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Vol. 43.

TORONTO, DECEMBER 20, 1901.

No. 12.

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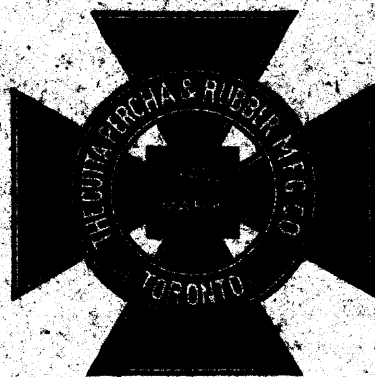
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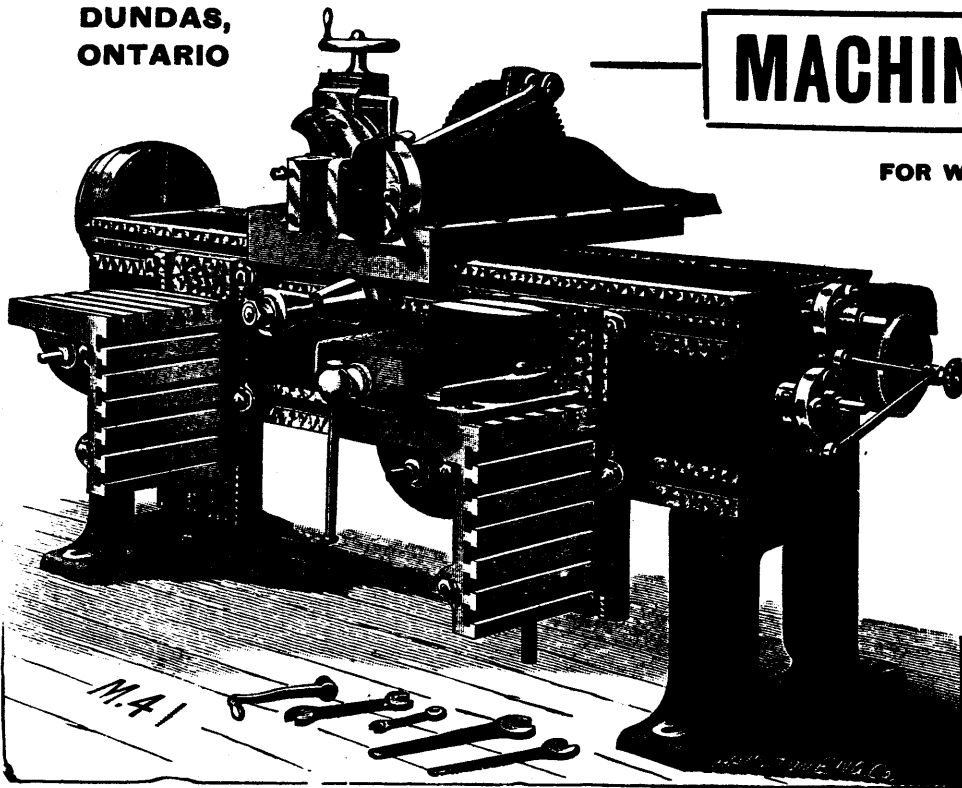
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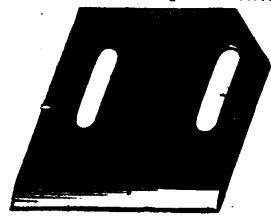
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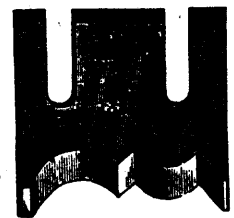


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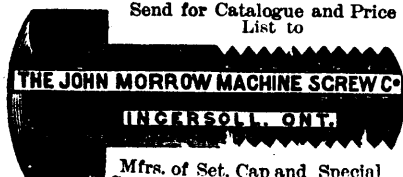
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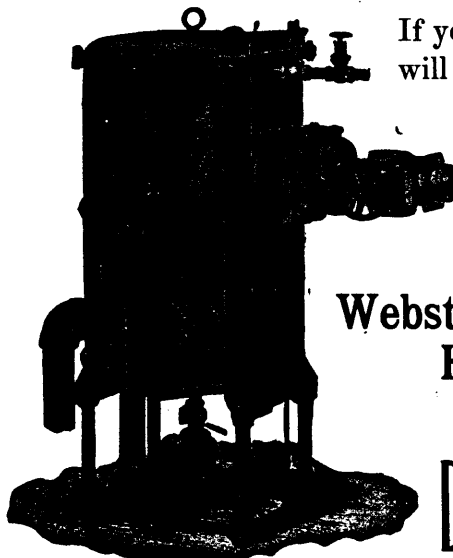
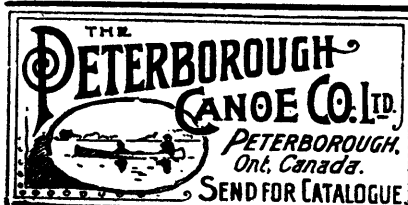
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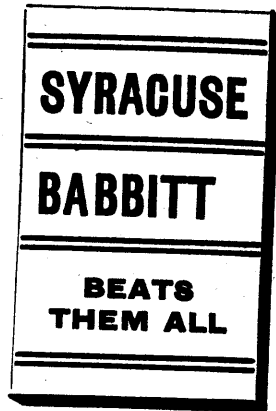
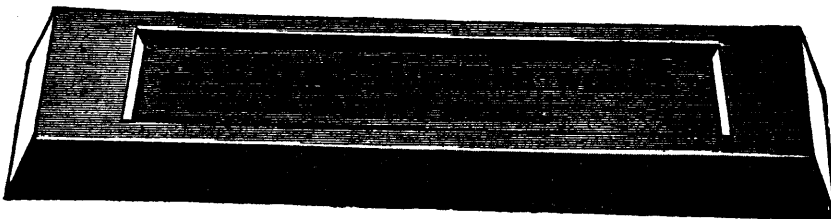
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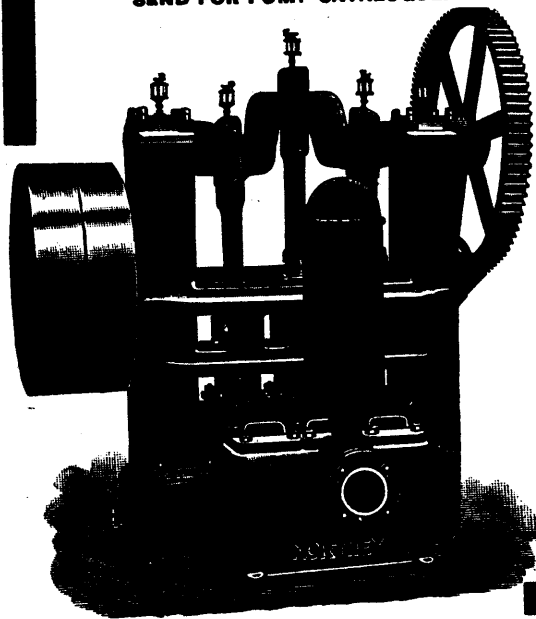
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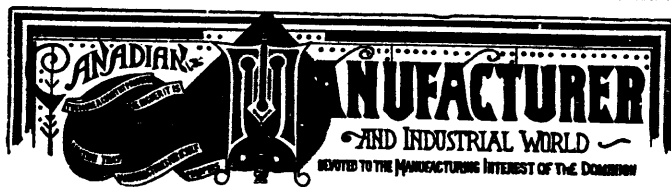
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MESSRS. DAVISON & CO.,

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AGENTS FOR UNITED STATES.

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J. J. CASSIDEY, Editor and Manager

THE HISTORIAN.

The Canadian Manufacturers' Association is equipped with a historian and an organ. The historian, in recording the proceedings of the recent annual meeting in Montreal, embraced the opportunity to cast a retrospective glance over the long and useful career of the Association, to recall the conditions which led to its formation, to follow its progress down to the present time, and to chronicle his facts in the November issue of Industrial Canada.

The historian records the transactions of the Association for the past ten years in precisely five lines as follows:—

From 1891 down to about a year and a half ago the attention of the Association was given mainly to tariff matters, but as the tariff remained fairly satisfactory, the Association lost considerably in vigor and aggressiveness.

The historian tells us that the Association has been accused incorrectly of being a political organization, but that members have, on frequent occasions, taken active part in the elections. The question as to its being a political organization, however, depends largely upon the meaning of words.

The object of the association from its inception until "a year and a half ago" was to endeavor by all legitimate means to induce the Dominion Government to encourage and promote Canadian manufacturing enterprises by means of a protective tariff, and to enable those engaged in such enterprises to act in concert as a united body should that policy be threatened. If the policy of tariff protection is not a political question, then, as the historian says, the accusation that the Association was and is a political organization is incorrect. But we all know that the demand of the manufacturers for tariff protection was what brought the Association into existence twenty-six years ago, and, being the key-stone of the arch, has kept it intact.

The historian thinks that because the attention of the Association from 1891 down to about a year and a half ago was given mainly to tariff matters, as it had been given ever since its organization in 1876, it lost vigor and aggressiveness, but he does not relate any of the circumstances connected with the events of 1896. The minutes of the Association show that considerable vigor and aggressiveness were in evidence in 1894, for therein it is shown that at a meeting of the executive committee, of which Mr. R. W. Elliot was chairman, held February 14 of that year, the secretary laid before the meeting the brief which he had prepared, which

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had already been approved by the tariff committee of which Mr. W. K. McNaught was then chairman. "Considerable discussion," the minutes say, "was held relative to the secretary's brief, participated in by Messrs. Elliot, McNaught, George E. Drummond, of the Canada Iron Furnace Co., and others, after which, on motion, the brief was accepted and adopted, and the secretary was instructed to present the same to Hon. George E. Foster, Minister of Finance."

That brief was presented to Hon. Mr. Foster on February 26, 1894, the receipt of which was acknowledged by him as follows:—

Ottawa, March 5, 1894. Dear Mr. Cassidey:—"I desire formally to acknowledge receipt from you of the large and well prepared brief upon desired changes in the tariff as recommended by the Canadian Manufacturers' Association, and to express the pleasure I had in your full and business-like presentation of the case to me in our somewhat prolonged conference. You must have bestowed a great deal of personal attention upon the matter; and you will allow me, I know, to say that in my opinion you have done the case full justice. I remain yours very truly, Geo. E. Foster."

It might be here mentioned that at the annual meeting of the Association held February 15, 1894, on motion of James Kendrey, Esq., M.P., of Peterborough, seconded by George Pattinson, Esq., of Preston, a special grant was made to the Secretary "in recognition of the excellent services he had rendered the Association in the preparation of this brief."

The historian is oblivious to the fact that during the ten years of the life of the Association extending from 1891 the members entertained the opinion that the tariff was not "fairly" satisfactory; further evidence of which we shall produce at other times.

RECIPROCAL PREFERENTIAL TARIFF WITHIN THE EMPIRE.

While the United States is excited in the matter of reciprocity with Canada and other countries, using a suggestion that an abatement of its existing high duties on certain articles might be granted in return for similar favors by which American manufactures might be more freely introduced into the markets of other countries, Great Britain is also to some extent excited over the situation. According to the British Trade Journal, the publication in Great Britain of the proposed Australian tariff, and the new Imperial tariff soon to come into operation in Germany, is now agitating the Chambers of Com-

merce and the manufacturing centres of that country. The Australian tariff, it points out, has been rendered necessary by the formation of the Australian Commonwealth and the abolition of inter-state tariffs. The Commonwealth requires an annual tariff revenue of about nine millions sterling, and it is proposed to raise two millions from customs' and excise duties on stimulants, and the balance by import duties. In some quarters it was hoped that the Federal Government would lean towards the policy of New South Wales, which had been on free trade lines. The abstract of the proposed duties, which has been published, shows, however, that as at present drawn the proposals tend rather to the class of duties levied in Victoria for protective purposes, and range from 10 to 25 per cent. ad valorem. A system of bonuses is also to be introduced, to encourage the establishment of new industries, especially on locally smelted iron and locally made machinery. These bonuses are to commence in July, 1902, and the first would be payable only to works capable of producing 100,000 tons of iron annually. The other bonus would be limited to 150,000 tons of machinery. A bonus of 25 per cent. is also proposed to be paid on the manufacture of reapers and binders. On imported sugar the duty is to be £6 per ton, and the excise on sugar £3 per ton, with a rebate of £2 per ton if grown by white labor only. Heavy duties are proposed on flour, cheese, butter, tinned meats, as well as on all classes of manufactured goods.

These proposals, says the Trade Journal, have been received in a manner which shows at once the complicated organization of the British Empire and the weak points in the armor. In the first place dissatisfaction is expressed that the Australian Government has said nothing as to the preferential treatment of the Mother Country or of the British possessions. The duties are to be applied to all countries and peoples alike. Canada takes objection at once, because its growing exports of breadstuffs to Australia will be checked by the proposed tariff, an objection for which there is some excuse inasmuch as the Canadian tariff gives a preference of 33½ per cent. to Australian goods. Manufacturers in the Mother Country are disappointed because the promise of preferential treatment of their manufactures as against those of Germany and the United States has evidently been forgotten; and Japan is annoyed with the British Government because the Australian Commonwealth wishes to restrict employment on subsidized mail steamers to people of a white race. Our contemporary assumes that before the new tariff becomes law it will be modified in many important directions. Many of the duties, it says, should be reduced; and it is a matter for very earnest consideration whether a general conference of representatives from the British and Colonial Governments should not be called to discuss schemes of reciprocity and preferential treatment as between the various parts of the Empire. This conference should also deal with the proposed South African Customs Union, with reference to which the Prime Minister of Natal has declared that he should not oppose the inclusion of preferential duties for the United Kingdom.

Complications in tariff questions are further enhanced by the discussions of the proposed German tariff, which increases the duties on manufactured articles of nearly every class to a degree which has alarmed many of the leading industries in Great Britain. The manufacturers of Huddersfield, Blackburn, Halifax, Kidderminster, Leeds, Manchester, Oldham, Leicester, and many other manufacturing districts are loud in their condemnation of the German proposals. Leading members of the Nottingham Chamber of Commerce go so far as to threaten retaliation, for it cannot be doubted

that certain of the proposed duties have been expressly drawn to prohibit the importation of English goods. In the opinion of the Trade Journal, to residents in the Colonies the principle interest attaches to the greatly enhanced duties on food materials, which will be advanced from 50 to 300 per cent. if the tariff bill becomes law. The exports of Canadian, Australian, New Zealand, and Indian wheat, maize, flour and meat to Germany are considerable, and of growing importance, whether sent direct from the colonies or via the United Kingdom, and it is to check these that the new German tariff duties are intended. Upon the British Government, therefore, devolves the duty of defending British Colonial interests by negotiations which shall keep the German duties within moderate limits. Australia, Canada and New Zealand are in this direction as impotent as the most insignificant Crown Colony. The tariff negotiations with foreign countries must be carried out through the clumsy machinery of the Colonial Office and Foreign Office, both fossilized in the traditions of Downing Street. The English Government cannot bring any influence to bear upon the German Government because the British fiscal system is based on free imports, and it cannot use the Australian tariff as a lever because it has no power of enforcing preferential treatment, and will not even suggest it. Hence a decision in favor of British preferential treatment on the part of Australia would place in the hands of the British Government a lever which it at present does not possess, and which it affects to scorn. Canada, it is true, has such a weapon, but enforced singly and alone against the German financial proposals it is ineffectual. Were it leagued on this point with the whole of the British Empire and its possessions, its wishes would probably be respected by the German authorities. The realization of reciprocal preferential tariff within the British Empire is almost within measurable distance.

THE MANUFACTURER AND HIS ENGINEER.

This journal has on frequent occasions directed the attention of manufacturers, and of its readers generally, to the work being done by the Canadian Association of Stationary Engineers in educating its members in a knowledge of what should be the qualifications of the men who stand at the throttle of the steam engines which produce the power which drives the machinery of our manufacturing establishments. There is no phase in the processes of any business where economy is so absolutely essential to success as in the production of power, for in many instances the cost of fuel decides not only the locality at which the factory may be erected, but even the erection of it. Machinery may be of the very best description, and the strictest economy observed in all the processes of manufacture and distribution, but in many instances the quantity of fuel consumed in producing steam very materially affects the amount of profit hoped for. Every other thing being equal as regards two establishments, that which has the better engineer in the power house will always show better results than that which is not thus equipped. Such being the fact it is remarkable that so few manufacturers show any active interest in the work being done by associations such as that here alluded to, where the prime object of their existence is to raise the morale of their members, at all times striving to increase their efficiency, and to make them better prepared for the positions they may hold or aspire to. A proprietor has not done all that he might and should do when he has paid to his engineer the wages due him. There should at all times exist the most kindly feeling between them which should be exhibited incidentally by making the engine

room bright and comfortable, and equipping it not only with the necessary mechanical tools and appliances, but also with literature of a character calculated to impart information of value regarding the use of steam, and what others are doing in that direction. But it is too often the case that a proprietor never thinks it worth his trouble to place upon a table in his engine room any works of that character, any of the many trade journals and technical publications, nor even some of the catalogues that come to his office from supply houses and manufacturers whose specialties are in constant requirement in every machinery using establishment. Surely to this extent at least the proprietor, in his own interest, should assist his engineer.

These ideas are suggested by reading an "Instruction Paper" published in another page, issued by the educational committee of the C.A.S.E. to its members. Such papers are issued monthly, we understand, by the committee to all the members in accordance with a resolution passed at the recent convention of the association held in Brantford, Ont. A careful perusal of this paper, which is on "The Generation of Steam," will indicate the character of the work being done.

LAST YEAR'S BIRD NESTS.

The Toronto Globe, in an editorial discussing "British and American Trade," alluding to the large excess of imports into Canada from the United States over those from Great Britain in spite of our tariff preference towards British products, explains the circumstance by saying that the resolution of the Liberal Convention in 1893 declared that "the tariff should be adjusted so as to make free, or to bear as lightly as possible, upon the necessaries of life, and should be arranged so as to promote freer trade with the whole world, more particularly with Great Britain and the United States;" and it tells us that "this difference arises from the fact that the necessaries of life come more largely from the United States than from Great Britain, the result of natural and economic laws which no tariff can overcome."

It may be that it was the desire of the Liberal party in 1893 to have free trade, or as near an approach to it as possible, but that party was not in power at that time. The orators of it preached reciprocity with the United States, and combatted the idea of a reciprocal British Preference such as the Conservatives were then proposing: but when the change occurred and the Liberals came into power they made no violent alterations in the tariff: and those which were made have been, with some exceptions, fairly acceptable to the manufacturers and to the country at large. The woolen duties would have been equally acceptable had it not been that the reduction of 33½ per cent. upon British goods wiped out that feature of protection observable in all other lines: a result that was evidently not intended by the Government and which it will no doubt make haste to correct.

