheshire, England, ask to be furnished with the names of hay and straw exporters in Canada.

704. The makers of artistic glazed tiles, etc., who are anxious to extend

their business with Canada, desire to hear of firms willing to take up the sale of their productions.

705. A firm in the eastern counties importing roofing shingles desires to get into communication with Canadian houses shipping these goods. Size, 18 x 4 inches, with rounded corners at one end, to be packed very closely for shipment.

706. A firm of brush makers (tooth, nail and shaving) desires to be furnished with the names of large buyers of these commodities in Canada, and are also open to appoint agents in the Dominion.

707. A London firm of timber brokers are desirous of being placed in communication with some leading exporters in Canada.

708. A well-known bottling firm who only put up high class beers for export, are desirous of extending their trade with Canada, and will be open to appoint agents.

709. An important firm of wholesale and export druggists are seeking openings for an extension of their business with Canada, in chemicals, drugs, tinctures, fruit essences, sundries, and surgical instruments.

710. A military and general saddlery firm are contemplating an export business with Canada, and make enquiry respecting a possible market for the goods they manufacture.

711. An importer and broker asks for names of exporters of oatmeal, farina, peas, etc., in Canada.

712. An important firm of carriage builders are prepared to accept agencies for Canadian carriage makers and to arrange for the display of such Canadian goods at some of the leading exhibitions in the United Kingdom.

713. Enquiry is made for the addresses in Canada of lumber firms making egg cases for export, in shook; also for names of makers of fillers for egg cases.

714. A person with experience in the line, wishes to take up the representation in the United Kingdom of Canadian houses shipping whitewood picture frame mouldings and other similar wood goods.

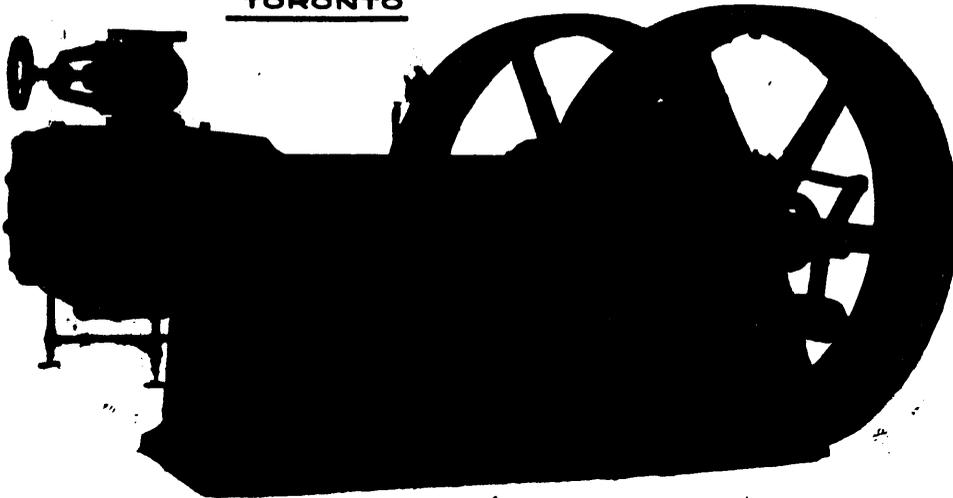
715. A Canadian firm of packers and preservers of canned fruits and vegetables desires to get into communication with a reliable house in South Africa who handle such goods.

## The A. R. Williams Machinery Co.,

LIMITED,

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IMPORTERS AND DEALERS

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OUR NEW BELL PATENT HIGH SPEED AUTOMATIC ENGINE

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GENERAL MILL  
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Lang's Patent Wire Ropes  
For Colliery and Mining Use.

WIRE ROPE of every Description  
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**BALE'S  
Fire Cement**

FOR  
LINING AND REPAIRING  
STOVES, FURNACES, RETORTS  
And all work where  
great heat is required.

**BALE & CO.,** Newgate St., LONDON, ENG.  
GAS PURIFICATION and GENERAL  
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References kindly permitted to the Editor  
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Are prepared to manufacture  
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**SAVERY'S PATENT  
SHAKE FRAMES**

FOR

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AS DESCRIBED IN

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**SAVERY'S PATENT  
COMBINED  
DRYER STEAM JOINT**

AND

**SAFETY VALVE**

AS DESCRIBED IN

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ABOUT 2,000 NOW IN USE.

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PETERBOROUGH, ONT.



Manufacturers of....

**CANOE AND SKIFFS.** Best Quality. Lowest Prices  
Send for Catalogue J.

**MARKETS.**

This Department of THE CANADIAN MANUFACTURER is devoted to the interests of the Hardware Trade.

THE CANADIAN MANUFACTURER is distributed to the Wholesale and Retail dealers in Hardware, to manufacturers of Agricultural Implements, of Iron and Wood-working Machinery, of Electrical Appliances, of Steam Engines and Boilers, to Engineers and Foundrymen, and to Dealers in Machinery and Steam Fitters' Supplies throughout Canada. There are more than 10,000 manufacturing concerns in Canada which use Steam as a Motive Power. We reach them all. Every recipient of this paper is a buyer of Hardware of one kind or another; and Advertisers will do well to bear this in mind.

Following are reports and observations relating to the markets of Canada and elsewhere, having reference to Hardware, Metals, Paints, Oils and such specialties as are usually handled by jobbers and dealers in such goods. Following these items will be found current market quotations on such goods, and the trade are requested to suggest to the publishers any improvements by which it is believed the quotations may be rendered as correct and valuable as possible.

TORONTO, March, 7, 1902.

February was indeed a dull month in all lines of trade. The snow blockade was answerable in a measure for the dullness. Wholesalers speak hopefully of the prospects for the coming season. The millinery openings began last Monday, and the number of buyers in the city was fully as large as previous years. The stocks of goods for inspection were apparently far superior to any ever shown here; the superiority being noticeable in dress goods and all kinds of fancy goods. Quotations for fall orders are still withheld by the mills, for nearly all makes of cotton goods, until the raw cotton market is settled, so that they will know how much their raw cotton will cost them. The trade in woolens so far has been the best for any season for years, particularly in fancy suitings such as checks and stripes, in worsteds, a good quality of Scotch tweeds and cheviot stripes. In dry goods travellers' orders and letter orders are exceptionally good and dealers in many cases are telegraphing to have their orders filled as quickly as possible.

In the hardware trade business continues to expand in spring lines. An increase is looked for in the next few weeks. Prices are mostly steady, showing no change. For paints and oils the demand is good. A few firms are quoting lower prices for white lead and turpentine is easier. Orders for the spring are liberal.

Locally there is plenty of money, and as a result speculation in shares is active. The banks are still charging five per cent. for call loans on choice collateral but loans are reported from private sources at 4½ per cent. The undertone of the stock market is strong, and there is a good demand for bank shares, which are well held, limiting transactions. The active speculative issue was Dominion coal, which has shown a good advance in the past ten days, selling at par in Montreal on March 3.

A despatch from Fort Frances tells of the sale of iron mining property at Steep Rock Lake. The purchasers are American capitalists, who, it is said paid \$200,000, one and a half per cent. of the amount to be paid in 30 days and the balance in six months. The property was owned by the Fort Frances Syndicate, and consisted of 25 shares. Among others who invested

was a lady who purchased one-half share for \$50, and when the division of the money is made her share will be nearly \$4,000.

For February the receipts at the Toronto Customs house amounted to \$561,025.41, compared with \$489,243.05 for the corresponding month last year, an increase of \$71,782.36. The increase is attributed to the large importations of dry goods and millinery, which have been unusually heavy this season.

An Agricultural Society in Trinidad has decided to send an exhibit of products to the Toronto Industrial next August. There is an opening for the sale of paint in Trinidad.

**BUFFALO PIG IRON MARKET.**—Office of Rogers, Brown & Co., Buffalo, N. Y., March 4, 1902.

The phenomenal conditions surrounding the pig iron market continue as pronounced as ever. It is a strong market. We have the curious spectacle of many furnaces selling as much as a dollar, and in some cases a dollar and a half per ton lower than their customers would pay and lower than others are paying to other furnaces, all done for the sake of holding

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LIMITED,

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—AND—

**BRASS FOUNDERS and FINISHERS**

Electric Supplies, Nitrous Oxide Gas

SWITCHES and SWITCHBOARDS  
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**AUTOMATIC DUPLICATING BOOK**  
that makes copies without the trouble  
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46 RICHMOND ST. W.  
Phone Main 2554 **TORONTO**

## The Bourne-Fuller Co.

**Iron, Steel,**  
**PIG IRON.**  
**Cleveland, - Ohio.**

the market steady and preventing an inflation in prices which would later react to the detriment of both buyer and seller. In this way there is a rather wide range in prices. As a rule furnaces are declining to make sales to any but their regular customers.

All business in this locality is now for the last half or last quarter of the year, with considerable tonnage booked for the first quarter of 1903. This is not through any desire of the sellers to contract their product ahead, but is the outgrowth of the wish of consumers, who, having contracted their own product, wish to secure a regular supply of their favorite brands.

**BRITISH PIG IRON MARKETS.**—Messrs. Wm. Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of February 20, 1902, quote as follows:

Since writing you last the iron market has been very strong and prices have advanced several shillings per ton.

The rise has been caused by numerous enquiries from the United States and from Canada for foundry pig iron of every description.

To-day's prices are:—No. 1 Gartsherrrie 66/6 per ton, f.o.b. Glasgow. No. 3 Gartsherrrie, 56/6 per ton, f.o.b. Glasgow. Nos. 1, 2, 3 Cumberland Hematite, 67/ per ton, f.o.b. Liverpool. Special Analysis, 72/6 per ton, f.o.b. Liverpool. Refined D.T.N. Hematite, 85/ per ton, f.o.b. Liverpool.

**AMERICAN METAL MARKET REPORTS.** The following quotations and remarks are collected from the American Metal Market, New York.

**BAR IRON**—New York. The Eastern Bar Iron Association on February 28, advanced the price of bar iron 10c per 100 lbs., the price being equal to \$1.70 base, Pittsburg. The mills of this Association are well sold ahead for three months.

**TIN.**—The February statistics promise to show up excellently, while the shipments from the East Indies will be 4,300 tons, some 300 tons more than expected, still the deliveries into consumption have been very large on the Continent during the month and there having been no Banca sale this month, visible supply will show a reduction of 1,200 to 1,500 tons.

