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SAMUEL ROGERS, President.

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PATENTS

ANADIAN MANUFACTURER
AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION.

Vol. 44.

TORONTO, JUNE 6, 1902.

No. 11.

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(SEE PAGE 21)

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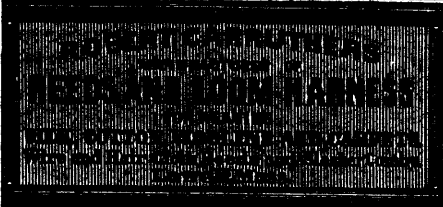
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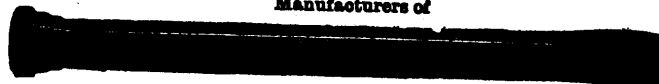
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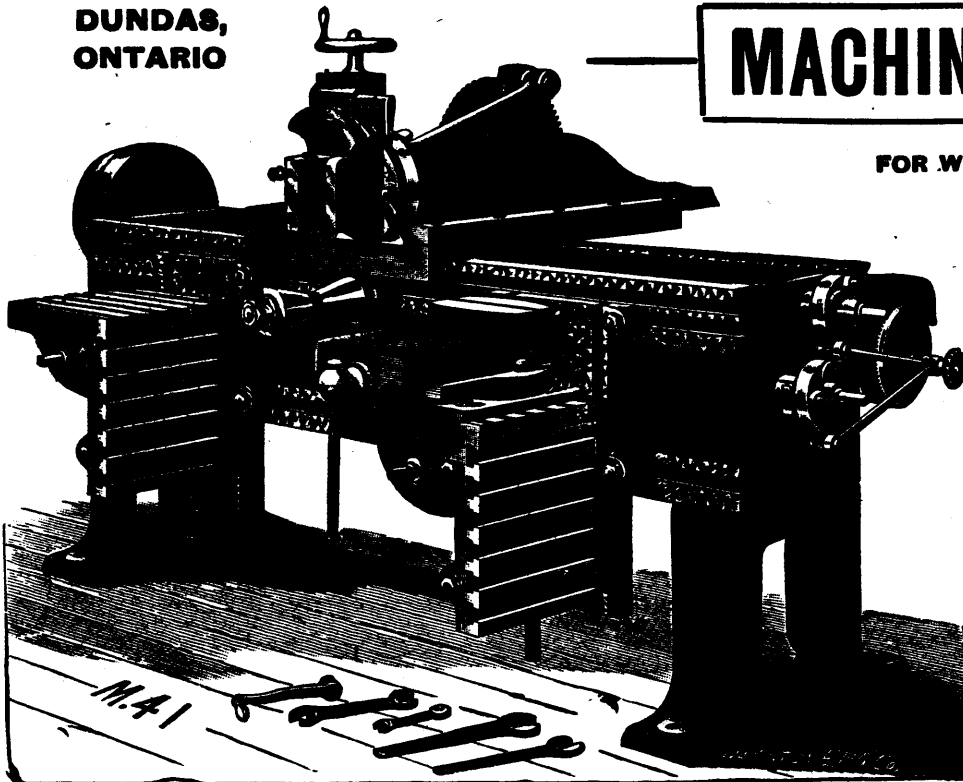
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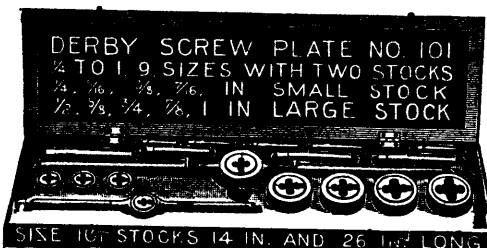


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SIZE 10 STOCKS 14 IN. AND 26 IN. LONG

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WITH ADJUSTABLE TAP WRENCH.

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Prize Medal and Highest Award Philadelphia, 1876, for Superiority of Quality, Skilful Manufacture, Sharpness, Durability, and Uniformity of Grain.

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MAGNET BRAND

MADE AT
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Correspondence invited.

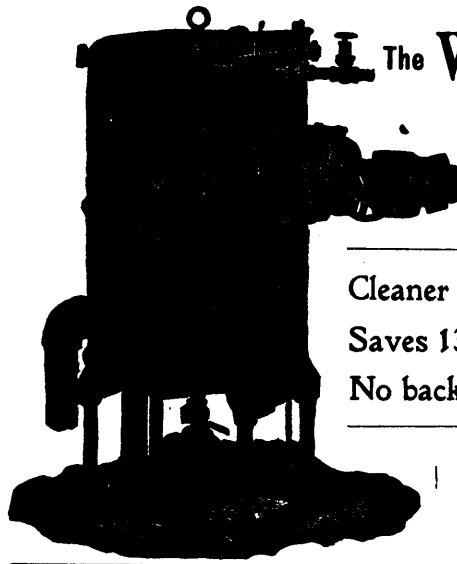
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Saves 6% to 12% (or more)
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Cleaner boilers. Uses Waste Steam.
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No back pressure. It does more.

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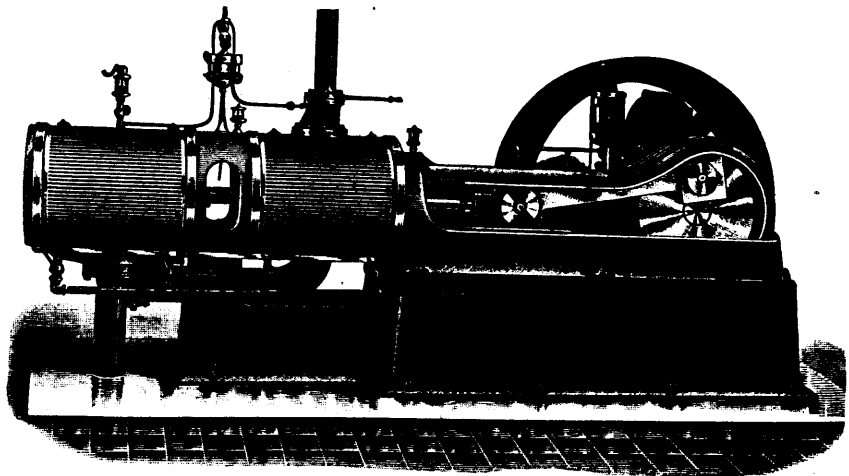
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WE GUARANTEE the "ROSSENDALE," M.A.Y. WOVEN

You run no risk. Return at our expense if not satisfactory. These belts are twice the strength of leather, more durable, 30% cheaper.

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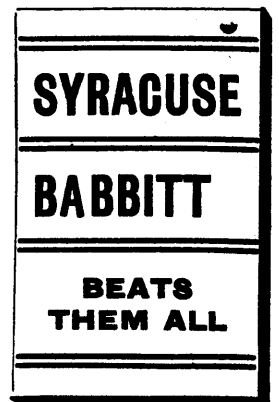
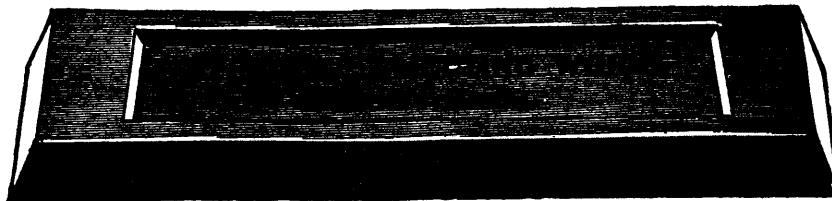
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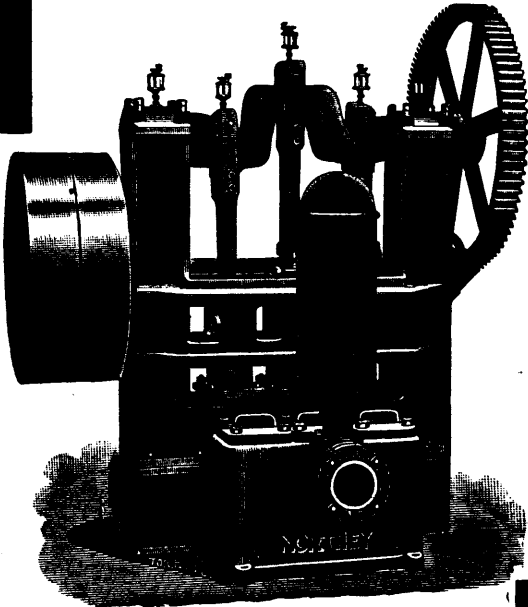
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THE NORTHEY TRIPLEX POWER PUMP

Is a high class serviceable machine; it offers the best means of applying either steam, water or electrical power for pumping purposes. A special feature is the use of three cranks 120 degrees apart—ensuring a practically constant delivery. This pump, for Boiler Feeding, etc., and especially in connection with an electric motor, gives excellent results.

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Pumping Machinery

"For all Duties"

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Northey Gas and
Gasoline Engine
a handy and economical
motor.

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WE CAN SUPPLY YOU
WITH ARTISTIC AND
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Or anything that you may desire, **FIRST-CLASS** in every particular, at Prices that Defy Competition. Ask for Estimates.

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We Stock a Large Variety of **SHADES**
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FOR FACTORY AND OFFICE.

Imperial Lamps and Helios Upton Enclosed Arcs Give **BEST LIGHT** with **LEAST CURRENT**
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ESTABLISHED IN 1890.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

The Canadian Manufacturer Publishing Co., Limited.

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Cable address: "CANAMAN." Western Union Telegraphic Code used.

MESSRS. DAVISON & CO.,
164 Federal Street, - Boston, Mass.
AGENTS FOR UNITED STATES.

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J. J. CASSIDY, - - - Editor and Manager

THE TRADE CONFERENCE.

Fifty-one Boards of Trade were represented at the conference which opened in Toronto on June 4, a splendid representation for the first gathering. It has been suggested that a yearly conference be held, but this does not meet with the approval of business men generally. A conference every second or fourth year would meet with the support of manufacturers generally, and would bring together a more representative delegation.

The questions under discussion at the first conference are all important, and are as follows:—Canadian copyright; Canadian Insolvency law; a commercial depot in London; Consular agencies; a duty on lead; the establishment of a customs union with sister colonies; a fast steamship service; importation of Canadian cattle into the United Kingdom; the metric system; the mineral resources of Canada; newspaper postage between Canada and Great Britain; postal and telegraph communication; a railway commission; steamship service for exclusive trade between Britain and the colonies; a state cable from Canada to Australia; shipbuilding in Canada; trade relations with the Empire; trade relations between the colonies.

The list is of wide scope, and it is to be hoped that the discussion of the various subjects will result advantageously to the trade of the Dominion.

CONGLOMERATE "AMERICANS."

Rev. Dr. Walter Laidlaw, executive secretary of the Federation of Churches and Christian Organizations in the City of New York, recently published an elaborate paper on the character and distribution of that city's population, the result of a study of the census of 1900. A sketch of the growth of the city contains the following statements:

The city of the United States of over 100,000 persons which has the highest birth-rate (Fall River) is the city having the largest percentage of foreign-born population. New York is the second city of the country in percentage of foreign-born; and the particular nationalities which have settled in New York during the last decade, in largest numbers, are the nationalities which the studies show to have the largest number of children. The nationality figures of New York show that there are more Slavonic males under twenty-one years of age in the New York of to-day than of any other people. They outnumber the Latins by over 11,000 the Teutons by near 12,000, the British by over 20,000, and the Scandinavians over twelve-fold; and the number of Slavonic men over twenty-one years of age exceeds every single nationality in New York except

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.

the Germans and Irish. New York is bound to have a great growth from the expansion of its American-born Hebrew population.

New York's foreign-born exceed in number the foreign-born of Chicago, Philadelphia, St. Louis, and Boston combined, and exceed in percentage all of those cities and every other city in the United States except Fall River.

There is not a single Assembly district in Manhattan, even on the Upper West Side, where the percentage of foreign-born is below 25 per cent.; while in Philadelphia, as a whole, the foreign-born are only 22.8 per cent. There are only four wards of Brooklyn, namely, the Twenty-third, Twenty-fifth, Thirty-second, and Twentieth, where the percentage of foreign-born is below 25 per cent., and of these, only one, the Twenty-third, is below 20 per cent.

There are in all New York only 737,477 white persons born of native parents, or 21.4 per cent. of the population of the city. This is to say that, within every group of 100 persons in New York city, 78 are either (a) foreigners or (b) the children of parents one or both born outside of the United States, or (c) colored people. Only 22 of the 100 are white persons born in America of American parents.

The increase of the foreign population in the last ten years has come, in the case of nationalities which have 1,000 persons or over, from Russia, Italy, Austria, Poland, Hungary, Sweden, Roumania, Bohemia, Canada, Norway, Finland, China, Cuba, and the West Indies, Denmark, Switzerland, Turkey, and Greece, in the order named. Russia alone has contributed one-third of the increase of the foreign-born in New York in the last ten years. The net increase of New York's foreign-born population has been 307,317 persons, of whom 102,249 are Russians and 94,236 Italians, while from Austria, Bohemia, Hungary, Poland, and Roumania combined the increase has been 101,250. There has been an increase from every country in Europe, except Ireland, Germany, and Scotland; but Italy, Austria, Bohemia, Hungary, Poland, Roumania, Russia, Greece, and Turkey have contributed 97.6 per cent. of the increase, while all of the rest of the world has contributed only 2.4 per cent.

That is to say, a detailed comparison of the increase of the foreign-born population of New York, by nationalities, shows that Southern and Eastern Europe are almost entirely responsible for the increase of New York's foreign-born. The Irish-born number 20,728 less than in 1890; the German-born 5,431 less; the Scotch 369 less; the Australians 40 less.

REGARDING CORPORATIONS.

An observer cannot but be impressed with the large number of corporations that have recently been formed in Canada and exploited upon the community having reference to manufacturing, industrial and mercantile pursuits; and enterprises of this character are being presented almost daily. Some of these—many of them, are of the most meritorious character,

but we are inclined to the opinion that others of them are intended for speculation purposes only; and we cannot but emphasize the fact that investors cannot be too careful in examining into the claims that are made for them in their prospectuses, and into the liability of the persons who are mentioned as the promoters. Our Canadian laws do not seem to throw as many safeguards around investors as do the British laws.

The companies act of 1900, passed by the British Parliament, shows a determined effort to prohibit all the deceptive methods practised during the previous speculative flotations which resulted disastrously to a large number of investors. A British industrial corporation must face the competition of the world, and cannot pay dividends on fictitious capital, as is often possible where profits are enhanced by a protective tariff. Attempts to sustain fictitious capital have been signally disastrous in Britain, and recent legislation shows that there is no desire to permit further attempts in that direction. The law gives a special position and standing to the prospectus of a company offering shares for public subscription. It must be dated, signed by all the directors and deposited with the registrar. It must set forth the memorandum of association, the names of the signers, the number of shares subscribed for by each, the number of founder or management shares, and the interest of the holders in the property and profits. It must also show the number and amount of shares and debentures issued or to be issued as fully or partly paid up otherwise than in cash, the extent to which they are so paid, the consideration received for them, the names of the vendors of all property purchased or to be purchased from the proceeds of the issue offered to the public, and the amount payable in cash, shares or debentures to the vendors. With regard to the latter it must be stated how much is paid for goodwill, and how much for tangible property.

An estimate must be made of preliminary expenses and of the proportion that will go to the promoters. A commission on the sale of shares is lawful, provided the amount allowed and the rate per cent. are disclosed in the prospectus. The law also requires a full disclosure as to the interest of every director in the promotion of and in the property to be acquired by the company, "with a statement of all sums paid or agreed to be paid to him in cash or shares by any person, either to qualify him as a director or otherwise, for services rendered by him in connection with the formation of the company." The names of the directors must be given in the application for registration, and the company cannot commence business until every director has paid in on all the shares taken by him, and on which he is liable to pay cash, a proportion equal to that payable on application and allotment on shares offered to the public. Full returns regarding allotments and the considerations received for them must be made to the registrar, and the annual summary statement must show the total debt due from the company in respect to all mortgages and charges which require registration, as well as the names and addresses of the directors. The only objection that can be taken to these comprehensive requirements says *The Globe*, is that they may produce a feeling of confidence that no system of supervision can warrant. The most exacting requirements must be supplemented by the continuous vigilance of investors.

THE AMERICAN IRON INDUSTRY.

The recently issued fifteenth edition of the Directory to the Iron and Steel Works of the United States, prepared by Mr. James M. Swank, and published by the American Iron and Steel Association, contains many facts and features that are

of much interest to those who are favoring the fuller development of the industry in Canada. The Bulletin directs attention to some of these, from which we quote. It says:

The careful reader of the new Directory will find many interesting facts in its pages which are revealed, as it were, between the lines. For instance, he will not fail to notice that the organization in the last three or four years of so many iron and steel consolidations or trusts, and finally last year of the United States Steel Corporation itself, has not prevented the organization of a large number of competing independent companies, whose plants are of large capacity. The so-called trusts, and more particularly the United States Steel Corporation, have not therefore created, as has been alleged, a monopoly of the manufacture of iron and steel. On the contrary, they have surely stimulated the building of competing plants. Many independent companies have been organized by experienced men who would not put their light under a bushel. And the building of independent plants is still going on. Indeed much of the extraordinary demand for iron and steel that exists to-day is due to the erection of independent blast furnaces, rolling mills, and steel works.

In this connection the list of iron and steel works that have been abandoned or dismantled since 1898, or that have since that year become inactive, will not be overlooked. This graveyard list embraces 61 furnaces, 118 rolling mills, Bessemer steel plants, open-hearth steel plants, crucible steel plants, and plants equipped for the manufacture of steel by special processes, and five forges and bloomaries. Very few of these plants will ever again have their fires started. Practically all of them are dead for all time.

The new Directory shows that since 1898 no branch of the home iron trade has made such rapid progress as the open-hearth steel industry. And yet its rival, the Bessemer steel industry, has not in the same period lost any of its previous prominence. Our Bessemer capacity is still 50 per cent. greater than our open-hearth capacity. In the manufacture of steel rails, especially the Bessemer process, bids fair to command practically all of the business in this line. But open-hearth steel is making rapid progress as a competitor with Bessemer steel in all other lines, and in the domain of steel castings it is practically without a rival.

There are some branches of the domestic iron trade which are either dying out or are making no progress. Only one of the Catalan forges is active, and only eight pig and scrap iron bloomaries are left. Only one Clapp-Griffiths converter is left, and it has been idle for several years. There are to-day only 55 charcoal furnaces in the whole country, against 79 in 1898, and the annual capacity of the furnaces of to-day is, in round numbers, 250,000 tons less than that of the furnaces of 1898. Our crucible steel industry has made but little progress for many years.