In 1893 the Liberals were admirers of the theories of free trade, which, in the abstract, are very beautiful: and this was the dividing line which separated the tariff protectionists from them: but when they came into power the conditions of the country were such as to convince them that they could not be held to the declarations of their convention: and the mistake they made in their endeavor to show a tariff preference to British goods was in not correctly placing the net duties on woolens at a sufficiently high minimum. It was never the intention to place the Canadian woolen industry at the feet of the British manufacturers any more than it was the intention to so subject any other Canadian industry. In the

opinion of the Government in the framing of the 1897 tariff they were giving all sufficient protection to Canadian manufacturing industries while at the same time they were making it possible that the consumers of the country should not be forced to pay unduly high prices for their necessities. In this they were fairly successful: and The Globe should have comprehended that the resolutions of the Liberal convention of 1893 are of no more value to the Government at this time than are a lot of last year's birds' nests. No doubt the sentiments uttered by Mr. Tarte at the Montreal banquet are the ones which govern and will govern the Government in dealing with the tariff.

THE POSTMASTER-GENERAL'S REPORT.

The report of the Postmaster-General for the fiscal year ended June 30, 1901, shows great extensions of the service throughout the whole of the Dominion. During the year increased facilities were given to the public in various ways, no less than 619 miles of additional railways being utilized for mail purposes. The total annual mileage that the mails were carried by rail exceeded the total mileage of the previous year by 16,962 miles. The total mileage that the mails were carried by stage routes exceeded the total mileage of the previous year by no less than 460,809 miles. The frequency of the mail service was increased for 347 post-offices, while 227 new post-offices were opened, and 13,375,500 more letters were carried than in the previous year. The number of postal notes issued and paid during the year increased from 769,250 to 877,599, the aggregate value of the year's issue being \$1,459,015, an increase of \$108,349. This branch of the service was inaugurated in August, 1898, the total sale of postal notes that month being 2,777, whilst for the month of June, 1900, it was 66,509. During the year 596 new postal note offices were established, being an increase for the twelve months from 3,160 to 3,756. In the money order branch 76,102 more money orders were issued than in the previous year. The aggregate value of the money orders for the year amounted to \$17,956,257.87, being an advance over the previous year of \$1,747,183.53. The postal note and money order transactions of the department for the fiscal year aggregated \$19,415,273.62, being greater by \$6,373,416 than for the fiscal year closing June 30, 1896, or an increase of 49 per cent. During the year the department arranged with the United States a plan for the simplification of the exchange of money orders and postal notes between the two countries, the result being that an agreement was come to whereby the United States pays all money orders and postal notes drawn upon it by the Dominion of Canada in the same manner as if the orders were to be paid in the Dominion itself. This arrangement practically adds to the list of names some thirty thousand offices in the United States upon which the Canadian Post-office Department may issue money orders and postal notes. Canada renders a similar service to the United States. The revenue of the Department for the year exceeded that for the fiscal year ending June 30, 1896, by \$238,924.19, notwithstanding the fact that the public are now enjoying a letter rate throughout Canada of two cents, as against three cents, as formerly; also a two-cent rate as against three cents on letters to the United States, and two cents as against five cents in former days, on correspondence between Canada and the rest of the empire. The immediate result of these reductions in rates, which took effect in January, 1899, was a great loss of revenue, but there has been a steady increase in correspondence, and in the month of January last—that is, at the expiration of two years from the

time that this reduction took effect—the monthly revenue had grown to exceed what it had been under the higher previously existing rates. For the fiscal year ending June 30, 1896, there was a deficit in the department, omitting Yukon transactions, amounting to \$781,152.19. The deficit for the year 1900 has fallen to \$416,183.99, notwithstanding a reduction of about 33 per cent. in the rates of postage.

THE METRIC SYSTEM.

In the report of the Industry and Membership Committee of the Canadian Manufacturers' Association, made to the recent annual meeting of the Association, alluding to the metric system it is said that at a dinner held under the auspices of the Reception Committee, after several discussions had been had on the subject, a resolution was passed "recommending to the Executive Committee that it place itself on record as being in favor of a conference between representatives of the English speaking nations with a view to securing a uniform system of weights and measures on a decimal basis." We are not aware that this recommendation was ever acted upon by the Executive Committee; and we do not discover in the report of that Committee to the Montreal meeting that any mention whatever was made of the subject.

A couple of years ago Sir Henri Joly de Lotbiniere, who was then Minister of Interior, at the request of the then Secretary, presented the Association with a cabinet containing all the different articles comprising the standard of metric weights and measures; at which time a sub-committee was appointed to consider the question as to whether it was desirable that the Association should memorialize the Government to adopt the system. The report of that sub-committee, and other matters bearing on that subject were at that time published in THE CANADIAN MANUFACTURER. We know that Sir Henri Joly was then a strong advocate for the adoption of the system, his idea being that the commercial and industrial elements of the country should first request it. Since then the foreign trade of Canada has greatly increased, and in view of the fact that much of this trade is with countries which have already adopted the system, and in view of the other fact that both Great Britain and the United States are progressing rapidly towards the compulsory use of the system, it is for the consideration of our manufacturers, exporters and importers, whether this country should not without further delay adopt the system.

That this question commands the attention of the most influential commercial bodies of Great Britain is evidenced by the action of the London Chambers of Commerce in originating the Decimal Association whose special object it is to educate popular opinion in that direction. This Association, of which Sir Samuel Montague is president, and Mr. Edward Johnson secretary, has recently issued a report in which is shown the progress being made, and the names are given of more than 150 members of the British Parliament who have already put themselves on record as being in favor of the immediate compulsory adoption of the metric system of weights and measures.

Countries which have adopted the Metric Weights and Measures:—

Country.	Population.
Norway of Sweden	7,010,632
Germany	52,279,901
Foreign Dependencies	10,660,000
Holland	5,004,204
Java, etc.	34,090,000
Belgium	6,586,598
France	38,517,975

Country.	Population.
French Colonies and protected countries	52,642,980
Portugal, Azores and Madeira	5,049,729
Dependencies	9,216,707
Spain	17,565,632
Colonial Possessions	173,000
Italy	31,667,946
Italian Dependencies	1,256,800
Austrian Territories	42,927,296
Greece	2,433,806
Roumania	5,800,000
Bulgaria	3,310,713
Ottoman Empire and Egypt	43,912,825
Mexico	12,619,959
Central America	3,053,000
Haiti	960,000
Colombia (Republic)	4,000,000
Venezuela	2,323,527
Ecuador	1,271,861
Brazil	14,333,915
Uruguay	827,485
Argentine Republic	4,094,911
Chili	3,200,000
Peru	2,621,844
Japan	42,270,620
Switzerland	2,933,334
Finland, (Grand Duchy of Russia)	2,520,437
Mauritius and Dependencies	371,655
Servia	2,312,484
Bolivia	2,019,549
Republic of St. Domingo	610,000
United States Dependencies (Cuba, Porto Rico, Philippines)	10,430,262
Total	483,215,862

An Act to provide for the ultimate adoption of a uniform system of weights and measures in British India was passed by the Governor-General in Council, in 1871. This Act provided that the ser should be equivalent to the kilogramme, but it was never brought into operation.

Canadian manufacturers are reaching out for foreign trade, but how can they expect the full success they hope for without a knowledge of the one system of weights and measures observed by the countries with which they desire to deal. Observe the list of countries we give and the millions of inhabitants in them, and remember that Canada is not therein enumerated.

EDITORIAL NOTES.

A movement is on foot in Toronto to revive the Dominion Board of Trade. The matter was brought to the attention of the council of the Toronto Board of Trade a few days ago in the form of a letter from Mr. Chapman one of the directors, but the council, while not endorsing the idea, put itself on record as favoring the holding of a convention of all Canadian Boards of Trade at some central point at an early date. The first annual meeting of the Dominion Board of Trade was held in Ottawa on January 18, 1871, and following days; but no meeting has been held for several years.

Mr. James M. Swank, the general manager, has sent us a copy of the annual statistical report of the American Iron and Steel Association prepared by him. It contains complete statistics of the iron and steel industries of the United States for 1900 and preceding years; also statistics of the iron ore, coal, coke and ship-building industries of that country, and of imports and exports of iron and steel and iron ore; also a supplementary paper reviewing the world's iron and steel industries at the end of the nineteenth century. This most interesting brochure also contains the statistics of the Canadian iron business for 1900 which is reproduced in another page of this journal.

The representatives of the Toronto Board of Trade to the Toronto Industrial Exhibition Association have submitted to the council of the Board what they call comprehensive financial statements showing the position of the Exhibition upon the completion of the twenty-third year of its history. The report, while showing great labor and diligence on the part of the gentlemen making it, did not seem to meet the views of the council and it was referred back, and several members of the Board were appointed to co-operate with the representatives in preparing another report.

A member of the Canadian Manufacturers' Association has called our attention to the fact that the August issue of Industrial Canada, the official organ of the Association, was published with a new special cover, the design for which was chosen by the committee having the management of Industrial Canada in charge; that all subsequent issues of the organ have been adorned with that cover, and that the design was the work of an American artist residing in New York, for which the Association awarded him a prize of \$50. Our correspondent thinks that but little credit is reflected upon Canadian talent when the Association is forced to go to a foreign country to obtain a design for a cover for its official organ. The committee should have chosen either the design of a Canadian artist or have omitted the Yankee cover.

Telegraphing from Chicago, the correspondent of the London Daily Mail says:—Sir Thomas Lipton, who was then visiting in that city, was asked to give his opinion on why the Americans had beaten the English in so many lines of commerce and manufacturing. He replied:—"The Americans make foreign trade by selling people what they want. Englishmen lose by forcing upon people things they want people to want. The Americans pay higher wages, but more than make up for it by using improved machinery. As a result they find a market in England for everything they manufacture and easily undersell us at home." Sir Thomas might also have said that if any machinery not strictly first-class and up-to-date was to be found anywhere about an American factory it would not be employed in the production of goods, but in the scrap pile.

THE MINERAL PRODUCTS OF CANADA.

George Johnson, Esq., F.S.S., Dominion Statistician, has favored THE CANADIAN MANUFACTURER with the following statistical resume regarding the mineral production of Canada for the year 1900, comparing it with that of 1890, and with the mineral production of the United States for the same years. Mr. Johnson's communication is as follows:—

The statistics of mineral production in Canada and the United States for 1900 having been published, we have the means of comparing the development of the two countries in the production of mineral wealth.

Both countries classify their mineral production into metallic, non-metallic and miscellaneous, though the officials of the Geological Surveys in both countries differ in their assignments according to the proverbial saying that "doctors differ."

Let us rearrange our Canadian list so as to make it correspond with that of the United States Geological Survey, not because the distribution of the Washington savants is any better than the one devised by our own wise men, but simply because there are fewer changes in the selected readjustment than would try our patience if we adopted the alternative.

In the general division of metallic, non-metallic and miscellaneous, the value of the production of each country in the year 1900 was:—

	Metallic	Non-Metallic	Miscellaneous	Total
U. S.	\$552,418,627	\$516,690,262	\$1,000,000	\$1,070,108,889
Canada . . .	40,408,676	23,779,361	300,000	64,488,037

The first fact that presents itself, large writ on the face of these figures, is the comparative smallness of the Canadian

output,—just about one-seventeenth of that of the United States. Taken on a per capita basis, the United States produced \$14.03 and Canada \$12.06 per head of the population. Put in this way it does not appear so small, still we do not produce as much per head as our neighbours although we have as great an area of country and are equally well endowed with mineral wealth.

We can find consolation and at the same time stimulus in the fact that while the production of the United States increased from \$9.92 per head since 1891, Canada has advanced from \$3.92 per head since that year. The United States has increased its per capita output by \$4.11 and Canada by \$3.14 in the period 1891-1900. Canada was \$6 per capita behind in 1891, but lagged only \$1.98 per capita in 1900.

The first column in the table shows the value of the metallic portion of the mineral production of the two countries. In the United States this metallic production forms 51.6 per cent of the whole mineral production, while in the case of Canada it forms 62.66 per cent. In every \$100 of mineral wealth produced in the United States \$51.60 comes from metallic sources and \$48.40 from non-metallic, while in Canada in every \$100, \$62.66 comes from metallic and \$37.34 from non-metallic sources. It was not always so, either in the United States or Canada.

In the case of Canada the metallic production was only \$29 in every \$100 in 1891, and \$35 in 1896.

In 1900 Canada had increased the production of metals by more than eleven times their value in 1890 while the United States had failed to double their production of 1890, reaching in fact only a little over 80 per cent of an increase.

In 1890 the output of Canada had to be multiplied by 84 to bring it up to the output of the United States, but in 1900 17 would be the multiplier, and to that extent Canada has decreased the distance between herself and her big neighbour in respect of metal production. She was 84 miles behind in 1890 and only 17 in the rear in 1900, at which rate it will not take her long to catch up and pass.

Notwithstanding the large increase in production in the United States during 1890-1900, viz.—over 246½ million dollars, Canada has gained upon her neighbour to the extent indicated.

The increase has been, therefore, more emphasised in Canada than in the United States, great as has been the increase in the latter country.

In the United States by far the largest part of the increase has been due to the enlarged production of pig-iron, 71.9 per cent. Part of this is due to increased price from an average of \$16.54 a ton in 1890 to \$18.85 a ton in 1900—so that 22 per cent of the increase is due to enhanced price and 50 per cent to increased quantity. The enlargement of output of pig-iron is very great—from 9,202,000 tons in 1890 to 13,800,000 tons in 1900.

Canada has made no such development in the manufacture of pig-iron. In 1890 we manufactured 25,697 tons. In 1900 we had developed so well that our manufacture was 101,839 tons. That was marked development; but compared with the United States it looks small. Forty-seven dollars in every \$100 of the metal production of the United States was derived from the furnaces which melted the iron ores, while not more than \$4.00 in every \$100 of Canadian production was due to pig-iron.

With the equipment of iron works in the centre and eastern sections of the Dominion it will not be evincing an oversanguine spirit if the belief is expressed that during the next three years pig-iron will hold the place in the production of metal in Canada it now holds in the United States, viz., 47 per cent instead of 4 per cent.

In Canada very much the largest part of the increase in metal production during ten years has been of gold. In 1890 the gold produced in the Dominion was valued at \$1,150,000 and in 1900 at \$27,998,000.

Compared with the United States the production of gold in Canada formed nearly five-sevenths of the total metal production in 1900, and in the United States it formed one-seventeenth.

If we analyze still more closely column 1 in the table we find that it includes in addition to gold and pig-iron, silver, lead, nickel, copper and zinc for Canada; and for the United States, quicksilver, antimony, platinum and aluminum, not

specified in the Canadian returns, because either we have not found them or have not extracted them.

No quicksilver has ever been produced in Canada. The United States produce about 30,500 flasks a year, chiefly in California, although Texas last year produced 1,000 flasks of 76½ pounds each from cinnabar deposits.

It used to be said that the Rothschilds, who have to greater or less extent preempted the world's supply of quicksilver, had only to decree an increase in the price to guarantee them against defaulted interest by a debtor nation. Anyway we have not yet found quicksilver in Canada.

Antimony is another metal which appears on the United States list and not on ours. We have the metal in one place at least in Nova Scotia where it has been produced to the value of \$31,000 in a year. A lawsuit cut short the supply, and now we have to import the \$20,000 worth that we use yearly. The lawsuit, I believe, was recently ended.

Of aluminum Canada imports over \$15,000 worth yearly, and considering the new uses to which it is put it is somewhat singular that we have not attempted to extract it. We have it in millions of tons as it is the most abundant metal in the earth's crust. We have the corundum, but it is too valuable for its abrasive powers to be used in the manufacture of aluminum.

Tin is another metal absent from both the Canadian and the United States lists. I do not mean "tin" in its slang form meaning money, though that too is extremely useful, but tin, the real tin of which the world requires about 40,000 tons a year. Of that article we have none, or at least have found none, though some geologists predict the probability of tin being discovered in Canada because we have such immense granite areas. We import in various forms to the value of about \$2,500,000 worth annually.

Having shown what that first column does not contain in the case of Canada, I propose to show what metallic substances it includes.

I have already touched upon gold and pig-iron as two of the more important metals belonging in that column.

The development in the production of gold is of course due primarily to the discovery of that metal in the Klondike region.

Altogether from all sources Canada has added to the world's store of the yellow metal \$136,500,000 worth, of which over \$52,000,000 or \$38 in every \$100 have come from the Canadian Yukon territory, and practically all of it since 1897. Gold has, however, been developed in other parts of the country. In 1891 the yield of gold in Canada, exclusive of the Yukon, was under \$800,000, and in 1900 it was (without the Yukon's contribution) \$5,640,000, or a gain of \$4,860,000.

In the United States the production of copper stands next in value to pig-iron. Its value is some \$19,000,000 more than that of the gold yield of the United States, amounting to \$98,494,390 in 1900.

The production of copper in Canada, valued by the Geological Survey people at seven mills a pound less than the value assumed by the United States authorities, was \$3,063,119 in 1900. Canadian copper is obtained from several sources. We have eight companies, four in Ontario, two in Quebec and one each in Nova Scotia and New Brunswick, operating mines of copper and pyrites; six companies (all in Ontario) operating mines of copper and nickel; and thirty-two companies operating gold and copper, these being all in British Columbia. All these have an authorized capital aggregating 140 or 150 million dollars. How much is really invested in the actual working of copper mines it would be impossible to tell, as in most cases gold and nickel as well as copper are the objects of the mining companies.

Of course in the production of nickel, \$3,327,707 in 1900, Canada outstrips the United States as it does all other countries, the production in the United States being valued at \$3,886, France \$887,800, and Germany \$670,482; the figures having reference to France and Germany being for 1899.

The non-metallic division of both Canada and the United States include fuels, structural materials, abrasive materials, chemical materials, pigments and miscellaneous.

Fuels include coal, natural gas and petroleum. Of these in 1900 the United States produced to the value of \$406,250,051, and Canada \$14,885,716. The value of the United States product exceeded that of Canada in 1900 only 27 times, while in 1890 it was 34 times greater. The United States

went up from a production of fuels valued in 1890 at \$230,912,000 to 406,250,000 in 1900, Canada in the same period increased from \$6,745,250 to \$14,886,000. The increase in the case of the United States was 75.9 per cent., and in the case of Canada 120.7 per cent.

In structural materials such as stone, tiles, clay for brick, cement, etc., the United States needed \$73,237,000 worth in 1890, an increase of \$11,737,000 over 1890. Canada obtained of these articles from her own resources \$6,285,000 worth in 1900 as against \$3,761,000 worth in 1890. The increase in the United States was 19 per cent and in Canada 67 per cent.

One of these structural materials is cement, of which Canada uses about 650,500 barrels in the course of the year, 367,500 being imported and 283,000 manufactured at home; and we will in all likelihood manufacture nearly all we need in the near future.

With our great resources there is no reason why we should import any such quantity. In the Province of Ontario considerable enterprise is being exhibited, and the latest returns give the number of works at 9 and the workmen 575, with every indication that within the next year there will be a large addition to the production of the home-made article.

Chemical materials include borax, bromide, fluorspar, gypsum, marls, phosphate rock, pyrites, salt and sulphur; according to the United States list. Of these our Geological Survey takes cognizance for statistical purposes of gypsum, phosphates, pyrites and salt. The production of phosphates is a dwindling business in Canada, having shrunk from \$361,045 in 1890 to \$7,105 in 1900. In the United States its fortunes are somewhat better, the production of 1900 being valued at \$5,359,248, and in 1890 at \$3,213,795.