Spot tin opened weak in London February 28 at £114 5/0 futures at £110 12/6, and after sales of 80 tons spot and 190 tons of futures, closed steady at £114 10/0 for spot, £110 10/0 for futures, making price as compared with yesterday 17/6 lower on spot and 10/0 lower on futures.

**NICKEL.**—Producers are still sold ahead for several months, and contracts for large quantities are purely a matter of negotiation. Small parcels are quoted at 60c. to 65c. per lb.

**COPPER.**—There was a sale made February 28 of 10 tons of Casting copper at 12½c. with buyer ready to take more at the same price. While the market is not active, there are signs of more disposition to buy. The metal is not easy to get at quotations. Prices, Lake 12½ to 12½c, Electrolytic, 12½c, Casting, 12½c.

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**TAR PRODUCTS.** Refined Tar, Benzole, Solvent Naptha.

**PITCH.** Carbolic Acid (Crude and Crystal), Picric and Cresylic Acids.  
**CREOSOTE.** Green Oil, Pyridine.

**NAPHTHALINE** (CRUDE, PRESSED, CRYSTAL, SUBLIMED, MARBLES.) **CYANIDES.** PRUSSIAN OF POTASH AND SODA, PRUSSIAN BLUE.

**AMMONIA** (SULPHATE, NITRATE, LIQUID, MURIATE, ANHYDROUS, CARBONATE.)

**Chemicals.** Sulphate of Copper. Chlorates of Potash and Soda. Calcium Carbide. Acetate of Soda. Wood Naptha. Acetone, Bichromates.  
**CHEMICAL MANURES.**

ALEX. GARTSHORE, President. J. G. ALLAN, Sec.-Treas. JAS. THOMSON, Vice-Pres. and Gen. Mngt.

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## CAST IRON PIPE

3 in. to 60 in. diameter.

**For Water, Gas, Culverts and Sewers**

Special Castings and all kinds of

**FLEXIBLE AND FLANGE PIPE.**

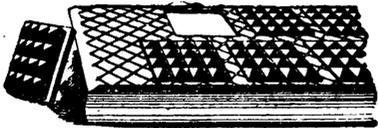
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Silent Non-Slip. Drip-Proof. Unwearable.

For Public Institutions, Warehouses, Offices, etc. The Treads consist of a metallic keeper, fitted with pieces of rubber (specially prepared), which form the wearing surface, and can be renewed when worn, by anyone in a few minutes.

**WILLIAM GOODING, Manufacturer,**  
North Road Works, Holloway, London, N. Eng.

**CLARK & DEMILL**

MANUFACTURERS OF

**Wood Working Machinery**

Our Foundry is equipped with the best material, and our Machine Shop with the Latest Improved Tools.

OFFICE AND WORKS:

Directly South of C.P.R. Station,  
**GALT, ONT.**



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Canadian Merchants and Manufacturers desiring to do business with

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will do well to consult Kelly's Directory of the **MERCHANTS, MANUFACTURERS & SHIPPERS of THE WORLD,**

(endorsed by the British Government), the 16th edition of which is about to be issued. In addition to the Classified Trade Lists of the Importers and Exporters, Merchants and Manufacturers of the United Kingdom and all principal trading centres of the World, it gives the Customs Tariffs for every country and all classes of goods. The work contains nearly 4,000 pages, and gives more information than any other work published.

**Highest Award, Gold Medal, Paris, 1900.**

For further particulars, charges, etc., apply **Kelly's Directories, Ltd. (London, Eng.)**

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W. P. DENT, MANAGER.

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**A few Extracts from LETTERS FROM BRITISH CONSULS, Etc.**

"I am constantly receiving letters of enquiry for information that in most cases could be obtained in your Directory."—*British Consulate, Uruguay.*

"The only book consulted is Kelly's Directory."—*From British Consular Return, Riga.*

"Many of these inquiries would have been rendered superfluous by a reference to Kelly's Directory."—*Report from British Consul, Genoa.*

"The Directory has been of the greatest service to me in my former Consular posts, and will, I believe, be doubly useful here."—*B. C. Chicago.*

"We beg to express our appreciation of the thorough and exhaustive character of the Directory, which covers exactly the fields we desire to reach."—*Messrs. H. M. Anthony Co., New York.*

"The copy of Kelly's Directory has already been of great use to me."—*B. V. C., Thorshavn.*

"It is a Directory which is very often consulted by the Merchants of our town."—*B. V. C., Dedegatch, Turkey.*

"Your Directory was useful to me and the merchants in general."—*British Consular Agent, Tetuan.*

**LEAD.**—London, February 28.—Market closed at £11 13/9, making price as compared with previous day 1/3 lower.

St. Louis, February 28.—Market quiet; Soft Missouri \$4.05; Chemical Hard, \$4.07 1/2.

**SPELTER.**—The New York Spelter market is firm. Very little carried in stock and little demand for spot spelter as consumers generally arrange their purchases so as to have it come from the West.

St. Louis market firm : \$4.10 asked.

**TIN PLATES.**—For prompt shipment f.o.b. mill.

**AMERICAN CHARCOAL TINS.**—Allaway grades, 14x20, 107 lbs., \$5.50; Melyn grades, 14x10, 107 lbs., \$6.25.

**AMERICAN CHARCOAL TERNES.**—Worcester grades, 14x20, 107 lbs., \$4.45; Worcester grades, 14x20, 100 lbs., \$4.30; Worcester grades, 20x28, 214 lbs., \$8.90; Worcester grades, 20x28, 200 lb., \$8.60.

**AMERICAN PLATES, f.o.b. mill futures**—Coke tins, 14x20, I. C., \$4.25; Coke tins, 14x20, 100 lbs., \$4.10; Coke tins, 14x20, 95 lbs., \$4.05; Coke tins, 14x20, 90 lbs., \$4.00; Charcoal terne, 20x28, I. C., \$8.20; Charcoal terne, 20x28, 200 lbs., \$7.90.

Usual differences for other sizes and weights.

**THE LEADING FORTUNE-TELLER.**— "That's funny," she said, puzzling over the city directory, "I'm sure that's the name Mr. Kidder gave me, but I can't find it." "What is it?" asked her friend. "Why, we were talking about fortune-tellers, and he said the best and surest one in town was named Bradstreet, but I can't find her at all."

**RATING OF RUSSIAN FIRMS.**—Under date of December 20, 1901, United States Consul-General Holloway, of St. Petersburg, says: One of the greatest hindrances to American business in Russia has been the difficulty in ascertaining the financial standing of firms soliciting credit, as commercial or inquiry agencies are unknown in this country. The usual way of prosecuting such inquiries is through special attorneys, who investigate and report on each case separately, charging according to the time occupied, viz., from 10 to 100 rubles (\$5.15 to \$51.50). I am now advised that The Bradstreet Co., through its New York or Berlin agencies, is prepared to report on the financial standing of Russian business men, corporations and firms.

**THE EARLY USES OF LEAD.**—The president of the Royal Institute of British Architects recently deplored that the modern plumber was fast losing the old skill of the craft in manipulating sheet lead into designs for statues, fountains, etc. As a boy he had received much pleasure in looking at beautiful ornamented cisterns, lead vases, and other work of like character. All this had departed, but he felt sure that every architect and person of taste was anxious to see it revived.

**SILICA BRICKS** Highest Grade for all Purposes  
**MAGNESIA BRICKS**

For Lining Smelting, Refining and Matte Furnaces, also Converters Rotary Cement Kilns.

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JAS. R. BROWN, Parliament Buildings, Toronto.  
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Persons having business with any of the Inspectors will find them at the above address.

JOHN DRYDEN, Minister of Agriculture.

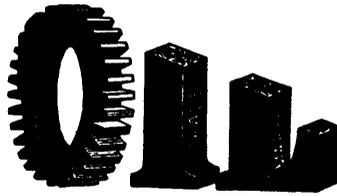
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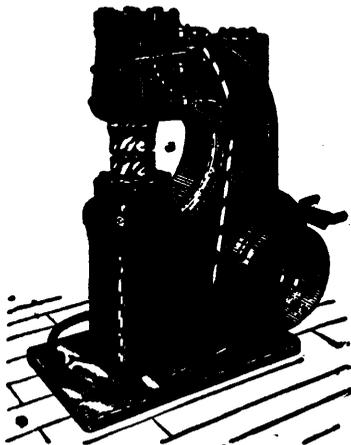
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**Vacuum HAMMER**, Patented

Is unique and unequalled by any other  
Power Hammer for its Simplicity, Power,  
Ease in Operating and Fewness of Parts;  
Nothing to Break, no Steam to Leak, no  
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LAMPS AND  
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are so numerous that no advertisement can  
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it's superiority, but our Catalogue "A"  
will detail to you a few of its pre-eminent  
features and show the various styles.

A Post Card will bring it.

**ST. CATHARINES. ONT.**

The plumber must have been almost the pioneer in the use of metals, as lead is mentioned in the Old Testament, and was used by the Egyptian fishermen to sink their nets. It was also used as a roof covering, and as safes to retain the moisture of the ground in connection with the mammoth hanging gardens of Babylon by Nebuchadnezzar (B.C. 588). The safes were made of lead cast into sheets on beds of sand, and the seams were made in the same way as at present by solder. The water supply for these gardens was also through lead pipes laid on from a main at the highest level. The water was drawn from the river Euphrates to a height of 350 feet by an engine, and delivered into a reservoir, from which the lead pipes were taken.

The Romans made lead pipe out of sheet lead, rounded up and soldered similar in every way to our hand-made pipe. The enormous use of lead pipes is clearly set forth by one Roman authority, who states that from one Roman aqueduct no less than 13,594 lead services were taken out, which had supplied the same number of buildings.

**AMERICAN PIG IRON OUTLOOK.**— Foundry iron, in which there is an open field, and for which the demand comes from a multitude of widely diverse sources, is a better barometer of general conditions than any department of the finished steel market. And it is with a view of securing stability in this trade that the leading Southern producer has refused to put up its price, although other sellers are getting \$12.50 and \$12.75 at furnace for Southern No. 2 foundry. In the Bessemer pig iron market the furnacemen have acted with like conservatism in disposing of the bulk of their product at \$16 at furnace for third quarter delivery, though \$16.50 and \$16.75 have been paid for similar delivery, and No. 2 foundry has sold at \$16.50 and as high as \$17 at furnace. In the finished material market the action of the leading interest in holding prices is well known. Premiums could have been had on rails after it became evident that three-fourths of the capacity of the mills for 1902 was taken. The action on bars is well known. Structural material is now under pressure, in view of the advances made by Eastern mills.—Iron Trade Review.