Water power is still used in operating at least 8 blast furnaces, 13 rolling mills, and 3 pig and scrap-iron bloomaries in the United States, and in blowing 2 furnaces in Canada.

Contrary to the general impression, the Directory shows that a larger number of iron and steel plants were using natural gas in 1901 than in 1898, the exact number in November, 1901, being 110, with seven additional natural gas plants in course of erection, against 94 plants using natural gas in June, 1898, and two in course of erection. The number of plants using natural gas in 1901 was larger than has been noted in any previous edition of the Directory, the nearest approach to it being 104 plants in 1889.

An examination of the Directory in connection with the present heavy demand for iron and steel leads to the conclusion that, even under the present strain upon our iron and steel plants, our capacity in all lines but one is sufficient unto the day, certainly if plants that are now building and nearly finished are included. The exception relates to structural steel. The fashion for putting up tall buildings has grown more rapidly than anybody a year or two ago expected, while the prosperity of the railroads, and of the country generally, has called for an unexpectedly large number of steel bridges and of other steel structures. In a little while this extraordinary demand for structural steel will be fully met.

The Department of Railways and Canals has been notified that the Clergue Company will supply the first consignment of steel rails of their contract with the Government on June 9.

CANADIAN BOARDS OF TRADE.

More than fifty Canadian Boards of Trade are represented in a convention being held in Toronto this week, brought together at the suggestion of the Toronto Board for the consideration of questions of the greatest importance to the country. The following resolutions, which explain themselves, were adopted on Wednesday:

That the postage on British newspapers and periodicals be lowered to the domestic rate, as has been done in the case of letters.

That Great Britain can serve best the interests of the Empire by giving colonial products a preference over foreign products, and that Sir Wilfrid Laurier urge at the Imperial conference the appointment of a Royal Commission, composed of representatives from Great Britain and the colonies, to investigate and suggest such preferential treatment as will ensure the fullest benefits.

That the British import duty on agricultural produce be arranged so that a preference be given to imports from the colonies.

That Canada retaliate on all countries maintaining hostile tariffs against the Dominion.

That to encourage the importation of British goods via Canadian ports the preferential rebate of 33½ per cent. be limited to 25 per cent. on all goods shipped by way of American ports.

That the Premier negotiate for the removal of the British embargo on the importation of Canadian live cattle.

That a Canadian depot of exhibition, presided over by business experts, superintended by a man of comprehensive knowledge of Canadian products, be established in London.

That the policy adopted in establishing a State-owned cable from Canada to Australia be extended to give a complete line of British cables round the globe.

AN IMPORTANT CANADIAN ENTERPRISE.

One of the most important railway propositions now attracting the attention of Canada, is that looking to the construction of a trans-Canadian railway from Chicoutimi, by way of Nottaway, near James Bay, through the Peace River Pass, in the Rockies, to the Pacific Coast, opposite Fort Simpson. The route selected is north of that chosen by Mackenzie & Mann for the Canadian Northern, but within the area regarded by the promoters as the wheat and barley belt. A charter for the road was granted by the Dominion Parliament in 1895, and was amended in 1897 so as to provide for the commencement of the work by June 29, 1901, the completion of the line within ten years from the passing of the act, and the construction of a branch line to Montreal. Work was commenced at Roberval within the time stipulated, the event being celebrated by an impressive religious ceremonial in the presence of a large concourse of people. Some 60 miles of line have been located westward from Roberval to James Bay, and plans and profiles have been deposited with the Dominion and Provincial Governments, according to law. From Roberval to James Bay the distance is 380 miles through the territory recently acquired by Quebec from the Dominion, and an application has been made to the Local Government for a land grant. A subsidy bill has been passed by the Dominion Parliament granting \$3,200 per mile, or \$192,000 in all, towards the construction of the first 60 miles of this line, it being provided that the grant will be increased \$6,400 per mile should the cost of construction exceed \$15,000 per mile.

In a prospectus issued by the company a number of comparative distances are given favorable to the northern route. From Quebec to Vancouver it is 3,078 miles by the Canadian Pacific, while by the route of the Trans-Canada Company it is only 2,830 miles to the coast, opposite Fort Simpson. The

distance from Vancouver to Yokohama is 4,290 miles, and from Fort Simpson only 3,940 miles. The summit in the Peace River Pass is 2,000 feet above tide water, while the summit in the Kicking Horse Pass, where the Canadian Pacific crosses the divide, is 5,400 feet. One of the American Pacific railways reaches an elevation of 11,000 feet. The military and naval advantages of such a line are strongly urged. It would be from 300 to 600 miles inland, and not exposed to attack in the event of hostilities. It is stated in the prospectus that there are good reasons to expect that the Quebec Government will make a land grant of about 20,000 acres per mile for the section from Lake St. John to James Bay, and that Ontario may make a similar grant for the line from James Bay to the western boundary of this Province, near Lake Winnipeg. It is also expected that where the line passes through Dominion land a similar subsidy will be given by the Dominion Government. The expectation of the company, as set forth in the prospectus, is that if the Government will grant the usual double subsidy \$6,400 per mile, a financial basis will be established which will secure the necessary capital to carry out the enterprise. In return for the favors asked, the company will agree to give free transportation from Quebec to any point on its line for all immigrants and *bona fide* settlers and their effects, and to carry wheat from all points on its line in Manitoba to the steamers in Chicoutimi and Quebec at nine cents per bushel. A number of interesting meteorological records are given to dispel the popular notion that the region around James Bay is one of arctic temperature.

THE METRIC SYSTEM.

Perhaps the most important and generally significant testimony thus far produced in favor of the early adoption of the metric system in the United States with a view to making that system universal, was recently given before the House Committee on Coinage, Weights and Measures by Lord Kelvin, the celebrated English scientist, who is himself a manufacturer, and who has taken a leading part in the agitation in Great Britain looking to the adoption by that country of the metric units of weights and measures. The committee had already reported the Shafroth bill providing for the adoption of the system before Lord Kelvin's arrival in the United States, but with a view to ascertaining the sentiment in Great Britain, and to obtain some idea of the prospect of making the system universal, he was asked to appear before the committee. Lord Kelvin was accompanied by Mr. George Westinghouse, and during the course of the hearing both the witness and several members of the committee addressed questions to Mr. Westinghouse, which resulted in putting into the record a very interesting statement to the effect that inasmuch as the pending bill is not compulsory in character, "nothing but good can come from it."

Lord Kelvin's testimony was unqualifiedly in favor of the early passage of the Shafroth bill, and, in addition, he held out the strong hope that Great Britain would speedily follow the United States, thereby making the adoption of the system practically universal in view of the recent action of Russia providing for its provisional adoption.

"It seems perfectly obvious," said Lord Kelvin, "that it must be for the benefit of the world that the system of weights and measures should be made world-wide as soon as possible. It is perfectly clear that one system is desirable, and it will be a certain benefit to all when this system is the same everywhere. The labor of calculating the measures of one country by the people of another when the work is intended for ex-

port is very well known to all manufacturers and engineers; and although, to my mind, this is not the most important argument, it is a very strong one. There is absolutely nothing in the arguments against the system which find fault with the base of the metric system and with the manner in which it was adopted. The fact is that the French philosophers and statesmen took this matter under their very effective guardianship more than 100 years ago, and it seems to me that with very great wisdom they chose a system that is almost ideally perfect.

"The argument has been made, I am aware, that the British inch has a more rational basis than the French meter. John Herschell found the British inch to be nearly a definite fraction of the diameter of the earth, and I have heard that fact brought forward in this discussion—and even Sir Frederick Bramwell consented to adopt it—as an argument against the meter, which is said not to have been an accurately determined fraction of a quadrant measured on the earth's surface. But in reality it makes no difference how the meter was derived; the main point is that its length is now known throughout the world, and that all other measurements of the metric system may be derived from it with absolute accuracy. Once granted the unit of length, everything else comes naturally. In this connection I will venture to suggest that we do not use the term 'decimal system,' which I now see referred to occasionally, but simply the 'French metrical' system. We should not be ashamed to use the word 'French,' nor refuse to employ the name of the people of the country to whom we are indebted for the system. We have a metrical system, or rather, a metrical jumble of our own, which we should not confuse with the French metrical system.

"Just one word as to our own system. If there is not work enough to be done, and you want to increase the labor of the business office, and especially of the engineers and of the draftsmen, you cannot do better than to use the British system of weights and measures. I believe I am not overstating facts when I say that one-half the time occupied by clerks and draftsmen in engineers' and surveyors' offices is entailed upon them by the inconvenience due to the present system of weights and measures. I think it will be an enormous saving in business offices of all kinds to adopt the metric system. Nothing can be more convenient, for in no one of the departments of manufacturing or of selling do we encounter dimensions or quantities so large or so small that the French metric system may not be used with the utmost satisfaction.

"The present situation in England requires the practical use of two standards, and I think every engineering establishment on a large scale in my country is now obliged to use both the English and the metric standards in executing foreign orders. We are obliged to use the centimeter wherever metrical goods are asked for, and we are putting ourselves to a great inconvenience with our double system. So far as the workman is concerned, he will undoubtedly find himself far happier and will work with greater ease with the centimeter scale than with the scale of feet and inches. I have here a scale which is a sample of nearly every scale in use in our large establishments; it has centimeters and millimeters on one side and inches and eighths and sixteenths on the other."

At this point, Chairman Southard stated that the committee had noted certain statements regarding the bill, to the effect that the introduction of the metric system would necessitate the displacement of certain machinery, and that the incidental expense would be great, and solicited his opinion on that point. In reply, Lord Kelvin said:

"I do not think it involves the displacement of any useful machinery. Measurement of a screw thread, for example, is now made for existing machines as so much of an inch. Find what this is in the metric system, and change the designation if you like, but do not touch the machine. If the machine is good and convenient, you will not change it at all. With regard to the suggestion that there will be a tendency to even metric dimensions, it is possible there may be some little initial inconvenience, but I believe that in a week or a fortnight this will be gotten over. It is not a great expense to procure complete sets of accurate standards in the metric system, and I am satisfied that, instead of proving an inconvenience, the change will be decidedly the reverse. In electrical work the international system of electrical units is used, and everything is measured so that it is the same in America, Germany, France, England, etc., and all our terms are founded on an international system. British and American workmen work to an electric system which is founded on the scientific definitions involving the centimeter, the gram—the unit of length and the unit of weight. While they all work on this electric system, they have also to work to feet and inches, and this really gives us two standards. I know that in America especially you have taken to decimalizing the inch and foot very generally, and this is really two standards, for the decimalization of the foot does not agree with that of the inch. The method is practical in certain directions, but it inevitably adds to the number of units and to the confusion of the terms."

Chairman Southard stated to Lord Kelvin that the committee had received a letter from the secretary of the Decimal Association of Great Britain, in which the names of 259 members of Parliament were given as having signified in writing their willingness to vote to make the metric system compulsory in Great Britain, and that 30 or 40 more had agreed to do so, but desired their names to be withheld. In commenting on this, Lord Kelvin said:

"These figures promise well for an early adoption of the reform in England. I believe there will be no question at all in carrying it out, as soon as our statesmen find a lull in party politics that will give them a chance to attend to such matters. There is a great deal of conservatism in England, and I am sorry we are not so far advanced as we would like to be. The result will be, however, that it will come to us suddenly; but while from motives of patriotism I would rather England should adopt the system first and that America should follow, yet I would very much prefer that America should lead if the end can be accomplished sooner. You may be assured that if America decides to make this reform, England will follow very nearly after, and I believe that England will see in the example of a great nation like this adopting a reasonable reform which has been tested for over 100 years, an argument which will be sufficient to overcome the sluggishness of the English people. With its adoption by England and America the system will be practically universal."

During the latter part of Lord Kelvin's testimony, several questions were addressed to Mr. Westinghouse, who stated that it was an error to believe that he was opposed to the metric system.

"On the contrary," he said, "I believe that if America is looking forward to procuring the commerce of the world, many of these products will have to be made according to the French measurements. For instance, in France they require everything to be made according to the metric system. I think, ultimately, one system will be universally adopted, and it is only a question of the manner of requiring it to be done that

is involved. It seems to me that you can accomplish more by gentle pressure than in any other way. Every manufacturer in the United States is busy turning out his products according to drawings of the present system. Now, it is not going to be convenient in a day or a week, or a year even, to change all those drawings. I understand that this bill provides that the Government shall adopt the system January 1, 1904, and three years later it will be the legal system, but without compulsion, and I think nothing but good could come from such a bill."

A member of the committee stated to Mr. Westinghouse that he had received a letter from the Ball Engine Works, of Erie, to the effect that it would not be wise to pass the pending bill, as it would entail expense, and asked if he regarded the objection as a practical one, to which Mr. Westinghouse replied :

"No, that is not a practical objection. I think the real question before you is such reference to the time element as is consistent with the changing from one standard to another. I would suggest that if you wish to make this bill effective the Government should pay 1 or 2 per cent. more for machines made in the metric system. That would be a compulsion that would be very effective indeed. The fact that the Government adopts the metric system as a standard I believe, will have more to do with the question than any other."

In reply to a question as to whether the principal machine shops throughout the country were prepared to furnish their product in metric measurements, Mr. Westinghouse said :

"I think all of them would undertake such contracts. It would be simply a question of drawings."

THE BEET SUGAR INDUSTRY.

The Sugar Beet, of Philadelphia, which is devoted to the interests of the beet sugar industry of the United States, notices that some of the leading journals in that country are making adverse comparisons between the cost of a plant for the manufacture of tin plates and one for the manufacture of beet sugar, and fails to grasp the force of their arguments. It says :

We fail to grasp the force of their arguments. While the tin plate industry has made greater progress in a given time than has been realized with beet sugar, the two are not comparable. There are no special difficulties to overcome in the production of tin plates. The plants for their production require a comparatively small capital, while the manufacture of beet sugar necessitates at once half a million, and depends upon important agricultural changes in the district where the new industry is to be established. The manufacturer cannot always dictate his own terms to the furnisher of the raw material, while the tin plate manufacturer is absolutely master of the situation. It is interesting to ask what benefit to the country is derived from the tin plate industry other than the labor it employs; but on the other hand, with beets there follows an increased value of farming lands. A crop is contracted for in advance, permitting the tiller to make his money arrangements before his beets are harvested. The residuum pulps from the factories when fed to cattle mean cheaper meat and the resulting manure prevents soil exhaustion. The excellent beneficial effects of the beet sugar industry always mean general prosperity to all centres where it is established. The protection given to tin plates has permitted the entire consumption to be made at home. True, the industry has been created in a few years. The same results will follow beet sugar, but a longer time will be needed owing to numerous difficulties that are to be contended with, not in the extraction of the sugar from the beet, but in securing sufficient beets to meet the demands of the factories.

A Michigan correspondent of The Sugar Beet calls attention

to some very important information regarding the industry, gathered by the Michigan Sugar Manufacturing Association. The information is valuable, but we cannot do more than give some of the facts and leading figures. He says :

The cost of labor for raising beets averages \$33.25 per acre, to which should be added \$5 per acre for rental of land, making \$38.25 as the actual cost of raising an acre of beets. The average yield in Michigan is 9 tons to the acre. The average cost to the farmer per ton is \$3.70; there results a profit of \$6.30, allowing for seed, etc. During the campaign of 1901, 33,700 men found employment and 2,300 horses were used. All calculations made, there are 84,000 persons actually interested in the agricultural side of the beet sugar industry for Michigan. For the 13 factories there are needed 597,000 tons of beets, demanding 125,496 tons of coal. The supplies for an average Michigan factory of a daily capacity of 508 tons : coal, 9,600 tons; limestone, 3,200 tons; coke, 354 tons; sulphur, 21,000 pounds, etc. The cost is \$48,000. All calculations made, this means about \$1.06 per ton of beets sliced. The repairs for the campaign amount to about \$3,000 per factory and the off months to \$12,000. All facts considered, these repairs amount to 32 cents per ton. One must make allowance for depreciation, which is not less than 7 per cent. on first cost of the plant. So, all facts considered, this total becomes \$50,000. The amount paid annually for interest, taxes and insurance in a 500-ton sugar house is \$41,913. The average output of sugar per ton of beets is 210 pounds; the total sugar obtained is 75 per cent. of Michigan's yearly consumption. Cost of manufacture, \$5.20 per ton of beets, \$1.06 supplies per ton of beets, \$1.51 cost of labor for entire year per ton of beets, \$1.09 cost of repairs and depreciation per ton of beets, etc., giving a total cost of \$9.83 per ton of beets sliced. The cost of manufacturing 100 pounds refined sugar is \$4.

EDITORIAL NOTES.

The German-Australian Steamship Company, of Hamburg, will establish a new line of steamers to New York, and thence to Australia by way of Cape Town.

The wheat crop of the Maritime Provinces is something to which we usually pay little attention. Yet there has recently been a very large increase in the acreage in New Brunswick. Mr. Farris, Commissioner of Agriculture, told a reporter of The Montreal Herald that a few years ago the Province had to import all the flour, or about all it consumed, while last year 750,000 bushels of wheat was grown within the borders of the Province, the quality being quite equal to No. 1 Manitoba hard. The Government, in fact, imported wheat seed from Manitoba and sold it to the New Brunswick farmers at cost. This year a crop of a million bushels is expected. The Province has 24 well-equipped flour mills, turning out from 25 to 100 barrels of high-grade flour a day. The dairy industry has grown rapidly. Ten years ago New Brunswick imported cheese to the value of \$500,000, while last year it exported cheese and butter to the value of \$1,000,000.—The Globe.

Tropical Jamaica and temperate Canada are natural customers of each other. Each grows what the other cannot, and each consumes what the other grows. To this is added the artificial circumstance that Canada is a great manufacturing country and Jamaica is not. There is only one reason why we do not trade with each other to an immense extent, and that is—distance. The United States lies closer to both of us, selling oranges to us and flour to the Jamaicans. But in this day of steam and subsidies, distance by sea is not to be measured finally by miles. A better steamship service laughs at distances on the map. It is not a question of knots at all, as a matter of fact, but of cost and, to a degree, of time. Cheap

freights and swift steamers can dry up the ocean. It will be well for the representatives of the Canadian Manufacturers' Association who are to study the Jamaican market, and for the Jamaican trade experts who are to meet them with suggestions, to remember these facts. They should not think of Jamaica and Canada as being so many leagues apart, but so many dollars and days in freight cost, and then see if they do not think that this sort of "distance" can be considerably reduced. They ought not to let the United States "win out" by the accident of geographical position. British peoples have been fighting geography all their lives. France and Italy are nearer to India and to Egypt than Britain is, but Britain does the trading. Russia borders on China, but the British sea laves her wharves. The two British communities of Canada and Jamaica should be as resourceful in fighting geography. Then the politicians of the two colonies might do something to help the traders along. This is one of the chief businesses of politicians—the finding of markets abroad for the home surplus. A British preferential tariff would help reduce the sea-distance from Montreal and Halifax and St. John to Kingston, Jamaica, very effectively. It is a case to test the enterprise of our commerce, the shrewdness of our business men and the patriotic foresight and sweep of vision of our public men.—Montreal Star.