It has not, however, the bright prospects that a few years ago surrounded it, the Algerian article coming into competition with that produced on this continent. It does not fit in with Canadian views that the United States export to Great Britain one-third of all her imports of phosphates, while Canada sends only a trace of it to the mother or any other country.

We have sulphur in our own pyrites but it has not yet obtained a distinctive place among the materials produced. There are sources for a supply, and one of Mr. Clergue's propositions, plans I may say, is to make sulphurous acid gas from the pyrrhotite ore of Sudbury for use in the manufacture of sulphite pulp for paper-making instead of importing the needed sulphur from Sicily.

Among miscellaneous material may be mentioned asbestos of which in 1890 we produced 9,800 tons valued at \$1,260,240, and in 1900, 30,641 tons valued at \$763,431, an increase in quantity three times that of 1890 but a decrease in value of nearly 40 per cent. The United States in 1900 produced only 1,054 tons valued at \$16,310. The article seems to be very variable in price presumably according to quality.

Canada, or rather in this instance Ontario, is unique in that it is the only maker of arsenic on the continent. During 1900 the Canadian Gold Fields Co. produced 606,000 pounds of arsenic of an estimated value of \$22,725 as a by-product of their gold-milling operations.

The Mining Manual for 1901 gives a list of 525 companies incorporated for working various products of the mines, and of these it classifies 295. There are 10 asbestos companies, 5 chromite, 25 coal, 9 copper and pyrites, 6 nickel, 126 gold, 3 graphite, 12 gypsum, 17 mica, 8 natural gas and oil, 3 manganese, 1 arsenic, 90 silver-lead, 9 smelting works, 12 iron and steel, and 2 corundum.

We see the effect of our mineral development in our exports. In 1891 the exports of products of our mines formed 6½ per cent of the total exports of all our domestic products. In 1901 this export formed 22½ per cent of the total though the value of that total had risen from \$88,802,000 in 1891 to \$177,640,000 in 1901.

In 1871 the paid up banking capital of the country was 37 million dollars and the note circulation was 56.4 per cent of the capital. In 1881 the capital was \$59,500,000 and the note circulation 47.9 per cent. In 1891 the capital paid up was \$60,700,000 and the circulation 54.5 per cent. In 1901 (ten months) the capital was 75,850,000 and the circulation 73.8 per cent. of that.

GEORGE JOHNSTON.

STATISTICS DIVISION, DEPARTMENT OF AGRICULTURE,
November 27, 1901.

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, belting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, 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.

The Crescent Electric Co., Montreal, has been incorporated with a capital of \$100,000, to install electric light, etc. The charter members include Lacasse Rousseau, St. Louis, Que.; Theophile Alain, Montreal, and Maurice Rousseau, Montmagny, Que.

The Canadian Revolving Door Co., Toronto, has been incorporated with a capital of \$40,000, to manufacture revolving doors, frames, sashes, etc. The provisional directors include Theophilus Van Kannel, New York City, John Hillock and Daniel Urquhart both of Toronto.

The freight receipts at Toronto harbor this year show an increase of about 30 per cent. over those of last year, the chief increase being in coal, the amount unloaded being about 20,000 tons in excess of last season.

The Buffalo Forge Co., Buffalo, N.Y., has recently issued a handsome little catalogue of its line of disc wheels, of the pulley, steam and electric types. The various types are fully illustrated and described, and in addition, many interesting applications of this form of fan to various uses are shown.

The price of news print paper has been advanced. The Canadian Papermakers' Association met in Toronto recently and decided on raising the quotation for it an eighth of a cent per pound, giving as the reason the increased cost of production. The price of pulp has advanced, they say,

\$5 per ton the past few days, and coal is dearer than for some years. The finer grades of paper are not likely to be advanced, as the mills are said to have on hand ample stocks of wood from which the chemical pulp is made. The low water of rivers in eastern Canada is the reason given for the advance in pulp, making it difficult to float the wood down the rivers.

The hardware merchants of Vancouver, Victoria and New Westminster, B.C., held a meeting recently in the first-named city and decided to form an association to be known as the British Columbia Retail Hardware Dealers' Association, and having for its object the furtherance of the hardware trade's interests throughout the province. Thomas Dunn, Vancouver, was elected president; Col. E. G. Prior, vice-president, and John Burns, jr., secretary-treasurer.

A company is being formed in Toronto to manufacture corundum wheels and machines from the crystal corundum produced by the Craig mine. The new company already has connections which will insure it a profitable home trade, while it will also manufacture largely for export.

The North American Beet Sugar Co., Galt, Ont., will erect a beet sugar factory at that place. All that Galt is being asked for is a free site and partial exemption from taxes for a short term of years.

The Dominion Coal Co. bids fair to become an important factor in the operation of European railways. In addition to the coal sold to the Swedish Government railway, the company has made a contract to supply the Paris & Mediterranean Railway with fifty thousand tons of coal.

One of the earliest bills received for the consideration of the Railway Committee of the Ontario Legislature is that of the Hamilton and Toronto Electric Railway, which has been before the committee before in a slightly different form. The company asks powers to run between Toronto and Hamilton through the intervening townships, and the obstacle to its adoption in the past has been the failure to come to an agreement with the township municipalities.

Mr. J. H. Rogers, of the White Pass and Yukon Railway, who returned to Montreal from Dawson a few days ago, says that during the past season between fifteen and twenty thousand tons of general merchandise was taken into the Klondike district, via the lower Yukon route, and of this about 75 per cent. was shipped from Canada. Heavy machinery and heavy hardware were being shipped from Montreal, also car-load lots of canned goods and provisions. The Stewart River district promises to be a scene of great mining activity next season, as a large amount of prospecting has been done.

The Dominion Coal Co. is taking vigorous steps to capture the coal trade of northern Europe. Assistant Manager Dick, who has been on the continent for several months, reports that the prospects are excellent for developing a large trade. In order to prove its value as a first-class steaming coal, the company will send a number of Canadian railway firemen to Norway to demonstrate how successfully our coal may be used on locomotives. The firemen will probably be taken from the Grand Trunk, and they will spend several months in Norway and other northern States.

The cargo of coal produced by the Dominion Coal Co., which was shipped from Nova Scotia to Boston a few days ago, was the first instalment of 80,000 tons sold by the company to the Boston and Maine Railroad Co.

Pneumatic Tools and Appliances ARE GREAT MONEY SAVERS.

Air Hoists,
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lers, Agitation
of Liquids or
Syrups in Re-
fineries.
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for use by Ma-
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cutters and
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ing, Air Brushes

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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
Boring Machine,
Flue Cutters,
Rollers and
Welders,
Air Lift Pumps,
Jacks,
Paint Spreaders,
Bolt Nippers.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The North Sydney, N.S., town council, at a recent meeting, decided to grant the Nova Scotia Steel & Iron Co. the sum of \$30,000 as a cash bonus, and a further sum of \$20,000 when the company commences the manufacture of steel. The company will also be granted the free use of water and exemption from taxes for twenty years.

The continued low water this autumn has established conditions which tend to a pulpwood famine in eastern Canada. At the Chaudiere the water is falling daily, and the E. B. Eddy Co. has shut down its pulpwood mill for the season. The representatives of firms as far east as the Laurentide mills at Grand Mere, are scouring the country endeavouring to secure pulpwood. The conditions, it is said, are sure to tend to a raise in the price of news and wrapping paper, as well as the inevitable jump in the price of the finer papers. An emergency meeting of the Canadian Papermakers' Association was called a few days ago to discuss the situation.

C. S. Hurter, Dominion Government Metallurgist, of Vancouver, B.C., is responsible for the statement that, among the million of dollars in Yukon gold brought to him for purchase by the Government this season, was an abundance of platinum, unknown to the miners. Hundreds of little nuggets of platinum were mixed with the coarse gold. Mr. Hurter, in an interview, gave it as his opinion that the miners in the Yukon were throw-

ing away thousands of dollars worth of platinum daily. His representations have reached the Dominion Government, who are sending an expert to the Klondike to investigate. Mr. Hurter says that platinum is heavier than gold, and escapes notice by sinking to the bottom of the riffle as heavy dust or tiny nuggets. Thus the miners are daily throwing the priceless stuff away at every clean-up.

The B. F. Sturtevant Co., Boston, Mass., have sent in a neat little letter-size catalogue, having reference to the blacksmith's forges manufactured by them. These forges, we are told, are a natural outgrowth of the well-known Sturtevant blowers. In the smaller sizes the hoods are of heavy steel plate, the running gear is strong and easily operated, the tuzere irons are extra thick, the fire pan is of double thickness, with asbestos between, and the blower is the same as the standard Sturtevant steel-pressure blower, with babbitted boxes. The large sizes are constructed in the same substantial manner. The company are prepared to take contracts for the complete equipment of smith shops with forges and hoods, blast and exhaust fans, etc.

Attention is directed to the advertisement in another page of Messrs. F. E. Dixon & Co., 30 Wellington Street E., Toronto, who are Canadian agents for the sale of Warren's patent pulley covering. Mr. Dixon informs us that this article has a very extensive sale in the United States, and that it is coming into large

demand in Canada, his firm showing recommendatory letters concerning it received from the proprietors of some of the largest factories in Ontario. The effect of its use is to make the belt cling to the pulley, preventing all slipping, while it in no wise demands any additional power from the engine. Messrs. Dixon & Co. will have pleasure in giving further information.

The Peat Development Syndicate, Toronto, has been incorporated with a capital of \$40,000. The provisional directors include J. M. Shuttleworth, Brantford, Ont., J. L. Campbell and Dr. E. W. Spragge, of Toronto.

The Berlin & Bridgeport Electric Street Railway Co., Berlin, Ont., has been incorporated with a capital of \$50,000 to build a line from Berlin to Bridgeport, Ont., a distance of one and a half miles.

Harrison & Hawkes shingle mill, at Shallow Lake, Ont., was destroyed by fire December 14. Loss about \$700. The building was owned by the Owen Sound Portland Cement Co.

The arrangements have been about completed for the erection of one of the largest flour mills in the world at Norman, Ont. The structure will be solid granite masonry, and will be equipped with the most modern appliances.

The Dominion Wire & Cable Co., Montreal, is erecting a large factory on Lusigan street for manufacturing wires and cable for electrical and other purposes.

YOU'VE FIGURED COST OF PRODUCTION

Down to the lowest notch. Get a



Cross Oil Filter

and you can figure it still lower — you can figure off at least half of your year's oil bill. We sell our Filter under this guarantee. It filters waste oil and drippings perfectly — removes all dirt, grit and accumulated water — makes it fit for use over and over again. Awarded highest medal at the Pan-American Exposition.

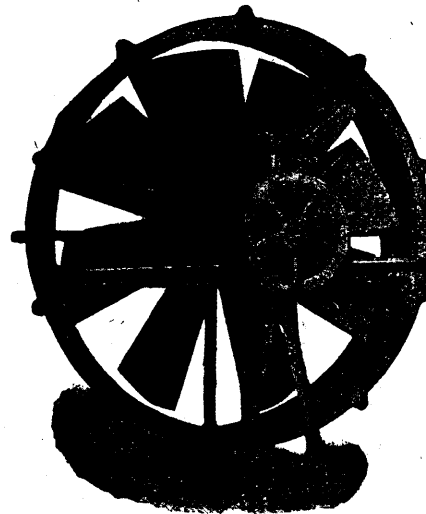
We are willing to send you a Cross Oil Filter on thirty days' trial. Pay for it if satisfied; if not, return it at our expense.

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

— We also make the BURT EXHAUST HEAD.

Buffalo Disc Wheels

Steam-Pulley-Electric
FOR EXHAUST VENTILATING



Buffalo Disc Wheel, with Double Vertical Engine.

BUFFALO FORGE COMPANY
BUFFALO, N.Y.

E. A. WALLBERG, - 410 Temple Building, Toronto.
Merchants Bank Building, - Montreal

The Woodstock, Ont., City Council will submit a by-law granting aid to the Woodstock Wagon Co. The by-law calls for a loan of \$12,000 and exemption from all but school taxes for ten years.

The Toronto Street Railway Co's receipts in November were greater than in any previous November. The gross revenue and the city's percentages in that month for the past six years have been:

	Receipts.	City's percentage.
1901.....	\$131,486.75	\$10,518.94
1900.....	128,132.13	10,250.57
1899.....	102,535.38	8,202.83
1898.....	100,204.95	8,016.40
1897.....	89,447.45	7,155.79
1896.....	76,145.73	6,091.65

At a recent meeting of the shareholders of the Canada Woolen Mills, the following were elected directors for the ensuing year: Messrs. W. R. Brock, Toronto; G. F. Benson, Montreal; Timothy Eaton, Toronto; W. D. Long, Hamilton, Ont.; W. D. Matthews, R. Millichamp, Toron-

to, and Geo. Randall, Waterloo, Ont. At a subsequent meeting of the Board, Messrs. Brock and Long were elected president and vice-president, respectively. Messrs. R. Millichamp and John F. Morley, with the president and vice-president, from the Executive Committee of the Board.

The engineering department of the C.P.R. have plans prepared for a new depot to be built at Fernie, B.C. The building will be of Calgary stone, and cost about \$25,000.

The McPherson Switch & Frog Co., Niagara Falls, Ont., will erect a plant, which will cost 40,000 and give employment to forty men.

The T. Eaton Co., Toronto, has had a representative in Hamilton making arrangements for a lease of suitable buildings for a factory, which it is understood, the company propose to establish in that city. Owing to grievances which the company has against the Toronto assessment department, they propose to remove

part of its large manufacturing business to Hamilton.

Large deposits of iron ore has been found in the Goulais Bay district, near Sault Ste. Marie, Ont.

Apparently pulp wood is going to be an expensive article in Canada next spring. The water in nearly all the Canadian streams is very much lower than usual; in fact, lower than has been known at this time of the year for many years. Added to this, labor is exceedingly scarce, and even wages rather better than are usually offered fail to induce men to go into the woods and cut pulp wood. Times are very good in Canada now, and the laboring man does not find it difficult to secure employment of a more congenial sort than that of cutting wood in the wilderness. Canada is to be congratulated on its prosperity in general, but the pulp and paper making portion of Canada deserve the sympathy of their brethren who are more fortunately situated.—Paper Mill.

CAMEL BRAND
BALATA
RUBBER

BELTING

Linen Fire Hose,

Water and Steam Hose,

Packings, Etc., Etc.

THE STANDARD



GOLD WATER PAINT

WEATHER PROOF, FIRE PROOF
WHITE AND COLORS.

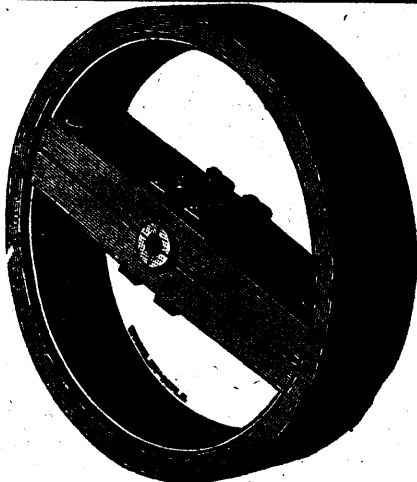
MILL SUPPLIES

Lubricating Oils and Greases

PAINT, PAINT OILS, ETC.

W. A. FLEMING & CO.

Montreal and St. John, N.B.



"The Reeves"

A HIGH GRADE

Wood-Split

BUILT HONESTLY

BUILT RIGHT

PULLEY

It Does the Work.

No Trouble.

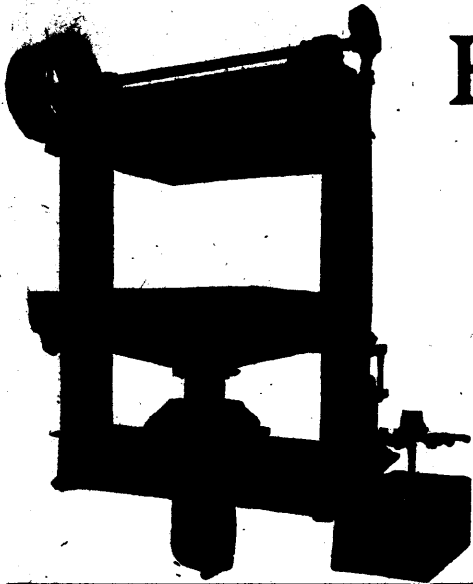
No Worry.

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REEVES PULLEY MANUFACTURING CO., Limited

14 Pearl Street, - Toronto, Ont.

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Hydraulic **PRESSES**

We Build Presses
for...

PRESSING VENEERS
TANNERS' USES
BALING, Etc.

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CATALOGUE
AND PRICES

William R. Perrin & Company

TORONTO, - CANADA

The Warton Beet Sugar Co., Warton, Ont., have asked for a bonus of \$25,000 on the 20-year debenture plan, which will be submitted in a by-law. An assessment will be made on the company's property sufficient to yield the town \$2,000 in school taxes a year.

The British Admiralty will in future use Nova Scotia coal for the North Atlantic squadron, instead of importing from Wales. The French Newfoundland squadron has used the Nova Scotia coal for years.

The premises of the Duncan Lithographing Co., Hamilton, Ont., were destroyed by fire December 4. Loss about \$20,000.

Anderson's upholstering factory, Winnipeg, Man., was damaged by fire December 4.

The Shedden Brush Co., Hamilton, Ont., has been awarded the contract for 9,000 brushes required by the contingent for service in South Africa. There will be hair, horse, clothes and button brushes. The company were given only twenty days to fill the order. The Sanford Co., Hamilton, Ont., are manufacturing the uniforms.

The Raymond Mfg. Co., Guelph, Ont., write Messrs. F. E. Dixon & Co., Toronto, that the Warren pulley covering bought of them has proven entirely satisfactory.

The Canada Biscuit Co., Toronto, use Warren's pulley covering in their factory, and have written Messrs. F. E. Dixon & Co., Toronto, the agents, that they are well pleased with the article.

Messrs. J. H. Connor & Son, Ottawa, has been incorporated with a capital of \$30,000 to manufacture washing machines, mangles, etc. The provisional directors include S. H. Connor, J. L. Connor and G. S. Davison, all of Ottawa.

Messrs. F. E. Dixon & Co., 30 Wellington St. E., Toronto, have secured the agency for Ontario for the sale of Rossendale M.A.Y. belting. There is a large and growing demand for this belting in Canada.

The Ontario Wind Engine & Pump Co., Toronto have been favored with an entire order from the Mediterranean for another complete outfit, comprising one of their well-known air motors with tower, tanks, etc. We are pleased that Canadian goods are finding favor in all quarters of the world.

The Northern Electric & Mfg. Co., Montreal, are believers in Warren's patent pulley covering, for which F. E. Dixon & Co. are Canadian agents. They took a case on trial and were so well satisfied with it that they have placed an order with Messrs. Dixon & Co. for a much larger supply. The Northern people know a good thing when they see it.

Both of the St. John, N.B., cotton mills will hereafter be operated under the management of Mr. J. B. Cudlip. They will give employment to about 500 persons.

A company is being organized to build an electric railroad from Winnipeg, Man., to Lac du Bonnet, Man., also to develop and transmit power from that place to Winnipeg.