**ACETYLENE AS AN ILLUMINANT.**— Plumbers should endeavor to keep abreast of all the newest developments in acetylene gas, the great reduction in the cost of calcium carbide having brought it into larger use. The principal objection that now stands against this new light is the smell associated with the generator, an objection which will doubtless soon be met. In lighthouses acetylene has been signally successful, showing itself on the Italian coast superior to electricity in radiating power. The London 'buses are now lighted with this gas, and it has proved very successful for street lighting. It is also being largely used in mining. For country house installations it has at present no equal, and it could profitably be made more popular by the enterprising plumber.

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**LIQUID BRAZING.**—Referring to the subject of liquid brazing, which has come into such general use in the cycle trade, an English writer says that many classes of work are really done best by liquid brazing, in which the brass is maintained in the molten state in a crucible, either by means of converging blowpipe flames or a type of reverberatory furnace, and this process deserves to become more popular for all "end" work, such as liners, stay rod and fork ends; it is quick, sure and clean; burning is impossible, and there is no scaling, because there is no oxidization.

The drawback, however, appears to be the perishable nature of the plumbago crucibles, as they will rarely stand more than two heats, and the system is not adapted for odd jobs, but for long, continuous lots of work, though for some work the plumbago crucible may be dispensed with; and the writer has seen ordinary fire-brick, with a hollow scooped out, give excellent results.

Such a furnace is cheaply and easily constructed with a few fire-brick and iron gas piping for the blowpipes, the flames being projected downward at an angle from the sides, and meeting on the surface and in the centre of the bath of spelter, oxidization of the liquid mass being prevented by strewing a few lumps of sal ammoniac on the surface, and a few bits of zinc may occasionally be added to replace that which is dissipated by the heat. Liquid brazing, however, requires a high-pressure fan, constant blast and nice regulation.—The Bicycling World.

**A SYMBOL OF GOOD LUCK.**—One explanation of the use of the horseshoe as a talisman, is that the Russian peasants used to paint outside their doors a picture of the Blessed Virgin. The halo round the head they gilded. The rains and snows washed off the paint eventually, but the gilding remained in the shape of a horseshoe, and the peasants regarded it with the same reverence as they had the whole picture. From Russia the travellers brought stories of the peasants having horseshoes at their doors as a protection against evil fortune, and so the superstition of the horseshoe spread over the world. The other explanation, and probably the true one, is that the symbol is of a far more ancient origin. The Greeks and Romans, who pinned their faith to the goddess Diana, used to wear as a symbol of their loyalty to the divine huntress her symbol of the crescent moon. As the ages rolled on the crescent became a horseshoe. Whatever the origin of the belief in the horseshoe as a portent of good luck, there are hundreds of thousands of people throughout the world who would "never take the horseshoe from the door."

**TESTING STRENGTH OF GLUE.**—In making tests of the quality of glue and the adhesive strength of joints made with the glue at different states of fluidity, a good test is to take two pieces of the wood being worked, 1x4 inches in size, and glue them together with a lap of 4 inches. When set and dry, stand the block on end and try to break the joint

by striking with a heavy hammer, says the Wood-Worker. The fracture produced will determine if it is the glue or the wood that has let go and will give a fairly correct idea of the strength of the glue used.

**THE PERFECT WELD.**—The secret of a perfect weld lies in securing the proper temperature for a complete fusion of the metal. The blacksmith well knows that if the parts are in this state but little force is required in completing the union, whereas if the pieces have not been brought to the proper heat no amount of hammering will suffice to join them.

Comparative tests have shown that the strength of a weld depends upon the completeness and success with which it has been made. A good weld, as might be expected, is found to be quite as strong as the parts not welded. A poor weld is weak just in proportion as it is defective. A poor weld also may to all appearances be perfect, and it is this which leads the engineer or mechanic to distrust the weld in iron work. Since the ultimate strength of a weld then depends principally upon whether it is well or poorly made, there is but little difference in the strength of butt, lap and split welds, where each is perfect.

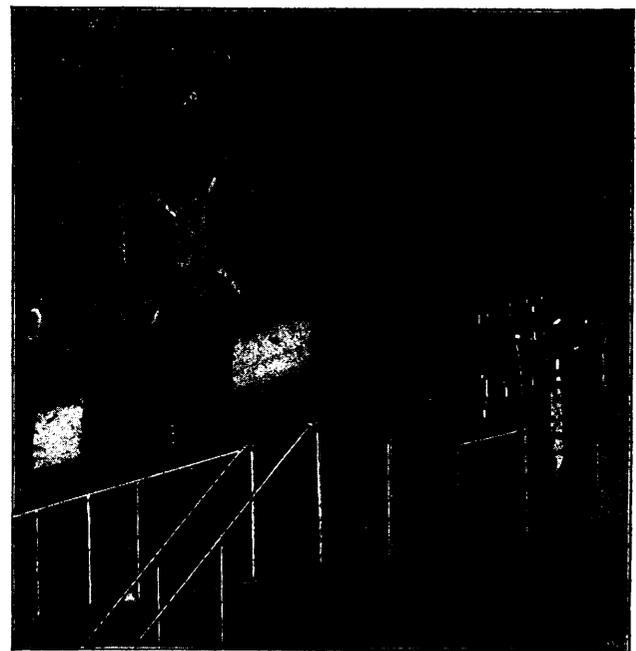
In practice it is found that the electric butt weld is superior to others, showing that strength results less from the kind of weld than from the perfect fusion of iron. In this process the welding temperature is attained by the transformation of electrical energy of high current

# WHAT IS THE USE of BUILDING A CHIMNEY ?

WHEN

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- COSTS** only one-third as much
- BURNS** cheap fuel
- INCREASES** boiler capacity
- RESPONDS** instantly to sudden demands for more steam
- Is **INDEPENDENT** of wind or weather
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ALL FURNACE MATERIAL

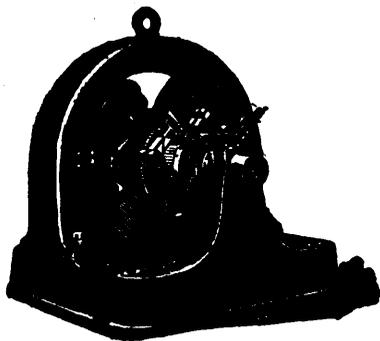
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CLEVELAND, O.

SEND FOR  
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Decided improvement. Less friction. Can be changed from a roller to a three-wheel cutter. Extra wheels in the handle. Send for catalog.  
TRIMONT MFG. CO., Roxbury, Mass., U.S.A.

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50-Horse Power  
Induction Motor

7,200 Alternations, 400 Volts, 2-Phase.

Complete with transformers and auto-starter.

T. & H. ELECTRIC CO.,

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strength, and opportunity is easily afforded of watching the iron and determining when the proper degree of heat has been reached. When making a lap or split weld at the forge no such careful inspection is possible, and hence it is that these welds as a rule are more liable to be defective than the butt weld electrically made.

THE SPARSE DISTRIBUTION OF TIN.—In one of the recent publications of the Geological Survey of Australasia the writer calls special attention to the singular fact—well known to metallurgists though not to the non-expert—that tin is the most sparingly distributed metal in common use. While there is scarcely a country in the world in which gold might not be profitably obtained, or from which it has not been obtained in the past, there are at the present time probably not more than a dozen districts in the world from which tin is obtained. The tin deposits of Cornwall, famed in history as the source from which the Phoenicians obtained their tin supplies, and which have yielded immense quantities continuously down to the present time, are now practically exhausted, and the same may be said of the condition of the ore deposits of Bohemia, Tuscany, Southern Spain, and the Pyrenees.

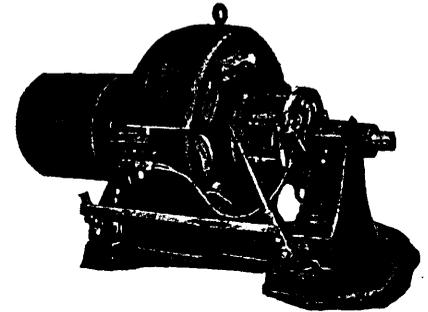
In all the vast area of Asia but two districts are known in which workable deposits of tin exist; namely, the Hunan district of China and the Straits Settlement and adjacent principalities, from the latter of which by far the largest quantity of the metal has been obtained for many years.

Thus far no workable tin deposit has been discovered in Africa. In North America at present there is not a single tin mine in operation, though promising deposits have been located in at least three widely separated localities, viz.: Virginia, Dakota, and California, which, however, proved unprofitable. In Mexico extensive deposits of tin are known to exist in the province of Durango, which one day, when facilities for transportation are provided, will doubtless add greatly to the world's supply. At present, however, they remain untouched. Brazil, Bolivia, and Peru in South America have paying tin ground, but the yield thus far is comparatively small and is confined to the two last-named States. Lastly, Australasia is the source of a considerable supply of tin from lately discovered deposits in Australia and New Zealand. At present the product is only about one-tenth that of the Straits, but it is increasing.

AS TO BROOMS.—Seventy-five delegates of the Broom Manufacturers' Association of the United States and Canada in Chicago began a discussion that it was hoped would result in a horizontal raise of at least 10 per cent. in the price of brooms. The Association, which represents almost 90 per cent. of the broom output of the country, was called to this special meeting for the purpose of getting better prices for brooms, an advance being necessitated, it is explained, by the recent increase in the cost of broom corn.

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ELECTRICAL CONTRACTORS



DYNAMOS, TELEPHONES, SLOW  
SPEED MOTORS, MOTORS, SUPPLIES,  
DIRECT CONNECTED DYNAMOS.

We manufacture Direct Current Machinery in all sizes and for any purpose.

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## "WEBER" VALVES

ARE THE GENUINE  
VALVES OF THAT  
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ALL OTHERS  
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BE SURE AND GET  
THOSE MADE BY

THE KERR ENGINE CO.

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TORONTO.