At the recent meeting of the National Association of Manufacturers, at Indianapolis, the following officers were elected: President, D. M. Parry, Indianapolis; secretary, E. H. Sanborn, Philadelphia; treasurer, Hamilton Carhart, Detroit. New Orleans was selected as the next place of meeting. Mr. Sanborn has since resigned, to take effect May 31, when he will be succeeded by Marshall Cushing, of New York. The general offices of the Association are to be removed to New York.

A telephone system in a school building is something of a novelty, but one has been installed in the new high school at Syracuse, N. Y., which is declared to be one of the most extensive and scientific private systems ever installed. There are to be 53 telephone stations in the building, the central station being located in the principal's office. The principal can swing a switch, press a button, and talk with any one of the 53 stations. Any of the teachers can convey messages through the central station. In this office there will be an enunciator, and each time the principal is called this will indicate the room which wishes to speak with him. This system is equally applicable to factories, warehouses, etc.

Cabling from Sydney, N. S. W., the correspondent there of The London Daily Mail, gives an account of the terrible drouth, from which, as a climax to seven dry years, Australia is now suffering. The correspondent says that the losses in stock in Australia since 1899 amount to £15,000,000. Unemployed men are drifting into the cities by the thousands, and there the State governments are providing them with relief. The only districts that have escaped the drouth are the Northern Rivers district of New South Wales and parts of the Riverina district. The situation has been aggravated by the federal duties on fodder, which prevent its importation. Communication in the interior has been paralyzed, as the waterways are unnavigable. Owing to the expense of fodder, the firm which had the contract has abandoned the hauling of the mail in Queensland, the cost of this transportation having risen from £6,000 to £30,000 annually. The sheep are dying

by the million, continues the correspondent, and even the rabbits are starving. Animals have stripped the bark from the trees for food. A common method of treating exhausted horses is to slit the animal's palate with a knife; the horse is revived by swallowing his own blood. Numbers of "sundowners" and "swagmen" have been found dead by the wayside. The governments are doing everything possible to alleviate these conditions, but meteorologists despair of an early change in the weather conditions.

The total foreign commerce of Africa is estimated at \$700,000,000, of which about \$430,000,000 represents imports and \$270,000,000 exports. Of the exports, especially those from the south, a large share is gold and diamonds: in the tropical regions, ivory, rubber, palm nuts and gums; in the north the exports are chiefly products of agriculture, cotton, coffee, cocoa, spices, dates, etc. Of the total recorded imports into Africa in the latest available year, aggregating \$429,461,000, \$157,575,000 went into British territory; \$92,004,000 into French territory; \$77,787,000 into Turkish territory; \$20,795,000 into Portuguese territory; \$8,336,000 into German territory, and \$4,722,000 into the Kongo Free State. Of this importation of \$429,461,000 about 5 per cent. was furnished by the United States; our total exports to all Africa being in the fiscal year 1900, \$19,469,849 and in 1901 \$25,542,618.—Bradstreets.

In a discussion of the Navy estimates in the British House of Commons a few days ago, the Secretary of the Admiralty, Mr. Arnold Forster, refuted Sir Charles Dilke's suggestion that the Government's ship-building programme was so small as to create a bad impression abroad. The Secretary said that during the past year 35 ships had been completed, 75 vessels were now under construction, including 20 armored cruisers, and the Admiralty contemplated immediately proceeding with upwards of 27 other ships. The vote for the construction of vessels alone, he said, during the present year, would amount to over £9,000,000.

The twelfth annual convention of the Canadian Electrical Association will be held in the city of Quebec, on June 11, 12, 13 and 14, the headquarters for the occasion being at the Chateau Frontenac. The circular announcing the event contains the programme, including the papers which will be presented having reference to cognate matters, the social features which will be observed on each day, etc. For further particulars, apply to the Secretary, Mr. C. H. Mortimer, Toronto.

It has been for some time suspected that trusts were a blessing in disguise. Their patient plea has been that through rigid economy, absence of competition, and the reduction of working expenses they could greatly cheapen the cost of their products to their chief beneficiaries—the consumers. Few statistics are needed to prove how true is this contention, and how grievously we have misjudged our benefactors. For instance, the Beef Trust, by the most self-sacrificing economy, has managed to cut the price of beef till it is now—at the highest point in thirty years. The Coal Trust, immolating itself on the altar of its love for the public, has cut retail prices up to \$7 a ton in summer, and promises to labor hard and faithfully to cut them up to \$10 a ton by the time winter comes. The Steel Trust, with sublime self-abnegation, has contrived, by sternly increasing its dividends, to reduce the price of steel so phenomenally that we can now buy it in England \$6 per ton cheaper than at home, where it is of course more costly, because there are no ocean freights to pay on it. And these are only the mere beginnings of the trusts' benevolent plans for us in the way of cutting prices. Their vast schemes of philanthropy will grow until some day, by a master-stroke of economy, they will so cheapen life itself that it will hardly be worth living.—New York World.

CAPTAINS OF INDUSTRY.

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

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a 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, alkalis, 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.

It is stated that the International Power Co. has acquired the right to the exclusive manufacture of the Diesel engine for the United States and Canada.

The Muskoka Wood Mfg. Co. has been incorporated to manufacture broom and tool handles, dowels, chair parts, etc. A factory will be erected at Huntsville, Ont.

The London Machine Tool Co., London, Ont., has received contract for building two new hydraulic pumps in connection with the London water works, the amount of contract being \$18,000.

The Canadian Aluminum Works, Montreal, has applied for incorporation with \$100,000 capital, to manufacture aluminum, etc. The applicants include J. E. Shoemaker, H. C. Dodds, both of Montreal, and S. T. Willett, Chambly Canton, Que.

The Oshawa Steam & Gas Fittings Co., Oshawa, Ont., has been incorporated with \$50,000 capital to manufacture steam and gas fittings, brass and malleable castings, etc. The provisional directors include W. F. Cowan, J. D. Storie and H. T. Carswell, all of Oshawa.

The Rideau Graphite Co., Kingston, Ont., has been incorporated with \$30,000 capital. The provisional directors include O. W. Stanton, W. T. Ross and H. K. Lee, all of Montreal.

J. C. Wilson & Co., Glenora, Ont., have now under construction two 10-inch verti-

cal Little Giant turbines for A. J. Leigh, Orono, Ont.; one 12-inch horizontal for Jas. Cumming, Lyn, Ont.; one 14-inch vertical for H. Hortop, Eden Mills, Ont., and a 33-inch vertical for S. Howes, London, England.

The National Electric Co., Toronto, has been incorporated with \$40,000 capital to manufacture electrical supplies, etc. The provisional directors include J. E. Webb, W. M. Beall and G. M. Hendry, all of Toronto.

The Renfrew Milling Co., Renfrew, Ont., has been incorporated with \$65,000 capital to manufacture flour, etc. The provisional directors include W. A. Mackay, David Craig and James Carswell, all of Renfrew.

The Jacques Cartier Electric Co., Quebec City, have awarded the contract for the installation of the large water tube boilers and the necessary equipment, including steam pump, steel smoke stack and piping in connection thereto, to Mr. John J. Main, manager of the Canadian Heine Safety Boiler Co., Toronto. These boilers are to be of 500 h.p. each, and are to be placed at the company's new steam power house at the extremity of St. Savauer. This plant, which is expected to be complete and ready for operation in a few months, will cost, including engines, in the vicinity of \$100,000. It is to be constructed as a reserve steam plant, and will be kept in perpetual readiness to be utilized should an interruption

occur in the present hydraulic plant. The Heine Boiler Co. are to be congratulated on having their boilers selected from among the many offered for this important plant, which is another testimonial to their great efficiency and economy. This company are to install the large boilers for the waterworks pumping station in Toronto, which contract was also secured after competition with several other boiler firms. The Heine Company are also installing another large boiler at the Toronto Electric Light Works, which have already in operation over 3,000 h.p. of the "Heine," and are in correspondence with a number of other concerns with a view to future contracts. The Heine people seldom fail to "get there" if given half a chance.

J. C. Wilson & Co., Glenora, Ont., report large orders for their machine-dressed gears. Among recent customers have been the Edson Fitch Co., Etchemin, Que.; the Rathbun Co., Deseronto, Ont.; J. & T. Jardine, Rexton, N.B.; R. E. Lazier, Belleville, Ont.; John McRae, Eganville, Ont.; the Dominion Pulp Co., Chatham, N.B.; McLachlin Bros., Arnprior, Ont.; J. B. Snowball Co., Chatham, N.B.; Morden Mfg. Co., Gananoque, Ont.; Canadian Colored Cotton Mills Co., Hamilton, Ont.

The already large list of American concerns having branch establishments in Canada is constantly receiving additions. The American Wire & Steel Co. has been incorporated in Ontario under the title of the Canadian Wire & Steel Co.; it has arranged for temporary factory buildings at Hamilton, Ont., and is now running three machines with a capacity of 35 tons daily. H. R. Lamb, of Michigan, has just established a factory for woven-wire fencing at London, Ont. The Port Huron Engine & Thresher Co., Michigan, has located a branch factory at Sarnia, Ont, and will employ \$500,000 capital in the Canadian and export trade. The plant of the John Abell Threshing Machine & Agricultural Works, Toronto, has been purchased by the Advance Thresher Works, Battle Creek, Mich. This establishment is said to be the largest of the kind in the Dominion, and has for years supplied many of the machines for Manitoba and the great wheat region of the Canadian

Pneumatic Tools and Appliances ARE GREAT MONEY SAVERS.

Air Hoists, Baggage Handlers, Agitation of Liquids or Syrups in Refineries. Cushion and Carpet Cleaners, Chipping Tools for use by Machinists, Boiler Makers, Stonecutters and Marble Works. Calking and Drilling, Air Brushes

INGERSOLL-SERGEANT

PISTON INLET AIR COMPRESSORS FOR ALL DUTIES

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 Spring Machine, Five Cutters, Rollers and Welders, Air Lift Pumps, Jacks, Paint Spreaders, Bolt Nippers.

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North-West. The object of Americans in operating these factories is to avoid the duty, which is so high as to allow little profits on machinery when sent across the boundary line.

In treating burns of a serious nature the first thing to be done after the fire is extinguished is to remove the clothing. The greatest care must be exercised, as anything like pulling will bring the skin away, too; so, if the clothing is not thoroughly wet, be sure to saturate it before attempting to remove it, says Health. If portions of clothing will not drop off, allow them to remain. Then make a thick solution of common baking soda and water, dip soft cloths in it and lay them over the injured parts, and bandage them lightly to keep them in position. Have the solution by you, and the instant any part of a cloth shows signs of dryness squeeze some of the solution on that part. Do not remove the cloth, as total exclusion of the air is necessary, and little, if any, pain will be felt as long as the cloths are kept saturated. This may be kept up for several days, after which soft cloths dipped in oil may be applied and covered with cotton batting. If the feet are cold apply heat, and give hot water to drink, and if the burns are very serious, send for a doctor as soon as possible. The presence of pain is a good sign, showing that vitality is present.

The Lake of the Woods Milling Co., Keewatin, Ont., will erect a 30,000 bushel elevator at Waskada, Man.

The Frontenac Cereal Co., Kingston, Ont., has been incorporated with \$600,000 capital to manufacture grains, cereals, etc., and to acquire business of the Frontenac Milling Co. and the Kingston Elevator & Transit Co. The provisional directors include Hon. Wm. Hart, Henry Mooers and Edwin Mooers, all of Kingston.

The Howell Lithographing Co., Hamilton, Ont., whose works were recently destroyed by fire, will erect a four-storey brick factory, to cost about \$10,000.

The Gould Mfg. Co., Smith's Falls, Ont., will erect a new moulding shop.

Messrs. Cane & McGrath will erect an abattoir at St. John, N.B.

All advertisements intended for insertion in THE CANADIAN MANUFACTURER should reach this office not later than Tuesday morning of publication week.

A large deposit of copper ore has been struck about twelve miles from Sydney, C.B. The ore has proved of a satisfactory grade, and air drills are being used to sink further down to the lower level, and reduction smelters will be erected.

The Canadian Northern Railway Co. will erect a 1,700,000 bushel steel elevator at Port Arthur, Ont.

The Canadian Government agent at Glasgow, Scotland, says: The importation of pig iron from the Dominion to the Clyde has created quite a sensation. Fifty-three thousand tons were discharged during the year, and three or

four cargoes are now on the way. The iron serves the same purpose as Scotch or English foundry iron, and is principally used by foundries. Some of it, however, is used by pipe and malleable iron manufacturers.

J. C. Wilson & Co., Glenora, Ont., manufacturers of the Little Giant water wheel, report an active demand for their wheels, both for home and export trade. The S.S. Fremona, which cleared from Montreal for London on May 2, took aboard seven Little Giants for distribution in England and on the continent.

The Noxon Implement Mfg. Co., Ingersoll, Ont., will remove their works to London, Ont.

The ratepayers of Hamilton, Ont., have defeated the bylaw to grant a bonus of \$50,000 to the Deering Harvester Co.

Pratt & Armstrong's heading factory, Tweed, Ont., was destroyed by fire May 21. Loss about \$4,000.

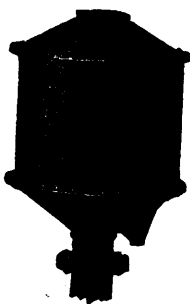
The Powassan Lumber Co., Powassan, Ont., has been incorporated with \$20,000 capital to manufacture lumber, furniture, doors, sashes, etc. The provisional directors include S. F. Bingham, Robert Dey and D. C. Bingham, all of Casselman, Ont.

The Bank of Nova Scotia will erect a large office building in Toronto.

The factory of the Petrolea Combination Rack Co., Petrolea, Ont., was destroyed by fire May 19. Loss about \$2,800.

Baffled at Every Turn

There's no way for wet steam to get past the . . .



BURT EXHAUST HEAD

This is very different from the method employed in most exhaust heads, in which, when the steam encounters the cold air, it condenses, drops back and is blown out by the next exhaust.

Absolutely nothing but dry steam escapes from the Burt Exhaust Head, and that without noise, puffing and the disturbance of employees and neighbors.

Saves its cost in the saving to roofs and walls. Costs no more than Exhaust Heads of inferior make. Booklet?

THE BURT MFG. CO.,

LARGEST MFRS. OF OIL FILTERS IN THE WORLD.

AKRON, OHIO, U.S.A.

Also supplied by Engine Builders, Dealers and Power Contractors.

A complete stock carried by the
FAIRBANKS CO., MONTREAL, Sole Agents for Canada

BUFFALO VENTILATORS

IMPROVED

FOR

SCHOOLS, CHURCHES, FACTORIES, FOUNDRIES
AND ALL INDUSTRIAL BUILDINGS



Impure Air, Smoke, Steam and Gases rapidly
and constantly withdrawn.

BUFFALO FORGE COMPANY, BUFFALO, N.Y.

The Canadian Northern Railway Co. will erect a modern depot at Portage la Prairie, Man., at a cost of about \$16,000.

The Canadian Pacific Railway Co. will erect a 65x24 foot station at Brampton, Ont., at a cost of about \$10,000.

The Canadian Otis Elevator Co. propose erecting a plant in Hamilton, Ont., at a cost of about \$80,000.

The Pressed Brick & Tile Co. will erect a large manufacturing plant at La Riviere, Man.

The Pittsburg Reduction Co., Pittsburg, Pa., will erect an aluminum wire mill at Shawinigan Falls, Que.

J. C. Wilson & Co., Glenora, Ont., have recently shipped a 38-inch vertical Little Giant turbine to Messrs. Alex. Jeffrey & Co., Montreal, for a customer of theirs in that city.

The Robb Engineering Co., Amherst, N.S., has shipped two engines to the Marconi Wireless Telegraph Co. for the station they are building at Glace Bay, C.B. One engine of 100 h.p. is for driv-

ing the electric generator that supplies the current for the signalling apparatus, and the other of 20 h.p. is for lighting the station and the buildings adjoining.

The Canadian Colored Cotton Co's mill at Cornwall, Ont., was destroyed by fire May 17. Loss about \$30,000.

The sawmill of Boyd, Caldwell & Co., Lanark, Ont., was destroyed by fire May 19. Loss about \$6,000.

The mill of the Sturgeon Falls Pulp Co., Sturgeon Falls, Ont., was destroyed by fire May 20. Loss about \$50,000.

The American-Abell Engine & Thresher Co., Toronto, has been incorporated with \$1,000,000 capital to manufacture engines, boilers, agricultural implements, etc., and take over and extend the business of the John Abell Engine & Machine Works Co., Toronto. The Advance Thresher Co., Battle Creek, Mich., and the Minneapolis Threshing Machine Co., Minneapolis, Minn., are interested in this concern, the provisional directors of which include A. W. Wright, Alma,

Mich.; W. H. Akeley, Battle Creek, Mich., and T. A. Rowan, Toronto.

A few weeks ago the Burt Mfg. Co., Akron, Ohio, received an order for a large Cross oil filter from the Anheuser-Busch Brewing Association, St. Louis, Mo., which was shipped, and gave such good satisfaction that the Burt Company have just received a duplicate order from them.

J. C. Wilson & Co., Glenora, Ont., find it necessary, in order to keep pace with the demands of their rapidly-increasing business, to increase their foundry equipment. Among the improvements now being made is an extension to their moulding shop 66 feet in length, with a large core oven for manufacturing cores for the larger diameter turbines they are now about to put on the market, and which will have a much greater power capacity than any they have hitherto manufactured. When the improvements in hand are completed, they will have an up-to-date foundry plant, thoroughly equipped with all appliances necessary for successfully

CAMEL BRAND
BALATA
RUBBER

Linen Fire Hose,

Water and Steam Hose,

Packings, Etc., Etc.

THE STANDARD



GOLD WATER PAINT

WEATHER PROOF, FIRE PROOF
WHITE AND COLORS.

MILL SUPPLIES

Lubricating Oils and Greases

PAINT, PAINT OILS, ETC.

W. A. FLEMING & CO.

Montreal and St. John, N.B.

"RATHBUN'S
STAR."

