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Vol. 44. TORONTO, MARCH 21, 1902. No. 6

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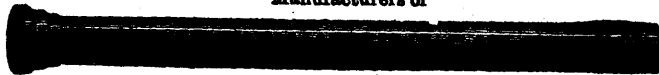
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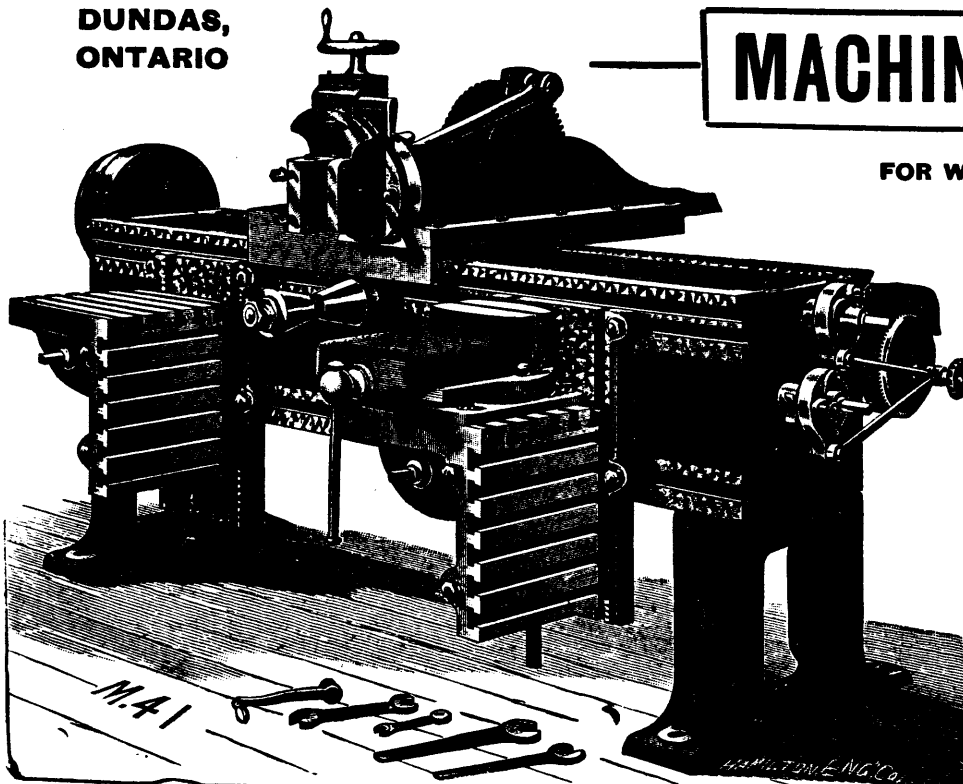
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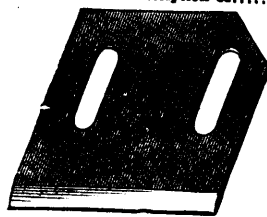
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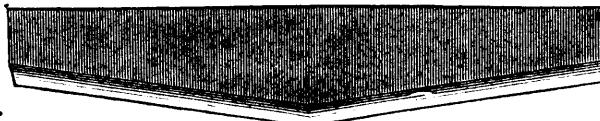
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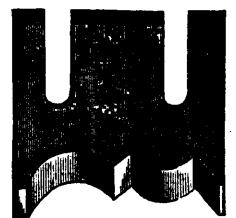
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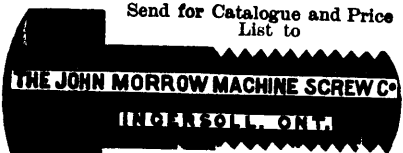
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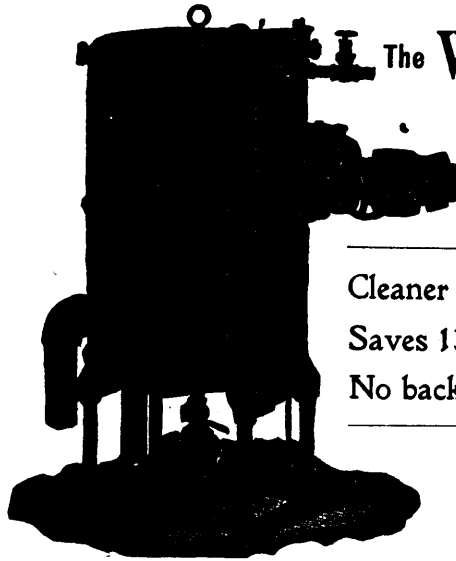
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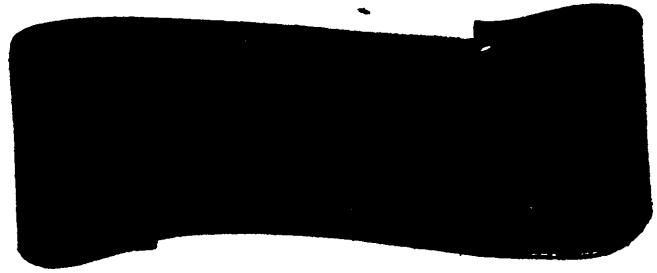
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You run no risk. Return at our expense if not satisfactory. These belts are twice the strength of leather, more durable, 30% cheaper.