JOHN A. FULTON, Gen'l Manager Eastern Canada,  
MONTREAL.

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**BUSINESS CHANGES.**

FROM BRADSTREETS.

**ONTARIO.**

BAYFIELD—Wm. Jowitz, saw mill, succeeded by Mustard & Son.  
 DUNNVILLE—Dunnville Planing Mills Co., partially burned.  
 HUNTSVILLE—Bailey Bros., saw mill, advertised business for sale.  
 LONDON—D. S. Perrin & Co., mfrs. biscuits and confec., obtained charter.  
 MERLIN—George Peters, planing mill, assigned.  
 MERRITTON—E. H. Phelps, & Co., mfrs. carriage woodwork, loss by fire.  
 NEW HAMBURG—New Hamburg Mfg. Co., agricultural implements, burned out.  
 ORONO—G. H. Linton, foundry, removing to Bowmanville.  
 OSHAWA—Oshawa Canning Co., obtained charter.  
 OWEN SOUND—Taylor & Pringle Co., obtained charter.  
 PETERBOROUGH—Dominion Cereal Co., obtained charter.  
 PORT ELGIN—Dominion Harness Co., obtained charter.  
 TORONTO—American Tire Co., bicycle sundries and sporting goods, winding-up, E. R. C. Clarkson, liquidator.  
 Crown Whitewear Co., obtained charter.  
 Enterprise Specialty Co., obtained charter.  
 Dominion Show Case Co., dissolved partnership, Alex. T. Darragh, retired.  
 Imperial Plaster Co., obtained charter.  
 John Fensom, mfr. elevators, loss by fire.  
 Menzie Mfg. Co., window shades, partially burned out.  
 Merchants Dyeing & Finishing Co., factory burned out.  
 Toronto Cold Storage Co., plant, etc., sold.  
 Winton & Leydon, mfrs. shirts, stock damaged by water.  
 SAULT STE MARIE—International Lumber Co., obtained charter.  
 STRATFORD—Cyclone Woven Wire Fence Co., seeking incorporation.  
 WINGHAM—National Iron Works, plant, etc., to be sold by auction.

**QUEBEC.**

MONTREAL—Alpha Electric Mfg. Co., electrical supplies, etc., R. E. T. Pringle, registered.  
 Canadian Spool Cotton Co., registered.  
 Freyseng Cork Co., registered.  
 International Linseed Co., applied for charter.  
 James McCreedy Co., mfr. boots and shoes, obtained charter.  
 Metallic Roofing Co., registered.  
 Montreal Union Bridge Co., applying for charter.  
 Parent Shoe Co., mfrs. boots and shoes, etc., registered.  
 Page-Hersey Iron Tube Co., voluntary liquidation.  
 Pillow & Hersey Mfg. Co., mfrs. nails, etc., John A. Pillow, president, deceased.  
 Hiram L. Piper Co., applying for incorporation.  
 Sleeper Engine Co., applying for charter.  
 Sun Light Gas Co., applying for charter.  
 Trethewey Train Piper-Copuler Co., applying for charter.  
 Virtue Bottling Co., dissolved.  
 Zozo Co., mfrs. stove polish, registered.  
 ST. GERMAIN—Gregoire & Bourque, saw and grist mills, dissolved.  
 VICTORIAVILLE—Arthabaska Water & Power Co., obtained charter.  
 WARWICK—Warwick Overall Co., registered.  
 WARDEN—Berry & Wilson, foundry, dissolved.

**NEW BRUNSWICK.**

ESRAELON—Gilmour Bros., grist and saw mill, burned out.  
 FREDERICTON—Fraser Electric Co., applying for incorporation.  
 HARTLAND—Shaw & Boyer, tanners, dissolved partnership.  
 ST. JOHN—St. John Foundry Co., applying for incorporation.  
 W. H. Fowler, grist mill, succeeded by St. John Milling Co.  
 F. C. Colwell Candy Co., mfrs. candy, sold to J. R. Woodburn.  
 St. John Milling Co., incorporated.

**NOVA SCOTIA.**

AMHERST—Rhodes, Curry & Co., erecting shop burned.  
 BRIDGEWATER—Bridgewater Power Co., sold out to the town.  
 GLACE BAY—Dimock, Aldred, Shand & Co., planing mill, advertised for sale.  
 HALIFAX—James Dempster & Co., planing mill, James Dempster, sole proprietor.  
 KENTVILLE—Cornwallis Valley Packing Co., advertised for sale.  
 YARMOUTH—Cosmos Cotton Co., applying for incorporation.

**MANITOBA.**

MORDEN—Dormer & McGilvery, foundry, dissolved.  
 RUSSELL—Russell Farmers Elevator Co., applying for incorporation.  
 SWAN RIVER—Swan River Lumber Co., dissolved.

**NORTH-WEST TERRITORIES.**

WOLSELEY—Wolseley Farmers Elevator Co., incorporated.

Main Factory—BRADFORD, ENG.

Main Showrooms—LONDON, ENG.

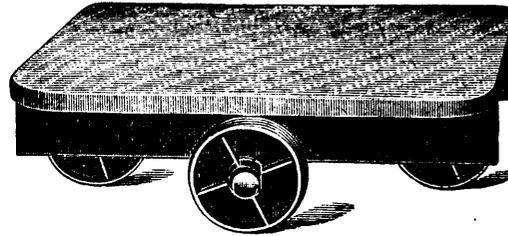
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**H. C. SLINGSBY for Canada, Factory—MONTREAL—Office**

We manufacture Hand Trucks for every imaginable purpose, all on the famous Slingsby patent sliding wheel system. Simply tell us what you need.

We make every truck that leaves our factory advertise us.

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A TOP.  
RUNS  
EITHER  
WAY.



WITH OR  
WITHOUT  
RUBBER TIRES.  
EASIEST  
RUNNING  
TRUCK IN  
EXISTENCE.

End Wheels Slide  
on Axle.

**DIXON'S** DOES  
**TWO THINGS**



NOTHING  
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AND DOES THEM  
THOROUGHLY  
STOPS THE BELT  
FROM SLIPPING.  
PLEASES THE MAN  
WHO USES IT.

SAMPLE SENT FREE.  
SEND FOR ONE.

**JOSEPH DIXON CRUCIBLE CO.,** JERSEY CITY, N.J.  
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**Toronto Elevator Co.**

**MILLWRIGHTS AND  
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Church, 35 cents per lb.  
Cow, 60% discount.  
Door, \$5.50 to \$12 per doz.  
Farm, \$1.75 to \$4.50 each.

**BELLOWS.**—Duty 25%.  
Blacksmiths', Canadian, 10% discount; Amer., 50% discount.  
Moulders', \$9.50 to \$15 per doz.

**BELTING (Leather).**—Duty 20%.  
Amer., Hoyt's, regular, 35% discount.  
Canadian, 55% discount.

**BELTING (Rubber).**—Duty 20%.  
50 to 60% discount.

**BITS.**—Duty 30%.  
Countersink, \$1.50 per doz.  
Gimlet, U.S., \$1 per doz.  
Reamer, \$1.50 per doz.

**BLANKETS.**—Duty 35%.  
Horse, \$18 to \$36 per doz.

**BLOCKS.**—Duty 30%.  
Gin, \$3.50 to \$5 each.  
Hyper Acme, 15% discount.  
Weston Chain, 25 "  
Wood Pulley, 60% discount.  
Wrought Iron, 25 "

**BLUE STONE.**  
Cask lots, for spraying, 7 cents per lb.  
100-lb. lots, for spraying, 7½ cents per lb.

**BOLTS.**—Duty ½ cents lb., & 25%.  
Bolt Ends, 62½% discount.  
Carriage, 60 "  
Coach Screws, 70 "  
Elevator Bolts, 45% discount.  
Machine, 60 "  
Plow, 60 "  
Shaft, 45 "  
Sink, 50 "  
Sleigh Shoe, 72½ "  
Stove, 60 "  
Tire, 55 "

**BOOT, CAULKS.**—Duty 20%.  
Small or Medium, ball, \$4.25 per M.  
Heel, \$4.50 per M.

**BOOT HEELS or Lifts (Leather).**—Duty 25%.  
Large Size, \$1.15 doz. pairs.  
Medium Size, \$1.05 doz. pairs.

**BOOT HEELS (Rubber).**—Duty 35%.  
Sizes 6 to 11 (Men's), \$3.50 doz. pairs.  
" 4 to 5 (Boy's), \$3.35 "  
" 0 to 3 (Women's), \$3.25 doz. pair.

**BOOT SOLES (Leather).**—Duty 25%.  
Heavy, \$3.60 doz. pairs.  
Medium, \$2.90 "

**BORAX.**  
Lump, 8 cents per lb.  
Powdered, 10 cents per lb.

**BRACES AND BITS (Carpenters).**—Duty 30%.  
Barber's best, 70 and 10% discount.  
Spofford's, 50 and 5% discount.  
Improved, 50 and 5% discount.

**BRICK (Fire).**—Duty 20%.  
Circular, \$35 per M.  
Square, \$30 per M.

**BRUSHES.**—Duty 25%.  
Canadian list, 50% discount.

**BUCKLES.**—Duty 30%.  
Double Grip Trace, three loop, tinned and japanned, put up a dozen in a box, 14", 55 cents per doz.; 14", 65 cents per doz.  
Harness, japanned or tinned, 12 cents per lb.  
Shoe, japanned or tinned, 12 cents per lb.

**BUTTS.**—Duty 30%.  
Cast Butts, 60% discount.  
Loose Pin, Bronze, 60 cents to \$2 per pair.  
Loose Pin, B. Bronze, 30 cents to \$1 per pair.  
Loose Pin, wrought, 50% discount.  
Wrought Brass, 50 "  
Wrought Iron, 60 "

**CANT DOGS.**—Duty 30%.  
\$10 per doz.

**CARBIDE, Bicycle.**—Duty 25%.  
In Cases containing 2 doz. 1 lb. cans, \$1.75.  
" " " 2 " " " 2.75.  
" " " 1 " " " 3.00.  
In Cans " 100 lbs., \$3.25.

**CASTINGS (Iron).**—Duty 30%.  
Carriage, in 5 ton lots, 5 cents per lb.  
" 3 " " 5½ " "  
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" 1 " " 5½ " "  
" ½ " " 5½ " "  
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**CASTINGS (Brass).**—Duty 20%.  
21 to 25 cents per lb.