Notwithstanding the wonderful development of the pulp and paper industry in Canada, importations of the manufactured article show a steady increase. The total value of paper and manufactures thereof imported into Canada for the year ending June 30 last was \$1,808,924, of which \$1,320,869 came from the United States. The total values for the three preceding years were as follows: For 1898, \$1,135,904; for 1899, \$1,263,364; for 1900, \$1,407,501. Of the imports from the United States during the year ended in June last, \$106,095 was of paper for photographers' use, \$251,718 for printing paper, and \$300,452 of papeteries, pads not printed, papier mache ware and various manufactures of paper.—Paper Mill.

The Freyseng Cork Co., Toronto, has been incorporated with a capital of \$150,000, to take over the business of P. Freyseng & Co., in the manufacture of corks, etc.

CONTRACTORS, ATTENTION!

If you are excavating in stone, use

THE "LITTLE GIANT" ROCK DRILL

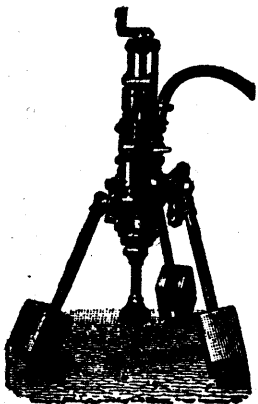
... NINE SIZES ...

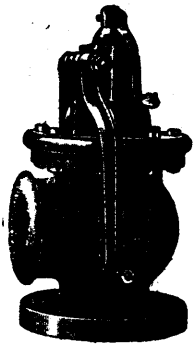
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THE CANADIAN RAND DRILL COMPANY

SHERBROOKE, QUE.

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YOU
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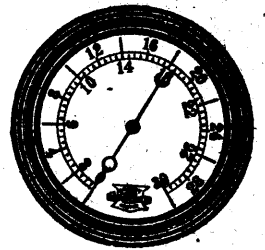
CROSBY STEAM APPLIANCES EXCEL

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



Stationary and Marine Valves.
Water Relief Valves.
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Globe and Angle Valves
Single Bell Chime Whistles.
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A TRUTHFUL GAGE
IS THE
ONLY GOOD GAGE



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

The Mann Tracklaying Co., Winnipeg, Man., has applied for incorporation with a capital of \$100,000 to manufacture machinery used in the construction of railways, etc. The provisional directors include Hugh Mann, Winnipeg, Man., and Wm. McKenzie and D. D. Mann, both of Toronto.

The R. E. T. Pringle Co., Montreal, has applied for incorporation with a capital of \$50,000, to acquire business of electrical apparatus and supplies now carried on by R. E. T. Pringle. The provisional directors include R. E. T. Pringle, G. C. Rough, both of Montreal, and I. H. Smith, St. John, N.B.

A. C. Lariviere, Montreal, has applied for incorporation with a capital of \$10,000 to manufacture carriages and other vehicles. The applicants include J. A. F. C. dit Lariviere, J. E. Charbonneau and F. C. dit Lariviere, all of Montreal.

The Sea Moss Co., Isle Verte, Que., has been incorporated with a capital of \$25,000, to manufacture sea moss, etc. The charter members include Eugene Cote, A. J. Roy, both of Isle Verte, and T. C. Rion, Fraserville, Que.

The Franco-Canadian Navigation Co., Sault Ste. Marie, Ont., has been incorporated with a capital of \$1,000,000, to carry on a general steamship and forwarding business. The charter members include F. W. Clergue, Sault Ste. Marie, Ont., G. E. Drummond, Montreal, L. Melvin-Jones, Toronto, and J. R. Booth, Ottawa.

The Packard Electric Co., St. Catharines, Ont., on their usual monthly distribution of desk blotting pads for December intimate that "Christmas night will be brightened in many homes by the mellow rays from Packard decorative lamps." The suggestion is timely.

The Otonabee Power Co., Peterborough, Ont., has been incorporated with a capital of \$200,000. The provisional directors include W. G. Ferguson, W. T. Hall, G. L. Hay and J. A. Bennett.

The Burt Mfg. Co., Akron, Ohio, have recently received an order from the De Beers Consolidated Mining Co., Kimberly, South Africa, for a very large Cross oil filter, to be used in their new power house. Only American machinery will be used in this plant and the Burt company consider this order a strong endorsement for their filter.

Three Rivers, Que., has the honor of the first long-distance electric power transmission plant in Canada. The power comes from Grand Chute, on the Batiscan River, 16½ miles from the city, and operates 6,000 16-candle-power incandescent lamps, 100 32-candle-power lamps, and 87 1,200 candle-power arc lamps.

SOME HAVE LEARNED THAT IT IS DANGEROUS TO SIMPLY ORDER

"A Wood Split Pulley"

And are particular to specify

"DODGE"

when ordering, so as to get the best at same cost as other makes.

It's as well to have THE BEST when you are buying.

Remember **"Dodge"**
THE

80% of the Buyers do. Do You?

260-PAGE CATALOGUE MAILED FREE.

DODGE MANUFACTURING CO., Toronto, Ont.

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The total season's cut of the Keewatin Lumbering Co's mill, Fort William, Ont., was 15,000,000 feet, this amount being somewhat larger than previous years. The present season has proven very successful with regard to operations on the lake and the delivery at the mill, no difficulty being experienced in obtaining sufficient logs to keep the mill running full capacity throughout the entire season.—Fort William Industrial Review.

The possibilities of the pulp industry in British Columbia are receiving a great deal of attention. Vast areas of spruce have been taken up by three or four companies this year. All the spruce limits in fact have been secured by these concerns organized ostensibly to manufacture pulp and sell it in the Orient. According to the legislation passed in May these firms will be given two years to show their bona fides in a practical way by paying the small rental of two cents an acre for their limits. In the meantime there is no law within the next two years to prevent them transferring their interests to a firm really desirous of manufacturing pulp at an enormous profit.

False Creek tide flats has been deeded to the city of Vancouver, B.C., with the understanding that the flats are to be recovered and leased for manufacturing purposes. Nearly all the manufactured goods handled in the city, and nearly all handled in the province are imported. For many reasons manufacturers have

fought shy of British Columbia. Deep water wharves were not procurable and labor was so high as to exclude the possibility of competing with other more favored places. In recovering the False Creek flats it is proposed to dig a short channel to deep water in English Bay, to admit sea going ships along False Creek to the prospective wharves along the water front.

The Dominion Coal Co., Sydney, N.S., during the past season made shipments up the St. Lawrence of 900,000 tons of coal, and next year it is expected the 1,000,000 ton mark will be reached. By next May the big, new mine shaft will be completed, and in the autumn probably 12,000 tons of coal will be produced daily. The company ship their product to Norway and Sweden and to Mediterranean ports, while there is also a probability of Russia becoming a heavy consumer of Cape Breton coal.

The boiler and engine works of the Calvin Co., Kingston, Ont., were destroyed by fire December 1. Loss about \$10,000.

It is stated that a branch of the Montreal rolling mills will be established in Sydney, N.S.

Mr. E. Spencer Jennison, the Chicago engineer, has at last completed financial arrangements for developing power in the neighborhood of Port Arthur and Fort William, Ont., on which he has been working for several years, spending already some \$10,000. The scheme is a

large one, and involves the diversion of water from the Kaministiquia River to a series of reservoirs, affording a fall of 300 feet, from which 40,000 h.p. is expected. The Canadian Pacific and the Canadian Northern Railways will, it is anticipated, take power, while it is probable that many industries will be attracted by its cheapness. To carry out the project will require about \$1,000,000. Mr. Jennison's term had almost expired, and negotiations had been commenced with the Clergue syndicate of Sault Ste. Marie, in case the present engineer should fail to finance the scheme; but a year's extension has now been granted.

The Jenckes Machine Co., Sherbrooke, Que., have installed the Penstock turbines and hydraulic plant for the North Shore Power Co., on the Batiscan River, Que.

The Electrical Construction Co., London, Ont., have installed a large lighting plant for the St. Laurent Convent, St. Laurent, Que., also one for the Dowsley Spring Axle Co., Chatham, Ont.

Mr. Moody, representing a Michigan manufacturing concern, has asked a bonus of \$50,000 to establish a beet-sugar factory in Peterborough, Ont.

The Rat Portage Lumber Co's mills at Fort William, Ont., were closed down some days ago. The cut this season was the largest in the history of the company, amounting to 60,000,000 feet. The mill at Beaver Mills is to be enlarged to a capacity of 35,000,000 feet per season.

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ARE YOU INTERESTED IN

Engineers' Supplies?

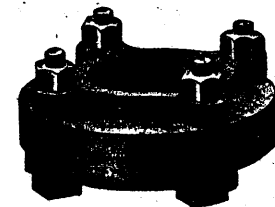
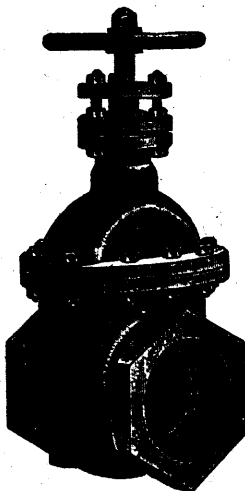
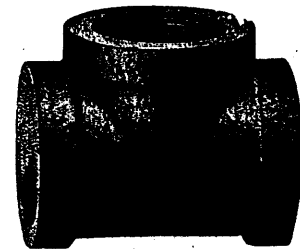
IF YOU ARE WE WOULD LIKE YOU TO GIVE US A TRIAL ORDER

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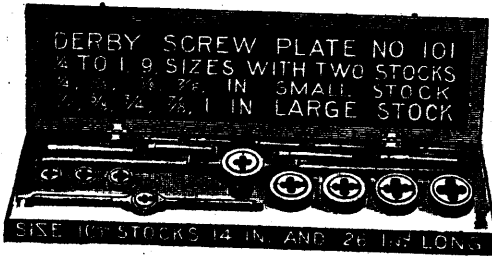
**BLACK and GALVANIZED PIPE,
IRON and BRASS VALVES,
CAST and MALLEABLE FITTINGS,
STEAM TRAPS and RADIATOR VALVES,
SAFFORD STEAM and HOT WATER RADIATORS,
STEAM and HOT WATER BOILERS**

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**THE DOMINION RADIATOR COMPANY, Limited,
TORONTO, ONT.**



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



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



BUTTERFIELD & CO., - Rock Island, Que.

The system adopted by the Lake of the Woods Milling Co., Fort William, Ont., of giving a yearly bonus to employees who have been with the company for the term of one year or more, is quite a pleasing feature of the business management, and is greatly appreciated by the employees generally. The distribution for this year, which was made last week, was larger than previous years, and was no doubt mainly due to the successful year experienced by this company.—Fort William Industrial Review.

The Canadian Pacific Railway Co., will make improvements to their property at Fort William, Ont., at an expenditure of about \$400,000. The work will include new freight sheds, coal docks and elevator.

The establishment of the Government Assay Office at Vancouver, B.C., has had a beneficial effect, a considerable amount of gold having been melted at the office since its inception in July last, and quantities of the precious metal still continue to be received. A movement is now on foot, having for its object the conversion of the office into a general assay office. We believe that the adoption of such a change would be greatly appreciated, as there is no doubt that by making assays of other minerals its field of usefulness would be greatly enlarged, with considerable advantage to the country.—The Shareholder.

The Ontario Wind Engine & Pump Co., Toronto, have sent us a circular in which is illustrated the large Canadian air motor manufactured by them for installa-

tion on the south pole exploration steamer Discovery, which recently left England for the Antarctic Ocean. It was erected on the deck of the ship where the wind could have free access to it, the power being transmitted to a lower deck, upon which was installed machinery for converting it into electric energy. By this method this air-motor furnishes light for the ship, thereby saving fuel and labor, and making it possible for the vessel to stay among the dreary waste of icebergs longer than has ever before been done.

Messrs. R. H. Buchanan & Co., Montreal, are making Rossendale M. A. Y. woven belting a special feature of their business. They spell the word "belting" with big black letters, because they say their article is stronger and more durable than other belting, and much cheaper.

The Burt Mfg. Co., Akron, Ohio, manufacturers of the Cross oil filter and the Burt exhaust head have recently received their twenty-first order from the American Steel Wire Co., Cleveland, Ohio.

The Canadian Beet Sugar Co., incorporated under the laws of the State of New Jersey, is authorized to do business in Ontario, with a capitalization of \$600,000. Adam Hauffman, Baden, Ont., is appointed attorney for the company.

Thorold, Ont., has carried a by-law granting a bonus of \$5,000 to the Thorold Pulp Co. to erect paper mills there. The new mills are to be in operation next year, and in addition to the bonus they will be exempt from taxes for ten years.

The Eureka Planter Co., Windsor, Ont., has been incorporated with a capital of \$40,000, to manufacture agricultural implements and tools. The provisional directors include C. N. Choate, Detroit, Mich.; F. H. Macpherson and J. I. Reaume, both of Windsor.

The Castile & Mill Soap Co., Preston, Ont., has been incorporated with a capital of \$10,000, to manufacture soap. The provisional directors include A. H. Pritchard, G. A. Clare and C. R. Hanning, all of Preston.

The Redeemer Mining & Milling Co., Windsor, Ont., has been incorporated with a capital of \$500,000. The provisional directors include P. P. Rainer and A. B. Herrman, both of Chicago, Ill., and B. F. Kaup, Tiffin, Ohio.

The Dresden Sugar Co., Dresden, Ont., has been incorporated with a capital of \$600,000, to manufacture beet sugar. The provisional directors include James Davidson, West Bay City, Mich.; S. J. Fitzsimons, Detroit, Mich., and G. E. Wier, Dresden.

The Gillett Co., Toronto, has been incorporated with a capital of \$350,000, to manufacture baking-powder, concentrated lye, blueing, etc. The provisional directors include E. W. Gillett, Chicago, Ill.; Wm. Dobie and George Hepburn, both of Toronto.

It is proposed to erect a labor hall in Toronto, to cost about \$10,000. There are 90 labor organizations in the city, holding 2,160 regular meetings in the year, from which the revenue would be \$3,240 annually on the present basis.

THE BEST PIPE THREADING and CUTTING-OFF MACHINES

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

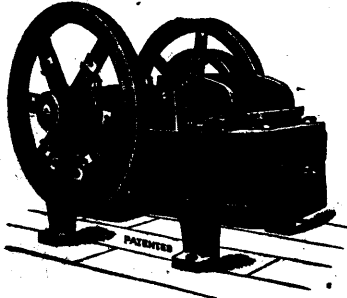
Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools. Send for Catalogue 27. Factory: BRIDGEPORT, CONN. New York Office: 139 CENTRE STREET.

RICE LEWIS & SON, LIMITED, Hardware and Metal

MACHINIST TOOLS, PIPE FITTINGS, STILLSON AND TRIMO WRENCHES, CORNER KING AND VICTORIA STREETS, TORONTO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ROLL JAW CRUSHER.



Crushes

Large Rock

to

4 inch.

Send for Circular.

STURTEVANT MILL CO.,

104 Clayton St.
Boston, - Mass.

There has recently been completed at Meaford, the Collingwood branch terminus of the Grand Trunk railway on Georgian Bay, 480 miles by steamer from Chicago and 430 miles by rail from Montreal, what is said to be the fastest single-leg marine elevator on the lakes. It has a working house of 150,000 bushels and a storage annex of 600,000 bushels. The foundation is of concrete and the deck is a solid concrete pier 28 feet deep. The floors also of the elevator are all concrete while the superstructure is of laminate work. The bins were built of 8x2, 10x2 and 6x2 hemlock timbers, the balance of the timber being Norway pine. The elevator is entirely covered with corrugated elevator siding, painted black. The marine leg is of steel with capacity of 15,000 bushels per hour. The inside lifters have cups 32x7x8 in., the belt travelling 700 ft. per minute. There are four conveyors made of 40-inch rubber belting, travelling 1,000 feet per minute, and there is a full equipment of steamship shovels. The elevator drives by a rope transmission throughout. There are four 1,200-bushel hopper scales of new pattern, adjustable, and four bifurcated loading spouts for loading cars, with track room for loading 200 cars per day of ten hours.

The citizens of Pincher Creek, N. W. T., are agitating for a flour mill at that place.

A company is being organized at Winnipeg, Man., to manufacture the track-laying machine recently invented by H. Mann.

The tunnel that the Canadian Pacific Railway Co. are erecting at the Crow's Nest Pass will be the highest in the world.

Theodore C. Search, who is interested with other Philadelphia capitalists in the Clergue industrial enterprises at Sault Ste. Marie, says that the new steel works will begin operations by Jan. 1 with a daily output of 1,000 tons of steel of all kinds. This steel, which will be made temporarily from the company's ores smelted at Midland, Ont., will get a bounty of \$3 a ton from the Dominion government in addition to a similar bounty paid on each ton of pig iron made from Canadian ore which enters into its manufacture. By next May it is expected to have the blast furnaces now under construction at the Sault ready to blow in. While the output from these works will hardly find its way into the United States, it is certain of a market in Canada. The new company aims at supplying 375,000 tons of steel required in Canada next year.

The American Steam Gauge & Valve Co., Boston, Mass., the well-known manufacturers of steam gauges, pop safety valves, Thompson indicators and engine and boiler fittings, was awarded a gold medal at the Pan-American Exposition. Visitors to the exposition, will no doubt, remember the display of this house as it attracted general attention. Their steam gauges and engine fittings which won for them this medal are equal to any products of similar houses, and their numerous patrons will congratulate them upon the honors they have carried off.

The name of the Morden, Man., Woolen Mills will be changed to the Manitoba Woolen Mills.

G. H. Roberts' planing mill, Montreal, was destroyed by fire December 4. Loss about \$30,000.

The Ontario Electric Co. has applied for incorporation to construct an electric railway from Cornwall, Ont., to Toronto, and from Ottawa to Brockville. The applicants include Sir Richard Cartwright, Ottawa, R. J. Carson, Kingston, Ont., and A. L. Jewell, Boston, Mass.

The lumber export trade between Montreal and European ports shows a falling off as compared with 1900. During the season of navigation there was shipped abroad from Montreal a total of 223,287,917 feet of lumber, as compared with 239,686,145 feet for the season 1900, a reduction of 16,398,228 feet. Of the grand total shipped from the port, Great Britain and the Continent took 222,424,850 feet, while to South America was shipped 863,067 feet.

Mr. H. M. Whitney, Boston, Mass., president of the Dominion Steel & Iron Co., Sydney, N.S., has disposed of his controlling interest in the company to James Ross, Montreal, and other capitalists there. Although Mr. Whitney is president, Mr. Ross has practically had the management of the company for some time, and this sale gives him absolute control.

Mr. W. J. Brown, Detroit, Mich., steamship owner, who runs a passenger steamer from Sandusky, Ohio, to Sault Ste. Marie, Ont., will put an additional steamer on that route. Mr. Brown would have given the order for the steamer to a Canadian firm of shipbuilders had their yards not been so busy that none of them could undertake to deliver a steamer ready for the route by July 1, 1902.

The foundry of Alexander Dick, Alton, Ont., was destroyed by fire December 4. Loss about \$8,000.



The "NEW YANKEE"

Drill Grinder

SAVES 50 PER CENT. OF TIME IN ADJUSTMENTS

COMPLETELY
SELF-
CONTAINED

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

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Capacity
3-32 to 1 1/2
inches.