Portland Cement

"BEAVER"
BRAND

MANUFACTURED BY

**THE CANADIAN PORTLAND CEMENT CO.
LIMITED**

Capacity of Works—500,000 Barrels per Year.

THE RATHBUN COMPANY,
310-312 Front Street West,
Telephone Main 1378.

TORONTO, ONT.

SALES
AGENTS

ST. LAWRENCE PORTLAND CEMENT CO.,
2664 Notre Dame St. W.
Telephone Main 3987.

MONTREAL, QUE.

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turning out all classes of work, from the lightest to the heaviest.

The Burt Mfg. Co., Akron, Ohio, recently made a large shipment of their Cross oil filters and Burt exhaust heads to Buenos Ayres, Argentine Republic. They report an unusually active foreign trade in their goods, other shipments having been recently sent to England, Austria, Belgium, Mexico and countries in the far East.

The Osborn Mfg. Co., makers of foundry supplies, brushes, brooms, etc., Cleveland, Ohio, have sent us their new catalogue, No. 102, having reference to the many different lines of foundry supplies made by them. These include about every article necessary or convenient in foundries, the most of them being illustrated and described and the prices thereof given. The catalogue makes reference to the recently enlarged factory of the company and the introduction of new machinery and improved methods of production which places the concern in a position to make prompt shipments. The catalogue will be sent on application.

"Facts About Motor Bearings" is the title of a handsome brochure sent us by the Ohio Brass Co., Mansfield, Ohio, for whom the Canadian General Electric Co., Toronto, are selling agents in Canada. Besides reciting many important facts having reference to the bearings made by the concern, the metal employed in their construction, the finish and fit of them and how the excellence of them may be tested and proven, a list is given in which

is mentioned the prices of the different sizes of commutator ends, gear ends, intermediate bearings, axle bearings, etc.

"Manufacturers' Accounts" is the name of a new text book, a copy of which has been sent us, which has recently been issued for the use of manufacturers, merchants, accountants and bookkeepers by W. C. Eddis, Toronto, and Wm. B. Tindall. This work embraces nearly 200 pages of carefully prepared information on the subject of accounting and should be useful to manufacturers everywhere.

A building permit has been issued in Toronto for the superstructure of a big apartment house on University avenue. The amount stated is \$150,000. The building will be seven stories high.

One of the towers of the Marconi station at Glace Bay, N.S., is completed, and the others will be finished in a few weeks' time.

W. A. Rogers, of Rogers, Brown & Co., and F. H. & C. W. Goodyear will build two large modern blast furnaces in Buffalo, N. Y., for the manufacture of foundry pig iron.

The woolen factory of Methot & Frere, Cap St. Ignace, Que., was destroyed by fire May 19. Loss about \$17,000.

Dobson & Co's woolen mill at Cannington, Ont., was destroyed by fire May 21. Loss about \$30,000.

A remarkable flow of gas was recently obtained on a farm near Tilsonburg, Ont., by Mr. Cuthbertson, manager of the numerous oil wells found during the

past few months near the town. In drilling the last well an immense pressure of gas was obtained about 100 feet from the surface, which was sufficiently strong to lift the sinker bar, weighing 1,800 pounds, and throw portions of rock above the derrick, which is 53 feet high. The gas appears to be of excellent quality to utilize for manufacturing purpose.

W. R. Halton, architect, Sault Ste. Marie, Ont., has prepared plans for a new city hall to cost about \$22,000.

The ratepayers of Warton, Ont., will vote on a by-law to raise \$10,000 for new waterworks, pump engine and boiler, etc.

The Globe-Wernicke Co., Stratford, Ont., will erect a factory 352 x 60 feet, with engine and boiler room 52 x 37 feet.

Messrs. Wilson Bros., Collingwood, Ont., will build a large brick planing mill, to be equipped with modern machinery, including dry kilns, exhaust fans, elevator, etc.

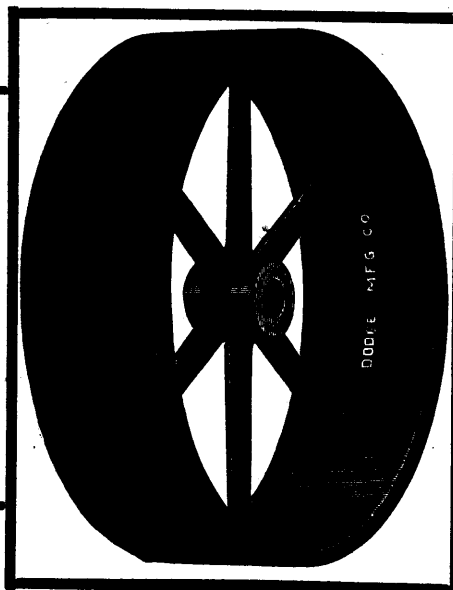
The Imperial Veneer Co., Toronto, has been incorporated with \$40,000 capital, to manufacture timber, lumber, veneer, boxes, etc. The provisional directors include O. M. Hudson, Edward Bayly and E. R. McHolm, all of Toronto.

The Pressed Brick & Tile Co., Winnipeg, Man., will erect a plant with a capacity of 30,000 bricks per day, at that place.

The Canadian-American Linotype Corporation, Toronto, has been incorporated with \$500,000 capital, to manufacture type-setting machines, linotype machines,

IRON GROOVED PULLEYS

Spiral Steel Conveyor.
Elevator Buckets.
Detachable Chain.
Sprocket Wheels.
Belt Conveyors.
Friction Clutch Pulleys.



Clutch Couplings.
Machine Moulded
Iron Pulleys.
Steel Shafting.
Flange and Compression Couplings.

..Improved Ball and Socket Adjustable Hangers..

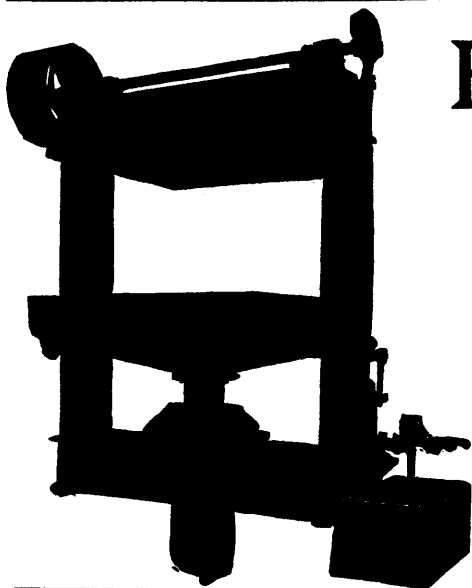
DROP AND POST, SAFETY COLLARS, ETC.

Power Transmission Machinery. GRAIN HANDLING MACHINERY.

SEND FOR CATALOGUE.

DODGE MANUFACTURING CO., - TORONTO, ONT.

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Hydraulic **PRESSES**

We Build Presses
for...

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

SEND FOR
CATALOGUE
AND PRICES

William R. Perrin & Company

TORONTO, - CANADA

etc. The provisional directors include J. J. Palmer, J. T. Johnston and E. T. Malone, all of Toronto.

The Mackay Stained Glass Co., Toronto, will erect a three-story brick factory at a cost of about \$5,000.

The Canadian-Buffalo Forge Co., Toronto, has been incorporated with \$100,000, to manufacture engines, fans, blowers, forges, drills, etc. The provisional directors include W. F. Wendt and H. W. Wendt, both of Buffalo, and G. F. Burton, Toronto.

The Niagara Falls Machine & Foundry Co., Niagara Falls, Ont., has been incorporated with \$10,000 capital, to carry on a machine and foundry business. The provisional directors include O. D. Glasgow and Hiram Bender, both of Niagara Falls, Ont., and H. A. Campaigne, Niagara Falls, N. Y.

The St. Thomas Acetylene Mfg. Co., St. Thomas, Ont., has been incorporated with \$100,000 capital, to manufacture machines for the generation of acetylene gas, etc. The provisional directors include J. H. Ellman, J. P. Martyn and C. F. Maxwell, all of St. Thomas.

The St. Lawrence River Electric Co., Iroquois, Ont., has been incorporated with \$250,000 capital, to manufacture electricity for heat, light and power. The provisional directors include M. W. Beach,

Iroquois, W. H. Meldrum, Peterborough, Ont., and D. A. King, Winchester, Ont.

The Burrill & Deacon Co., Stratford, Ont., has been incorporated with \$40,000 capital, to manufacture office supplies and devices. The provisional directors include Royal Burrill, F. B. Deacon and W. L. Scott, all of Stratford.

The Dowd Milling Co., Pakenham, Ont., will erect a 50,000 bushel elevator at that place.

The Brantford Starch Works, Brant-

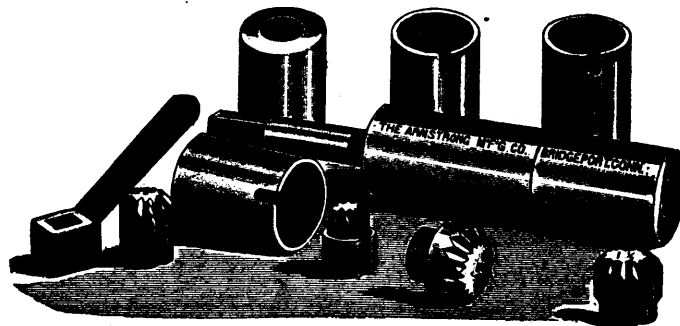
ford, Ont., were destroyed by fire May 29. Loss about \$40,000.

The saw and shingle mills of W. Porter & Sons, Minesing, Ont., were destroyed by fire May 22. Loss about \$5,000.

The Shawinigan Water & Power Co., Shawinigan Falls, Que., have given a contract for 260 miles of aluminum wire to the Pittsburg Reduction Co., located at the Falls. The Reduction Co. will erect a wire mill, and will go extensively into the manufacture of aluminum wire.

ARMSTRONG NEW NIPPLE HOLDER.

The accompanying illustration represents a new nipple holder which has been made by the Armstrong Mfg. Co., Bridgeport, Conn., to be used in connection with their No. 00 Pipe Threading Machine. It holds pipe from 1 inch to 4 inches inclusive by using different threaded rings and backing pieces. It will also hold close nipples either right hand or left hand, no change of parts being necessary to hold the nipple for threading it left hand. When thread is cut the nipple can be removed with the fingers by loosening the screw in the back of the holder. This nipple holder can be furnished to hold as small as three-quarter inch if required.

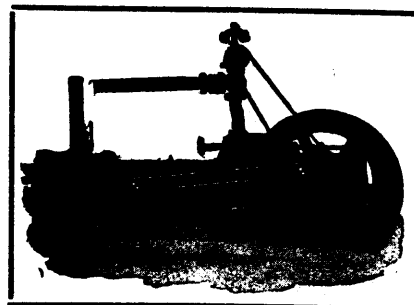


BOILER, RAILWAY and MACHINE SHOPS CONTEMPLATING THE USE OF **PNEUMATIC TOOLS**

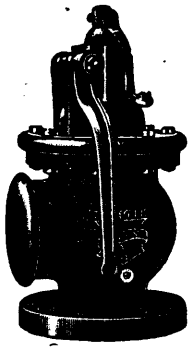
WILL DO WELL TO COMMUNICATE WITH US BEFORE
INSTALLING PLANT

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

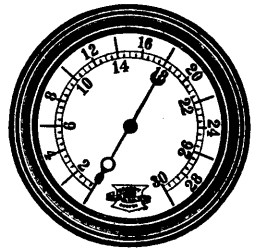
Steam Engine Indicators.
Recording Gages.
Revolution Counters.
Pressure and Vacuum Gages.
Lubricators, etc.



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

SEND FOR CATALOGUE

A TRUTHFUL GAGE
IS THE
ONLY GOOD GAGE



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

THE HURONIC.

The new steel passenger and cargo steamer Huronic represents the high skill reached in the construction of freight and passenger steamers on the lakes. This steamer was built at Collingwood, Ont., by the Collingwood Shipbuilding Co., to the order of the North-West Transportation Co., and was designed by Mr. Hugh Calderwood on plans and specifications approved by Mr. Frank E. Kirby, the well-known marine architect of Detroit, who is consulting engineer for the owners.

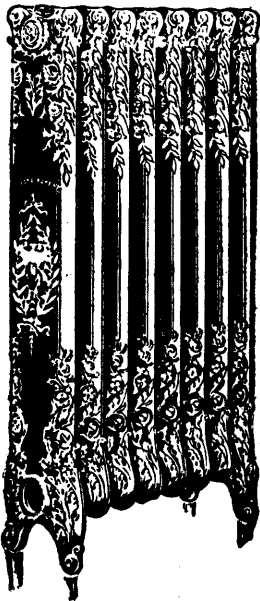
The following are the official dimensions as they appear in her certificate of building: S. S. Huronic is built of open hearth steel throughout, and is of the following dimensions: 325 feet over all, 308 feet between perpendiculars, 43 feet beam, and 27 feet moulded depth. The steamer has very fine ends and a large

water ballast capacity. Engines are of the triple expansion type; diameter of cylinders, 26, 42 and 70 x 42 inch stroke, steam being supplied by four Scotch boilers, 12 feet 6 inches in diameter by 12 feet long, at a pressure of 175 pounds per square inch. Horse-power 2,400, gross tonnage 3,330, net tonnage 2,212.

The Huronic has a guaranteed speed of 16 miles when loaded and 18 miles when light. In addition, for the safety of the passengers, the steamer is so extensively subdivided in compartments by water-tight bulk-heads as to make her practically unsinkable under all conditions. Again, the double bottoms, the one three feet six inches inside the other, will minimize the consequence of a break in the outer bottom, or shell plating, owing to grounding or accident from hidden rock, for the inner plating is in every respect as strong and as water-tight as the outer

hull. The intermediate space will be utilized, as usual, for water ballast for trimming purposes, the capacity of which is 800 tons.

This new vessel has first-class accommodation of the best design for 270 saloon passengers, having a double tier of cabins with outside state-rooms. The dining room is forward, and is built the full width of the lower saloon, thus making it very spacious, and is well lighted by large windows affording a view of the scenery and surroundings. It is finished in natural quartered oak and has a seating capacity for 150 people. This compartment is also magnificently lighted by electric lamps arranged in alternate panels, forming the centre of the pattern, and not on the beams as is usual, and the steel stanchions which support the roof are encased in richly moulded and carved pillars.



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THE ARMSTRONG GENUINE ADJUSTABLE STOCKS AND DIES
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 —Are Manufactured by—
THE ARMSTRONG MFG. CO.
 New York Office—139 Centre St. Write for Catalogue 27. BRIDGEPORT, CONN., U.S.A.

The completeness which characterizes the whole of the new ship is very properly extended to the kitchen and pantries; for prompt service, so essential to a well ordered establishment, is impossible without ample accommodation. Large pantries have therefore been provided on the cabin deck immediately forward of the dining saloon and connected with it only by hallways and swinging doors, so that all undesirable odors are removed from that and other parts of the vessel. The kitchen and pantries are provided in a most complete manner with all the details which a long experience of the company's stewards suggested, and ample cold storage provided for the proper keeping of supplies.

Every known device pertaining to a first-class steamship, from the sub-division of the hull to the search light upon the bridge, is found on the Huronic, and this completeness in her construction has been carried out in all departments to the greatest degree. With this splendid addition to the fleet of the North-West Transportation Co.—whose route offers such splendid passenger attractions—it is confidently expected that a corresponding increase in the traffic will follow, and that the steamship Huronic will amply fill the requirements of the service to the entire satisfaction of the travelling public and shippers on the lakes.—Marine Record.

THE AMERICAN POP SAFETY VALVE.

The American Steam Gauge & Valve Mfg. Co., Boston, Mass., have sent us their catalogue, having reference to the American pop safety valve, regarding which they say:

It is now a well-established fact that the cause of a large majority of boiler explosions is excess pressure of steam on the boiler. The frequency with which these explosions occurred, causing general destruction of property and oftentimes loss of life, has caused manufacturers as well as owners of boilers to adopt every possible device to guard against disasters. It is an equally well-established fact that the common lever safety valve, owing to its very slight lift and the friction of its parts, is not capable of automatically preventing over-pressure. It will not open

promptly when the pressure reaches the point it is set for, nor close until the pressure is far below the opening point; and there are other objectionable features too numerous to mention. Its utter unreliability, becoming so apparent, brought forth a demand for an automatic pop safety valve which could be absolutely relied upon at all times and under all circumstances. Keeping these points in view this company, many years ago, placed upon the market the American patent pop safety valves. It is truly an automatic safety valve, positive in action, opens and closes promptly at the point of pressure required, and can be abso-

lutely relied upon to relieve the boiler of excess pressure at all times and under all conditions.

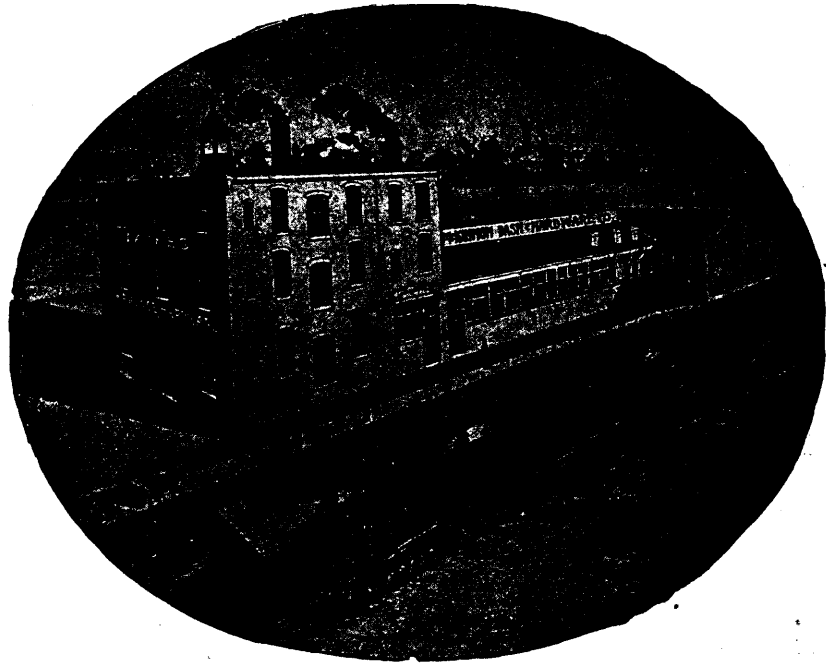
The American pop safety valves are made from the best steam metal, have springs of the finest tempered steel and phosphor bronze spindles. When desired the valves are made with solid nickel seats and lock-up attachments.

Every valve is tested under live steam to open at the pressure desired, and to close with the least possible percentage of reduction. Valves for stationary boilers are usually made with flat seats. The marine valves are made with beveled seats at an angle of 45 degrees.