**CASTINGS (Phosphor Bronze).**—Duty 20%.  
22 cents per lb.

**CASTORS.**—Duty 30%.  
Bed, 55% discount.  
Plate, 55 "  
Truck, Payson's, 60% discount.

**CEMENT.**—Duty 12½ cents per 100 lbs.  
Belgian, Portland, \$2.50 to \$2.75.  
Canadian, hydraulic, \$1.25 to \$1.50.  
Canadian, Portland:  
Rathbun's, "Star," \$2.35 to \$2.75.  
" "Beaver," \$2.10 to \$2.50.  
" "Ensign," \$1.90 to \$2.30.  
The smaller figures represent car load lots, and the larger less than car loads, f.o.b., Toronto.  
English, Portland, \$3.

**CHALK.**  
Carpenters', colored, 45 to 75 cents per gross.  
Crayon, 14 to 18 cents per gross.  
Red, 5 to 6 cents per lb.  
White Lump, 60 to 65 cents per 100 lbs.

**CHAIN.**—Duty 5%.  
Brass, Jack, 30% discount.  
Coil, 3-16, \$11.00 per 100 lb.; ½, \$8.75 per 100 lbs.; 5-16, \$5.50 per 100 lbs.; ¾, \$4.90 per 100 lbs.; 1, \$4.40 per 100 lbs.; 1½, \$4.00 per 100 lbs.; 2, \$3.90 per 100 lbs.  
Iron, Jack, 25% discount.  
Safety, 55 "

**CHISELS.**—Duty 30%.  
Calking, Socket, Framing and Firmer.  
P.S. & W. Extra, 60, 10 & 5% discount.  
Warnock's, 70% discount.

**CLEAVISES.**—Duty 30%.  
Screw, \$2.50 per doz.

**COLORS.**—In oil, see Paints.  
" —Dry, see Paints.

**CORD.**—Duty 25%.  
Sash, Silver Lake (A), 50 cents per lb. (B), cents per lb.  
Baltic, 25 cents per lb.  
Hercules, 30 cents per lb.

**COTTON DUCK.**—Duty 22½%.  
36 in. wide, 38 cents per yd.  
48 in. wide, 45 cents per yd.  
60 in. wide, 57 cents per yd.

**CROW BARS.**—Duty 30%.  
5 cents per lb.

**CRUCIBLES.**  
Dixon's, 7 cents per number.

**DRILLS.**—Duty 25%.  
Blacksmiths' \$6 to \$15 each.  
Jardine's, \$7.50 to \$20 each.

**DYES (Aniline).**

**DYNAMITE.**  
36 to 50 cents per lb.

**EMERY.**  
Coarse, 7 cents per lb.  
Fine, 5 cents per lb.

**EMERY CLOTH.**—Duty 25%.  
Beader & Adamson, 40% discount.

**EMERY HONES.**—Duty 25%.  
\$3 to \$5 per doz.

**EMERY STEELS.**—Duty 25%.  
\$2 per doz.

**EMERY WHEELS.**—Duty 25%.  
65% discount.

**EXPANDERS.**—Duty 30%.  
Tube, Dudgeon, 33½% discount.

**FAUCETS.**—Duty 30%.  
Brass, \$2.50 to \$5 per doz.  
Wood, 60c. to \$1.00 per doz.

**FENCING.**  
Barb Wire, \$3.05 per 100 lbs.

**FENCING (Wire).**—Duty 15%.  
Galvanized, barb, f.o.b. Toronto, \$3.05.  
Galvanized, plain twist, f.o.b. Toronto, \$3.05.  
Galvanized, barb, f.o.b. Cleveland, \$2.82½ in less than car lots, and \$2.70 in car lots.  
Mesh, 54x104, 20 rod rolls 55% discount, Can. list.  
" 4 x8, 20 " 50 & 5% "  
" 3 x6, 20 " 55 & 5% "

**FERRULES.**—Duty 30%.  
Tool handle, 5c. & 6c. per lb.

**FILES.**—Duty 30%.  
Black Diamond, 50 and 10% discount.  
Globe, 70% discount.  
Grobet, net.  
Jowitt's, 25% discount.  
Nicholson, 50 & 10% discount.  
Stubbs', 15% discount.

**FITTINGS (Pipe).**—Duty 30%.  
Bushings, 55% discount.  
Cast Iron, 55% discount.  
Cocks, 60 "  
Elbows, tees, crosses, couplings, lock nuts, return bends, 50% discount.  
Flanges, 55% discount.  
Nipples, 55 "  
Plugs, 55 "  
Unions, 55 "  
Wrought Iron, 50% discount.

**FLUE SCRAPERS.**—Duty 30%.  
Engineers' Favorite, 40% discount.  
Inglis, 20% discount.  
Wire, 50 "

**FORKS, HOES AND RAKES.**—Duty 25%.  
50, 10 and 5% discount.

**FUSE.**  
Blasting, Single tape, \$3.75 per M ft.  
" Double tape, \$5 per M ft.

**GASKETS.**—Duty 35%.  
Rubber Insertion, 60 cents lb.

**GAUGE GLASSES.**—Duty 30%.  
Water, 25% discount.

**GAUGES.**—Duty 30%.  
Steam, 50% discount.

**GLASS—Duty 20%. (Window).**  
Glass Demijohns or carboys, empty or filled, bottles, decanters, flasks, phials, glass jars, lamp chimneys, glass shades or globes, cut, pressed or moulded crystal or glass tableware, decorated or not, and blown glass tableware—Duty 30%.

**GLASS LAMP CHIMNEYS.**—Duty 30%.  
Common Crimp, per doz. O, 43 cents.  
" " " A, 45 "  
" " " B, 65 "  
Lead Glass, " " A, 50 "  
" " " B, 75 "

**FRUIT JARS.**—Duty 30%.  
Standard-pints, \$7.25 per gross.  
quarts, \$7.75 per gross.  
" half gal., \$10.00 per gross.  
Imperial pints, \$7.75 per gross.  
quarts, \$8.75 per gross.  
" half gal., \$12.00 per gross.

**GLUE.**—Duty 25%.  
Cabinet, sheet, 12 to 13 cents per lb.  
Common, 8½ to 9 cents per lb.  
Gelatine, 22 to 30 cents per lb.  
Strip, 18 to 20 cents per lb.  
White, extra, 18 to 20 cents per lb.

**GOVERNORS.**—Duty 25%.  
Gardners', 25% discount.

**GRANITEWARE.**—Duty 35%.  
Firsts, 50% discount.

**GRAIN CRADLES.**—Duty 25%.  
With Scythes complete \$33 per doz.  
Without scythes, \$18.50.

**GRINDSTONES.**—Duty 25%.  
Large, \$1.75 per 100 lbs.  
Mounted, \$3 to \$3.50 each.  
Small, \$1.50 per 100 lbs.

**HALTER MOUNTINGS.**—Duty 30%.  
1x1¼ inch, 10c. per lb.  
(Evans), 1x1¼ in., doz. set packages, \$3.00 per gross.

**HALTERS.**—Duty 30%.  
Leather, 1 in. strap, \$3.87½ to \$4 per doz.  
Leather, 1½ in. strap, \$5.15 to \$5.20 per doz.  
Rope, ½, \$9 per gross.  
Rope, ¾ to 1, \$11 per gross.  
Web, \$1.87 to \$2.45 per doz.

**HAMMERS.**—Duty 30%.  
Blacksmiths', 10 cents per lb.  
Carpenters', Madocks', \$6.40 to \$8.75 per doz.  
Carpenters', Warnock's, \$4 to \$7.50 per doz.  
Machinists', 22 cents per lb.  
Sledge, 10 cents per lb.  
Tack, 60 cents to \$1.20 per doz.  
Tinners', \$4 to \$6.50 per doz.

**HANDLES.**—Duty 25%.  
Axe, \$1.50 to \$2.50 per doz.  
Chisel, \$3.50 to \$5 per gross.  
Cross-cut saw, \$2 to \$3 per doz.  
File, \$2 to \$2.50 per gross.  
Hammer, 50 cents to \$2 per doz.  
Pick, \$1.50 to \$2.50 per doz.  
Plane, \$3.50 per gross.

**HANGERS.**—Duty 30%.  
Barn Door, round groove, \$1.50 to \$6.50 per doz.  
Parlor door, \$3 to \$6 per set.

**HARVEST TOOLS.**—Duty 25%.  
Forks, 50 & 10% discount.  
Rakes, 50 & 10 "  
Hoes, etc., 50 & 10 "

**HATCHETS.**—Duty 30%.  
Canadian, 40 to 42½% discount.

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**HAY KNIVES.**—Duty 25%.  
50, 10 and 5% discount.

**HINGES.**—Duty  $\frac{1}{2}$  cents per lb., & 25%.  
Heavy T and strap, 4 in., 64 cents per lb.  
" " " 5 in., 61 " " "  
" " " 6 in., 6 " " "  
" " " 8 in., 5 $\frac{1}{2}$  " " "  
" " " 10 in., 5 $\frac{1}{4}$  " " "  
Light T and strap, 65 & 5 off.  
Screw hook and hinge, 6 to 12 in., \$4.50 per 100 lbs.; 14 in. up, \$3.50.  
Spring, \$12 per gross pairs.

**HOOKS.**—Duty 30%.  
Brush, \$7.50 to \$9.  
Reaping, 50, 10 and 5% discount.  
Chain, wrought, round or grab, \$3 & \$4.50 per doz.  
Lumber Piling, \$7 to \$19 per doz.  
Malleable, wardrobe, \$1.50 to \$2.50 per gross.  
Wire, \$1.25 to \$2

**HORSE NAILS.**—Duty 30%.—See Nails

**HORSE SHOES.**—Duty 30%.  
Lt. Med. & H., \$3.40 per keg.  
Snow, \$3.95 per keg.  
Steel, \$3.80 to \$5.25 per keg.  
Toe weight steel, \$6.15 per keg.