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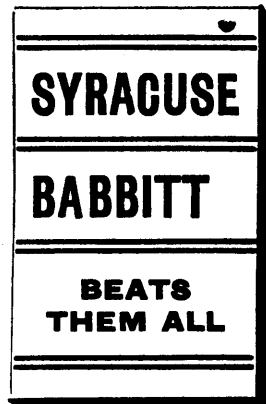
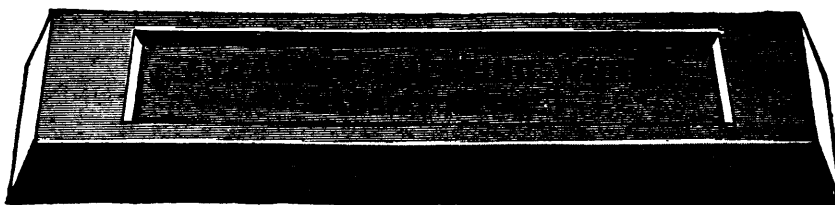
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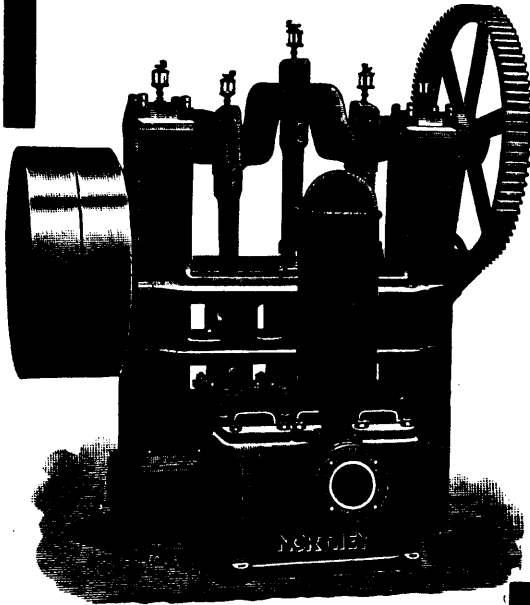
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PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

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

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.  
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**MESSRS. DAVISON & CO.,**

164 Federal Street, Boston, Mass.  
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Index to Advertisers .....Page 42

J. J. CASSIDEY, Editor and Manager

## The Canadian Manufacturer

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

### STEEL RAILS AND STRUCTURAL SHAPES MADE IN CANADA.

In a recent issue of THE CANADIAN MANUFACTURER it was contended that the manufacture of rails and other structural forms of steel could not be profitably carried on in Canada in the absence of efficient tariff protection; and we have elsewhere pointed to the fact that up to this time no Canadian-made steel rail has ever been laid in the construction of a Canadian railroad, and no important steel bridge, or large building was ever erected in Canada of Canadian made steel. We have also alluded to the fact that the policies of both the Ontario and the Dominion Governments are now directed to the encouragement of our iron and steel industries, the success of which is seen in the recent construction of works equal to any in the world. The systems of tariff and bounty encouragement are proving of the utmost importance to Canada as is evident in the vast Clergue works at Sault Ste. Marie and in other portions of Ontario, including the Cramp shipbuilding yards now being erected at Collingwood; in the operations of the Dominion Iron & Steel Co., at Sydney, N.S., and elsewhere. The tariff and bonus encouragement offered by the Government was made to operate upon only a few forms of iron and steel, in which steel rails and certain of the heavy forms of structural steel were not included; and we have now arrived at a point where, if these forms are to receive encouragement similar to that offered to cruder forms, proper legislation must be passed.

As regards the tariff, it should be as simple and uniform as possible. At the present time structural steel weighing up to 35 pounds per lineal yard is dutiable at \$7 per ton; and it would seem to be the simplest way to effect the desired purpose to include all heavier sections now provided for in clause 228 of the tariff in clause 227, making the duty \$7 per ton throughout. There is no logical reason why \$7 duty should be imposed upon structural steel weighing up to 35 pounds per yard, and merely a nominal duty of 10 per cent. imposed on steel weighing more than 35 pounds per yard.