A FINE FACTORY SITE FOR SALE OR LEASE.

The McKinnon Dash & Metal Works Co., St. Catharines, Ont., having gone

factory at St. Catharines, as here shown, including buildings and water power, at a less price than it would cost to produce the power alone. Thirty-five h.p. can be used 24 hours daily. Everything is in



into the manufacture of a full line of saddlery and carriage hardware, have found it necessary to move into much larger premises, and have just completed one of the finest factory buildings in Canada. They offer to lease their old

condition to operate without further expense or delay. They would sell, if preferable, at a very reasonable price.

Further information will be furnished by McKinnon Dash & Metal Works Co., St. Catharines, Ont.

RICE LEWIS & SON, LIMITED,

MACHINIST TOOLS, PIPE FITTINGS,

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ESTIMATES AND PLANS SUBMITTED.

Electrical Fittings, Arc Lamps, Telephone Bells, Etc.

DARLING BROTHERS.

Messrs. Darling Bros., proprietors of the Reliance Works, Montreal, have sent us a copy of their new 1902 catalogue, having reference to the Webster System of low pressure steam circulation for heating purposes; which system, we are informed, is admirably adapted to the special duties of direct and indirect radiation; direct and indirect blast coils or blower stacks; dry kilns, paper machines, slashers, drying cylinders, etc., either singly or in systems or groups, in addition to which the Webster system can be successfully and economically applied to a great variety of manufacturing processes by making slight modification in its working details.

It is pointed out that the special use and functions of the Webster system is in circulating low pressure steam. While it is primarily intended for and adapted to the heating of buildings and of certain kinds of products, yet all conditions involving the application and distribution of heat, are necessarily engineering problems, and should be separately considered for the particular case proposed.

The system of itself is not a cure all for illy designed or antiquated installations, nor does it insure the heatings of buildings to a predetermined or desired temperature throughout. These are questions first of the sufficiency of heating surface and its allotment, the installment of the work, and finally an efficient and controllable circulation. The first two co-incident considerations being satisfactorily determined, it is claimed that the circulation insured by the Webster system establishes satisfaction and economy that represents the highest development in steam heating practice.

The distinctive features of the Webster system are described as being:

1. Absence of back pressure on motive engines when exhaust steam is utilized.
2. A perfect drainage of supply pipe systems preliminary to an equally perfect drainage of radiating surface without the loss of steam.
3. A continuous automatic drainage of condensation and the prevention of any accumulation of water.
4. A positive and consequently effective steam circulation.

5. Perfect control of circulation, with power to vary it at will.

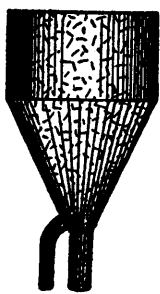
6. Removal of air and gases from heat surfaces and feed water.

7. Power to separately modulate temperature in any part of the heating surface.

8. The return of condensation from points somewhat below the line of drip or drainage mains when necessary.

While it is conceded that some of these conditions have been dealt with more or less successfully in various other heating systems, an apparatus that fails to establish its capacity to deal successfully with them in their entirety, must be regarded as deficient.

No heating system employing a single pipe for the double duty of supply and return, we are told, can meet these various requirements successfully. The same may be said of any system which disposes of the air and gases, but which fails to deal successfully with the water of condensation; or, of one establishing a partial suction in a coil or radiator in a manner obstructive to the free drainage of the condensation; or by any apparatus



**This . . .
Exhaust
Head . . .**

is Superior to any Exhaust Head in the market. It leaves very little water in the steam, returns the hot water to the heater. We make them in all sizes in Galvanized Iron or Copper.

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requiring more than a single valve on a coil or radiator for its regulation by unskilled persons: or by any system incapable of lifting the drainage from a point somewhat lower than that for final disposition.

The book contains an interesting dissertation on steam heating, past and present, and also descriptions of how the system may be applied under varying circumstances; and there are presented illustrations of some of the representative buildings in various parts of Canada which are equipped with the Webster system.

Other interesting and important matters dealt with in the catalogue have reference to the Webster vacuum feed water heater and purifier, fully illustrated and described, and the Webster oil and steam separators.

The book is published in excellent style as to printing, press work, binding, etc., and reflects much credit upon Messrs. Darling Bros., who will take pleasure in sending copies to those who may apply for them.

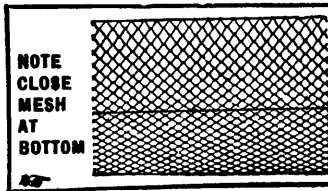
THE GASOLINE DORY.

The dory has always been a popular form of small craft, owing to its admirable sea qualities. Now the dory is being equipped with a gasoline engine and is becoming more popular than ever on the Atlantic coast. The 1902 dory, fitted with gasoline engine and propeller, will range in length from 17 to 35 feet over all, and be from 13 to 25 feet long on bottom. These boats will have a range of beam from 4 feet 8 inch to 8 feet, and will be from 16 to 30 inches wide at the widest part on bottom. The sheer of the smallest size dory will be 8 inches, and that of larger sizes in proportion. The boats will be from 20 to 30 inches deep, plumb amidships. The bottom, stem, stern and gunwales of these boats will be of oak, the timbers of hackmatack or oak, and the planking of pine or cedar. There will be from four to eight strakes on a side according to beam and width of bottom. The fastenings are galvanized throughout. The designs of these boats give them the "spoon" or knockabout bow with great overhang, or regular lobster dory bow, with overhang of from 2 feet to 2½ feet as may be desired. Interior arrangement of seats, lockers, etc., are of course largely a matter of the owner's fancy, dependent upon the use to which he means to put his boat. But most of the power dories now under construction

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is close meshed at bottom and does not require rail or board support at edges, having strong straight wire (No. 12 gauge) at top, bottom and in centre, cannot sag and is easy to erect. The "Page Acme" netting is of neat appearance, very durable and cheap. We also make farm and ornamental fence, gates, nails and staples. The name of Page is your guarantee of quality. The Page Wire Fence Co., Limited, Walkerville, Ont. 5

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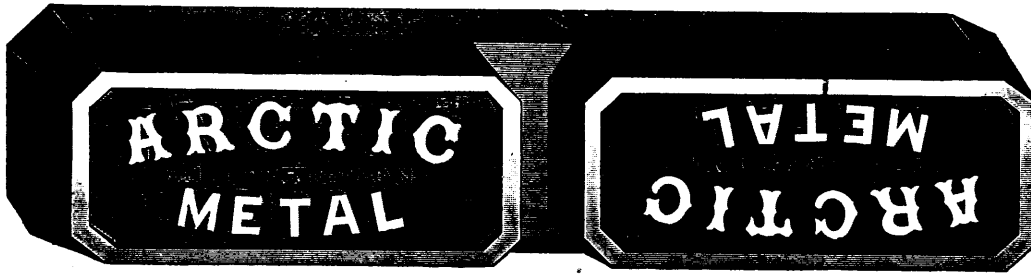
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have the engine aft with cock-pit running well toward the bow, seats and lockers around the sides, and wheel in the bow. A few of the smaller sizes are being built open. But the majority are decked fore-and-aft and on sides, and are furnished with wash boards to prevent water from coming into the cock-pit when running in a heavy sea. Some of these boats are fitted with center boards; others, without.

The gasoline engines used in these boats will be from 1½ h.p. for the small size dories up to 7 h.p. for the larger size. The gasoline tanks, which will be placed well in the bow and decked over, have a capacity from 10 to 25 gallons, according to the size of the boat. The consumption of gasoline is one pint per horse power per hour, a fact which will readily appeal to experienced yachtsmen, and all who may wish to use their boats on extended cruises. By actual test it has been shown that these power dories have a speed of from 7 to 10 miles per hour, according to conditions of weather, sea, etc. Everyone who has had practi-

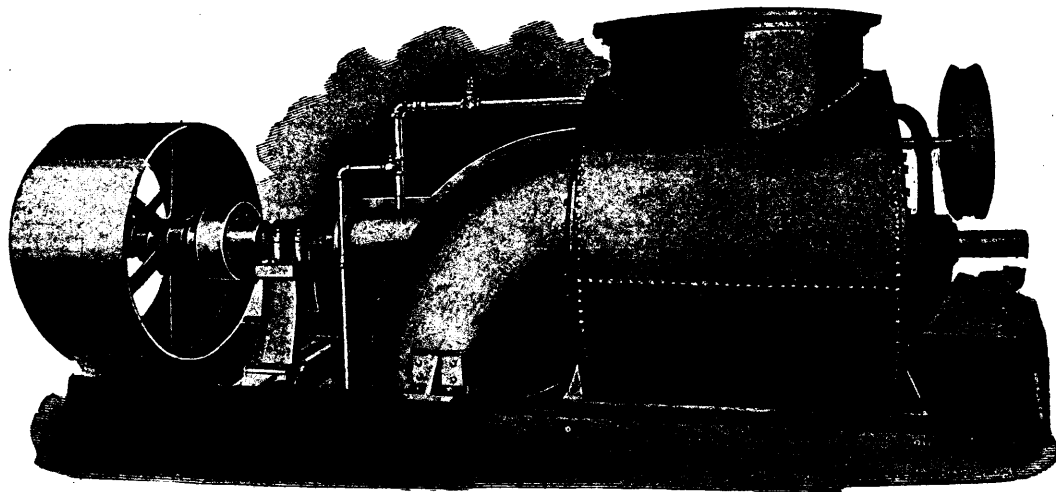
cal experience with clipper dories knows their qualifications as sea boats. In fact, when properly handled, there are no safer craft of their size in existence. They do not smash through the seas like a straight stem boat, but meet the waves promptly, ride them buoyantly and are about the driest boat known. Being flat-bottomed they are available for shoal places, and are easily landed on the beach. They can be put to sea through a surf which will swamp the regulation lifeboat, and as they have greatly bevelled sides and are sharp both fore and aft they displace very little water, and are easily propelled. Then, too, they will stand more hard knocks than any boat afloat, and are especially adapted to rough usage.

The principal objection to the dory is her propensity to make leeway under certain conditions. Being flat bottomed, she has less hold on the water than a keel boat, and even with the center-board down, when propelled by either sail or oars, is bound to make more leeway than

a keel boat, a fact which cannot be denied. But the new power dory propelled by gasoline engine and screw will make less leeway than if propelled by sail or oars.

A NEW INDUSTRY.

The new stock yards of the Union Stock Yard Co., at Toronto Junction, Ont., were opened for business with some ceremony on May 8. Mr. J. D. Allan, president of the company, in explaining their aims and objects, said that while abroad he had noticed that of the very large imports of produce, particularly of live stock, into Great Britain, Canada had a comparatively small share, and had come to the conclusion that the lack of proper facilities for handling here was partially responsible for this. The purpose of the company was to furnish the agriculturists with something that would enable them to make the best use of their opportunities. The management was not to be at all exclusive; they would, in fact, like to have the presence on the board of repre-



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

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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.

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sentative drovers. There was now no place where drovers could meet one another in a commercial way, as they would be able to do here. The company had already expended \$150,000, yet on October last there was no evidence of such extensive yards and buildings as they could see to-day. Mr. Allan explained that everything about the yards would be done in the most modern manner. They had sent to the great live stock centres in the United States and secured the latest ideas, while he (Mr. Allan) had inspected the great live stock yards in Great Britain and Europe. The information they had gathered would be embodied in the new buildings and yards, and their architects were at present preparing plans for buildings which, from an architectural point of view, would be a pride to the town. The company at present had applications from new industries numerous enough to occupy all the land they at present proposed to take up, and an industry which was not yet established in Canada desired to locate on the property of the company, negotiations being now in progress to that end.

In making their arrangements for the construction of the new buildings and appliances, Mr. Allan explained that the company had used Canadian workmanship and material only, and as an instance of this he mentioned the scales for the weighing of live stock, which were constructed and placed by the Gurney Scale Co., Hamilton, Ont. These scales have the greatest capacity of any scales on the

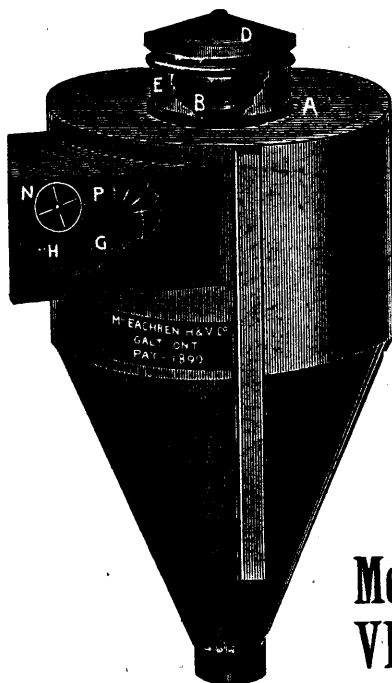
continent of America, there being nothing even in the stock yards in Chicago to equal them. The company, said Mr. Allan, sent their manager Mr. W. W. Hodgson, to all the principal yards in the United States. He found the largest scale to be fifty tons capacity, with a platform forty-eight feet in length, and weighing down to ten pound divisions. Something better, it was considered, was required here, and after keen competition with the American makers, the Gurney Co., Hamilton, were awarded the contract, and they had constructed a scale such as no live stock man here had seen before. It has a platform of sixty-four by fourteen feet, and a capacity of fifty-five tons, weighing down to five pound divisions. Mr. Hodgson, however, had stated that it weighed so accurately between these divisions that he could weigh down to two pounds, while three carloads of cattle could be placed on the platform at once. The scale had twenty-two levers and 114 points of contact, these being the cause of friction in the scale. It was apparent from this that the art of scale-building in Canada had reached a very high state of perfection, when a scale of so great a size, with so many points of friction, could weigh accurately down to two pounds.

Mr. Allan pointed out that the grounds at the present time covered thirty-five acres, sufficient to provide accommodation for everything offered, but they had 100 acres and could obtain more. They had all the money necessary to carry their scheme to completion.

CARBORUNDUM.

It is one of the curious facts of modern industrial progress that very few of the men who, as inventors, have been its most potential factor, are widely known. Outside of a small circle in each individual case, their names are as meaningless as that of the average man. We see, use or handle, articles every day, articles which we know must have called the highest inventive faculties into play in their devising, and we wonder sometimes who the genius is whose mind has contributed so abundantly to human conveniences in the article before us, and not infrequently we speculate mentally as to how much money he got, or is getting out of it. Its manufacturer may be known to us—in fact, he usually is, through some form of advertising; but it rarely happens that the name of its inventor comes under the public eye or is sounded in the public ear. Like the average writer for the press, the inventor is just one of many evenly cut cogs in a huge machine, his work being privately estimated on a revenue basis, his name figuring as "Dennis," and the fruits of his toil usually passing to others.

This subject, in some of its aspects, is very entertainingly presented by Paul Latzke in the Saturday Evening Post, under the title of "The Unknown Captains of Industry." One of his personal references has to do with Edward G. Acheson, the inventor of carborundum, a product which, as the greatest abrasive ever introduced for industrial purposes,



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.

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

Quotations Supplied on Application.

PHONE 1103

has a vast field of usefulness. Noteworthy, too, it has proved an exception to the rule, for inventions and discoveries, in that it has made its originator both rich and famous; and all that, moreover, while he is yet but 46 years of age.

How did it happen? Well, here is the story in brief:

But a few years ago Mr. Acheson was practically penniless and broken in spirit. He had served for six years under Edison in this country, and in Europe, and had mastered the science of electricity. The problem of converting heat directly into electrical energy had always fascinated him, and in 1889 he sacrificed everything to devote himself to its solution. Within the space of twenty-four months he had lost in his work the result of seventeen years of unremitting labor.

He had also demonstrated to his own satisfaction that the thing could not be done, at least by himself, and being a practical man, he cast about for something else that was more promising.

After looking the situation squarely in the face, he had about made up his mind to give up original research and look once more for a salaried position, when suddenly he remembered, as if by inspiration, a little incident that had happened while he was experimenting at the Edison laboratory. In this institution all sorts of queer formations are constantly coming to the surface as by-products. Mr. Acheson recalled, says Mr. Latzke, "that on one occasion, when they were fusing some clay and carbon, a substance harder than anything ever secured in the laboratory had resulted. He knew the tremen-

dous value to the industrial world of emory, corundum and other abrasive materials, as he concluded that here, if he could only reproduce the stuff formed in the Edison workshop, he might make a fortune. Carborundum was the result. It was a long uphill struggle, for several years after he started on this new line, but his energy told in the end. A company was formed to establish works at Monongahela City, in Pennsylvania, and then at Niagara Falls. A startling illustration of the value of Mr. Acheson's work is furnished by the fact that the first sale of carborundum consisted of a consignment of two hundred carats at thirty cents a carat, or over \$550 a pound. By improving the process it is possible to market the abrasive at ten cents a pound in the rough. Every manufacturing country in the world uses the material. The market for it was enormously increased recently by the discovery that, fused with ordinary steel, it adds very materially to its strength.

Carborundum is made of fusing sand, carbon, sawdust and salt in electric furnaces under tremendous heat. As a by-product, the company secured last year a million and a half pounds of pure graphite, which heretofore has been found only in nature. This alone may be regarded as an extraordinary achievement.

SENSITIVENESS OF A TELESCOPE LENS.

Some years ago a contributor to The Youth's Companion paid a visit to Alvin Clark at Cambridgeport, to witness the

testing of the huge lens for the famous Lick telescope. After the usual tests for imperfections, Mr. Clark proceeded to show the wonderful sensitiveness of the lens to outside influences, such as the heat of the human body. The contributor narrates as follows what happened:

"He (Mr. Clark) walked down to the lens and held his hand under it about two feet away. Instantaneously a marvelous spectacle burst into view. It seemed as if the great glass disk had become a living volcano, spurting forth jets of flame.