**HOSE.**—Duty 35%.  
City Standard, 70% discount.  
Phoenix, 60% discount.

**INJECTORS.**—Duty 30%.  
Pemberthy, 65% discount.  
I. J. C., 65% discount.

**IRON.**—See Metals.

**JACKS.**—Duty %.  
Lifting, 40% discount.

**KNIVES.**—Duty 30%.  
Butcher, \$2 to \$5 per doz.  
Pocket, \$1 to \$5 per doz.

**KNOBS.**—Duty 30%.  
Door, Bronze, \$7 to \$12 per doz.  
" White Porcelain, 90 cents per doz.  
" Wood, \$4.50 per doz.

**LACING.**—Duty 15%.  
Belt (Raw Hide Cuts), \$1 per lb.  
" (Leather Side Cuts), 75 cents per lb.

**LADDERS.**—Duty 25%.  
Step, 10 cents per foot.  
Rung, 10 cents per foot.

**LAND ROLLERS.**—Duty 20%.  
\$12 to \$15 each.

**LANTERNS.**—Duty 30%.  
Cold Blast, \$7 per doz.  
Dashboard, cold blast, \$9 per doz.

**LAWN MOWERS.**—Duty 35%.  
Pennsylvania, 50% discount.  
Stearns, 50 " "  
Woodyatt, 40 " "

**LEAD (Bar and Strip).**—Duty 25%.—See Metals.  
Lead, pig.—See Metals.

**LEAD.**—Duty 5%.  
Red and White, dry.—See Paints.

**LINES (Cotton).**—Duty 25%.  
Chalk, \$2 to \$3.50 per gross.  
Wire, clothes, \$2.50 to \$4.50 per M ft.

**LOCKS.**—Duty 30%.  
Cupboard, \$1.50 per doz. up.  
Desk, \$1.50 per doz. up.  
Drawer, \$1 per doz. up.  
Padlocks, 75 cents per doz. up.  
Rim and Mortise, Peterboro, \$1.50 per doz. up.  
Amer., \$1.50 per doz. up.

**MALLEABLES.**—Duty 30%. See Castings.

**MALLETS.**—Duty 30%.  
Carpenters', hickory, \$1.25 to \$3.75 per doz.  
Caulking, 60 cents to \$2 each.  
Lignum Vitae, \$3.85 to \$5 per doz.  
Tinsmiths', \$1.25 to \$1.50 per doz.

**MATTOCKS.**—Duty 30%.  
Canadian, \$5.50 to \$6.50 per doz.

**MEAT CUTTERS.**—Duty 30%.  
Amer., 25 to 30% discount.  
German, 15% discount.

**METALS.**  
Ingots.—Aluminium, 35 to 50 cents per lb.  
" Antimony (Cookson's), 10 $\frac{1}{2}$  to 11 cents per lb.  
" Copper, "English," 18 cents per lb.  
" " Bar, 25 cents per lb.  
" Tin, "Lamb & Flag," 32 cents per lb.  
" " Straits, 32 cents per lb.  
" " Bar, 33 cents per lb.  
" Zinc, 6 to 6 $\frac{1}{2}$  cents per lb.; sheets, 7 cents per lb.

**METALS—Continued.**

Babbit Metal (duty 10%).  
Lewis, 7 to 10 cents per lb.  
Magnolia, 25 cents per lb.  
Post's Zero, 25 cents per lb.  
Spooners' Copperine, No. 2, 12 $\frac{1}{2}$  cents per lb., finest, 25 cents per lb.  
Syracuse Smelting Works, dynamo, 29 cents per lb.; special, 25 cents per lb.

**Sheets, Black, Duty \$7 per ton.**  
" 10—\$2.65, 100 lbs.  
" 12—\$2.75 " "  
" 14—\$3.10 " "  
**Sheets, Black, Duty 5%.**  
" 17—\$3.10, 100 lbs.  
" 18—\$3.20 " "  
" 20—\$3.25 " "  
" 22—\$3.30 " "  
" 24—\$3.50 " "  
" 26—\$3.75 " "  
" 28—\$4.00 " "

**Sheets, Tinned—7 $\frac{1}{2}$  cents per lb., Base price.**  
**Sheets, Galvanized Iron.**  
" 17—\$3.80 per 100 lbs.  
" 18—\$3.90 " "  
" 20—\$3.90 " "  
" 22 to 24—\$4.10 per 100 lb.  
" 18 to 24—\$4.50 " "  
" 26—\$4.25 per 100 lb.  
" 28—\$4.50 " "  
" 16—(Queen Head), \$3.90 per 100 lb.  
" 18-22-24—(Queen's Head), \$4.15 per 100 lb.  
" 26—\$4.40 per 100 lb.  
" 28—\$4.65 " "

**Sheets, Corrugated—Galv., \$4.50 per 100 sq. ft.**  
**Shafting, Bright Steel.—\$3.50 per 100 lb.**  
**Shingles, Galv. Iron, Ordinary, \$4.90 per sq.**  
" " " Medium, \$5.45 " "  
" " " Best, \$5.80 " "  
" " " Painted Steel, Ordinary, \$3.15 per sq.  
" " " " Medium, \$3.35 " "  
" " " " Best, \$5.80 " "

**Iron (duty \$7 per ton).**  
" Angle.—\$2.75 per 100 lb.  
" Bar (Common).—\$1.95 @ \$2.05.  
" Bar, "Swedes."—\$4.50 per 100 lb.  
" "Lowmoor."—\$6.50 per 100 lb.  
" Refined Bar.—\$2.60 per 100 lb.  
**Iron, Planished Sheet (duty 5%).**  
" "A"—\$6.00 per 100.  
" "B"—\$5.00 " "  
" "Russia"—\$10.00 per 100 lb.

**Pig Lead (duty 15%).—Domestic, \$3.75 per 100 lb;** pigs, imported, \$4.25 per 100 lb.; bars, \$5 per 100 lb.; sheets, \$5.50 per 100 lb.

**Solder bar (duty 25%).—1st, refined, 18 cents per lb.;** half-and-half, 18 cents per lb.

**Iron, Pig (duty \$2.50 per net ton). \$16.50 @ \$17 per ton.**  
**Iron, English Horse Shoe.—\$2.85 per 100 lb.**  
**Iron, Band.—\$2.05 per 100 lb.**  
**Iron, Hoop.—\$2.90 per 100 lb.**  
**Beams, Steel.—\$3 per 100 lb.**  
**Rods.—Brass, 24 cents per lb., base price.**  
**Rails, Small Steel.—\$3 per 100 lb.**  
**Steel, Cultivator.—\$4.50 per 100 lb.**  
" Channel.—\$3 to \$4 per 100 lb.  
" "Firths."—12 cents per lb.  
" "Crescent."—9 cents per lb.  
" Cant Hook.—7 $\frac{1}{2}$  cents per lb.  
" Machinery (in the rough).—\$2.25 per 100 lb.  
" Machinery.—\$2.75 per 100 lb.  
" Mild.—\$1.90 per 100 lb.  
" Sleigh Shoe.—\$1.90 per 100 lb.  
" Spring.—\$3.00 per 100.  
" Tire.—\$2.05 per lb.  
" Toe Caulk.—\$2.20 per 100 lb.

**Steel Blister.—12 $\frac{1}{2}$  cents per lb.**  
**Steel Hammer.—7 cents per lb.**  
**Steel, Decarbonized Sheet—7 cents per lb., base.**  
**Tank Steel Plate (duty \$7 per ton).—3-16, \$2.60 per 100 lb.**  
**Plates, Steel Boiler (duty 10%).— $\frac{1}{4}$  and larger, \$2.50 per 100 lb.**  
**Steel Boiler Heads (duty 10%).—\$2.60 per 100 lb.**  
**Canadian Plates.—All dull, 52 sheets, \$2.90;** half polished, \$3.

**MOPS.**—\$1 per doz.

**NAIL PULLERS.**—Duty 30%.  
German and American, \$1.85 to \$3.50 each.

**NAILS.**—Duty, cut,  $\frac{1}{2}$  cent per lb.; wire, 3-5 cent per lb.  
Chair nails, 35% discount.  
Clout nails, blued, 65 and 5% discount.  
Coopers', 35% discount.  
Copper nails, 52 $\frac{1}{2}$  discount.  
Cut, 2d \$3.65; 3d, \$3.30; 4 & 5d, \$3.65; 6 & 7d, \$2.95; 8 & 9d, \$2.80; 10 & 12d, \$2.75; 16 & 20d, \$2.70; 30, 40, 50 & 60d (base), \$2.65.  
Flour barrel nails, 30% discount.  
Galvanizing, 2 cents per lb. net, extra.  
Horse (C brand), 50 & 7 $\frac{1}{2}$  discount.  
M brand, 50 & 10% discount.  
Steel cut nails, 10 cents extra.  
Trunk nails, black, 65 and 5% discount.  
Trunk nails, tinned, 65 and 10% discount.  
Wire, 2d \$3.85; 3d, \$3.50; 4 & 5d, \$3.25; 6 & 7d, \$3.15; 8 & 9d, \$3; 10 & 12d, \$2.95; 16 & 20d, \$2.90; 30, 40, 50 & 60d (base), \$2.85; fine, 3d, \$3.85.  
Wire nails in car lots, \$2.77 $\frac{1}{2}$ .  
Miscellaneous wire nails, 70 & 10% discount.

**NAIL SETS.**—Duty 30%.  
Assorted sizes, \$1.20 per doz.

**NETTING—Wire.—Duty 30%.**  
Galvanized, 50% discount.  
Green wire, \$1.50 per 100 sq. ft.  
Poultry, 2x2 mesh, 150 ft. roll, 55 off Canadian List.

**NOZZLES.**—Duty 30%.  
Hose (Brass), \$3.50 to \$5 per doz.

**NUTS.**—Duty  $\frac{1}{2}$  cent per lb. & 25%.  
Finished, tapped, 25% discount.  
Rough, square head, 4 cents per lb. from list.  
Rough, hexagon head, 4 cents per lb. from list.  
Semi-finished, tapped, 25% discount.

**OAKUM.**  
Navy, \$7.80 per 100 lb.  
Spun, \$9.30 per 100 lb.

**OIL.**—Duty 25%.  
Boiled Linseed Oil bbls., 86 cents per gal.  
Cylinder Oil, from 40 cents up.  
Lard Oil, bbls., 90 cents per gal.  
Machine.  
Prime White (Can.), 14 cents per gal.  
Prime White (U.S.), 15 $\frac{1}{2}$  cents per gal.  
Raw Linseed Oil, bbls., 83 cents per gal.  
Sperm Oil, bbls., \$1.75 per gal.  
Water White (Can.), 15 cents per gal.  
Water White (U.S.), 16 $\frac{1}{2}$  cents per gal.