Style "K"

The Dresden Sugar Co., Dresden, Ont., has been incorporated to manufacture beet sugar. The plant will be a modern one, costing about \$600,000, and will have a capacity of 600 tons of beets daily. The company expect to have their plant completed and to make the first barrel of beet sugar in the fall of 1902.

A steel cantilever bridge, which will require 35,000 tons of steel, will be constructed across the Strait of Canso in Nova Scotia. A large staff of surveyors and engineers have made a survey of the site and its connections with the Inter-colonial and other railways in Cape Breton.

So much money has never been spent before for the erection of dwelling houses in a single year in Toronto as has been expended this year, and yet the new house accommodation is not sufficient for more than half of the increased population of the city. Building permits have been issued this year for 560 houses, in addition to a large apartment dwelling. The increase in population, according to the assessors' returns, has been 6,844, and at five to a house the new accommodation would not provide for more than 3,000. Last year permits were issued for 327 new houses, to cost \$762,462. The cost of this year's house building operations to date will be \$1,291,275, with another \$100,000 for the apartment house spoken of. It was stated recently that one storage warehouse contained the furniture of a thousand families unable to secure house accommodation, so that it does not look as if the building boom had caught up with the requirements of the city.

The Crown Mfg. Co., Toronto, has been incorporated with a capital of \$20,000 to manufacture medicines, drugs, essences, etc. The provisional directors include William Munns, W. M. MacMillan and W. L. Dawson, all of Toronto.

Some oil prospectors who have returned from the oil fields in the Flathead valley, report that they have found oil on Sage Creek, having discovered oil and water coming from a spring where the creek leaves the mountain. Close by, there was natural gas escaping from the bedrock. The location of the discovery is about six miles north of the Kintla Lake locations, and in the Fort Steele district.—B.C. Trade Budget.

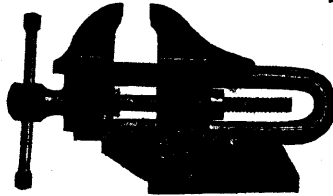
JAMES FOLEY & CO.

Dye Stuffs and Chemicals

MILL SUPPLIES

579 and 581 ATLANTIC AVENUE, - - - BOSTON, MASS.
Direct Importers of Best Brands Anilines.

WARE'S PATENT *Steel Yoke Vises.*



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

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

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

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

The JAMES SMART MFG. CO., Limited
BROOKVILLE, ONTARIO, CANADA.

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Contractors to the Admiralty LIMITED

The demand for MICA COVERING is largely increasing. It has been proved and tested in all kinds of service, and leads the market absolutely on its merits. Awarded the **Gold Medal** at the Pan-American; Prize Winner at the Paris Exposition, etc. Its use in Great Britain and the United States extending. Some recent Canadian repeat orders. Write for full particulars from

THE MICA BOILER COVERING CO., Limited, 86-92 Ann St., Montreal

Trade with Russia

Firms desirous of getting into communication with Russian buyers or merchants; or who wish to buy Russian products on the best possible terms; or who are willing to appoint agents for the sale of their goods in Russia, are invited to send particulars of their requirements for insertion in

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THE ANGLO-RUSSIAN TRADE MESSENGER is the sole commercial paper published in Russia, devoted to the interests of the Anglo-Russian trade. It circulates amongst the best firms all over Russia and Siberia.

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LIMITED

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

Dynamos, Motors, AND ALL..... **ELECTRICAL APPLIANCES**

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

ESTIMATES AND PLANS SUBMITTED.

Electrical Fittings, Arc Lamps, Telephone Bells, Etc.

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FIRE BRICK MANUFACTURERS
ALL FURNACE MATERIAL
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CLARK & DEMILL
 MANUFACTURERS OF
Wood Working Machinery

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

OFFICE AND WORKS:
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The Wm. Hamilton Mfg. Co.
 Peterboro, Ont., Can.
 Acting as the Patentee's Licensee

Are prepared to manufacture
 and supply

**SAVERY'S PATENT
 SHAKE FRAMES**

FOR
Fourdrinier Paper Machines,

AS DESCRIBED IN
 Canadian Patent No. 57,819.

—ALSO—

**SAVERY'S PATENT
 COMBINED
 DRYER STEAM JOINT
 AND
 SAFETY VALVE**

AS DESCRIBED IN

CANADIAN PATENT No. 68,093.

ABOUT 2,000 NOW IN USE.

**BALE'S
 Fire Cement**
 FOR
 LINING AND REPAIRING
 STOVES, FURNACES, RETORTS
 And all work where
 great heat is required.

BALE & CO., Newgate St., LONDON, ENG.
 GAS PURIFICATION and GENERAL
 IRON MERCHANTS



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

A PIONEER.

The Marine Review, Cleveland, O., has begun the publication of the biography of the Hon. Peter White, of Marquette, Mich., or to put it more correctly, to relate the history of the discovery and development of the iron regions of Lake Superior. The whole fabric of the history of the development of iron is woven about the life of Peter White, because it is a singular and impressive fact that his life encompasses all of it. He was practically there when the first iron deposit was discovered and he is there yet. He was with the first handful of white men who penetrated the wilderness of the upper peninsula of Michigan. The only inhabitants of the unbroken forests were the wild beasts and Indians. At that time the canal at Sault Ste. Marie was merely a vague hope of the future. The only roadway was the Indian trail; the only food such as one's skill with gun and line secured. There were no vessels on Lake Superior bigger than the birch-bark canoe save a few which had been dignified with the name of schooner. Under these adverse circumstances, the development of the iron mines, lying in the hills fourteen miles from the lake shore, became a monumental labor. Several of the companies went bankrupt and none declared a dividend for fifteen years. Peter White was a part of this experience, serving as clerk to an iron company, penetrating the trackless wilds with dog and sled to fetch the mail, acting as amateur counsel to minor litigants, representing the region in the legislature and finally establishing himself as banker to the community. He became the most moving and picturesque figure in the gradual unfolding of the wonderful industrial panorama of the Lake Superior region. He saw the plank road give way to the steam railway, the first great iron ore dock with its pockets and shutes constructed, the Sault Ste. Marie canal built, and the great highway of the lakes made clear for that stupendous torrent of ore, which has made the United States the great industrial nation that it is. All the facts in the history, brought down to 1901, are, we are told, authentic and many of them have not hitherto been published.

**STATISTICS OF THE CANADIAN
 IRON TRADE FOR 1900.**

Mr. James M. Swank, general manager of the American Iron and Steel Association, in his last annual statistical report of the American and foreign iron trades, includes that of Canada as follows:—

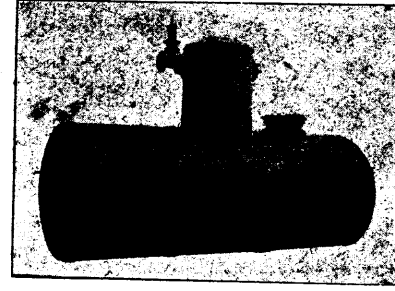
PRODUCTION OF PIG IRON IN CANADA.

Greater progress has been made in 1900 and 1901 in the development of the iron and steel industries of Canada than in all previous years. Complete statistics for 1900 and in part for 1901 are herewith given in sufficient detail.

The production of pig iron in the Dominion of Canada, as ascertained from the manufacturers by the American Iron and Steel Association, amounted in the calendar year 1900 to 86,090 gross tons, as compared with 94,077 tons in 1899, 68,755 tons in 1898, 53,796 tons in 1897,

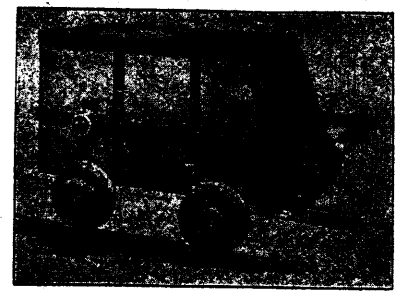
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 we want to come in.



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**THE JENCKES
 MACHINE CO.
 SHERBROOKE**

COAL JAS. H. MILNES & CO. COKE

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

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

Head Office: 78 QUEEN ST. EAST

TORONTO.

Docks: Esplanade, Foot of Yonge

60,030 tons in 1896, 37,829 tons in 1895, and 44,791 tons in 1894. Our statistics do not go back prior to 1894. Of the production in 1900, 70,349 tons were made with coke and 15,741 tons with charcoal. The production of Bessemer pig iron in 1900, included above, amounted to 3,781 tons. Neither spiegelesien nor ferro-manganese was made in 1900.

On December 31, 1900, the unsold stocks of pig iron in Canada amounted to 12,465 gross tons as compared with 9,932 tons at the close of 1899 and 9,979 tons at the close of 1898. Of the unsold stocks on December 31, 1900, 6,900 tons were coke pig iron, and 5,565 tons were charcoal pig iron.

On December 31, 1900 there were ten completed furnaces in Canada and four furnaces were in the course of construction. During 1900 one new furnace was completed at Midland, Ont., by the Canada Iron Furnace Co., It was blown in on December 4, 1900. The other four furnaces referred to were all being erected by the Dominion Iron & Steel Co., at Sydney, Cape Breton, Nova Scotia. One of the furnaces was completed early in 1891 and was blown in on February 4 of that year. Two additional furnaces have since been put in blast.

The production of pig iron in Canada in the first half of 1901 amounted to 95,024 gross tons, exceeding by nearly a thousand tons the production in the whole of any preceding year. Of the total production in the first half of this year 17,577 tons were Bessemer pig iron

and 13,292 tons were basic pig iron; the remainder was foundry and forge pig iron. No spiegelesien or ferro-manganese was made. Of the total production 86,430 tons were made with coke and 8,594 tons with charcoal. The unsold stocks on June 30, 1901, amounted to 28,711 tons, of which 21,367 tons were coke pig iron and 7,344 tons were charcoal.

The steel industry of Canada may be said to be to-day in a state of preparation for important results. The fulfillment of great expectations would seem, indeed, to be near at hand. Several steel-making enterprises are in a more or less forward state of completion at the present time, the most advanced of which is the open-hearth plant of the Dominion Iron & Steel Co., which is erecting at Sydney ten 50-gross-ton open-hearth furnaces of the Campbell tilting type, at which both acid and basic steel will be made. It is expected that a part of this plant will be in operation early in 1902. Its rolling-mill products will embrace blooms, slabs, billets, and rails. Early in 1900 William Kennedy & Sons, of Owen Sound, Ontario, erected at that place one 2-ton Tropenas converter for the manufacture of steel castings. Steel was first made in May, 1900.

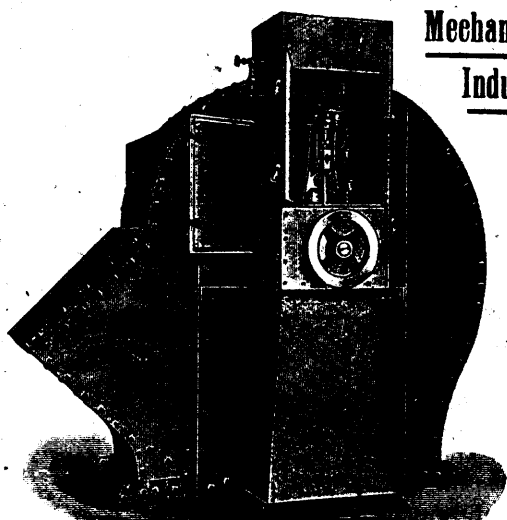
The total production of steel in Canada in 1900 was 23,577 gross tons, against 22,000 tons in 1899, 21,540 tons in 1898, 18,400 tons in 1897, 16,000 tons in 1896, and 17,000 tons in 1895. Both Bessemer and open-hearth steel ingots and castings

were made in 1899 and 1900. Of the total production of open-hearth steel in 1900 about one-third was made by the acid process.

The production of open-hearth steel rails in 1900 amounted to 700 gross tons, against 835 tons of open-hearth and iron rails in 1899; structural shapes, 4,674 tons against 2,899 tons in 1899; cut nails made by rolling mills and steel works having cut-nail factories connected with their plants, 117,186 kegs of 100 pounds, against 235,981 kegs in 1899; plates and sheets, 2,100 tons against about 2,220 tons in 1899; all other rolled products, excluding muck and scrap bars, blooms, billets, sheet bars, etc., 87,984 tons against 94,153 tons in 1899. Changing the cut nail production from kegs to gross tons, the total quantity of all kinds of iron and steel rolled into finished products in the Dominion in 1900, excluding muck and scrap bars, billets, and other intermediate products, amounted to 100,690 tons, against 110,642 tons in 1899, 90,303 tons in 1898, 77,021 tons in 1897, 75,043 tons in 1896, and 66,402 tons in 1895. The number of completed rolling mills and steel works in Canada on December 31, 1900, was eighteen.

STURTEVANT ELECTRIC APPARATUS.

The B. F. Sturtevant Co., Boston, Mass., have sent us a copy of their catalogue No. 117, which has reference to the electric motors, generators, and generat-



Bottom Angular Up Discharge Right Hand Fan.

Mechanical Induced DRAFT FANS

Installed in connection with a Boiler Plant, will prevent smoke, will give greater fuel economy and increased boiler capacity, besides which the initial cost is far less than that of a chimney.

Mechanical Draft may be applied to old boilers to increase draft at a minimum initial outlay.

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McEACHREN HEATING and VENTILATING CO.

GALT, ONT., CANADA

IN THEIR NEW FACTORY . . .

32, 34, 36, 38 and 40
DUNDAS STREET

THE . . .

Electrical Construction Co.

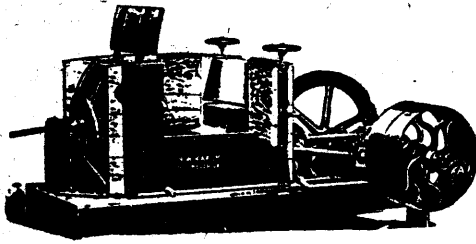
OF LONDON, Limited

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

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

Quotations Supplied
on Application.

PHONE 1103



H. W. KARCH

HESPELER, ONT.

IRON FOUNDER and MACHINIST

Manufacturer of

WOOLEN MACHINERY,

Rotary Fulling Mills, Kicker Fulling Mills, Soaping Machines,
Cloth Washers, Wool and Waste Dusters, Rag Dusters, Drum Spool Winders
Reels, Spooling and Doubling Machines, Ring Twisters, Card Creels
Dead Spindle Spooler for Warp or Dresser Spools,
Patent Double-Acting Gig Dyeing Machines.

ing sets manufactured by them. In it we are told that over forty years ago they established the first blower factory in the United States, and that within ten years thereafter the necessity of equipping large fans with the means of driving led to their designing and building a line of distinctively fan engines. For thirty years, through a most varied experience, and under the most trying conditions, these engines have been developed to their present perfection. A little over ten years ago the rapid increase in the use of electricity as a motive power opened the way for the electric fan, with motor and fan built one for the other. The opportunity was recognized, and the company immediately established an electrical department, designed a full line of fan motors, and then gave the purchaser an opportunity to choose between an engine-driven and a motor-driven fan.

At this time, we are informed, the company have patterns for over 100 sizes and types of engines, ranging from 2 to 250 h.p., and a record of over 8,000 engines sold since they first entered this field, and in their various motor designs they are likewise equipped with an equal variety. A corresponding line of generators is also built by them by utilizing the essential parts of these motors. Both engines and motors have been developed under the exacting conditions incident to fan practice, namely: high speed and constant operation, with comparatively little attention.

With these elements of the ideally perfect generating set at hand, it is a relatively matter to combine them in a complete line of many sizes, ranging from 1½ to 100 k.w.; but only those machines and combinations which are distinctively standard, are listed in the catalogue here alluded to. But others may be made, almost without limit, to meet any possible requirement within the range of capacity here specified.

Some of the machines illustrated and described in the catalogue are:—Bi-polar motors, open and enclosed; four-pole motors, open and enclosed; four-pole generators, open and enclosed; eight-pole motors; eight-pole generators; eight-pole motors and generators; generating sets with single upright engine and four-pole generators; same with single upright engines and eight-pole generators; same with enclosed double and compound upright engines and four and eight-pole generators; same with automatic double upright engine, open and enclosed, and four and eight-pole generators; same with centre-crank horizontal engine and four and eight-pole generator. Regarding each of these types tables are given, showing size of engine, steam pressure required, revolutions per minute, size of steam and exhaust pipes, size, number of generator, etc.

The fact that the Sturtevant Co. have a world-wide reputation as manufacturers of blowers is not without its drawbacks, for they have found it difficult to impress the public with the corresponding magnitude of their business in the electrical field, and that they are fully equipped to meet any requirements in the way of moderate size motors, and generating sets.

DIXON'S DOES TWO THINGS

AND DOES THEM THOROUGHLY

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SOLID Belt Dressing.

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For Roofs of all kinds, Bridges, Iron Work.

IN ALL COLORS

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MILLWRIGHTS AND ELEVATOR SPECIALISTS

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AGENTS FOR....

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Leitch & Turnbull Co. Limited, Elevators.
Greening's Wire Ropes.

PHONE JOHN H. SHALES, 1535

Manager

74 ADELAIDE ST. WEST TORONTO

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE JENCKES MACHINE CO.

The Jenckes Machine Co., Sherbrooke, Que., have sent us a copy of their new 142 page catalogue having reference to hoisting engines, raising machinery, etc., manufactured by them. The title page informs us that the catalogue is intended, chiefly, to illustrate and describe "Bacon's" hoisting and winding engines, which are the recognized standard in use in all parts of the world, the invention of Earle C. Bacon, Engineer, New York, but which are manufactured and sold in Canada by the Jenckes Machine Co. Some of the machines and machinery illustrated and described in the catalogue include "Bacon's" special hoisting engine for light work, coal derricks, steam lighters, sailing vessels, hauling cars, underground use in mines, etc., built with single and double cylinders, in capacity ranging from 4 to 12 h.p.; Bacon's double cylinder portable "special" hoisting engine for light work, prospecting for mines, dock hoisting, etc.; Bacon's double cylinder draw-bridge engine, with link motion for reversing; Bacon's double cylinder woven gear engine, for heavy loads, slow speed and short hoist; Bacon's double cylinder friction drum hoisting engine with foot brake and winch head; same, reversible, with link motion; Bacon's single cylinder, friction drum portable hoisting engine; same with double

cylinder, reversible link motion for pile-driving, railroads, bridge-builders, quarries, mines, etc., the boilers of which are extra large, have surplus power, and are constructed for 100-lbs. working pressure; same with single and with double cylinders, with foot brake and winch head; Bacon's single and double cylinder "construction" portable hoisting and winch engine, with two friction drums with brakes, and ratchet and pawls on drums; Bacon's patent horizontal double cylinder winch engine for bridge building, construction work, steamships, etc., made with either two, four or six, Bacon's patent independent winch heads, has link motion for reversing, and clutch in winch heads; can be made with hoisting drum additional when desired; Bacon's vertical single cylinder two-winch; vertical double cylinder two-winch; vertical double cylinder four-winch, and vertical double cylinder six-winch engines, all with link motions and independent winch heads are also described. These are specially designed for bridge building and construction work of all kinds. Other engines illustrated and described, all mentioned as "Bacon's," include single and double cylinder drum hoisting, drum haulage and cableway engines, special cableway with link motion, for wire rope, with curved drum or winch head for handling endless rope; winding engine with indicator for showing location of

car, skip or cage; double drum engine especially designed for handling two cages in double compartment shaft, one cage ascending while the other descends; double cylinder freight elevator engine with hand wheel reversing arrangement, and automatic stop motion for stopping engine when elevator reaches top or bottom of hoist; patent endless cable drum for gravity inclines.