With regard to the bounties, they were primarily given to encourage the investment of capital in Canadian iron and steel enterprises, and were meant to reimburse investors for some of the very heavy expenditures they are called upon to make in the initial and necessarily unproductive year of their enterprises, including the development of mines; building railroads necessary to reach the mines, bringing the crude materials into connection with the trunk lines of railway;

building docks absolutely necessary in handling them in the most economical manner, and many other initial expenses that investors and capitalists naturally hesitate to undertake. In estimating the amount or extent of encouragement to be granted for the manufacture of iron and steel, the bounties should be set aside as being applicable only to these initial expenses, while the question of Customs duty, which protects the market to the domestic industry, should be considered entirely by itself.

Steel rails for electric street car and tramway purposes, are now dutiable at 30 per cent. The same rate of duty is charged upon light rails weighing up to 45 pounds per lineal yard, but all rails besides those included in these two items, weighing over 45 pounds per yard, are admitted into Canada duty free; and in this matter we can see no logical reason why capital and labor engaged in manufacturing heavy rails for use in railroads should not have the same protection and encouragement as capital and labor employed in making rails for electric roads, or rails lighter than 45 pounds per yard. Another feature in this connection is that there is an opening for the practise of fraud against the revenue in the importation of rails for electric roads, in that rails for that purpose are now being made much heavier than formerly. Rails imported for ordinary railroad purposes might very easily be sold later on for use on electric roads. It would be much simpler to adopt the American method of imposing a specific duty upon all manner of rails, which would be in entire accord with the Canadian tariff as applied to light sections of structural steel. It would be well, therefore, to make the duty on all steel rails and structural steel uniform at \$7 per ton. At present prices this would be actually less than an ad valorem duty of 30 per cent.

In extending the tariff to cover the heavy sections of structural steel, it might be that Canadian bridge builders would consider that they were discriminated against; but they are already well protected by an ad valorem duty of 35 per cent. upon imported bridges, which seems to be out of proportion to the 10 per cent. duty granted to the domestic makers of heavy sections; and should it be found necessary to give further protection to the industry, it might be in the way of a specific duty. And in this connection it may be said that a leading Canadian bridge builder has stated that he would not object to an extension of the tariff in the way indicated if it gave fair encouragement to makers of heavy sections of structural steel, because he felt that all the guaran-

tee he wanted would be that competing Canadian bridge builders should pay the same for their material that he did.

The protective feature of the tariff should be such as to be efficient in hard times as well as in good times. Even under present circumstances, American mills while very busy on their home orders, are making special prices for Canada on steel rails for railway purposes; and our information is that their prices for Canadian consumption are fully \$3 per ton below what they sell at to the largest railroads in the United States. The object of this is obvious.

An illogical provision of the tariff as it now stands, is with regard to the heavier sections of rails and shapes; and we point to the fact that under the tariff the manufacturers of steel ingots and billets are given protection to the extent of \$2 per ton, while, if more capital and more labor is invested by them in the conversion of their products into the higher forms of rails and architectural sections, no corresponding protection is afforded.

Too much stress cannot be laid upon the fact that that portion of encouragement granted to Canadian producers of iron and steel, in the form of Customs duties, is bestowed very largely for the purpose of protecting our home market from just such unfair competition as that herein alluded to; and as long as steel rails are in the free list, Canada will be a slaughter market for the overproduction of the United States, Germany and Belgium, and our manufacturers be a somewhat easy mark for American trusts.

#### OUR IRON INDUSTRY.

The preface to the fifteenth edition of the "Directory to the Iron and Steel Works of the United States and Canada," collated by Mr. James M. Swank, general manager of the American Iron and Steel Association, just published, supplies facts regarding the iron and steel industry in the two countries which show that Canada is making satisfactory progress in it at this time. Approximately the population of the United States is about fifteen times that of Canada, and on that basis we draw a few comparisons and conclusions.

Canada now has fourteen complete blast furnaces, and four in course of construction. The completed and building furnaces have a total annual capacity of producing 1,090,300 gross tons of pig iron. In his Directory Mr. Swank describes 406 completed furnaces in the United States, either active or reported to him as likely to be some day active. Eliminating some of these in the latter category as being, in his opinion dead for all time, there remains less than 400 live furnaces

to-day, and many of these are the largest that the world has ever seen. The total annual capacity of these live American furnaces is placed in round numbers, at 24,000,000 gross tons, an increase since 1898 of 33½ per cent. The actual production of pig iron in the United States in 1901 was 15,878,354 gross tons. Since 1898 Mr. Swank has transferred fifty-eight furnaces to the abandoned, dismantled or inactive list. According to this showing, if all the completed furnaces in Canada had in the past year been worked to their full capacity, and if the four furnaces not then completed, had been in operation, they would have produced a little more than one fifteenth of the entire quantity of pig iron produced in the United States,

notwithstanding, as Mr. Swank points out, many of the active American furnaces are the largest in the world. In June, 1898, Canada had only eight completed furnaces with one in course of erection; and only two or three of the completed furnaces could be called large.