**OILERS.**—Duty 30%.  
\$1 per doz. up.

**PACKING.**—Duty 35%.  
Rubber Insertion, 60 cents per lb.  
Rubber Sheet, 22 cents per lb.

**PACKING.**—Duty 25%.  
Asbestos, 35 cents per lb.  
Flax, 35 cents per lb.  
Hemp, 12 $\frac{1}{2}$  cents per lb.  
Jute, 8 cents per lb.

**PAISLS.**—Duty 25%.  
Galvanized Iron, \$2.50 to \$3.50 per doz.

**PAINTS.**—Duty 25%.  
Pure White Zinc; 8 to 9 cents per lb.  
No. 1, 6 to 7 $\frac{1}{2}$  cents per lb.  
No. 2, 5 to 6 $\frac{1}{2}$  cents per lb.  
Prepared, in  $\frac{1}{2}$  and 1-gallon tins, \$1.25 per gal.  
Barn, in barrels, 75 to 85 cents per gal.  
Zanzibar, black, 75 cents to \$1 per gal.  
" colors, \$1.25 per gal.

**PAINTS.**—Duty 30%.  
Copper, \$3.50 per gal.

**LEAD, DRY WHITE.**—Duty 5%.  
Pure, in casks, \$5.75 per cwt.  
Pure, in kegs, \$6.25 per cwt.  
No. 1, in casks, \$5.50 per cwt.  
No. 1, in kegs, \$5 per cwt.

**LEAD, RED.**—Duty 5%.  
Genuine, 560 lb. casks, \$5.50 per cwt.  
Genuine, 100 lb. kegs, \$5.75 per cwt.  
No. 1, 560 lb. casks, \$5.25 per cwt.  
No. 1, 100 lb. kegs, \$5 per cwt.

**COLORS (Dry).**—Duty 25%.  
Burnt Sienna, pure, 10 cents per lb.  
" Umber, pure, 10 cents per lb.  
Raw, 9 cents per lb.  
Canadian Oxides, \$1.75 to \$2 per 100 lb.  
Chrome Greens, pure, 12 cents per lb.  
Chrome Yellows, pure, 13 cents per lb.  
Drop Black, pure, 9 cents per lb.  
English Oxides, \$3 to \$3.25 per 100 lb.  
English Vermillion, 80 cents.  
Fire Proof Mineral, \$1 per 100 lb.  
Genuine English Litharge, 7 cents per lb.  
Golden Ochre, 3 $\frac{1}{2}$  cents per lb.  
Mortar Color, \$1.25 per 100 lb.  
Pure Indian Red, No. 45, 90 cents per lb.  
Super Magnetic Oxides, \$2 to \$2.25 per 100 lb.  
Ultramarine Blue, in 28-lb. boxes, 8 to 24 cents per lb.  
Venetian Red (best), \$1.80 to \$1.90 per 100 lb.  
Whiting, 12 cents.

**COLORS (In Oil).**—Duty 25%.  
25 lb. tins, Standard Quality.  
Chrome Green, 8 cents per lb.  
Chrome Yellow, 11 cents per lb.  
French Imperial Green, 10 $\frac{1}{2}$  cents per lb.  
French Ochre, 5 cents per lb.  
Golden Ochre, 6 cents per lb.  
Marino Black, 9 cents per lb.  
Marine Green, 9 cents per lb.  
Venetian Red, 5 cents per lb.

**PAPER.**—Duty 25%.  
Brown Wrapping, 2 $\frac{1}{2}$  to 4 cents per lb.  
Manilla Wrapping, No. 1, 4 cents per lb.  
" " " No. 2, 5 $\frac{1}{2}$  " "  
Carpet Felt, \$45 per ton.  
Plain building, 35 cents per roll.  
Tarred lining, 45 cents per roll.  
Tarred roofing, \$1.65 per 100 lbs.

**PEAVEYS.**—Duty 30%.  
Round and Duck bill, \$2.50 and \$13 per doz.

**PIKE POLES.**—Duty 30%.  
\$10.50 per doz.

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**PICKS.**—Duty 30%.  
\$4.50 to \$7 per doz.

**PITCH.**  
85 cents 100 lbs.

**PIPE.**—Duty, \$8 per ton.  
Cast Iron Soil, Medium and Heavy, 65% discount  
Light, 60% discount.

**PIPE.**  
Brass, 25 to 35 cents per lb., base price.  
Copper, 25 cents per lb., base price.

**PIPE.**—Duty 30%.  
Galvanized Iron.  
1, \$5.15 per 100 ft.; 1/2, \$5.50 per 100 ft.; 1/4, \$7.95 per 100 ft.; 1/8, \$10.80 per 100 ft.; 1/16, \$12.95 per 100 ft.; 1/32, \$17.35 per 100 ft.

**PIPE, BLACK IRON.**—Duty 30%.  
1, \$4.65 per 100 ft.; 1/2, \$3.40 per 100 ft.; 1/4, \$3.45 per 100 ft.; 1/8, \$3.30 per 100 ft.; 1/16, \$3.75 per 100 ft.; 1/32, \$5.25 per 100 ft.; 1/64, \$7.40 per 100 ft.; 1/128, \$9.30 per 100 ft.; 1/256, \$12.75 per 100 ft.; 1/512, \$22.75 per 100 ft.; 1/1024, \$30.00 per 100 ft.; 1/2048, \$37.50 per 100 ft.; 1/4096, \$42.75 per 100 ft.; 1/8192, \$51.50 per 100 ft.; 1/16384, \$57.50 per 100 ft.; 1/32768, \$74.50 per 100 ft.

**PIPE.**—Duty 30%.  
Wrought Iron, 1 inch, per ft. 16 1/2 cents.

**PIPES.**—Duty 30%.  
Stove, 5 and 6 in., \$7 per 100 lengths.  
7 in., \$7.50 per 100 lengths.

**PLANES.**—Duty 30%.  
Bailey's, 40% discount.  
Canadian wood, 25% discount.  
Mathieson wood, 20

**PLUMBERS' BRASS GOODS.**—Duty 30%  
Check Valves, 60% discount.  
Compression Cocks, 50% discount.  
Gate Valves, 55% discount.  
Genuine Jenkins' Valves, 45 "  
Imitation Jenkins' Valves, 55 "  
Radiator Valves, 55% discount.  
Standard Angle Valves, 65% discount.  
Standard Globe Valves, 65 "  
Stop Cocks, 65% discount.

**POLISH.**—Duty 25%.  
Liquid Stove, \$5 per gross.  
Paste, \$5 per gross.

**PULLEYS.**—Duty 25%.  
Awning, 25 to 60 cents per doz.  
Clothes Line, 50 cents per doz.  
Dodge wood split, 50% discount.  
Sash, 25 to 27 cents per doz.

**PUMP CYLINDERS.**—Duty 25%.  
Regular patterns, 65% discount.

**PUMPS.**—Duty 25%.  
Cistern, 50% discount.  
Force, 50 "

**PUNCHES (centre).**—Duty 30%.  
Assorted sizes, \$1.80 per doz.

**PUTTY.**—Duty 20%.  
In bbls. (Bladders), \$2.10 per 100 lbs.  
In kegs, boxes or loose, \$2.25 per 100 lbs.  
In 25-lb. tins, \$2.35 per 100 lbs.  
In 12 1/2-lb. tins, \$2.65 per 100 lbs.  
In bulk or tins less than 100 lb., \$2.90 per 100 lbs.  
Bulk, in bbls., \$1.90 per 100 lbs.  
" in less quantity, \$2.05 per 100 lbs.

**RASPS.**—Duty 30%.  
Blacksmiths, Woodworkers, etc., see Files.

**REGISTERS.**—Duty 30%.  
Floor and Wall, 50% discount.

**RIVET SETS.**—Duty 30%.  
Canadian, 35 to 37 1/2% discount.

**RIVETS AND BURRS.**—Duty 30%.  
Copper Rivets and Burrs, 35 & 5 off; cartoons, 1 cent per lb. extra.  
Extras on Iron Rivets in 1-lb. cartoons, 1 cent per lb.  
Extras on Iron Rivets in 1/2-lb. cartoons, 1 cent per lb.  
Extras on Tinned or Coppered Rivets, 1/2-lb. cartoons, 1 cent per lb.  
Iron Rivets, black and tinned, 60 & 10% discount.  
Iron Burrs, 55% discount.

**ROPE, ETC.**—Duty 25%.  
Cotton, 3-16 in. and larger, 16 cents per lb.  
5-32 in., 21 cents per lb.  
1/2 in., 22 1/2 cents per lb.  
Crucible Steel Rope, 25% discount.  
Galvanized Wire Rope, 25% discount.  
Jute, 8 cents per lb.  
Lath Yarn, 9 1/2 cents per lb.  
Manila, 7-16 in. and larger, 13 1/2 cents per lb.  
1/2 in., 14 1/2 cents per lb.  
1/4 and 5-16 in., 15 1/2 cents per lb.  
New Zealand Rope, 10 cents per lb.  
Russia Deep Sea, lines 15 1/2 cents per lb.  
Sisal, 7-16 in. and larger, 10 cents per lb.  
1/2 in., 11 cents per lb.

**RULES.**—Duty 30%.  
Boxwood, 75 and 10% discount.  
Ivory, 37 1/2 to 40% discount.  
Lumbermans'.

**SAD IRONS.**—Duty 30%.  
Mrs. Potts', No. 55, polished, 62 1/2 cents per set.  
No. 50, nickle-plated, 67 1/2 cents set.  
"Sensible," 55 and 60 cents set.  
"Toy," \$13.00 gross.

**SAND AND EMERY PAPER.**—Duty 25%.  
B. & A. Sand, 40 & 5% discount.  
Garnet, 5 to 10% advance of list.

**SAP SPOUTS.**—Duty 30%.  
Bronzed iron, with hooks, \$9.50 per 1,000.

**SASH WEIGHTS.**—Duty 25%.  
Sectional, \$2.75 to \$3 per 100 lb.  
Solid, \$1.25 to \$2.25 per 100 lb.

**SAWS.**—Duty 30%.  
Crosscut, Disston's, 35 to 55 cents per foot.  
Hack, complete, 75 cents to \$2.75 each.  
Hack, frame only, 75 cents each.  
Hand, Disston's, 12 1/2% discount.  
S. & D., 40% discount.  
S. & D., 35 off on Nos. 2 and 3.