The catalogue also contains many photographic views of places where Bacon's machinery is in use and being used for all possible purposes, both in Canada and other countries. To all the different engines and machines described, tables are given showing style, number, dimensions, speed, weight, capacity, price, etc.

The catalogue is most comprehensive and complete with reference to the machinery and appliances alluded to in it, but a portion of which are here mentioned; and the Jenckes Machine Co. request us to say that they will have pleasure in sending copies of it on application to any of our readers who may be interested in this class of machinery.

THE GOLDIE & McCULLOCH CO.

The Goldie & McCulloch Co., Galt, Ont., write us that they are very busy in all departments of their works. The following orders booked by them in November gives an idea of the volume of

ONE APPLICATION

APPLIED WITH A BRUSH.

CHICAGO, Feb. 6th, 1901.

"I have my six motors covered and some other pulleys, and all running fine. The beauty of it is any handy man can put it on."

H. HAGAR,
Foreman Mill Dept.

INCREASES OUTPUT.

ROCHESTER, N.Y., Dec. 6th, 1898.

"The Pulley Cover is enabling the operator of our Saddle Seat Scooper to turn out from 40 to 50 more seats a day than he heretofore could."

THE HUBBARD & ELDRIDGE CO.

WARREN'S PULLEY COVER

IS VERY DURABLE.

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"Its remarkable durability is shown from the fact that where the Cover was applied on the tight of the tight and loose pulleys nearly three years ago, it is still in perfect condition."

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**You Risk Nothing.****Order on 30 days trial.****Do not pay unless satisfactory.**

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Rust Proof.
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Absolutely will not Blister, Peel Off or Chalk.

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

USE
Zanzibar Crucible Black

For Smoke Stacks, Boilers, Steam Pipes,
Furnace Cupolas, Etc.

Extraordinary High Fire Test.
Elastic and Durable.

Manufactured by

THE P. D. RICHARDSON PAINT CO., Limited, TORONTO,
CANADA.

business they are doing: 6 Wheelock engines, 4 boilers, 1 heater, 1 large flour mill plant complete, gyrater system, for Welland, Ont.; other flour mill machinery for New Brunswick; 83 grain storage tanks and 16 steam pan dry kiln for works of American Cereal Co., at Peterborough, Ont., which completed an order for 44 of these pans; 8 gasoline engines, several of which go to Manitoba; 3 emery choppers.

In their wood tool department they booked orders for 10 large tools; and in their safe department they booked several single orders for safes and vault doors, a carload of which was for parties in Sydney, N.S.

Besides a large number of minor shipments made during November, the company sent out 19 carloads of machinery, 7 of which were for one plant at Port Arthur, and 2 were vault stuff, the balance being engines, boilers, etc. Other shipments made included 4 lots mill machinery, 5 lots of wood tools, 3 engines, 3 emery choppers and 23 safes and vault doors.

Regarding an engine supplied to Hen-

sall, Ont., by the Goldie & McCulloch Co., The Observer, of that town, says:

The new Wheelock engine installed at the electric light power house is giving good satisfaction to Mr. Welsh and to those taking the light, which is now first-class. The engine, which has a stroke of 38 inches, drives a belt wheel 13 feet in diameter. The machine is beautiful in construction, and, though capable of 200 h.p., works with the steadiness of a sewing machine.

A NEW ACETYLENE GENERATOR.—A new acetylene generator is being manufactured in Sweden which is said to be much simpler in construction than former ones, and occupies little space. The falling of the carbide into the water is automatically regulated by a rubber ball, which, as soon as it is filled with gas, closes the valve between the carbide and the water. When the volume of gas decreases, the hollow rubber ball contracts and the feed valve again permits the carbide to drop. The gas is stored partly in the rubber ball and partly in the space between the

funnel-shaped carbide magazine and the water. If much gas is generated, the water is pressed through valves into the water jacket in the sides of the apparatus, thus furnishing more room for the gas. A separate gas tank is, therefore, not needed. Should too much gas be produced, water and gas escape through a safety valve. Common carbide is used; no cartridges. The gas is dried by being allowed to pass through the carbide magazine, where the carbide absorbs the moisture. As there is no gas tank, and the quantity of gas stored thus is insignificant, it is considered that the fire-insurance companies will, without raising the insurance premiums, approve of the apparatus, even when it is placed in dwelling houses.

SHIPBUILDING IN CANADA.—The visit of Sir Christopher Furness to Canada and the United States has been important to shipbuilding and other interests, if the reports sent from New York on the occasion of his sailing are well founded. He has gone home with a pocket full of contracts for steamships. A round dozen large freighters are to be built in the Old Country with American capital. This will be a boon to British ship carpenters and engineers and give an impulse to business of all kinds in shipbuilding towns.

THE CANADIAN COLORED COTTON MILLS COMPANY.

Cottonades, Tickings, Denims,
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Flannelettes, Ginghamas,
Zephyrs, Skirtings,
Dress Goods, Lawns,
Cotton Blankets,
Angolas, Yarns, etc.

Only Wholesale Trade Supplied.

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MONTREAL and TORONTO.

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SOLDER

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Wiping Solder
Market $\frac{1}{2}$ and $\frac{1}{2}$ Solder
Guaranteed $\frac{1}{2}$ and $\frac{1}{2}$ Solder

Prices on Application

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& Sons**
HAMILTON, CAN.

FOR SALE.

One 25-light Reliance Arc Dynamo,
in first-class condition.

One 60-light Royal type Trans-
former, 1040 Volts to 110.
Newly Re-wound.

Three 10-light Shellenberger Watt
Meters.

Two 20-light Duncan Watt Meters.

THE ABOVE WILL BE SOLD CHEAP

Address **CORPORATION OF MITCHELL,**
Box 207. ONT.

FOR SALE

CANADIAN PATENT No. 70,666
(Patented March 26, 1901)

Miller's Detachable Horse Shoe Calk.
Durable and cheap.

For full particulars address J. WALLACE MILLER
Bernharts P.O., Berks Co., Penn.

But what concerns Canada most is the announcement that Sir Christopher has arranged with the Clergue interests, at the Canadian Soo, for the erection of a \$10,000,000 shipbuilding plant and steel works, the raw material for which is to be supplied by Canadian iron and coal fields. This is just the kind of thing we want. For years and years we have been trying to get the surplus capital of Great Britain flowing this way, but the slow-going Englishman could not be induced to launch out into enterprises which have since been developed by United States and Canadian capital. But, now that American competition has forced the Englishman to look about for means of meeting it, there is a disposition to turn to the colonies and see whether or not the stream of business which is pressing English iron and steel workers so hard cannot be tapped near its source and diverted. American capital has got the first foothold in Canada for iron and steel products, developed from Canadian raw material, but there is ample room for British capital yet, and, if the Breton and the Yankee engage in a contest for supremacy in developing our mineral and other resources, this country will boom as never before. With the Dominion Iron & Steel Co., at Sydney, C.B., the proposed shipbuilding plant at or near Halifax, the Cramp-Ontario Steel Works at Collingwood, Ont., and the Clergue and Furness plants at Sault Ste. Marie, Canada bids fair to become one of the greatest shipbuilding countries in the world. With the increased settlement of Northwestern Ontario, Manitoba and the Territories, there will be necessity for a great expansion of lake-carrying facilities. Even this season there has been a scarcity of vessels, and what would the situation be with twice the population and twice the area of land under cultivation! Ships are and will be needed to carry the wheat to market, and there will be ample scope for both the Collingwood and Soo plants.

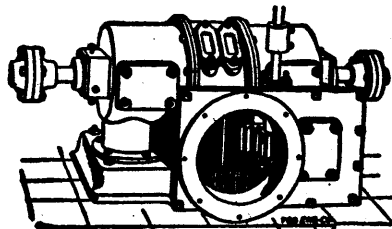
Now that Sir Christopher Furness has shown the way, let us hope that other British capitalists will follow, to the end that the immense resources of Canada may be developed, and this colony made more than ever a prop and stay for the Motherland—a field for enterprises that will yield large returns.—Toronto World.

THE STEEL BOUNTIES.—Mr. W. G. Parmelee, Deputy Minister of Trade and Commerce, and Mr. J. Lorne McDougall, Auditor-General, returned to Ottawa a few days ago from Sydney, N.S., where they had been looking into the question of introducing some reliable system of supervising the output of steel in connection with the payment of Government bounties. The Dominion Steel Works at Sydney have been producing pig-iron for some time, but has not yet begun the manufacture of steel, but expects to do so, however, at an early day. Ten open-hearth furnaces are being erected, and when the entire plant is in operation it will be capable of producing 1,000 tons of steel daily. At this rate the company would earn a million dollars per annum in Government bonus, or, including the bounty on pig-iron, two million dollars.

The Bourne-Fuller Co.

**Iron, Steel,
PIG IRON.**

Cleveland, - Ohio.



Horizontal Type.

Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings.
Catalogue and Gear List mailed on application. Correspondence Solicited.

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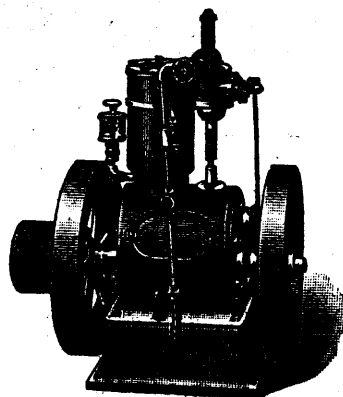
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Are beyond doubt the most complete and economical engine in the market. They are compact and perfectly under control, easily managed, get up speed immediately, thoroughly reliable, and where intermittent power is required they are just the thing.

They are built in sizes from 1 to 20 h.p., upright and horizontal, for pleasure yachts, boats, shops, farm work and any purpose where light power is required. Tell us to what use you want to put the engine, and what power you require, and we will name you prices.

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Special Castings and all kinds of

FLEXIBLE AND FLANGE PIPE.

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CUPOLAS

FOUNDRY EQUIPMENT

CRANES

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The checking of the amount of pig iron produced offers no obstacles, but the steel cannot be accounted for with the same ease, for the reason that the product is to be treated quickly in various stages, whilst in molten form and before it is allowed to cool. It is likely, therefore, that Government officers will have to be maintained on the spot night and day watching the operations. The question also arises whether scrap resulting from the company's iron operations should be paid for when used over again to manufacture steel. The company will be entitled to a

bounty for steel, 50 per cent. of which is scrap. The Government officers, however, are inclined to draw a distinction between scrap purchased by the company for use and scrap resulting from any of its own processes of manufacturing. The company cannot see why any distinction should be drawn. The Government is anxious to facilitate, as far as possible, manufacturing operations, and to study the convenience of the company, at the same time it deems itself bound to exercise every possible means of supervision where such a large amount is involved.

QUEER PRACTICES IN BRITISH TIN PLATE TRADE.—The question, "When is a coke plate a charcoal plate?" has recently been exercising the minds of some buyers of tin plates, and the answer suggested is, "When it is so branded." There is no doubt that a certain amount of incorrect marking of plates is being carried on in the trade—sometimes, it is said, by manufacturers themselves at the bidding of merchants and other buyers. We have even heard of a case in which a merchant supplied light waster-cokes, originally properly branded, marked "charcoal," and defended himself on the ground that he was only following the "custom of the trade." As a matter of fact, the terms "coke" and "charcoal" as applied to tin plates are altogether out of date, and consequently misleading. Years ago, when the foundation of tin plate was puddled bar iron, the terms served well enough to distinguish different qualities of material, but now they have lost all their old meaning. Generally speaking, "charcoal" plates nowadays are understood to be tin plates bearing a heavier coating of tin than "coke" plates, and made of Siemens steel, while "coke" plates are held to be those least heavily coated and having a base of Bessemer steel. But there is no unanimity even on these points, the essential difference between the two descriptions being apparently the brightness of the plate and the thickness of the tin coating on the so-called charcoal plates. In calling for "charcoals" the buyer undoubtedly expects to be supplied with the best quality of tin plate, and we are by no means certain that the branding of "cokes" as "charcoals" is not an offence against the Merchandise Marks Act.—London Ironmonger.

MARSH STEAM PUMPS
AMERICAN STEAM PUMP CO.
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 ELEVEN YEARS
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AMMONIA (SULPHATE, NITRATE, LIQUID, MURIATE, ANHYDROUS, CARBONATE.)
Chemicals. Sulphate of Copper. Chlorates of Potash and Soda. Calcium Carbide. Acetate of Soda. Wood Naptha. Acetone, Bichromates.
CHEMICAL MANURES.

Details of the shipping pier to be erected by the Nova Scotia Steel & Coal Co. at North Sydney, N.S., place the total cost at \$120,000. It will be 1,400 feet long, of which 800 feet will be trestle approach work. The 600 feet of shipping face will have a width of 40 feet, and at the outer end there will be 60 feet above high water mark. There will be three tracks on the pier, storage for 5,000 tons of coal, and chutes and other facilities to load 15,000 tons of coal a day.

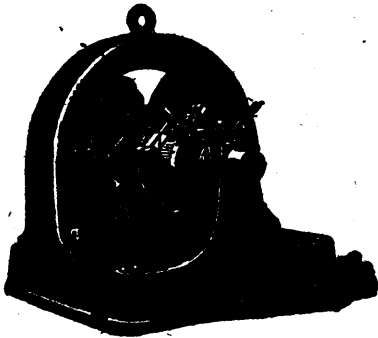
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THOMAS C. IRVING, Gen'l Manager Western Canada, TORONTO.
 JOHN A. FULTON, Gen'l Manager Eastern Canada, MONTREAL.

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.

620. A commission firm claiming a good connection is prepared to take up agencies of Canadian manufacturers of such lines as flannelettes, plushettes, felts, linoleum, oil cloth, fancy leathers, felt shoes, slippers, etc.

621. A Rotterdam (Holland) house asks for names of Canadian shippers of pig iron.

622. A London firm, import and commission, desires to secure the agency of a Canadian wood pulp mill, seeking to push export trade, also of a pulp wood shipper.

623. A west of England firm of importers and manufacturers' agents would like to represent Canadian manufacturers of turned goods, boxes and hardware lines.

624. Enquiry has been made for the names of shippers of boot and shoe last blocks in maple and basswood.

625. A Belfast house asks to be placed in touch with Canadian firms supplying boxes (Canadian style) complete for egg packing.

626. An enquiry is made for the manufacturers in Canada of corn cob tobacco pipes.

627. A reliable manufacturer of London, England, desires to be put into communication with a Canadian house who would push the sale of a valuable chemical product, and would liberally advertise the same. Its use supercedes that of pot or pearl ash, turpentine, gasoline, etc., for removing grease, dirt, etc., and is perfectly harmless.

628. A London firm of commission agents who are in touch with the wholesale grocery trade, are open to hear from Canadian exporters of canned goods who desire representation.

629. The names of Canadian producers and shippers of corundum are asked for by a London importer.

630. A firm in South Wales are desirous of opening up a connection in Canada for the sale of their manufactured lead-sheets, pipes, bullet-rod wire, etc.

631. A Canadian firm manufacturing corundum wheels desire to place their agency in the hands of a supply house or a firm calling upon machine shops and other places where emery wheels are used.

The Robb Engineering Co., Amherst, N.S., are building four 100 h.p. Mumford boilers for the new round houses of the Intercolonial Railway at Stellarton and Sydney.

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 Our business includes everything Electric, from a bell for your house to a lighting or power plant for your town. But small or great, our work is always done well and at close prices.
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OIL-CLOTHS of Every Description
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 MONTREAL, Que.



EXPORT TRADE

The Publishers announce the preparation of the Sixteenth Edition of the Directory of

MERCHANTS, MANUFACTURERS and SHIPPERS

of the World. Containing Classified Trade Lists of the Merchants and Manufacturers, Importers and Exporters of the United Kingdom and all principal trading centres of the World. The work contains nearly 4,000 pages, and includes in addition to the above the Customs Tariffs for every Country and all classes of Goods.

HIGHEST AWARD, GOLD MEDAL, PARIS, 1900.
 For further particulars, charges for advertisements, etc., apply.

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for TYPE and COMPOSITION ROLLERS.
WRITE FOR PARTICULARS.

Steam Users. VULITE
is unrivalled as a
disincrustant.

ON H. M. GOVERNMENT'S LISTS.

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**PARRY
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*Clothboards, Lapping, Rolling
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Veneers of Ash, Birch, Bass
and Elm, all thicknesses
Cheese Box Bands and Rims
Box Shooks (Small and Light)
also Crating Material*



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JAS. R. BROWN, Parliament Buildings, Toronto.

MARGARET CARLYLE, Parliament Buildings, Toronto.

O. A. ROCQUE, Orleans, Ont.

Persons having business with any of the Inspectors will find them at the above address.

JOHN DRYDEN, Minister of Agriculture.

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, December 20.

The census returns of manufacturing industries in Toronto, show satisfactory increases in the past ten years. In 1891 the number of employes was 24,480, and in 1901 the number was 43,856, an increase of 18,768. The amount paid in wages in 1891 was \$9,042,125, in 1901 the amount was \$15,398,319, an increase of \$6,356,964. In 1891 the value of the products of all the factories was \$42,489,352, and in 1901 \$58,870,875, an increase of \$16,591,523. In presenting the report Mr. David Carlyle, the Census Commissioner, states that the total number of factories investigated was 1,552, and of this number only 928 were enumerated complying with the rule of five persons and upwards. In 1891 there were enumerated under the rule of one person and upwards 2,109, so that it is to be noted that the great excess of persons employed and products in 1901 over that of 1891, was from 1,171 less places designated as factories. Had the census of 1901 been carried out on the lines of 1891, it would have shown a much larger increase. The work is not quite completed and the figures are subject to revision on completion of the work.

However, the report is a most gratifying one, and shows how rapidly the manufacturing industries of Toronto are growing. To a visitor to Toronto the handsome buildings recently erected by manufacturing concerns, is a striking evidence of the prosperity of the city.

The increase is not alone confined to Toronto, for from all parts of the province and throughout the Dominion reports received show a steady growth in manufacturing industries.

The season's trade in all lines has been active, although the present week shows a falling off in the wholesale demand due to the approach of the holidays. In the drygoods line there have been fair sorting up orders, buyers picking up Christmas novelties, as well as sorting up their stock in some staple lines. Travellers' orders are fairly good, both for present requirements and for spring. The market for cotton fabrics is strong and there is some talk of advancing prices in the United States on account of the Government report of a short crop. The Canadian mills are running full time, and are refusing repeat orders for some lines.

In the metal market the trade is watching closely the action of coppers, which have shown considerable weakness recently. New York reports the market for pig iron quiet, copper dull, lead dull and tin steady. The share market has been affected by the reduction in the price of copper, amalgamated stock declining to the lowest price reached thus far.

The report that an arms factory was to be established in Canada is creating a great deal of talk in manufacturing centres. Such an establishment would exert an influence in the development of the mineral resources of the Dominion. Copper enters largely into the construction of arms, hence there will be a greatly renewed demand for that metal, which is becoming so plentiful in this country. Iron and steel will also be needed, and thus not only will the mines be drawn upon, but the manufacturers will find additional business coming their way.