Capacity of production does not mean actual production, and this fact applies alike to the furnaces in both countries; for while the capacity of American furnaces in 1901 was, in round numbers, 24,000,000 gross tons, the actual production was only 15,878,354 gross tons; the capacity of Canadian furnaces being 1,090,300 gross tons, and the actual production only 244,976 gross tons. In the United States the actual production was 66 per cent. of the capacity, while in Canada the actual production was only

22 per cent. of the capacity. Mr. Swank shows that since 1898, 58 American furnaces had been transferred to the inactive list, while he does not mention that any similar transfer had been made in the Canadian list. No more furnaces of small capacity are being built in Canada, but on the other hand several of large capacity were completed last year, and several others have been or will be completed this year.

Considering the population of the United States to be, in round numbers, 75,000,000, and of Canada, one fifteenth of that number, say 5,000,000, the per capita production and consumption of pig iron in the former in 1901 was about 475 pounds, and in the latter about 110 pounds of domestic production, and of both domestic and imported iron about 125 pounds; the imports of pig iron into Canada in that year amounting to 35,782 net tons.

It is not to be supposed that the per capita requirement of manufactures of iron in the United States as compared with the requirement in Canada is nearly four times as great, for it is not; and it should be borne in mind that Canada is a large consumer of certain forms which are not produced here, such as steel rails, architectural shapes, etc., the value of imports of

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For many long years THE CANADIAN MANUFACTURER has done all it could to create sentiments and circumstances which would result in the manufacture of steel rails in Canada; and we have pleasure in announcing, as above, that Messrs. Drummond, McCall & Co., Montreal, are now offering for sale highest quality Bessemer steel rails made by the Algoma Steel Company, at their mills at Sault Ste. Marie, Ont. This is the first time in the history of Canada that Canadian-made steel rails have been offered for sale; and we are pleased to say that THE CANADIAN MANUFACTURER is the first journal that ever contained such an advertisement.

such forms amounting to many millions of dollars annually. Not a ton of steel rails made in Canada has ever yet been laid in the construction of any Canadian railroad; nor has a ton of architectural steel or iron, made in Canada, ever entered into the construction of any large bridge or building in the Dominion; and, as has heretofore been shown in these pages, aside from our imports of rails and structural shapes, we annually import vast values of other manufactures of steel and iron such as hardware, castings, pipe, chains, locomotives, engines and boilers, forgings, bridges, mining and other machinery, bar iron and steel, malleable castings, tools, etc.; and if the weights of these articles could be given it would be seen that the per capita consumption of iron and steel, and the manufactures thereof, would probably be as large in Canada as in the United States.

It is evident that the capacity of production of Canadian furnaces is quite equal to the actual production of American furnaces; and if the actual production falls short, as it does—very short—of their capacity, whatever the cause it should be remedied; and if the remedy were effectively applied, it would be seen that instead of a per capita production of only 125 pounds of iron in Canada as now, there would be a production of perhaps of 475 pounds as in the United States; which would mean that the difference of production of the two countries would be accounted for by our manufacturing in Canada the millions of dollars worth of articles such as above alluded to, now made for us in other countries. The production in Canada of 475 pounds of iron per capita of population would mean that Canadian furnaces would actually produce more than 1,000,000 tons of iron per year, whereas we now produce less than one fourth of that quantity. It means that we would maintain not only four times the furnaces capacity we now have but that many additional works would be required, for the manufacture of the innumerable forms of iron and steel which we now import, such as Bessemer steel works, open hearth steel works, crucible steel works, steel casting works, iron and steel rail mills, structural mills, plate, sheet and skelp mills, tinplate and ternplate works, cut nail works, wire-rod mills, wire nail works, and steel shipbuilding, and also foundries, machine shops, etc.

The production of iron in Canada is a large and important question, and it is of the utmost necessity that whatever may be required to promote it, either by changes in the tariff, or by the bestowment of bounties, should be done without delay. The Government is not niggard in this direction, and if it will but indicate that the encouragement now extended in certain directions will also be extended in other directions, the iron and steel industry of Canada will soon be equal to that of any other country in the world.

#### “MADE IN CANADA.”

At a meeting of a number of manufacturers held in Toronto last week, it was decided that a fund should be raised for the purpose of educating the public to the necessity of a more general use of goods made in Canada in preference to foreign goods, other things being equal. It was shown that in many lines consumers were out of touch with the manufacturers, the lack of sympathy being a decided hindrance, not only to the manufacturing, but also to the general interests of the country. The idea prevailed that with an adequate fund at command, an educational campaign could be conducted throughout the country, both from the rostrum and in the newspapers, combatting the tendency now prevalent of discriminating against home-made and in favor of imported goods.

No doubt the evil complained of exists to a distressing extent; and if the propaganda of education proposed by these manufacturers will to any appreciable extent mitigate it, great good would be accomplished.