**SCALES.**—Duty 30%.  
Gurney's, 40 discount. Canadian list.

**SCREENS.**—Duty 30%.  
Door, \$7.50 to \$12 doz.  
Window, \$1.75 to \$2.75 doz.

**SCREWS.**—Duty 35%.  
Bench, iron, \$4.25 to \$5.75 per doz.  
wood, \$3.25 to \$4 per doz.  
Drive Screws, 87 1/2 & 10% discount.  
Hexagon Cap, 45 "  
Set, case-hardened, 60 "  
Square Cap, 50 & 5 "  
Wood, F.H., bright and steel, 87 1/2 & 10% discount.

**SCREWS, (Machine, Iron and Brass)**—Duty 35%.  
Flat head, 25% discount.  
Round head, 20 "

**SCYTHES.**—Duty 25%.  
Grass, \$3 to \$10 doz.  
Grain, \$12 to \$14 "

**SHEARS.**—Duty 30%.  
Tailors, 30 % discount Amer. list.

**SHELLS (Cartridge).**—See Ammunition.

**SHOT.** See Amunition.

**SHOVELS AND SPADES.**—Duty 35%.  
Jones, 40 and 5% discount.  
Steel, Snow, \$2.45 @ \$2.60 per doz.

**SKATES.**—Duty 35%.  
Canadian Hockey, 40 cents to \$2.50 pair.

**SNAPS.**—Duty 30%.  
Harness, 40% discount.

**SNATHS.**—Duty 25%.  
Sythe, \$5.25 to \$8 per doz.

**SOLDER (Plumbers').**—See Metals.

**SOLDERING IRONS.**—Duty 30%.  
20 to 90 cents each.

**SPIKES.**—Duty 1/2 cent per lb.  
Rail, 20% discount.  
Ship, \$5 per 100 lb.

**SPRINGS.**—Duty 35%.  
Bright Carriage, 6 1/2 per lb. net.

**STAPLES.**—Duty 30%.  
Barb wire, \$3.75 per 100 lb.  
Bed, 50% discount.  
Blind, 25 "  
Wrought iron, 75% discount.

**STEEL**—see Metals.

**STOCKS AND DIES.**—Duty 30%.  
Blacksmiths', Lightning, 25% discount.  
Reece, 30% discount.  
" Jardine, 35% "  
Pipe, Solid, 70 & 10% discount.  
Duplex, 33 1/2% discount.  
" Jarecki, 33 1/2% "  
" Oster, 30% "  
" Armstrong, 35% "

**STONES.**—Duty 30%.  
Scythe, \$3.50 to \$5 per gross.

**TACKS, BRADS, etc.**—Duty 35%.  
Carpet tacks, blued, 80 & 15% discount.  
" " tinned, 80 & 20 "  
" " in kegs, 40% discount.  
Cheese-box tacks, blued, 35 & 12 1/2% discount.  
Copper tacks, 60% discount.  
Cut tacks, blued, in dozens only, 80% discount.  
1/2 weights, 60% discount.  
Fine finishing, 40% discount.  
Leather carpet tacks, 55% discount.  
Lining tacks, in papers, 10% discount.  
Patent brads, 40% discount.  
Picture frame points, 10% discount.  
Strawberry box tacks, bulk, 75 & 10% discount.  
Swedes, cut tacks, blued and tinned, in bulk, 80 & 10% discount; in dozens, 75% discount.  
Swedes, upholsterers', bulk, 85, 12 1/2 & 12 1/2% dis.  
" brush, blued and tinned, bulk, 70% dis.  
" gimp, blued, tinned and japanned, 75 & 12 1/2% discount.  
Trunk tack, black and tinned, 85% discount.  
Zinc tacks, 35% discount.

**TAGS.**—Duty 25%.  
Shipping, 50 @ 70 cents per M.

**TAR.**  
Coal \$2.75 bbl.  
Refined, \$4 per bbl.

**TENTS.**—Duty 30%.  
Canadian list, 20% discount.

**TONGS.**—Duty 30%.  
Ice, \$3 per doz.  
Pipe, "Brown's," net.  
" "Brook's," 25% discount.  
" "Trimo," 25 "

**TRAPS.**—Duty 30%.

**TRUCKS.**—Duty 30%.

**TURNBUCKLES.**—Duty, 1 cent per lb., 25%; 33 1/2% discount.

**TURPENTINE.**—Duty 5%.  
55 cents per gal.

**TWINES.**—Duty 25%.  
Bag twine, 3-ply, 20 cents per lb.  
4-ply, 20 cents per lb.  
Binding, 12 1/2 cents per lb.  
Colored, 27 cents per lb.  
Cotton bag, 30 cents per lb.  
Cotton, White, 20 to 30 cents per lb.  
" Colored, 30 to 40 "  
Hemp, 20 cents per lb.  
Jute, 20 cents per lb.  
Mattress, 45 cents per lb.  
Sewing, 45 cents per lb.

**TWINE**—Continued.  
Tarred Lath, 11 cts.  
Wrapping, 22 to 27 cts.

**VARNISHES.**—Duty 20 cents per gal.  
Black Japan, \$2 per gal.  
" No. 1, 75 cents to \$1.50 per gal.  
Brown Japan, \$1.50 to \$2.50 per gal.  
Carriage, No. 1, \$2 to \$3 per gal.  
" body, \$4 to \$6 per gal.  
" rubbing, \$2.50 to \$4 per gal.  
Furniture Brown Japan, \$1.25 to \$2 per gal.  
Furniture, extra, \$2 to \$2.50 per gal.  
No. 1, 75 cents to \$1.50 per gal.  
Gold Size, Japan, \$1.50 to \$2.50 per gal.  
Hard Oil Finish, \$1.50 to \$2.50 per gal.  
Light Oil Finish, \$1.50 to \$2.50 per gal.  
Shellac, orange, \$2 to \$2.50 per gal.  
" white, \$2 to \$2.50 per gal.

**VICES.**—Duty 30%.  
Amer., 13 1/2 cents per lb.  
Brooks', 13 1/2 cents per lb.  
Peter Wright's, 15 cents per lb.

**WASHING MACHINES.**—Duty 35%.  
Re-acting square, \$51.00 per doz.  
" Round, \$48.00 "  
Rocker, \$48.00 per doz.  
Popular Brands, \$30.00 to \$42.00 per doz.  
Dowswell, \$3.75 each.  
Re-acting (Dowswell), \$5 each.

**WIRE.**  
Brass Wire, (duty 10%), 50 to 50 & 2 1/2% discount.  
Copper Wire, (duty 15%), 45 & 10% discount net cash 30 days, f.o.b. factory.  
Smooth Steel Wire, (duty 20%), is quoted at the following net selling prices:  
No. 6 to 8 guage, \$2.90 per 100 lbs.  
" 9 " 2.80 "  
" 10 " 2.87 "  
" 11 " 2.90 "  
" 12 " 2.95 "  
" 13 " 3.15 "  
" 14 " 3.37 "  
" 15 " 3.50 "  
" 16 " 3.65 "

Other sizes of plain wire outside of Nos. 9, 10, 11, 12 and 13, and other varieties of plain wire remain at \$2.80, base, with extras as before.

Galvanized Wire, per 100 lb.: Nos. 6, 7, 8, \$3.50 to \$3.85; No. 9, \$2.85 to \$3.15; No. 10, \$3.60 to \$3.95; No. 11, \$3.70 to \$4.10; No. 12, \$3 to \$3.30; No. 13, \$3.10 to \$3.40; No. 14, \$4.10 to \$4.50; No. 15, \$4.60 to \$5.05; No. 16, \$4.85 to \$5.35. Base sizes, Nos. 6 to 9, \$2.57 1/2 f.o.b. Cleveland.

Clothes Line Wire, solid 7 strand, No. 17, \$4.25; No. 18, \$2.65; No. 19, \$2.35; f.o.b. Toronto, Hamilton and Montreal.

**WASTE (Cotton).**  
Colored, \$5.50 to \$6 per 100 lb.  
White, \$7.75 per 100 lbs.  
" extra, \$8 per 100 lb.

**WHEELBARROWS.**—Duty 30%.  
Garden, \$2 to \$4.50 each.  
Navy, \$19 per doz.  
Iron wheel, \$22.50 per doz.  
Steel tubular, \$7.50 to \$10.50 each.

**WRENCHES.**—Duty 30%.  
Agricultural, 60% discount.  
Alligator, 60 "  
Trimo, pipe, 25 "

**WRINGERS (Clothes).**—Duty 35%.  
Canadian, \$26 to \$30 per doz.  
Popular Brands, \$16.50 to \$22 per doz.

**ZINC.**—See Metals.

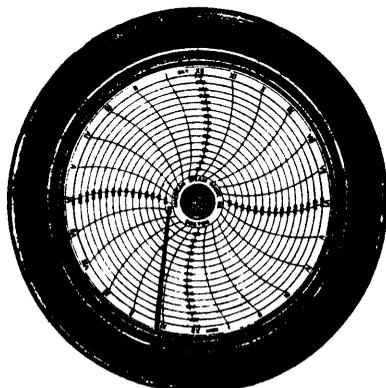
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American Pressure Recording Gauge.

## American Steam Gauge and Valve Mfg. Co.

BOSTON, MASS., U.S.A.

MANUFACTURERS OF

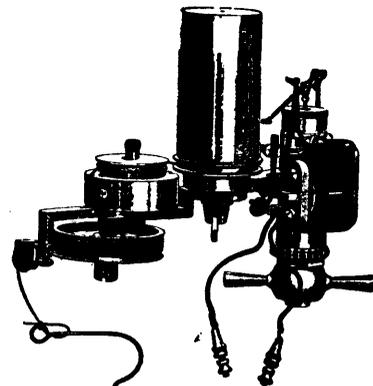
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Sole Manufacturers of The THOMPSON IMPROVED INDICATOR.

HIGHEST AWARD AT PARIS EXPOSITION, 1901—The Only American Indicator to receive a Medal. The GOLD MEDAL awarded at Pan-American Exposition on Gauges, Pop Valves, Indicators and Engineering Specialities.

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