R. G. Reid, president of the Newfoundland Railway, states that he does not think the Newfoundland Government will

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impose an export duty on iron ore. He also stated that Newfoundland has already received great benefit because of the great number of her citizens being employed both at Bell Island and at Sydney. A great deal more has appeared in the Canadian papers about the ore duties than the case warrants.

Mr. Whitney, in denying the rumor that he is selling out his personal interests in either the Dominion Coal or Dominion Steel Co., says that there is no change in the situation beyond that already announced regarding Mr. Ross taking a more active part in the management of the steel company similar to that he has been taking in the coal company. "We are working away," said Mr. Whitney, "developing our property. Our rolling mill for rails will be finished early in the year, and will be rolling rails in the spring."

An order has been granted for the winding up of the Diamond Machine & Screw Co., Limited, Toronto, and E. R. C. Clarkson has been appointed liquidator. The company was organized in July, 1899, with a capital of \$75,000, of which \$33,000 has been paid up. The Imperial Bank has a claim of \$7,900. Mr. Stapleton Caldecott is president, Mr. A. A. Allan, vice-president, Mr. R. F. Massie, manager, and Mr. R. C. Winton secretary-treasurer.

BUFFALO PIG IRON MARKET.—Office of Rogers, Brown & Co., Buffalo, N.Y., December 17, 1901.

The pig iron situation in this market is unchanged and calls for as much patience and unselfishness on the part of the consumer as is consistent with his actual needs. The demand simply absorbs everything in sight in the shape of foundry iron.

Prices are advanced somewhat when iron has to be brought out of its legitimate field, on account of excessive freight charges. It requires contributions from all sections of the country, however, to keep foundries from shutting down.

We quote as follows, on the cash basis, f.o.b. cars Toronto, in bond:

Lake Superior Charcoal	\$20 00
Standard Southern Charcoal	20 25
No. 1, X, Tonawanda Scotch....	18 25
" 2, " " "	17 75
" 1, " Niagara	18 25
" 2, " " "	17 75
5% Silicon Mannie softener....	17 25
2% Silicon Mannie softener....	16 75
Connellsville 72 hour Foundry coke	5 20

BRITISH PIG IRON MARKETS.—Messrs. Wm. Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of December 5, 1901, quote as follows: "Since writing you last the market has been steady for Scotch pig iron and a shade easier for Hematite and Middlesbro."

To-day's prices are as follows:—No. 1 Gartsherrie, 66/9-f.o.b. Glasgow, including dues; No. 3 Gartsherrie, 56/9-f.o.b. Glasgow, including dues; Nos. 1, 2 and 3 Cumberland Hematite, 65/-f.o.b., Liver-

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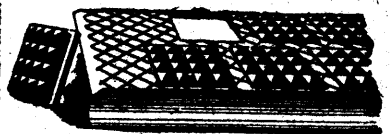
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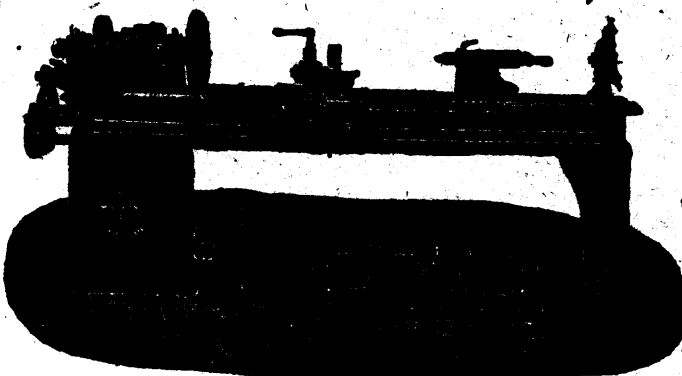
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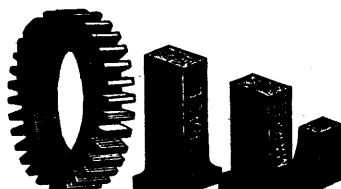
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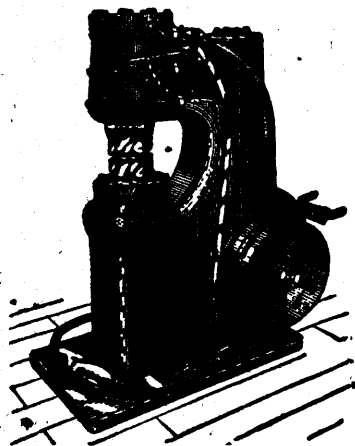
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pool; Nos. 1, 2 and 3 Cumberland Hematite, to special analysis, 70/-f.o.b. Liverpool; Refined DTN in small pigs, 83/f.o.b. Liverpool.

LEATHER BELTING.—At a meeting of the leather belting manufacturers of Canada, held in Montreal on December 2, it was resolved that on account of the high price of hides it was necessary to advance prices 20 per cent. For the same reason, we are told, the belting manufacturers in the United States, have advanced their prices to the same extent.

CANADIAN IRON AND STEEL IN GREAT BRITAIN.—Over 13,000 tons of pig-iron from the furnaces at Sydney, N.S., were sent to Glasgow during the month of August. It is expected that, before long, supplies of Canadian pig-iron will also be shipped to Liverpool and Manchester. The quantity of iron forwarded to the Clyde in August is double that exported from Canada in 1900, and nearly equal to the entire export for the last five years. There are now in Canada seven companies making pig-iron: The Dominion Iron & Steel Co., Sydney, N.S.; the Nova Scotia Steel & Coal Co., New Glasgow, N.S.; the Canada Iron Furnace Co., Midland, Ont.; the Canada Iron Furnace Co., Radnor, Que.; the Hamilton Steel & Iron Co., Hamilton, Ont.; The Deseronto Iron Co., Deseronto, Ont.; and Messrs. McDougall & Co., Drummondville, Que. There are eight furnaces in operation, two of them being at Sydney. At the last named place, three will be in operation in a few weeks, and still another is to be added before the works will be complete. It is expected, says the Daily News, that steel-making will begin in November, and that the whole plant will be in operation early in the New Year. The money invested at the principal iron works in Canada is estimated at \$24,500,000, which will be increased to \$35,000,000 when the new plant now building at Sault Ste. Marie, for making pig-iron, steel, and steel rails is finished.

SKI STICKS AND WHISKEY.—Of the hundreds of farm and household utensils which the Swedish settlers brought to the State of Maine when they came there more than twenty-five years ago, every one has disappeared except the graceful and handy ski, which stayed and multiplied many fold, until to-day they are as common among the Yankee residents as they are with the immigrants.

Little change has been made in the shape of the ski, although the ski stick, formerly a cudgel of hardwood with a knob at one end for the purpose of steering the ski over the snow, has undergone great improvement. It is no longer a stick except in name, for it is made of metal pipe, while the terminal knob is a hollow ball of polished brass.

Until two years ago the ski sticks of brass and steel were not common beyond the Swedish settlement. In 1899 the new sticks began to be seen in villages along the Canadian line. It was also noticed that as metal ski sticks became more plentiful the price of good whiskey grew less, and there was more of the liquor

offered for sale. As the revenues did not increase in proportion to the sales, the custom house officials made a few trips to the places where liquor was sold across the line and learned of a new device for smuggling. The metal ski sticks are hollow, the large ones holding nearly a gallon. By fitting a screw cap to the top of the stick the latter could be made to carry whiskey in safety. As soon as the invention was made, ski parties became very popular. It became a custom for parties of five or six to make a trip over the boundary line in the morning. Stopping at saloons to quench their thirst, they filled their sticks with whiskey and came home much refreshed.

The price of liquor fell so low that drummers complained and an investigation stopped the traffic.

EMERY-COATED TOOLS.—The use of emery tools has been limited because the material does not lend itself readily to shaping; we are practically confined to grinding surfaces of simple forms. The galvanic process invented by Joseph Rieder, of Leipzig, however, allows us to make use of any kind of emery powder, and to arrange it in various shapes, so that we are presented with a new style of emery tool. Rieder is known as the inventor of the electro-engraving process, whose characteristic feature is a machine which returns the plaster negative to its position with mathematical accuracy, so that the galvanic etching, which has to be interrupted several times a minute to

secure uniform electrolytic action, practically remains continuous. In order to fix the emery sand on the tools referred to above, he first coats the emery with a varnish obtained by dissolving wax or paraffin in benzine. Graphite will adhere to the grains when they have been treated thus, and in this way the emery surface is made electrically conductive. The tool, i.e., a disc, is placed in the sulphate of copper bath, and the prepared sand dropped on it. Each grain will become embedded in a coating of copper, and the grains will thus be fixed just as gems have been mounted for some time by means of a galvanoplastic process. The sand can also be treated with a glycerine paste, which is then applied to the surface to be covered with emery. As soon as a thin film of copper has settled on the steel, the glycerine is washed off with hot water, and the copper film is afterwards thickened in the bath. In this way emery tools are obtained, which are said to wear very well. Their disadvantage is that they do not cut deeply, because the interstices are filled up. But such discs can be revolved at a much higher rate than we could venture to adopt in the case of an ordinary emery wheel of the same dimensions. Another advantage is that we can construct tools of this kind in almost any shape—hollow drums, cutters of various profiles, reamers, convex or concave lenses, knives, engraving tools, and even files. When the electrolytic file-sharpening process came up about ten years ago, the invention was ascribed

to and claimed by several inventors. In that case the file is the anode. Here we have a cathodic process which may also have occurred to several scientists, though we are not aware that anybody but Rieder has put emery-coated tools on the market.—Kuhlow's.

ELECTRIC POWER IN WORKSHOPS.—In a recent paper on the above subject by Mr. W. Giepel, M.I.E.E., the advantages of electric driving, apart from efficiency of transmission and saving in power, which in most machinery establishments would pay for the additional cost of the electric plant in from two to five years, are summed up as follows:—(1) absence of overhead shafting, which requires special construction of shops, and causes vibration, dust and dirt; (2) absence of belts and the frequent repairs they require; (3) clear head room for the use of electric cranes and hoists; (4) better light and cleanliness; (5) regularity of speed of machinery, and saving of wear and tear; (6) placement of machinery to facilitate handling of work; (7) easy application of motors for special tools, such as key seating, cylinder boring, air compressing; (8) facility of running one or two machines without the rest for working overtime; (9) special suitability for working cranes and lifting apparatus; (10) ease of extension; (11) utility for electric lighting and other purposes; (12) general flexibility of the system; (13) increased output. A truly comprehensive list.

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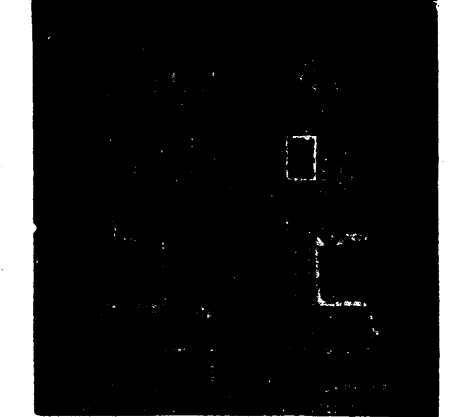
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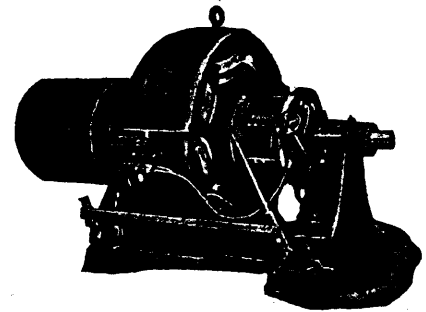
CHRISTMAS TRADE.—There are many ways in which Christmas trade may be scooped in and made profitable. Indeed it is almost necessary at this season to provide an additional turnover from outside lines in order to make up for the inevitable loss from the suspension of ordinary business that naturally takes place during the preparation for Christmas festivities and the holiday-time that follows. There are few traders who do not secure some portion of this extra business, and there is no valid reason why a really large share of it should not fall to the hardware man. Many hardware-factors are careful to provide their clients with goods of a light and attractive character, and the lists which are issued at this time of the year frequently contain some suitable lines. Some ironmongers object to the light character of the goods often recommended and others draw the line at toys. We do not see any particular reason why they should do so. The juvenile population form a powerful factor of home life, and metallic toys, engines, and games purchased carry with them a really good advertisement, for they are not only in daily use for a considerable time, varying according to the durability of the article, but they are handed round for inspection to the representatives of other families who visit them. Putting aside, however, such articles as toys, there is an enormous trade to be secured in fancy goods and also in the more useful articles, provided they are of a seasonable character. We urge readers to avail themselves of this class of trade, because we feel sure that although there are many thoroughly alive advanced hardwaremen, there are hundreds of others who hang back from going forward out of the ordinary ways and therefore lose so much they might otherwise secure.—Ironmongers' Chronicle.

THE THEATRICAL SIDE OF KEEPING SHOP.—The successful retail merchant ought to have something of the showman in his equipment, for he is, in his own way, a provider of entertainment. The capacity for drawing curious folks and sightseers has been an important factor in the success of most of the Barnums of the retail world—is still a factor in the success of the modern department store. The showman who keeps shop must never allow his theatrical instincts to overtop his regard for hard facts, but if he will use odd methods to color his facts, he will be in a fair way to dominate his own locality, especially if he is doing business in a small city. Goods are potent attractions in themselves. The fact that the most blasé mortal will stop to look into show windows is a proof of this truth. But there many means, great and small of setting people thinking and talking of your store, thought and talk being preludes to visits and purchases.

The automobile delivery wagon is still a novelty in many towns, and can be made a six months' wonder before it loses its charm. Every housewife would order a bill of goods for the sake of having the vehicle stop before her door. Moving stairways have recently been built into several New York and Brook-

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lyn department stores, carrying passengers to and from first floor and basement. It is probable that half of the women in these cities have dragged the other feminine half in for a ride on the new convenience, and while many went away without purchasing, many others spent money and became regular customers. At the very least a large number became familiar with the place.

One of the new hotels in New York keeps several bell-boys busy showing visitors through the building from sub-cellar to weather-vane. None of them ever register or bring direct returns to the hostelry, yet the proprietor is not only willing, but anxious, that they shall be shown every courtesy. A small pamphlet containing pictures, statistics of ice, gallons of water and sides of beef used daily is given to all who avail themselves of this chance for free inspection of the building, and as most of them come from remote parts of the country, his establishment is one of the most famous in the United States. Every visitor is for ever after a walking encyclopedia of an advertisement for the hotel.

Store methods are constantly changing. The cash carrier system that was novel in New York ten years ago is an everyday matter in villages now. But the metropolitan stores have new wonders, many of which could be transplanted to smaller cities and make the "talk of the town" until every last unit of the population had been in to inspect them in person.

BUSINESS CHANGES.

FROM BRADSTREETS.

ONTARIO.

ALTON—Dick & Son, foundry, burned out.
 HAMILTON—Duncan Lithographing Co., loss by fire and water.
 Tolton & McKay, mfrs. shirts, etc., removing to Toronto.
 OTTAWA—J. H. Connor & Son, obtained charter.
 OWEN SOUND—Grey & Bruce Portland Cement Co., of Shallow Lake, small loss by fire.
 PARRY SOUND—Shebeshekong Lumber Co., lumber and general store, assigned to C. B. Armstrong, London.
 PETERBOROUGH—Otonabee Power Co., obtained charter.
 SAULT STE. MARIE—Franco-Canadian Navigation Co., obtained charter.
 SHALLOW LAKE—Harrison & Hawke, shingle mill, burned out.
 TORONTO—Diamond Machine & Screw Co., winding-up order granted, E. R. C. Clarkson appointed interim liquidator.
 Ross Rifle Co., applied for charter.
 Hurlburt, Mills & York, obtained charter.
 Toronto Cold Storage Co., winding-up order granted, E. R. C. Clarkson, appointed interim liquidator.

QUEBEC.

FOSTER—Foster Mfg. Co., dissolved, new partnership registered.
 LAUZON—Colonial Window Blind Co., registered.
 MONTREAL—John Auld, cork mfr., burnt out, J. & T. Bell, mfrs. boots and shoes, partnership registered.
 L. O. Demers & Co., mfrs. boots and shoes, dissolved.
 Henderson & Potts, mfrs. paints, etc., applied for charter.
 Canadian General Engineering Co., dissolved, R. G. Miller, jr., now registered.
 Dormal Chemical Co., registered.
 The St. Francis Hydraulic Co., applied for charter.
 Chevurine Mfg. Co., Therese Massicotte registered.
 Diamond Lighting Co., petition for winding-up order presented.
 George Ducharme, piano mfr., burnt out

Dinelle & Co., brick mfrs., registered.
 Oliver Downing, mfr. lubricants, O. Downing and T. Stevens registered.
 Downing & Co., machinery supplies, dissolved.
 Imperial Syrup Co., obtained charter.
 Montreal Shirt & Overall Co., dissolved.
 Montreal Shirt & Overall Co., registered as incorporated.
 Mullins & Co., machinery and supplies, John Wilcock registered.
 R. E. T. Pringle Co., electrical supplies, etc., applied for charter.
 George Roberts, builders, etc., factory and lumber destroyed by fire.
 Standard Umbrella Mfg. Co., dissolved, Markus Markus now registered.
 Isaac Schwartz, mfr. hats and caps, J. McD. Haines curator.
 Strathcona Rubber Co., registered as incorporated.
 York Lumber Co., registered.
 P. Vincent & Co., carriage makers, Mrs. Pierre Vincent registered.
 QUEBEC—Eugene Ficher & Cie, mill supplies, etc. registered.
 G. Rochette, tanner and mfr. shoes, offering to compromise.
 ST. HYACINTHE—F. X. La Compagnie, Bertrand—Foundry, applied for charter.

NEW BRUNSWICK.

ST. JOHN—Cornwall & York Cotton Mills Co., incorporated.

NOVA SCOTIA.

HALIFAX—Electrical Art Co., Charles V. Sharp and W. W. Ridout registered proprietors.
 New Glasgow—McKay Piano & Organ Co., Thomas G. & John B. McKay registered proprietors.

MANITOBA.

MORDEN—Morden Woolen Mills, Frank Schneider admitted, style changed to Manitoba Woolen Mills.
 PILOT MOUND—Bank of Hamilton, opened branch.
 WINNIPEG—Manitoba Water Power Electrical Co., incorporated.
 Scantlebury Wall Paper Co., stock, etc., advertised for sale.
 Winnipeg Trunk & Box Co., application made for winding-up order.

BRITISH COLUMBIA.

VANCOUVER—Imperial Syrup Co., mfrs., succeeded by Ramsay Bros. & Co.
 West Coast Timber Co., incorporated.

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 NICKEL AND BRONZE PLATING
 PATENT HANGERS AND COUPLINGS
 MODEL AND PATENT MACHINERY

WRITE FOR QUOTATIONS

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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% discount.