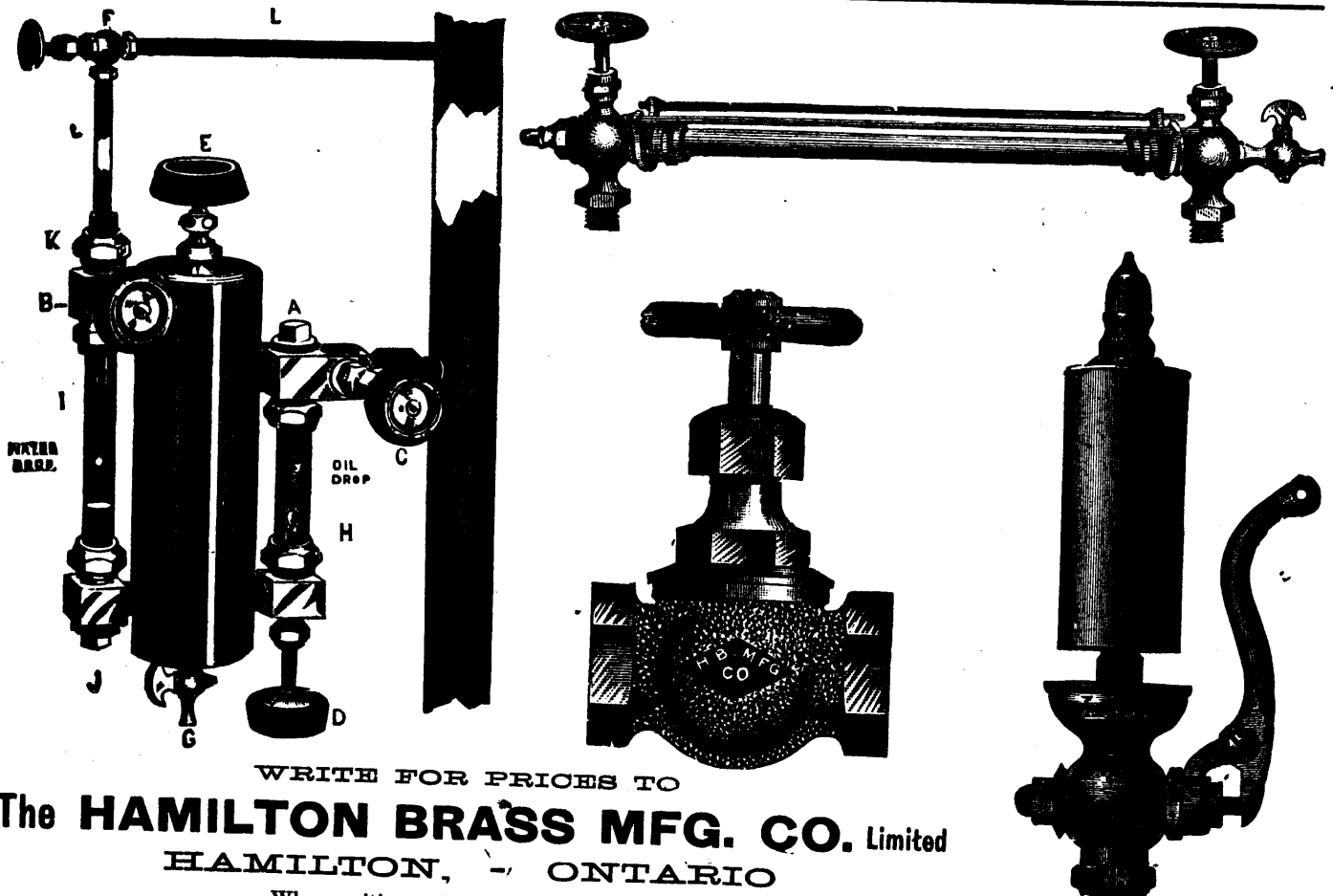
"The display was dazzling. Waving, leaping, dancing, the countless tongues of light gleamed and vibrated; then, fitfully, reluctantly, they died away, leaving the lens reflecting only a pure, untroubled light.

"What is it? How do you account for the wonder?" were the eager questions.

"It is only the radiation of heat alternately expanding and contracting the glass. If I had put my hand upon the lens itself the phenomenon would have been even more violent."

"To a person ignorant of lenses the almost supernatural sensitiveness of a mass of glass weighing several hundred pounds was astonishing, but to the scientist it is an everyday matter, for he has instruments that will register with unflinching nicety the approach of a person 50 or 100 feet away."

W. C. Irwin, Dundalk, Ont., will erect a sash and door factory at Toronto Junction, Ont.



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

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MONTREAL, OTTAWA AND GEORGIAN BAY CANAL.

The report of the Railway Committee of the Dominion Senate, favoring the construction of the Montreal, Ottawa and Georgian Bay Canal, embodies some interesting facts in connection with that important undertaking. It says:

The water surface of Georgian Bay at ordinary stage is about 564 feet above that of the St. Lawrence River at Montreal harbor. It is proposed to raise and maintain the level of Lake Nipissing at an elevation of 66 feet above Georgian Bay, making the total fall from the summit level of the waterway to Montreal harbor 630 feet. The total lockage from Georgian Bay to Montreal will be 696 feet, less the amount of slope of the river between the locks, which will likely be from 40 to 50 feet, making the aggregate of the lifts of all the locks about 650 feet. The lifts of the locks are for total fall on the route, without regard to the slope, for the reason that the water surface of the river at times of floods will require a greater height of lock walls and gates than would be needed for safe lockage, if no slope existed. It is proposed to take care of the 66 feet rise from Georgian Bay to Lake Nipissing with three locks so arranged in connection with regulating dams in the French River that the level of Lake Nipissing may be maintained at a little above its mean stage. French River is a series of deep narrow lakes separated by rapids, at which points most of the fall from lake to bay is concentrated. The banks of the river are of gneiss rock and so high and steep that the levels of the different reaches may be regulated at almost any desired elevation without material damage to adjacent lands. Lake Nipissing will constitute the source of water supply for lockage through the French River to Georgian Bay, and through the summit level cut and the Mattawa River to the Ottawa. The summit level will extend from lock No. 3 on the French River through Lake Nipissing, Trout Lake, Turtle Lake and Talon Lake to lock No. 6 in the canal around Talon and Parésseux chutes, a distance of 69 miles. The summit level will be through a chain of beautiful lakes connected by short stretches of canal, and will be maintained at nearly a constant level by regulating works at either end. From the upper lock of the Paresseux canal down the Mattawa to its junction with the Ottawa, a distance of 14½ miles, there is a fall of 137 feet, which is to be taken care of with five locks. From the confluence of the Mattawa and Ottawa to Fort William, about 81 miles, the river is a series of deep narrow lakes separated by rapids, having an aggregate fall of 145 feet, which it is proposed to overcome by the construction of seven locks. The Mattawa and Ottawa above Fort William have high steep banks, and can be regulated at such elevations of water surface that but little excavation will be needed except at the sites for locks and dams. From Fort William through the Culbute and Calumet channels to the head of Lake Des Chats (56 miles) the river falls 115 feet and will require five locks. From

Lake Des Chats the river falls 55 feet at the Chats falls, requiring two locks with which exception the river needs but little improvement between Cheneaux rapids and Deschenes rapids, a distance of 47 miles. From Lake Deschenes to the long reach of level river below Ottawa, there will be a fall of 72 feet, requiring four locks.

In the vicinity of and below the city of Ottawa, the existing water levels will not be materially changed, except to regulate the fluctuation of water levels so as to reduce range between high and low stages of the river. In the Grenville canal there will be a fall of 41 feet, requiring three locks, and in the Carillon canal a fall of 20 feet, to be overcome with one lock. At St. Anne's a lock with a 3-foot lift will be required, and in the Lachine canal there will be a fall of 45 feet, for which three locks will have to be provided. All of the structures for the entire route can be founded on rock in a most substantial manner, and the power necessary for operating locks, lighting and pumping, can be generated at small expense at the respective sites.

Mr. George Y. Wisner, the engineer in charge, says that the total distance

from Georgian Bay to Montreal by the route is 425 miles, of which four miles are taken up with locks, 40 miles of canal section 22 feet deep, with a bottom width of 100 feet, 74 miles of improved river channel with a bottom width of 300 feet, and 307 miles of open lake and river, suitable for 20-foot navigation without further improvement. The cost to construct the waterway from Georgian Bay to St. Anne's on the St. Lawrence River has been estimated at \$69,500,000, and from St. Anne's to Montreal at \$10,500,000, making a total of \$80,000,000.

In a description of the physical features of the route the report says:

It is an important geological fact that the outlet of Lakes Superior, Michigan and Huron was for thousands of years by the Georgian Bay through the valley of the present Ottawa River, and that the completion of a deep water channel along this route is merely in the direction of restoration of former natural conditions. An immense volume of water has in the past carved out the softer portions of the river channels, in the French, Mattawa and Ottawa Rivers, often to immense depths. Thus the course of the waterway is, for the most part, practically a

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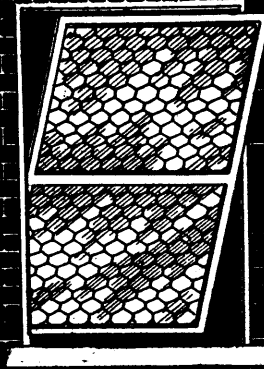
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series of deep lakes separated by bars of rock at which cascades occur. These lakes, or lake-like expansions, afford a natural navigation of the highest class over the larger proportion of the route. The concentration of the descent in rapids or cascades in a series of steps with long intervening level stretches, minimizes the amount of canalling to be done, as in many cases no more than a simple lock is required. Added to this, over a great portion of the route the banks are bold and rocky, often precipitous, and the conditions every way favorable to the raising of existing water-levels by means of dams, and the deepening of the channel

thereby without having recourse to excavation. The existence of alternative channels at most of the large rapids on the Ottawa River will be of service in the execution of works to be constructed, and will be of importance in the regulation of the waters for navigation, and the preservation of structures during flood. Conditions dependent upon the state of settlement of the country are also most favorable. The present location of railways will permit supplies, material, stone for locks, cement, machinery, plant, etc., to be deposited within a short distance of any point on the whole route, and will not only lessen the cost of transportation,

but will permit work to be carried on along the whole route simultaneously. The use of powerful explosives and the most modern appliances in dredging, excavating and construction machinery will lead to great savings in cost as compared with the methods in vogue at the time estimates of cost were made some years ago, and will offset to some extent the added cost of the larger scale of navigation.

The need of the Ottawa waterway both as a through route and for the development of local resources is vastly greater than ever before. The marvellous growth of the Western States and the Canadian North-West in the last quarter of a century, and the consequent increase of commerce on the great lakes, have given rise to a freight traffic between the great lakes and the seaboard, already of enormous extent and rapidly increasing, such as must in the near future tax all possible means of transportation, and in the conveyance of which the Ottawa River route, owing to its superiority in point of shortness, cheapness and safety must play a very important part. The vacant lands of the United States are now practically exhausted, and the tide of population has turned towards the almost limitless wheat areas of the Canadian North-West. Settlers are rapidly flocking into that country, and both its output of agricultural products, and its requirements of manufactured goods will increase with great rapidity in the near future. It is for Eastern Canada to furnish transportation facilities for the former, and to reap the benefit of the latter in extension of industries. Failure to realize and meet the needs of the North-West for cheap and adequate transportation can only result in the bulk of its exports going forward via the United States routes, and in its imports being almost wholly supplied

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from the States to its south, a result not only subversive of the commercial interests of Eastern Canada, but destructive of community of interests between the various portions of the Dominion, and therefore prejudicial to national welfare.

It has been stated that the North-West is capable of sustaining a population of at least 50,000,000. Last year in Manitoba 400,000 people raised 108,000,000 bushels of grain. Extensive car famines have already occurred, and the railways have proved inadequate to the task of moving existing wheat raised by a comparatively small population. With the growth of population and greatly increased production the difficulties must be intensely aggravated unless outlets of ample capacity are provided. Some indication of the relation of existing routes to the traffic potentialities of the great lakes may be gathered from the fact that the volume of grain business over the Ottawa and Parry Sound Railway last year, drawn from both Lake Michigan and Lake Superior, was about one-sixtieth of the amount of the actual traffic through the Sault canals last year, and that the traffic at the Sault has for some time past doubled about every six years. The saving to be effected by the deep waterway in the cost of transportation will directly benefit the producers of the North-West, will stimulate immigration into that portion of the Dominion, and be of incalculable value in the development of its resources.

Large portions of the Ottawa valley and of Northern Ontario and Quebec possess valuable mineral and other resources as well as spruce and other timber in great commercial demand at the present time. For the purpose of stimulating and making more remunerative the lumber and mining industries in these districts, and of aiding and promoting the construction of railways to open up northward, no work could be undertaken comparable in importance with the canalization of the Ottawa river. The industrial future of Canada depends largely upon the working of its extensive deposits of iron. As the deep channel at the Sault has resulted in an output of 125,000,000 tons of ore from the American shores of Lake Superior in the last seventeen years, the Ottawa waterway will lead to an enormous increase in the iron raised in this part of Canada, and will be of great importance in bringing it alongside the coal of Nova Scotia. Nova Scotia coal has hitherto not ascended the St. Lawrence to any extent above Montreal, to which point the shipments amount to 700,000 tons. The expense and loss incident to trans-shipment and the competition of American coal have prevented any further extension of the market for Canadian coal in this direction. A glance at the map, however, will show that the Ottawa waterway will give Canadian coal great advantage in competing with American coal. All the Lake Huron and Georgian Bay ports are closer to Montreal by 400 miles by the Ottawa than by the St. Lawrence. The portion of Ontario stretching all the way from the Quebec boundary to the Manitoba boundary, including the richest mineral district of the pro-

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vince, will be served by the canal. Going up the St. Lawrence, Canadian coal directly meets the American competition. Every mile travelled west is a mile into the territory of American coal shippers, but a journey of 400 miles up the Ottawa brings the coal carrier within a few miles of Sudbury to the edge of possibly the greatest mineral area in Eastern Canada, and 200 miles more brings him to the Sault.

The opening of the Ottawa navigation as a through waterway is not only a commercial necessity but a measure of national and imperial importance. Of military importance as the only possible waterway between the great lakes and the Atlantic entirely within Canadian territory. Of national consequence as furnishing an additional bond and means of communication between widely removed portions of the Dominion, carrying farther northward the line of settlement and the line of profitable commercial and industrial operations, and thus tending to add compactness to our territory and to cement together more firmly its parts. And of imperial value as part of the trans-continental transportation system, a link

in the shortest possible highway between the granary of the North-West and the British market.

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Alkali Fast Green B and G, are two new green dyestuffs for wool and which are best dyed with the addition of Glauber salts and sulphuric acid. The B brand produces a somewhat bluish green shade, the G quality a yellowish green, both being of great clearness of shade. The main feature of these new products is their excellent fastness to alkalis. The colors dye easily level and penetrate well; they are also extremely fast to chrome, and can therefore be dyed either on a chrome mordant or after-treated with bichromate of potash, which property makes them especially suited for shading chrome colors. Both brands are adapted for the dyeing of white wool, and also, owing to their brightness of shade, for shoddy. Alkali Fast Green B and G are also suited for woolen cloth and slubbing printing, and can be discharged with zinc powder.

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These new colors which are mainly adapted for the dyeing of paper, have given every satisfaction, and are sure to meet with a favorable reception from the paper manufacturers. They are also recommended for the dyeing of wool in all its branches, and owing to their valuable properties are superior to most of the red wool dyestuffs at present in the market.

KATIGEN SHADES ON COTTON SUITINGS.—This card shows dyeings of cotton suitings, such as fustians and moleskins, and it is of essential importance that colors be employed that are possessed of excellent fastness in every respect, and although cheap, should also dye in a very simple manner. For this class of goods nothing can equal the Katigen dyestuffs, as they are extremely fast to light and wear. This card should prove of interest and service to every one interested in this branch of the textile industry.

For samples, pattern cards, and prices address the Dominion Dyewood & Chemical Co., Toronto, Ont. Sole agents in Canada for the Farbenfabriken Vorm Friedr. Bayer & Co., Elberfeld, Germany.

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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.

797. A correspondent at Liverpool wishes to obtain one or two agencies for Canadian firms who are exporters of goods in the wholesale grocery and confectionery lines and require the services of a broker.

798. A Bradford house exporting raw wool, tops, noils, waste, yarns, cotton and worsted yarns, ask to be referred to a good commission agent in Canada who could bring such goods before the principal users in the Dominion.

799. A South African firm having branches at Port Elizabeth and East London, as well as an English house, desire to get into touch with a reliable commission agent in Canada who could purchase goods on their account for shipment to the Cape, and act generally as correspondents.

800. Enquiry has been received from a Montreal agent who is prepared to represent English firms in hardware, metals and railway supplies.

801. A Canadian manufacturer of excelsior such as is used for upholstery purposes ask to be furnished with the addresses of purchasers of this commodity in Great Britain.

802. A correspondent in Montreal desires to hear from parties in England who are prepared to import packing cases, in a knock-down condition, of spruce and pine.

803. The names of dealers in mouldings, dowels and wood turnings of all kinds are required by a Canadian firm manufacturing such goods.

804. Enquiry is made for the names of parties in Canada who are interested in the production of molybdenite.

805. An important house in the linen trade desire to get into communication with some of the best Canadian wholesale houses in the soft goods line who are importing such linens as are used by clothiers or the making-up trade.

806. A Liverpool house is desirous of appointing agents in Canada for the sale of their sheep dips, disinfectants, weed-killers, etc.

807. A Dutch firm of preserve manufacturers desire to get into touch with a Canadian firm who can represent them.

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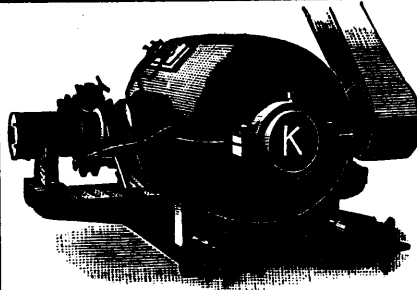
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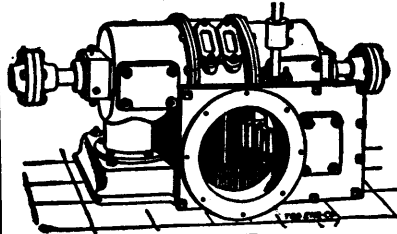


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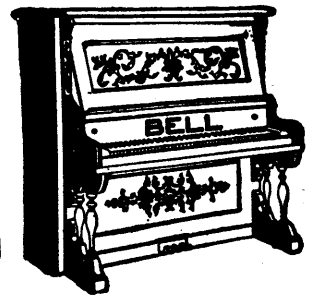
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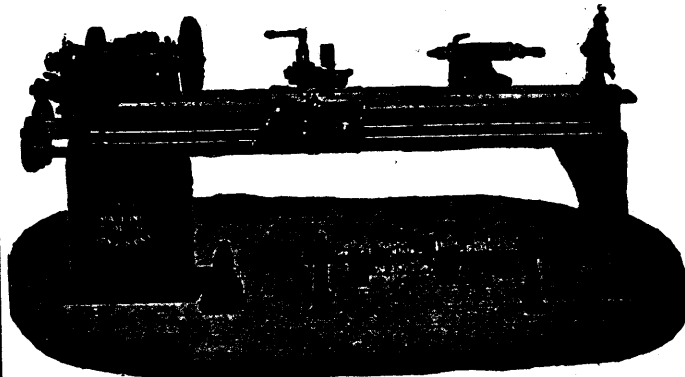
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A Few Extracts from Letters from British Consuls, etc.