To our mind, however, the manufacturers have it largely in their own power, and within themselves, to do much in the desired direction, in a way other than by subsidizing orators and newspapers. We do not imagine that there is any inherent antipathy among Canadian consumers against Canadian made goods as such; and if any such exists, it is the result of the teachings of those from whom they make their purchases. Consumers generally do not enquire the origin of the articles they buy; but unscrupulous salesmen frequently and generally impose upon their customers by telling them that the article they are offering is of foreign make and therefore more desirable than any similar article of domestic make, while in fact the article in question is not of foreign, but of domestic origin. It is a fact that in some lines of goods actually made in Canada—the containing packages bear labels indicating foreign origin; and it is by such dishonest practices consumers are taught to depreciate and reject Canadian goods, and in their innocence give their preference to what they consider foreign goods, which, of course, in many instances, they are not. The tendency on the part of purchasers is generally, to accept such goods as are the most strongly recommended to them; and form their opinions from what may be told them. If the salesman is dishonest the result is lamentable.

Those who are acquainted with the facts know that where the identical article, made perhaps in the same mill, but exposed for sale in two different packages, the label upon one indicating a domestic and the other a foreign origin, the preference, stimulated by the suggestions of an unscrupulous salesman, goes almost invariably to the supposed foreign article. It is a well-known axiom in trade that “the label sells the goods”; and this is a fact as regards hundreds of articles.

Many manufacturers lend themselves to the perpetration of such frauds. He will accept an order for his product with the distinct understanding that in the delivery of it there shall be no distinguishing name or mark whatever upon the article itself or upon the containing package, showing that it was made in Canada or by whom it was made. One of the objects of the buyer in enforcing compliance with this requirement may be to keep competition in the dark as to where and of whom his purchases are made; but in but too many instances it is to enable him to place fictitious and misleading marks and labels upon them with the intention to deceive. The manufacturer may argue that if he declines to fill an order under such circumstances, his competitor would; and thus he lends himself to a perpetration of a fraud which works not only to his own ultimate injury, but to that of all other manufacturers; and not only to his own guilt, but to the community generally. And it is in correcting such abuses that educational efforts might well be directed.

#### THE EXHIBITION ASSOCIATION AND THE MANUFACTURERS' ASSOCIATION.

The action of the Toronto District Electoral Society, otherwise known as the Toronto Industrial Exhibition Association, at their recent annual meeting, exemplifies how prone some persons are to kick from under them the ladder by which they have climbed to the attainment of their ambition. It has heretofore been recorded the bad odor in which the directors

of the Exhibition stood because of their mismanagement of it. We know that a couple of years ago they had induced the City Council to prepare a by-law to be voted on by the taxpayers, and that because they believed that it could not possibly be passed at that time, it was withdrawn; that later, finding their condition desperate, they induced the City to submit the by-law; that it was submitted and defeated by an overwhelming majority; that, after a pretence of correcting some of the objections so strenuously raised against them by the Canadian Manufacturers' Association, they induced it to come to their assistance, and that finally, at the last municipal election they succeeded in inducing the taxpayers to give them \$133,500, to be used in the erection of needed buildings and the general improvement of the Fair Grounds. Among the so-called reforms which they promised at a conference with the Parks and Exhibition Committee of the City Council in November last, were that the representation of the City Council, the Canadian Manufacturers' Association and the Toronto Board of Trade should be increased, and that the representation of the District Electoral Society should be decreased. Believing that these promises would be carried out in good faith, as indeed some of them were, the Manufacturers' Association began an active campaign in inducing the taxpayers of the city to vote the money wanted, nor did their efforts relax until the by-law was passed; and it is safe to say that had it not been for that assistance there would have been no more recurrences of the Toronto Fair under the mismanagement that had previously controlled it. The Exhibition directors had promised that the reforms desired should go into operation as soon as necessary legislation could be had; and under this agreement the City Council had a bill prepared, covering the understanding, to be presented to the Ontario Legislature for ratification. In the meantime occurred the annual meeting of the Association, at which was elected a Board of Directors of rather remarkable personality; and it is to be observed that while previously, the Manufacturers' Association was represented on the board by several members, after all the efforts that had been made by it to secure the passage of the money by-law, under the new organization, the Exhibition Association returned thanks by electing only one member on its directorate from the Canadian Manufacturers' Association. And thus was the ladder kicked away. While the reorganization bill was pending in the Legislature this Board held a meeting at which a resolution was unanimously passed protesting against the reduction of representatives of the Electoral District Society and the increase of representatives from the City Council. Among those present at that meeting were Mr. W. K. McNaught, vice-president of the Exhibition Association, and the only representative from the Canadian Manufacturers' Association, and a large number representing the Electoral District Society. Mr. McNaught was unanimously elected president.