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

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

FENCING (Wire).—Duty 15%.
Galvanized, barb, f.o.b. Toronto, \$3.05.
Galvanized, plain twist, f.o.b. Toronto, \$3.05.
Galvanized, barb, f.o.b. Cleveland, \$2.82½ in less than car lots, and \$2.70 in car lots.
Mesh, 5½x10½, 20 rod rolls 55% discount, Can. list.
" 4 x8, 20 " 50 & 5% " "
" 3 x6, 20 " 55 & 5% " "

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

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

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

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

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

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

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

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

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

GLASS—Duty 20%. (Window—Box Price).
Star, under 26 in., \$2.15 per 50 ft., \$4.15 per 100 ft.; 26 to 40 in., \$2.30 per 50 ft., \$4.45 per 100 ft.; 41 to 50 in., \$4.85 per 100 ft.; 51 to 60 in., \$5.15 per 100 ft.; 61 to 70 in., \$5.50 per 100 ft.; 71 to 80 in., \$6 per 100 ft.; 81 to 85 in., \$6.50 per 100 ft.
D. Diamond, under 26 in., \$6 per 100 ft.; 26 to 40 in., \$6.65 per 100 ft.; 41 to 50 in., \$7.50 per 100 ft.; 51 to 60 in., \$8.50 per 100 ft.; 61 to 70 in., \$9.50 per 100 ft.; 71 to 80 in., \$10.50 per 100 ft.; 81 to 85 in., \$11.70 per 100 ft.; 86 to 90 in., \$14 per 100 ft.; 91 to 95 in., \$15.50 per 100 ft.; 96 to 100 in., \$18 per 100 ft.
Glass Demijohns or carboys, empty or filled, bottles, decanters, flasks, phials, glass jars, lamp chimneys, glass shades or globes, cut, pressed or moulded crystal or glass tableware, decorated or not, and blown glass tableware—Duty 30%.

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

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

GLUE.—Duty 25%.
Cabinet, sheet, 12 to 13 cents per lb.
Common, 8½ to 9 cents per lb.
Coopers', 19 to 20 cents per lb.
French Medal, 14 to 14½ cents per lb.
Gelatine, 22 to 30 cents per lb.
Huttner, 18 cents per lb.
Strip, 18 to 20 cents per lb.
White, extra, 18 to 20 cents per lb.
LaPage's, 25% discount.
Progressive, 25

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

GRANITWARE.—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%.
1x1½ inch, 10c. per lb.
(Evans), 1x1½ in., doz. set packages, \$8.00 per gross.

HALTERS.—Duty 30%.
Leather, 1 in. strap, \$3.87½ to \$4 per doz.
Leather, 1½ in. strap, \$5.15 to \$5.20 per doz.
Rope, \$1, \$9 per gross.
Rope, \$1 to 1½, \$14 per gross.
Web, \$1.87 to \$2.45 per doz.

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

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

HANGERS.—Duty 30%.
Barn Door, round groove, \$4.50 to \$6.50 per doz.
Lanes, \$6.75 to \$12 per doz.
Parlor door, \$3 to \$6 per set.
Stearns, \$5.50 to \$6.50 per doz.

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

HATCHETS.—Duty 30%.
Canadian, 40 to 42% discount.

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

HINGES.—Duty 1 cents per lb., & 25%.
Blind, Parker's, 50 & 10 to 60% discount.
Heavy T and strap, 4 in., 6½ cents per lb.
" " 5 in., 6½ " "
" " 6 in., 6 " "
" " 8 in., 6½ " "
" " 10 in., 5½ " "
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.

HOES.—Duty 25%.
Grub, \$5 to \$6 per doz.

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 30%.
Lifting, 40% discount.

KEYS.—Duty 30%.
Carpenter, 50 cents to \$1.25 per doz.
Desk, 25 to 35 cents per doz.
Mortise Lock, 25 cents to \$1 per doz.
Padlock, 25 to 35 cents per doz.
Rim Lock, 25 cents to \$1 per doz.

KNIVES.—Duty 30%.
Butcher, \$2 to \$5 per doz.
Pocket, \$1 to \$3 per doz.

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

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

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

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

LANTERNS.—Duty 30%.
Cold Blast, \$7 per doz.
Dashboard, cold blast, \$9 per doz.
Japanned, 50 cents per doz. extra.
No. 0, \$5.75 per doz.
No. 3 "Wright's", \$8.50 per doz.
Ordinary, with O burner, \$4 per doz.

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

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

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

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

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

MALLEABLES.—Duty 30%. See Castings.

MALLETS.—Duty 30%.
Carpenters', hickory, \$1.25 to \$3.75 per doz.
Caulking, 60 cents to \$2 each.
Lignum Vitae, \$3.85 to \$5 per doz.
Tinmiths', \$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), 10½ 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 6½ cents per lb.; sheets, 7 cents per lb.
Babbit Metal (duty 10%).
Lewis, 7 to 10 cents per lb.
Magnolia, 25 cents per lb.
Post's Zero, 25 cents per lb.
Spooners' Copperine, No. 2, 12½ 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—7½ cents per lb., Base price.

METALS—Continued.

Sheets, Galvanized Iron.
 17—\$3.90 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, \$3.80

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.
 Iron, Galv. Sheet, see Sheets.
 " and Corrugated, see Sheets.
 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; hard sheets, 20 to 30 cents per lb.; soft sheets, 20 to 30 cents per lb.
 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.—74 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, Cast.—Firths, 12 cents per lb.
 Jessop's, 14 cents per lb.
 Black Diamond, 12 cents per lb.
 Silver, 15 cents per lb.
 Mushets.—55 cents per lb.
 Steel, Blister.—12½ cents per lb.
 Steel, Hammer.—7 cents per lb.
 Steel, Decarbonized Sheet.—7 cents per lb., base.
 Steel, Black Sheet, 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, "

Tank Steel Plate (duty \$7 per ton).—3-16, \$2.60 per 100 lb.
 Plates, Steel Boiler (duty 10%).—½ 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, ½ 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, 52½% 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 & 7½% discount.
 M brand, 50 & 10% discount.
 Steel cut nails, 10 cents extra.
 Trunk nails, black, 65 and 5% discount.
 Trunk nails, tinned, 65 and 10% discount.
 Wire, 2d \$3.85; 3d, \$3.50; 4 & 5d, \$3.25; 6 & 7d, \$3.15; 8 & 9d, \$3; 10 & 12d, \$2.95; 16 & 20d, \$2.90; 30, 40, 50 & 60d (base), \$2.85; fine, 3d, \$3.85.
 Wire nails in car lots, \$2.77½.
 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 ½ cent per lb. & 25%.

Finished, tapped, 25% discount.
 Rough, square head, 4 cents per lb. from list.
 Rough, hexagon head, 4½ cents lb. from list.
 Semi-finished, tapped, 25% discount.

OAKUM.

Navy, \$7.30 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.), 15½ 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.), 16½ 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, 124 cents per lb.
 Jute, 8 cents per lb.

PAILS.—Duty 25%.

Galvanized Iron, \$2.50 to \$3.50 per doz.

PAINTS.—Duty 25%.

Elephant Snow White, 8 to 9 cents per lb.
 Pure White Zinc, 8 to 9 cents per lb.
 No. 1, 6 to 7½ cents per lb.
 No. 2, 5 to 6½ cents per lb.
 Prepared, in ½ and 1-gallon tins, \$1.25 per gal.
 Barn, in barrels, 75 to 85 cents per gal.
 Canada Paint Co's Pure, \$1.25 per gal.
 Second qualities, \$1.10 per gal.
 Sherwin-Williams Paints, \$1.45 per gal.
 Thornton Lead & Color Co's Pure, \$1.25 per gal.
 Zanzibar, all colors, 75 cents per gal., f.o.b. Toronto or Windsor.

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, WHITE.

Pure, \$6.37 per 100 lb.
 No. 1, pure, \$6 per 100 lb.
 No. 2, pure, \$5.62½ per 100 lb.
 No. 3, pure, \$5.25 per 100 lb.
 No. 4, pure, \$4.87½ per 100 lb.
 Elephant and Decorators' Pure, \$7.12½ per 100 lb.
 Brandram's B.B. Genuine, \$9 per 100 lb.
 " " Decorative, \$7.55 per 100 lb.
 " " No. 1, \$6.85 per 100 lb.
 " " No. 2, \$6 per 100 lb.

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%.

American Oxides, \$1.75 to \$2 per 100 lb.
 Brussels Ochre, \$2 per 100 lb.
 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, 18 cents per lb.
 Drop Black, pure, 9 cents per lb.
 English Oxides, \$3 to \$3.25 per 100 lb.
 English Vermillion, 30 cents.
 Fire Proof Mineral, \$1 per 100 lb.
 Genuine English Litharge, 7 cents per lb.
 Golden Ochre, 3½ cents per lb.
 Mortar Color, \$1.25 per 100 lb.
 Pure Indian Red, No. 45, 90 cents per lb.
 Super Magnetic Oxides, \$2 to \$2.25 per 100 lb.
 Ultramarine Blue, in 25-lb. boxes, 8 to 24 cents per lb.
 Venetian Red (best), \$1.80 to \$1.90 per 100 lb.
 Whiting, 12 cents.
 Yellow Ochre (J.C.), bbls., \$1.35 to \$1.40 per 100 lb.
 Yellow Ochre (J.F.L.S.), bbls., \$2.75 per 100 lb.
 Yellow Ochre (Royal), \$1.10 to \$1.15 per 100 lb.

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, 10½ 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, 2½ to 4 cents per lb.
 Manila Wrapping, No. 1, 4 cents per lb.
 " No. 2, 5½ " "

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, \$8 per ton.

Cast Iron Soil, Medium and Heavy, 65% discount
 " Light, 60% discount.

PIPE.

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

PIPE.—Duty 30%.

Galvanized Iron.
 ½, \$5.15 per 100 ft.; ¾, \$5.50 per 100 ft.; 1, \$7.05 per 100 ft.; 1½, \$10.80 per 100 ft.; 2, \$12.95 per 100 ft.; 2½, \$17.35 per 100 ft.

PIPE, BLACK IRON.—Duty 30%.

½, \$4.65 per 100 ft.; ¾, \$3.40 per 100 ft.; 1, \$3.45 per 100 ft.; 1½, \$5.25 per 100 ft.; 2, \$7.40 per 100 ft.; 2½, \$9.30 per 100 ft.; 3, \$12.75 per 100 ft.; 3½, \$22.75 per 100 ft.; 4, \$27.00 per 100 ft.; 4½, \$37.50 per 100 ft.; 5, \$57.50 per 100 ft.; 6, \$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.

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

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

RUBBER.
Reclaimed.

RULES.—Duty 30%.
Boxwood, 75 and 10% discount.
Ivory, 3 1/4 to 40% discount.
Lumbermans'.

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

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

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

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

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

SCALES.—Duty 30%.
Champion, 60% discount.
Gurney's, 40
Troenmer's, 30 " Canadian list.

SCREEN'S.—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, 8 1/4 & 10% discount.
Hexagon Cap, 45
Set, case-hardened, 60
Square Cap, 50 & 5
Wood, F. H., bright and steel, 87 1/2 & 10% discount.
" R. H., bright, 82 1/2 & 10% discount.
" F. H., brass, 80 & 10
" R. H., brass, 75 & 10
" F. H., bronze, 75
" R. H., bronze, 70

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

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

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

SHELLS (Cartridge).—See Ammunition.

SHOT, See Amunition.

SHOVELS AND SPADES.—Duty 35%.
Burns', 40 and 5% discount.
Ely's
Gray's
Jones
Steel, Snow, \$2.45 @ \$2.60 per doz.
Wood,

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

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

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

SOLDER (Plumbers').—See Metals.

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

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

SPRINGS.—Duty 35%.
Bright Carriage, 6 1/4 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.
" Green River, 25
" Reece, 30% discount.
" Jardine, 35%
Pipe, Solid, 70 & 10% discount.
" Duplex, 33 1/2% discount.
" Jarecki, 33 1/2%
" Oster, 30%
" Armstrong, 35%
Wiley & Russell's, 25% discount, Canadian list.

STONES.—Duty 30%.
Arkansas, \$1.50 per lb.
Hindustan, 6 to 7 cents per lb.
" slip, 9 cents per lb.
Labrador, 13 cents per lb.
" axe, 15 cents per lb.
Scythe, \$3.50 to \$5 per gross.
Turkey, 50 cents per lb.
Washita, 25 to 60 cents per lb.
Water-of-Ayr, 10 cents per lb.

TACKS, BRADS, etc.—Duty 35%.
Carpet tacks, blued, 80 & 15% discount.
" " tinned, 80 & 20
" " in kegs, 40% discount.
Cheese-box tacks, blued, 85 & 12 1/2% discount.
Copper tacks, 50% discount.
Cut tacks, blued, in dozens only, 90% discount.
" 1 weights, 60% discount.
Fine finishing, 40% discount.
Leather carpet tacks, 55% discount.
Lining tacks, in papers, 10% discount.
Patent brads, 40% discount.
Picture frame points, 10% discount.
Strawberry box tacks, bulk, 75 & 10% discount.
Swedes, cut tacks, blued and tinned, in bulk, 80 & 10% discount; in dozens, 75% discount.
Swedes, upholsterers', bulk, 85, 12 1/2 & 12 1/2% dis.
" brush, blued and tinned, bulk, 70% dis.
" gimps, blued, tinned and japanned, 75 & 12 1/2% discount.
Trunk tack, black and tinned, 85% discount.
Zinc tacks, 35% discount.

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

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

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

TONGS.—Duty 30%.
Ice, \$9 per doz.
Pipe, "Brown's," net.
" "Brook's," 25% discount.
" "Trimco," 25

TRAPS.—Duty 30%.
" Hawley & Norton's," 65% discount.
" Newhouse," 45% discount.
" Victor," 75% discount.

TRUCKS.—Duty 30%.
1, \$3.75; 2, \$5; 3, \$6.75 each.
" Handy" Canadian, \$16 to \$18.

TUBES FOR BOILERS.
1 1/2, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4
15, 12, 12, 10 1/2, 13, 14, 14 1/2, 18 1/2, 24 1/2 ft.

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

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

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

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

VARNISHES.—Duty 20 cents per gal.
20% off 5-gal. lots.
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.
Demar, \$2 to \$2.50 per gal.
Elastic Oak, \$1.50 to \$2.50 per gal.
Furniture Brown Japan, \$1.25 to \$2 per gal.
Furniture, extra, \$2 to \$2.50 per gal.
" No. 1, 75 cents to \$1.50 per gal.
Gold Size Japan, \$1.50 to \$2.50 per gal.
Hard Oil Finish, \$1.50 to \$2.50 per gal.
Light Oil Finish, \$1.50 to \$2.50 per gal.
Shellac, orange, \$2 to \$2.50 per gal.
" white, \$2 to \$2.50 per gal.

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

WASHERS.—Duty 1 cent per lb., 25%.
Buggy, 75% discount.
Wrought iron, 40% discount.

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.
Downswell, \$3.75 each.
Re-acting (Downswell), \$6 each.

WIRE.
Barbed Wire, see Fencing.
Brass Wire, (duty 10%), 50 to 50 & 2 1/2% discount.
Copper Wire, (duty 15%), 45 & 10% discount net cash 30 days, f.o.b. factory.
Smooth Steel Wire, (duty 20%), is quoted at the following net selling prices:
No. 6 to 8 guage, \$2.30 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. The prices for Nos. 9 to 13 include the charge of 10 cents for oiling. Extras net per 100 lb.: coppered wire, 60 cents; tinned wire, \$2; oiling, 10 cents; special hay-baling wire, 30 cents; spring wire, \$1; best steel wire, 75 cents; bright soft drawn, 15 cents; in 50 and 100-lb. bundles net, 10 cents; in 25-lb. bundles net, 15 cents; packed in casks or cases, 15 cents; bagging or papering, 10 cents.
Fine Steel Wire, 17 1/2 off. List of extras, in 100 lb. lots, No. 17, \$5; No. 18, \$5.50; No. 19, \$6; No. 20, \$6.50; No. 21, \$7; No. 22, \$7.50; No. 23, \$8; No. 24, \$8.50; No. 25, \$9; No. 26, \$9.50; No. 27, \$10; No. 28, \$11; No. 29, \$12; No. 30, \$13; No. 31, \$14; No. 32, \$15; No. 33, \$16; No. 34, \$17. Extras net: tinned wire, Nos. 17-25, \$2; Nos. 26-31, \$4; Nos. 32-34, \$6; coppered, 5 cents; oiling, 10 cents; in 25-lb. bundles, 15 cents; in 5 and 10-lb. bundles, 25 cents; in 1-lb. hanks, 50 cents; in 1/2-lb. hanks, 75 cents; in 1/4-lb. hanks, \$1; packed in casks or cases, 15 cents; bagging or papering, 10 cents.
Galvanized Wire, per 100 lb.: Nos. 6, 7, 8, \$3.50 to \$3.85; No. 9, \$2.85 to \$3.15; No. 10, \$3.00 to \$3.95; No. 11, \$3.70 to \$4.10; No. 12, \$3 to \$3.30; No. 13, \$3.10 to \$3.40; No. 14, \$4.10 to \$4.50; No. 15, \$4.60 to \$5.05; No. 16, \$4.85 to \$5.35. Base sizes, Nos. 6 to 9, \$2.67 1/2 f.o.b. Cleveland.
Clothes Line Wire, solid 7 strand, No. 17, \$4.25; No. 18, \$2.65; No. 19, \$2.35; f.o.b. Toronto, Hamilton and Montreal.

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

WHEELBARROWS.—Duty 30%.
Garden, \$2 to \$4.50 each.
Navy, \$18 per doz.
Iron wheel, \$22.50 per doz.
Steel tubular, \$7.50 to \$10.50 each.

WRENCHES.—Duty 30%.
Agricultural, 60% discount.
Alligator, 50
Coes', 30
P.S. & W., 30
Stillson's, 25
Trimco pipe, 25

WRINGERS (Clothes).—Duty 35%.
Ajax, \$65 per doz.
Canadian, \$25 to \$30 per doz.
Crescent, \$17.50 to \$20 per doz.
Leader, \$30 per doz.
Novelty, \$23 to \$27 per doz.
Popular Brands, \$16.50 to \$22 per doz.
Royal American, \$26 to \$30 per doz.
Royal Canadian, \$26 to \$30 per doz.

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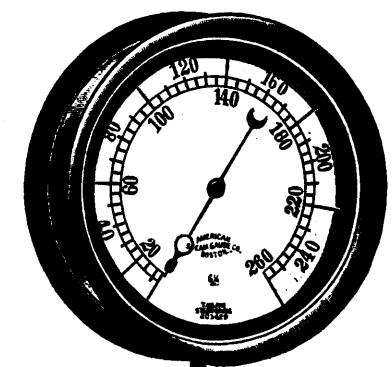
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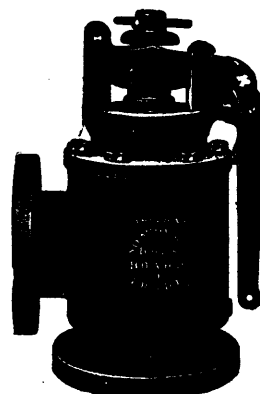
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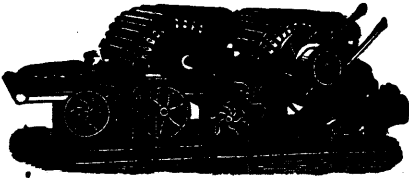
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