"I have to thank you very heartily for the copy of your Directory for 1901. I have always found it most valuable in supplying reliable information in answer to inquiries."—*H. B. M.'s Consul at Asuncion, Paraguay, Aug. 20th, 1901.*

"I am directed to thank you for the book and to express the opinion of this Consul that the work is one which cannot fail to be very useful to the commercial community."—*The Secretary of the Chamber of Commerce of Georgetown, Demerara, Aug. 12th, 1901.*

"I consider your Directory a most useful publication. Consuls are inundated with inquiries, which a reference to your work would have answered at once, and manufacturers would effect a large economy in wasted clerical work, postage and advertising, by purchasing the Directory."—*H. B. M.'s Consul at Amoy.*

"As a work of reference I consider it to be most useful. By keeping it up-to-date you are improving it in the best possible manner."—*H. B. M.'s Consul at Para.*

"I have to thank you for the two volumes of your work, which are very acceptable, as containing much useful information."—*H. B. M.'s Consul at Callao.*

"I beg to thank you for the copy of your Merchants' Directory, which is a most useful work, and one to which I am constantly referring business people who send inquiries to this Consulate for the names and addresses of houses connected with different trades."—*H. B. M.'s Consul at Cadix.*

"I have the last copy of the Directory—a most useful work, but which I think is not consulted by exporters as much as it deserves to be, as I am constantly receiving letters asking for information which could be obtained from its pages."—*H. B. M.'s Vice-Consul at Paysandu.*

"I beg to inform you that I shall be very pleased to offer you every assistance in my power to facilitate your very interesting work for the benefit of commerce and industry."—*H. B. M.'s Consul at Jaffa.*

"I have duly received your valuable and useful Directory of Merchants, Manufacturers and Shippers for 1899, and beg to express my best thanks for same."—*British Vice-Consul, Spezia (Italy).*

"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. F. C. Thorshavn.*

"It is a Directory which is very often consulted by the Merchants of our town."—*B. F. C. Dedea-gatch, Turkey.*

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

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, June 6, 1902.

General business conditions show a marked improvement. Wholesalers are confident that the turnover this year will exceed that of previous years. Manufacturers are busy, and the prospects are bright that the expansion in trade will continue. There is still a great deal of sorting to be done by retailers for the summer trade, and travellers out with fall samples report a very good volume of business. The new settlements in Northern Ontario have already made themselves felt; the requirements at distributing points in the district being much larger than in previous years. Few failures are reported in the cities and country, and payments are being met most satisfactorily.

One of the most important events in the business world the past week was the meeting of boot and shoe manufacturers in Montreal, at which it was reported an attempt was made to form a combination with the object of regulating the output. Eastern advices state that no satisfactory arrangement had been arrived at, but the views of the leading manufacturers were obtained, and benefits to the trade may be derived from the convention in the near future.

The April statement of the Canadian chartered banks is an interesting one. The note circulation was 50½ millions, or a contraction from March of \$1,800,000. The total public deposits for April amounted to \$371,000,000, or an increase of \$9,000,000 compared with the total for March; and compared with the total of April last year, an increase of \$40,000,000. In many respects the statement is a satisfactory one, and indicates a healthy condition, not only of the finances of the country, but also a sound commercial position.

In the speculation share market, the feature has been the renewed activity of Canadian Pacific Railway at advanced prices. Sir William Van Horne says that the story that the road was to be absorbed by the Morgan syndicate is all rot. Toronto traders have been heavy buyers of Canadian Pacific, feeling confident that the stock will be placed on a 6 per cent. basis. Quite a large amount of stock has been purchased for investment.

The Montreal Cotton Co. has announced a 5 per cent. advance in their goods. There is unusual activity in metals and

hardware, both in Toronto and Montreal, and prices are very firm. Oil is very scarce here, and on account of scarcity, the price has an upward tendency. There is little likelihood of more favorable prices for some time, as the English market is three or four cents above the Canadian manufacturers' price. There is a liberal movement in all lines of paints and oil, and there is a prospect of trade keeping up.

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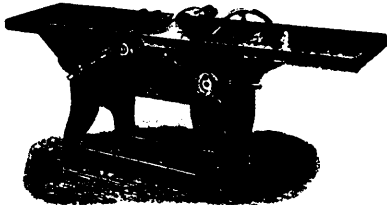
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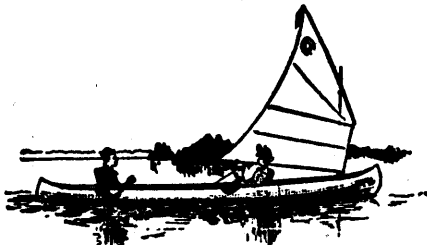
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A branch of the Canadian Manufacturers' Association is being organized in Halifax. The annual meeting of the Association will be held in Halifax during August, and it is expected that a large body of manufacturers will go from the Provinces of Ontario and Quebec. It is the intention of the members of the Association to visit the steel works at Sydney when the convention is over.

New minimum carload weights have been adopted by the Canadian railways, and will go into effect upon June 9 next, by which the minimum weights on grain and grain products will be increased. The reason for the change is that on account of the demand for rolling stock the railways find it necessary to load their cars to the fullest capacity possible, and the changes have been adopted by the Canadian Freight Association. On shipments from Canadian to United States ports, Newfoundland, and to seaboard ports for export, the minimum will be 30,000 pounds for bran and shorts in bulk, 35,000 for oats, buckwheat, peas, flour and products, and 40,000 pounds for wheat, corn, barley and rye. A similar regulation will apply to products on shipment between Canadian points east of Port Arthur, except that bran will carry a minimum of 24,000 pounds.

The fiscal year ending June 30, will be a record one in the history of the port of Toronto. Up to the present the duties collected exceed those of last year by \$600,000, while the number of entries up to May 29 was greater than the whole of the previous year. The returns show the enormous increase in the business of the city, and indicate that the trade generally has confidence in the future.

Time and again importers have had occasion to complain of delays in the passing of entries. This is not to be wondered at. The local staff was strong enough to handle properly the business five years ago, but is not able to meet the demands of the increased volume of business. It is the duty of the Government to see that the staff is augmented, if only for the period in which the importations are heaviest. Those who have occasion to transact business in the Toronto office are aware of the handicap under which the officers are working, and are loud in their praise of the efforts of the various officials to facilitate the entry of goods under the circumstances.

The proclamation of peace in South Africa has been received joyously by every true British subject. In no part of the British Empire has the news been received with more enthusiasm than in Canada. Jack Canuck has stood by his mother in the hour of her trouble. Canada gave her sons to aid in keeping the old flag floating in South Africa, and they have given a good account of themselves. Great Britain is proud of the record made by the Canadians and their colonial cousins.

Trade follows the flag. Canada assisted in placing the flag in its present lofty position in South Africa, and Canadian manufacturers should follow at the earliest opportunity. The cessation of hostilities will revive trade, and no doubt the reputation of Canada made by our

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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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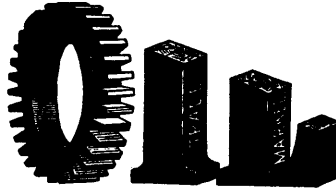
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volunteers, will help Canadian trade representatives in obtaining orders for Canadian manufactured goods.

BUFFALO PIG IRON MARKET.—Office of Rogers, Brown & Co., Buffalo, N. Y., June 3, 1902.

The scarcity of iron continues unabated, and on account of strikes and rumors of strikes the outlook into the future is not promising.

The market in itself is featureless, showing no activity of any kind. It is disappointing to everybody that for one cause or another so many furnaces are now compelled to be out of blast.

FREIGHT FOR AUSTRALIA.—The announcement is made that the leading Australian steamship lines, which have been engaged in a long freight war, have at last reached an agreement. The parties to the new agreement include the Tyser Bucknall and United States and Australasia companies, the first having been the disturbing factor heretofore. The cutting of rates to Australia and New Zealand has been discontinued, and rates are naturally somewhat higher, but there is still some competition on the part of the White Star Line, which is making exceptionally low quotations for Australian ports via Liverpool.

A VALUABLE COPPER MINE.—With each distribution of profits by the Calumet & Hecla Mining Co. attention is directed to the magnitude of its operations. This company was organized under the laws of Michigan in 1871 and rechartered in 1900 for 30 years. It has a capitalization of \$2,500,000, divided into 100,000 shares of \$25 par value each. It had 3,418 shareholders of record on January 1, 1901. Its production of copper for the calendar year 1900 was 77,761,382 pounds, and for the year 1901 it was about 93,000,000 pounds, the largest in the company's history. The cash surplus of the company at the close of the fiscal year, April 30, 1901, was \$2,168,130. Up to the close of 1901 the company had paid dividends amounting to \$78,350,000. This is the largest amount paid by any mining company in the world. The mineral lands of the company comprise about 2,750 acres in North Range, besides considerable tracts west of the Tamarack on the mineral belt. It also owns extensive timber lands in the upper peninsula of Michigan and in northern Wisconsin.

BRITISH DUTY ON FLOUR AND WHEAT.

—A Liverpool firm of flour dealers have mailed to Canadian flour exporters a circular analysing the new British duty on flour and wheat and showing that the duty to be paid on 60 pounds of flour is the same as on 100 pounds of wheat which contains, besides other materials, 70 pounds of flour. It is figured to show that the British miller is now protected by a discriminating tax allowing him to import 10 per cent. of flour and 30 per cent. of feed stuffs free of duty. The tax is held to be not merely a revenue tax, but really a protective tax in favor of the British miller of 5d. per sack, or 3s. 4d. per ton of flour.

BRITISH PIG IRON MARKETS.—Messrs. Wm. Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of May 21, 1902, quote as follows:—

Since writing you last prices have remained at very much the same level, importations of Russian and Canadian pig iron counteracting the strong reports from the United States.

To-day's prices are as follows:—No. 1 Gartsherrie 67/ per ton, f.o.b. Glasgow, including dues. No. 3 Gartsherrie, 57/ per ton, f.o.b. Glasgow. Nos. 1, 2, 3 Cumberland Hematite, 67/6 per ton f.o.b. Liverpool. Special Analysis, 72/ per ton, f.o.b. Liverpool. Refined D.T.N. pig iron in small pigs, 86/ per ton, f.o.b. Liverpool.

A PENCIL STORY.—"Speaking of lead pencils," said a dealer, "it is a curious fact that about one-third of the money invested in pencils is thrown away. Men never use all of the pencil, and in many instances they use but little more than one-half of it. They rarely use more than two-thirds. Probably more than one-

third of the money invested in lead pencils is thrown away, since I come to think about it. The fact of the business is that the average man does not place any value at all on lead pencils, and the only time this useful article ever comes into his mind is when he needs it to jot down a note, write a letter, or figure on some business proposition. And yet, as a matter of fact, millions of dollars are spent annually in the lead pencil industry, and there is probably no symbol in mathematics, intelligible to the average man, that would express the number of lead pencils used in a single year. Now, why is it that the average man will be recklessly extravagant when it comes to lead pencils?

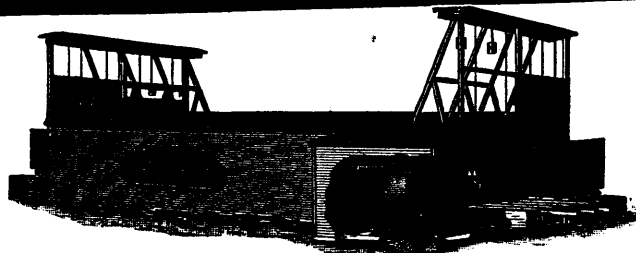
"Really, lead pencils are not regarded as property. I have known men who would pay five cents for a lead pencil and then carelessly give it away, and I have seen the same man quarrel with the stamp clerk at the post-office for thirty minutes because the clerk had made a mistake of one cent in his change. Men who are scrupulously moral and who have

a most profound respect for the property rights of other men, think nothing of pocketing a lead pencil which belongs to some other fellow. It is perfectly moral to borrow a lead pencil from a friend and never return it. It is the proper thing to do. But the men who do things of this sort are generally scrupulously honest, they are good citizens, and they would be the last men in the world to deviate even the breadth of a hair from strict moral precepts. But lead pencils have no value in the general estimate of mankind, and men will give them away on the one hand or steal them on the other, just for the same reason that they will throw away one-third of every five cents' worth of lead pencil which they buy. Pretty heavy waste when figured out, isn't it?"
—American Stationer.

CANADIAN STEEL RAILS.—Work has begun at the new steel rail mills of the Algoma Steel Co., at Sault Ste. Marie, Ont. These mills are fitted to roll rails up to 80 pound section in 30 or 60 feet lengths. In a recent conversation, F. H.

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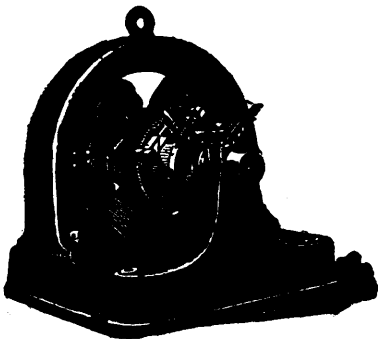
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C. P. MOORE, PROPRIETOR.

Clergue stated that the site for the tube works was being cleared, and that this works and the steel mill would eventually employ 10,000 men. He further said that the land for some miles up the river, on both sides, was largely owned by his companies, and that it was not held for speculation, but would be required for manufacturing purposes, and that he looked to see a city of 200,000 on the Canadian side of the river in due time.

SCARCITY OF BASIC PIG IRON IN GREAT BRITAIN.—The London Iron and Coal Trades Review says: One of the most remarkable facts connected with the British iron industry of to-day is the comparative scarcity of basic pig iron. The total quantity of basic pig produced in the United Kingdom is under a million tons, and most of it is used up in the Cleveland district and in South Staffordshire and Leeds, by the same firms, in their steel works, so that comparatively little is free for sale. This has led to the recent importations of basic iron from Germany, Russia and Spain. The basic pig industry has not, until lately, been a very profitable one, but now that the demand is increasing, it is probable that more furnaces will be put on to smelt this description of iron.

PROPOSED GERMAN DUTY ON COPPER.—Our German advices report that a strong effort is being made there to put an import duty on raw copper. The recent annual report of the Mansfield Co. says: The only protection against American aggression is a duty on raw copper. This company produced 18,043 tons of refined copper in 1901 against 17,710 tons in 1900; of this product but 1,036 tons was electrolytic against 965 tons in 1900. To counteract the effort to impose a duty, a large number of German electrical firms which intend shortly to form a society for protecting their common interests, have appealed against the proposed introduction of a German duty on raw copper. The petition draws special attention to the fact that the German production of raw copper increased 28 per cent. from 1891 to 1900, but that the consumption increased 110 per cent. The electrical industry required during the last three years a yearly average of about 50,000 tons of electrolytic copper, which is only produced in small quantities in Germany, and has therefore to be imported from the United States. The petitioners state that if a German duty were placed upon raw copper the German electrical industry would be placed in an unfavorable position compared with England and America.—American Metal Market.

BUSINESS CHANGES.

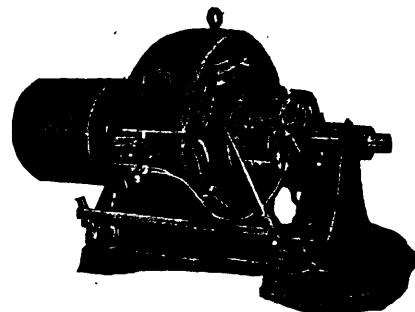
FROM BRADSTREETS.

ONTARIO.

BRANTFORD—Brantford Starch Works Co., burned out.
CANNINGTON—Dobson & Co., mfrs. woollens and electric light, burned out.
DUNDAS—Canada Can Co., assets adv. to be sold.
GALT—G. Blatchford & Co., mfrs. organs, meeting of creditors.
HAMILTON—Burton & Baldwin Mfg. Co., obtained charter.
Foster Pottery Co., obtained charter.
Leitch & Turnbull Co., mfrs. elevators, to be succeeded by Canadian Otis Elevator Co.

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

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THOMAS C. IRVING, Gen'l Manager Western Canada,
TORONTO.

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

INGERSOLL—Ingersoll Metallic Mfg. Co., founders and mfrs. bedsteads, assigned to J. E. Ferguson.
 LONDON—Gurd & Co., mfrs. brooms, burned out.
 OTTAWA—Canadian General Electric Co., opening branch.
 Capital Sand & Brick Co., and Quyon Pressed Brick & Tile Co., amalgamated, style now The Dominion Supply Co.
 Empire Electric & Mfg. Co., obtained charter.
 PARRY SOUND—Mackenzie Power & Development Co., obtained charter.
 POWASSAN—Powassan Lumber Co., obtained charter.
 ST. THOMAS—Thomas Bros., obtained charter.
 TORONTO—American-Abell Engine & Thresher Co., obtained charter.
 Canadian Feather & Mattress Co., loss by fire.
 Wm. C. Wilson & Co., mill supplies, stock, etc., sold.

QUEBEC.

KINGSVILLE—La Fonderie de Thetford, registered.
 MONTREAL—Bellhouse, Dillon & Co., chemicals, registered.
 Henderson & Potts, mfrs. paints, registered.
 ST. ANNE DE LA PERADE—J. A. Rousseau, Mfg. Co., mfrs. matches, J. A. Rousseau, registered.
 ST. ANTOINE ABBE—Joseph Savarie, sawmill, etc., compromised.
 ST. JOHN'S—Canadian Baling Co., storehouse burned.

NEW BRUNSWICK.

HAMPTON—Hammond River Lumber Co., applying for incorporation.
 ST. JOHN—Cushing Box Co., mfrs., incorporated.
 ST. STEPHEN—Haley & Son, planing mill, damaged by fire.

NOVA SCOTIA.

HALIFAX—Peoples Heat & Light Co., Eastern Trust Co. appointed receivers.
 YARMOUTH—Kinney, Haley Mfg. Co., planing mill, T. W. Johns appointed liquidator.

MANITOBA.

DARLINGFORD—Darlingford Farmers' Elevator Co., incorporated.
 GLADSTONE—Gladstone Electric Light & Power Co., incorporated.
 VIRDEN—Virden Farmers' Elevator Co., incorporated.
 WINNIPEG—Pressed Brick & Tile Co., incorporated.
 WINNIPEGOSIS—Standard Lumber Co., incorporated.

BRITISH COLUMBIA.