Some of the members of the board have expressed regret that the Exhibition directors had been misrepresented by the newspapers in saying that the board had consented to the reduction of the representation of the Electoral District Society, when in fact the directors had only assented to it. Discussing this quibble *The Star* is authority for the statement that Mr. McNaught says that his board in their conference with the city had not consented to the reduction, but had only assented. "They had not agreed—they had only acquiesced, all they had done was to promise that they would not oppose the reduction." "And the big blundering city," says *The Star*, "went away supposing that this was enough—went away, passed the by-law, voted the money, and now finds

out the difference in some men's minds between consenting and assenting to a proposition." The excuse offered by Mr. McNaught and his board for opposing what it was agreed should not be opposed, is that the city, in supporting the bill before the Legislature, represented the directors as consenting to that to which they had only assented.

Mr. J. O. Thorn, a representative of the Canadian Manufacturers' Association in the Exhibition Association, and who undoubtedly correctly represents the views of a very large majority of those interested in the matter, in a letter to the Mayor of Toronto, says:

At the annual meeting of the Exhibition Association, held on the 5th inst., the power of the Electoral District Society was again made manifest, and we had the spectacle presented to us of the defeat of every representative of the Canadian Manufacturers' Association, with the exception of one, whose occupation appeared on the ballot paper as that of a "merchant," while the representatives from the Toronto Board of Trade only succeeded in getting in at the foot of the list. The defeated representatives from the Canadian Manufacturers' Association were the Ontario vice-president, the treasurer and the chairman of the Toronto branch, all of whom were nominated with the unanimous approval of the Executive Council of their association.

If this is the kind of treatment the manufacturers are to receive, how can they be expected to take much interest in the future success of the Exhibition? And upon what grounds can they be expected to advocate the holding of the proposed "All-Canadian Exhibition" in this city?

Is it not time for the City Council to deal with this matter vigorously, and insist upon one-half the board being elected by the Council from amongst its own members, and the other half in equal numbers by the agriculturists and the manufacturers? Why should anyone except the owners and the exhibitors have any voice in the management of the Fair? The taxpayers of Toronto were good enough to vote money for a new building for the manufacturers, while the Exhibition Association has very plainly told them they are not wanted.

But Mr. McNaught is president.

#### FOOL FRIENDS.

The Toronto Evening Telegram publishes the following in its editorial columns:

Canadian manufacturers ought to aim at excellence in their products.

Protection ought not to encourage the directors of an industrial enterprise to sit down under the shelter of a favoring tariff, giving as little as possible to the consumer in value, taking as much as possible from the consumer in money.

The Canadian Manufacturers' Association should find out the lines in which English or American producers excel the Canadian producers of similar articles. The Canadian producer should then attempt to bring his product up to the English or United States standard instead of relying on the tariff to compel the Canadian consumer to buy an inferior article of Canadian origin in order to save the duty on a superior article of English or American origin.

For some reason which we do not now discuss the impression is gaining that many lines of Canadian manufactures are deteriorating in quality, presumably because they are to some degree benefitted by tariff protection, and therefore their standard of excellence is lowered in proportion to the protection they receive; and this idea is fairly well expressed by *The Telegram*, as above quoted. If these over-virtuous friends of Canadian manufacturers were in any degree conversant with facts, which they might verify without undue expenditure of time or expense, they would know that no deterioration whatever has occurred in the quality of Canadian-made goods; and that they embody as much excellence now as they ever did, and that they are the equal in every respect to similar goods made any where else in the world.

As an evidence of this we refer the fool friends (and enemies) of our manufacturers to the display recently made in a room in the Capitol at Ottawa of woolen goods "made in Canada." Included in the exhibition were specimens of as handsome, well finished goods as were ever shown in any wholesale or retail store in Canada, come from where they might. The representative of The Telegram, or of any other newspaper, with his eyes open might have verified the facts we here mention. Some of these exhibits were as follows:

The R. Forbes Co., Hespeler, Ont., worsteds and serges.

The Rosamond Woolen Co., Almonte, Ont., overcoatings and tweeds.

The Cobourg Woolen Mills, woolen and worsted cloths, and ladies' costume cloth.

S. T. Willett & Co., Chambly Canton, Que., flannels, overcoatings and suitings.

Canada Woolen Mills, Toronto, tweeds, serges, and ladies' dress goods.

Canadian Woolen Mills, St. Hyacinthe, Que., suitings and heavy overcoatings.

Dufton & Sons, Stratford, Ont., homespuns and tweeds.

George Pattinson & Son, Preston, Ont., homespuns and heavy overcoatings.

Montreal Woolen Mills Co., Montreal, medium and low-priced goods.

Brooke Woolen Co., Simcoe, Ont., Halifax tweeds, horse blankets, rugs, etc.

Toronto Carpet Mfg. Co., Toronto, axminster and ingrain carpets, Smyrna rugs, etc.

Guelph Carpet Mills, Guelph, Ont., Brussels and Wilton carpets.

Dominion Carpet Co., Sherbrooke, Que., Brussels carpets and borders.

Penman Mfg. Co., Paris, Ont., knitted underwear, socks, hosiery, top shirts, sweaters, etc.

Galt Knitting Co., Galt, Ont., full lines of knitted underwear, hosiery, etc.

Brown & Wigle, Kingsville, Ont., blankets the equal of any made anywhere else in the world.

Montreal Cotton Co., Montreal, full lines of their cotton goods.

We allude to this display of Canadian made textiles because that industry is perhaps the greatest sufferers from the operation of our British tariff preference; and that the display was intended to correct the erroneous impressions under which such fool friends of Canadian manufacturers as The Telegram continue to labor.

#### CANADIAN EXPORTERS AND EXPORT FACILITIES.

We are in frequent receipt of enquiries from Canadian manufacturers and shippers asking information as to modus operandi in making shipments abroad.

There are many concerns in this country who are prepared to do some export business, but are not familiar with the requirements, and this applies not only to shipments of manufactured products, but also to flour, grain, bacon, etc.; and a lack of knowledge in this respect is usually a bar to such trade. For the benefit of these enquirers we have pleasure in giving the following information:

Messrs. Pitt & Scott, 39 Broadway, New York, and 138 Milk street, Boston, Mass., controlling a large and regular stream of traffic to all the principal foreign ports, are in a position to offer the very lowest rates of freight, and to make contracts for shipments in car-load lots and less, to all ports in Australia, South Africa, and Europe, as well as to all other ports of the world.

They will undertake to place marine insurance risks at the lowest obtainable rates, and as marine insurance brokers, are in a position to secure bottom quotations to principal English ports: for example, they can offer a rate of 20 cents net per \$100.

Their own charges for making out documents, attending to Custom House clearances and seeing to all details of shipments, would not exceed \$1 for each consignment irrespective of size, with the exception of consignments less than one ton, weight or measurement, for which an inclusive rate is charged, giving the shipper the full benefit of their freight groupage system.

They are prepared to handle trucking at the lowest rates, and have most excellent facilities in this respect. These charges are, of course, governed by the distances covered and by the class of goods, but they average approximately from 3 cents to 10 cents per 100 pounds in New York.

They give any Canadian shipper the benefit of their special freight contracts, and feel sure they can offer them many advantages not to be obtained elsewhere.

They issue through bankable bills of lading to destination, either seaport or inland, enabling the shipper to attach sight or time draft to documents; or if preferred, they will undertake the collection of shippers invoices against delivery of consignment, guaranteeing only to deliver against payment in any part of the world.

They will cheerfully furnish any information in connection with foreign trade, classified trade lists in foreign cities, etc.; and Canadian houses wishing to establish new foreign agencies and to open up foreign connections would no doubt find their services of value. They invite correspondence in this regard.

They will procure reports as to the commercial standing and financial responsibility of any foreign house. They will also undertake the collection of foreign debts or bills in any part of the world. Their facilities enable them to guarantee the best possible service.

They also desire to draw attention to their foreign express service to all parts of the world. Having their own established houses at London, Liverpool, Paris and Hamburg, and a most complete system of agencies the world over, they guarantee the best possible service, and the most reasonable rates by weight. Tariff of rates sent free on application.

They issue a bi-monthly list of sailing to all ports of the world, which will be sent regularly as issued, to any address on request.

#### EDITORIAL NOTES.

At the usual annual dinner of the Master Printers' and Bookbinders Association, held in Toronto last week, John R. Barber, Esq., M.P.P., alluding to politics as we have it and have had it in Canada, said it was simply a game of ins and outs—the ins to stay in, and the outs to get in. In his thirty years' experience he had known only two issues, the clergy reserves and protection. He regretted that one section of the printing trade, having had a tiff with the paper-makers, had appealed to the Government instead of to the papermakers themselves. The old nations of Europe were combining to build a tariff wall against the United States, and what position would Canada be in when the States had no other outlet than Canada for their surplus manufactures? The papermakers did not want extreme protection; just a fair show, till they got on their feet.

The national Industrial Exhibition, which will be held in Osaka, Japan, next year under the direction of the



Imperial Government, will be an event of much importance in its bearings upon the foreign trade of that country, as the exposition will be given an international character and the display of foreign articles will be made an important feature. It is to be hoped that some of our Canadian manufacturers will make exhibits there.

Johnny Canuck :—" Speaking of my manufacturing industries, I think I had better give the business my most careful attention. I find that my home trade is a hundred times bigger and more valuable than my trade with all other countries put together."