CUMBERLAND—Cumberland Electric Lighting Co., incorporated.
 NEW WESTMINSTER—Welsh Shingle Mfg. Co., sold to Thos. Kirkpatrick.
 VICTORIA—Taylor & Haggart, mfrs. iron and brass bedsteads, incorporating.

NORTH-WEST TERRITORIES.

CARNDUFF—Carnduff Farmers' Elevator Co., incorporated.

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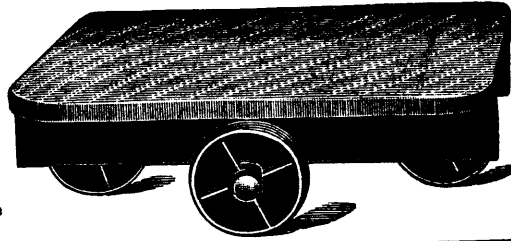
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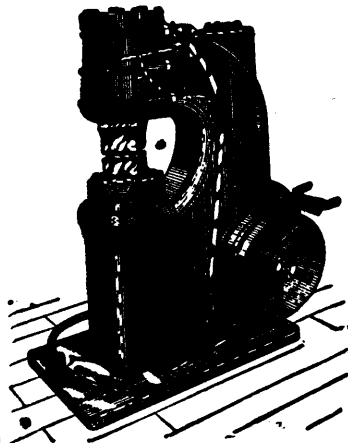
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10 Bolshaya Dvorianskaya Street, Moscow, Russia.

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The "YEAKLEY"
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 Pipes to Freeze, no Delays, no Expense for Repairs. SEND FOR CATALOGUE.

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SOLE CANADIAN MANUFACTURER,

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HARDWARE, METALS, PAINTS and OILS

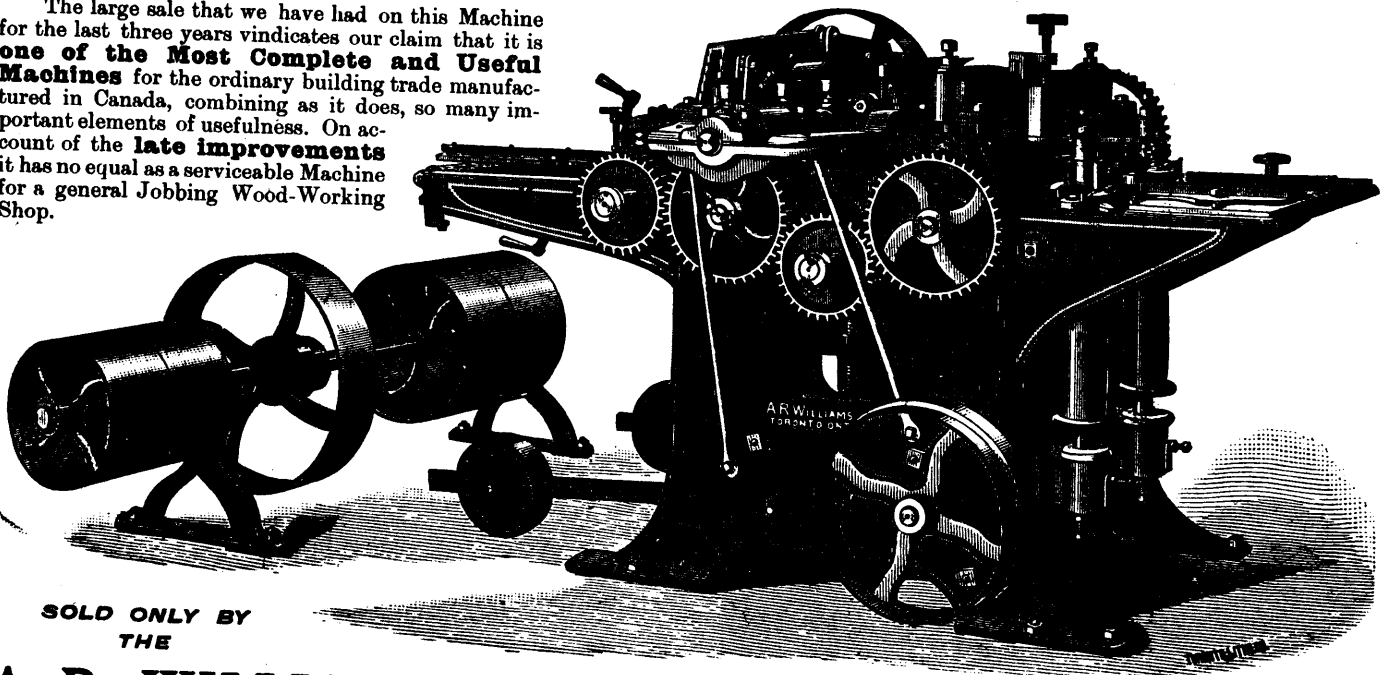
Current Prices, Revised to June 6, 1902.

The following quotations represent the prices current in the market, as obtainable by the trade, whether from the manufacturers or the jobbers. Small orders and broken packages usually command higher prices, while lower prices are usually given to larger buyers. The Canadian Customs Duties imposed upon all imported articles enumerated in these lists are published in full in the 1900 Tariff Edition of THE CANADIAN MANUFACTURER. Price 50 cents per copy. The publishers request the trade to suggest any changes and improvements which might be made in these lists, with a view to rendering quotations as correct and useful as possible.

<p>ADZES.—Duty 30%. \$13 to \$20 per doz.</p> <p>AMMUNITION.—Duty 30%. Caps, Gun, gross. Cartridges, B.B. Cap, Dom., 50 & 5% discount, Can. list. Cartridges, B.B. Cap, Amer., 40% discount, Amer. list. Cartridges, Central Fire, Military and Sporting, Amer., add 5% to list. Cartridges, Central Fire, Military and Sporting, Dom., 15 & 5% discount. Cartridges, Central Fire, pistol size, Dom., 30% discount. Cartridges, Central Fire, pistol size, Amer., 10% discount. Cartridges, Central Fire, rifle size, Amer., 10% discount. Cartridges, Rim Fire, pistol, Amer., 40% discount. Cartridges, Rim Fire, pistol, Dom., 50 & 5% discount. Powder, sporting, Can., \$4.50 per keg 25 lbs. Eng. " " Amer., \$5.50 per keg 25 lbs. " blasting, \$2.50 per keg. Primers, Dom., 30% discount. Shells, Brass Shot, 55% discount. " Trap, loaded or empty, 25% discount. " Rival and Nitro, net.</p>	<p>Shot, Buck, Seal or Ball, \$6.62½ per 100 lb. net. (duty 35%). " Chilled, \$6 per 100 lb. net. " Common, \$5.50 per 100 lb. net. Prices are f.o.b. Toronto, Hamilton, Montreal, St. John and Halifax. Terms 3% cash, freights equalized.</p> <p>ANCHORS. Small, 30 to 50 lbs., \$7.00 per 100 lbs. 100 lbs. and larger, \$5.00 per 100 lbs.</p> <p>ANVILS.—Duty 30%. Boker & Co., 12 to 15 cents per lb. Brook's, 10 to 13 cents per lb. Peter Wright's, 12 to 15 cents per lb.</p> <p>AUGERS.—Duty 30%. Eye Augers, 60% discount. Nut Augers, 60 " " Ship Augers, 10 " "</p> <p>AXES.—Duty 25%. Bench, \$6.50 to \$14 per doz. Broad, \$26.25 to \$40 per doz. Double-bitted, \$11 to \$13 per doz. Handled, \$8.50 to \$12 per doz. Regular, \$6 to \$10 per doz. Ship Carpenters, \$22 to 25 per doz.</p> <p>AXLE GREASE.—Duty 25%. Ordinary, box, \$5.75 to \$6 per gross.</p>	<p>AXLES.—Duty 35%. Half patent, short beds, 60% discount per set. long " " 60% " "</p> <p>BAGS.—Duty 20%. Cotton, seamless, \$14 @ \$24.50 per 100. Jute, \$7.75 @ \$9 per 100.</p> <p>BANDS.—Duty 30%. Carriage Hub, 2" x 1½", \$13.00 per set. " " 2½" x 1½", 14.00 " " " " 2" x 1½", 15.00 " " " " 2½" x 1½", 16.00 " " " " 2" x 1½", 17.00 " " " " 2½" x 1½", 18.00 " " " " 2" x 1½", 19.00 " " " " 2½" x 1½", 20.00 " " " " 3" x 1½", 21.00 " " " " 3½" x 1½", 24.00 " " " " 3" x 1½", 25.00 " " " " 3½" x 1½", 26.00 " " " " 3" x 1½", 27.00 " " " " 3½" x 1½", 28.00 " " " " 3" x 1½", 29.00 " " " " 3½" x 1½", 30.00 " " " " 4" x 1½", 31.00 " "</p> <p>BARROWS.—Duty 30%. See Wheelbarrows.</p>
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IMPROVED "ECLIPSE" PLANER, MATCHER and MOULDER

The large sale that we have had on this Machine for the last three years vindicates our claim that it is **one of the Most Complete and Useful Machines** for the ordinary building trade manufactured in Canada, combining as it does, so many important elements of usefulness. On account of the **late improvements** it has no equal as a serviceable Machine for a general Jobbing Wood-Working Shop.



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A. R. WILLIAMS MACHINERY CO., Limited, Toronto

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BELLS.—Duty 30%.
Church, 35 cents per lb.
Cow, 60% discount.
Door, \$3.50 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, 7 1/2 cents per lb.

BOLTS.—Duty 1/2 cents lb., & 25%.
Bolt Ends, 62 1/2% discount.
Carriage, 60
Coach Screws, 70
Elevator Bolts, 45% discount.
Machine, 60
Plow, 60
Shaft, 45
Sink, 50
Sleigh Shoe, 72 1/2
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, 1 1/2", 55 cents per doz.; 1 1/4", 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.
" " " 5 " " 3.00.
In Cans " 100 lbs., \$3.25.

CASTINGS (Iron).—Duty 30%.
Carriage, in 5 ton lots, 5 cents per lb.
" " " 5 1/2 " " "
" " " 1 " " "
" " " 1 1/2 " " "
" " " 1 3/4 " " "

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 12 1/2 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.; 1/2, \$3.75 per 100 lbs.;
5-16, \$5.50 per 100 lbs.; 3/4, \$4.90 per 100 lbs.; 1, \$4.40 per 100 lbs.; 1 1/4, \$4.00 per 100 lbs.; 1 1/2, \$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%.
Screws, \$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 22 1/2%.
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.
30 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, 33 1/2% 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, \$2.82 1/2 in less than car lots, and \$2.70 in car lots.
Mesh, 5 1/2 x 10, 20 rod rolls 55% discount, Can. list.
" 4 x 8, 20 " 50 & 5% "
" 3 x 6, 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 SCRAPER.—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, 8 1/2 to 9 cents per lb.
Gelatine, 23 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%.
1x1 1/2 inch, 10c. per lb.
(Evans), 1x1 1/2 in., doz. set packages, \$8.00 per gross.

HALTERS.—Duty 30%.
Leather, 1 in. strap, \$3.87 to \$4 per doz.
Leather, 1 1/2 in. strap, \$5.15 to \$5.50 per doz.
Rope, 1, \$5 per gross.
Rope, 1 to 1 1/2, \$11 per gross.
Web, \$1.87 to \$2.45 per doz.

HAMMERS.—Duty 30%.
Blacksmiths', 10 cents per lb.
Carpenters', Madoles', \$3.40 to \$3.75 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 do
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, \$4.50 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 42 1/2% discount.

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

HINGES.—Duty 1/2 cent per lb., & 25%.
Heavy T and strap, 4 in., 6¢ cents per lb.
“ “ “ “ 5 in., 6¢ “ “
“ “ “ “ 6 in., 6 “ “
“ “ “ “ 8 in., 5 1/2 “ “
“ “ “ “ 10 in., 5 1/2 “ “
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.

KNOBBS.—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 \$1.50 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.

MALEABLES.—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 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 1/2 cents per lb.; sheets, 7 cents per lb.

METALS—Continued.
Babbitt 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 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 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 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 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%).—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, 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% 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 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, \$2.85; 16 & 20d, \$2.80; 30, 40, 50 & 60d (base), \$2.85; fine, 3d, \$3.85.
Wire nails in car lots, \$2.77 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 1/2 cent per lb. & 25%.
Finished, tapped, 25% discount.
Rough, square head, 4 cents per lb. from list.
Rough, hexagon head, 4 1/2 cents 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 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 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 1/2 cents per lb.
Jute, 8 cents per lb.

PAILS.—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 1/2 cents per lb.
No. 2, 5 to 6 1/2 cents per lb.
Prepared, in 1/2, 1 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, 16 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 1/2 cents per lb.
Mortar Color, \$1.25 per 100 lb.
Pure Indian Red, No. 45, 90 cents per lb.
Super Magnetite 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 1/2 cents per lb.
French Ochre, 5 cents per lb.
Golden Ochre, 6 cents per lb.
Marine Black, 9 cents per lb.
Marine Green, 9 cents per lb.
Venetian Red, 5 cents per lb.

PAPER.—Duty 25%.
Brown Wrapping, 2 1/2 to 4 cents per lb.
Manilla Wrapping, No. 1, 4 cents per lb.
“ “ “ “ No. 2, 5 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.

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

PITCH.
85 cents 100 lbs.

PIPE.—Duty, \$3 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.
100 ft.; 1, \$5.15 per 100 ft.; 2, \$5.50 per 100 ft.; 3, \$7.95 per 100 ft.; 4, \$10.80 per 100 ft.; 5, \$12.95 per 100 ft.; 6, \$17.35 per 100 ft.

PIPE, BLACK IRON.—Duty 30%.
1, \$4.65 per 100 ft.; 2, \$3.40 per 100 ft.; 3, \$3.45 per 100 ft.; 4, \$3.30 per 100 ft.; 5, \$3.75 per 100 ft.; 6, \$5.25 per 100 ft.; 7, \$7.40 per 100 ft.; 8, \$9.30 per 100 ft.; 9, \$12.75 per 100 ft.; 10, \$22.75 per 100 ft.; 11, \$30.00 per 100 ft.; 12, \$37.50 per 100 ft.; 13, \$42.75 per 100 ft.; 14, \$51.50 per 100 ft.; 15, \$57.50 per 100 ft.; 16, \$74.50 per 100 ft.

PIPE.—Duty 30%.
Wrought Iron, 1 inch, per ft. 16½ 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 12½-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 37½ 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, ½ cent per lb.
Extras on Iron Rivets in ½-lb. cartoons, 1 cent per lb.
Extras on Tinned or Coppered Rivets, ½-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.
" ¼ in., 22½ cents per lb.
Crucible Steel Rope, 25% discount.
Galvanized Wire Rope, 25% discount.
Jute, 8 cents per lb.
Lath Yarn, 9½ cents per lb.
Manila, 7-16 in. and larger, 13½ cents per lb.
" ¼ in., 14½ cents per lb.
" and 5-16 in., 15½ cents per lb.
New Zealand Rope, 10 cents per lb.
Russia Deep Sea, lines 15½ cents per lb.
Sisal, 7-16 in. and larger, 10 cents per lb.
" ¼ in., 11 cents per lb.

RULES.—Duty 30%.
Boxwood, 75 and 10% discount.
Ivory, 37½ to 40% discount.
Lumbermans'.

SAD IRONS.—Duty 30%.
Mrs. Potts', No. 55, polished, 62½ cents per set.
No. 50, nickle-plated, 67½ 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, Diiston's, 35 to 55 cents per foot.
Hack, complete, 75 cents to \$2.75 each.
Hack, frame only, 75 cents each.
Hand, Diiston's, 12½% 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, 37½ & 10% discount.
Hexagon Cap, 45 "
Set, case-hardened, 60 "
Square Cap, 50 & 5 "
Wood, F.H., bright and steel, 87½ & 10% discount.

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

SCYTHES.—Duty 25%.
Grass, \$8 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 ½ cent per lb.
Rail, 20% discount.
Ship, \$5 per 100 lb.

SPRINGS.—Duty 35%.
Bright Carriage, 6½ 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, 33½ discount.
" Jarecki, 33½ "
" 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, 85 & 12½ discount.
Copper tacks, 50% discount.
Cut tacks, blued, in dozens only, 80% discount.
" 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, 12½ & 12½ dis.
" brush, blued and tinned, bulk, 70% dis.
" gimp, blued, tinned and japanned, 75 & 12½ 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, \$9 per doz.
Pipe, " Brown's," net.
" " Brock's," 25% discount.
" " Trimo," 25 "

TRAPS.—Duty 30%.

TRUCKS.—Duty 30%.

TURNBUCKLES.—Duty, ½ cent per lb., 25%; 33¼ 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, 12½ 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 g
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., 13½ cents per lb.
Brooks', 13½ 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 & 2½ 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 gauge, \$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 \$3.90; 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, \$2.57½ 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 lb.
" 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, 50 "
Trimo, pipe, 25 "

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

ZINC.—See Metals.

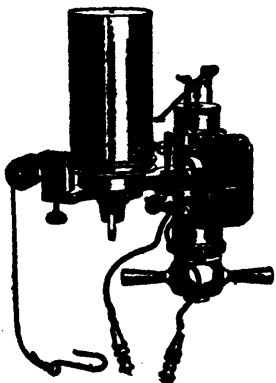
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American Thompson Improved Indicator with Electrical Attachment.

AMERICAN STEAM GAUGE AND VALVE MFG. COMPANY

BOSTON, MASS., U. S. A.

MANUFACTURERS OF

Standard Appliances for Measuring, Indicating, Recording and Governing Water, Steam, Gas, Ammonia, and all pressures.

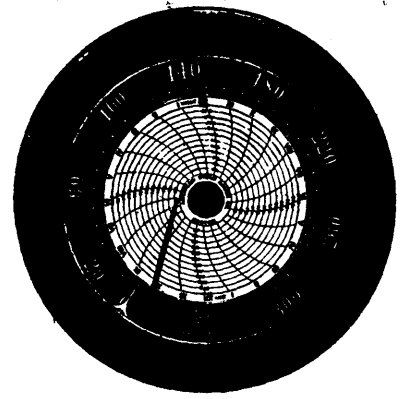
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HIGHEST AWARD AT PARIS EXPOSITION, 1901—The only American Indicator to receive a Medal. The Gold Medal awarded at Pan-American Exposition on Gauges, Pop Valves, Indicators and Engineering Specialties.

THE INDICATOR THAT MADE INDICATORS FAMOUS

Also Gauges, Clocks, Revolution Counters, Pop Safety, Cylinder and Underwriters' Water Relief Valves, Recording Gauges, Pyrometers, Salinometers, and all Steamship Instruments. Send for New General Catalogue.

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