For some time the Labor Gazette was sent to all members of The Canadian Manufacturers' Association because of their membership in that body, but at the expiration of the time for which the Association had subscribed for its members, it was discontinued. We are informed by Mr. W. L. M. King, Deputy Minister of Labor, that the Department continues to receive from members of the Association who formerly received The Gazette through the Association, requests for members to complete their files, and to have their names put upon the list of regular subscribers. These parties evidently appreciate the value of the publication; and as the price of it is only twenty cents a year, manufacturers who desire to be informed in matters touched upon by The Gazette would do well to subscribe for it for their own use, and to supply their employes also. Copies of Volume 1 of The Gazette, bound in cloth, containing numbers from September, 1900, to June, 1901, inclusive, may be obtained from the Department of Labor, Ottawa, on payment of 50 cents per copy in advance.

Canadians are not alarmed at the prospect of American capitalists making extensive investments in this country. If they do so it will not follow that they will own Canada so long as our people preserve, as they intend to do, the right to govern themselves. All capitalists, whether they be American, English, or Canadian, who invest here will have to respect the laws and the institutions of the country, and keep within proper bounds in seeking a return for their investments. They will find this a profitable country in which to employ their capital, and one that will always respect its obligations. The attempt to stir up popular feeling against foreign capital is about as silly as it will be futile.—The Mail and Empire.

Alas! poor James P. Yorick; we knew him well; he was a fellow of infinite jest and merriment to those who were acquainted with his idiosyncrasies and vagaries; and now none are left to do him reverence, not even The Mail and Empire.

The Canadian Manufacturers' Association has petitioned the Dominion Parliament to grant it letters of incorporation for the purpose of promoting Canadian industries, and the interests of Canadian manufacturers and exporters, and rendering services and assistance to members of the Association, and to manufacturers and exporters generally. The application was presented by Archibald Campbell, Esq., M.P., West York, Ont., and was signed by A. E. Kemp, M.P., Edward Gurney, Frederic Nichols, W. K. George, Archibald Campbell, M.P.; George Booth, J. O. Thorn, William Stone, G. H. Hees, J. M. Taylor, E. G. Gooderham, P. H. Burton, P. W. Ellis, J. F. Ellis, R. Y. Ellis, W. K. McNaught, S. M. Wickett, R. J. Christie, J. H. Houser, J. R. Shaw, Thomas Roden, J. P. Murray, A. W. Thomas, C. N. Candee, R. Millichamp and E. C. Boeckh, all of Toronto; J. J. McGill, Frank Paul, Hon. J. D. Rolland, W. W. Watson, A. K. Ogilvie, William McMaster, James Davidson, C. C.

Ballantine and G. W. Sadler, all of Montreal; C. R. H. Warnock, Galt, Ont.; James Goldie, Guelph, Ont.; W. C. Breckinridge, Hamilton, Ont.; T. H. Smallman, London, Ont.; H. Cockshutt, Brantford, Ont.; and J. B. Henderson, Paris, Ont.

A British Colonial and Industrial Exhibition will open at Cape Town, South Africa, in November, 1903. The British Chamber of Commerce has promised to lend its support.

Mr. J. G. Jardine, who acted as commissioner for Ontario at the Paris Exposition, has been appointed commercial agent for Canada in South Africa, with headquarters in Cape Town.

The publishers of this journal recently received from a gentleman at Hamilton, Bermuda, a request for a directory of Canadian wood-working firms and dealers in building material. This gentleman states that for materials for public works they are compelled to obtain estimates from the United States on account of not knowing where to apply in Canada. He adds that the Imperial Government Surveyor had applied to him for such a directory, and he was certain that such information would oftentimes lead to the placing of considerable orders that now go to the United States.—Canada Lumberman.

If the Canadian Trade Index contains such a directory, a copy should be sent to the Bermuda gentleman, but unless it does contain the desired information it should not be sent.

O. P. Austin, Esq., chief of the Bureau of Statistics of the United States Treasury Department, has sent us a most interesting publication just issued by him, which is a study of The Great Canals of the World, accompanied by statistical statements. It is a document which bears evidence of having been prepared with great care, for the purpose of presenting the latest available data on a subject of current interest. The section having reference to Canadian canals is of much value to the people of this country.

The electrical industry as we know it to-day is a most important one. So great, indeed, has been the progress in this line that one is apt to forget that the industry practically grew up in the past twenty years. We are reminded of this by the recent celebration by the Electrical Review of its twentieth anniversary, which allows of some retrospections of interest outside of the confines of the electrical industry itself. It is noted that in 1882 the incandescent light was still a novelty, the telephone was in limited use in the larger cities, the trolley car was practically undreamed of, the electric motor was a curiosity, and electrolytic chemistry was known only in the laboratories of a few advanced chemists. Unquestionably, the telegraph twenty years ago represented the largest commercial application of electricity, and yet in twenty years the application of this one use of electricity has doubled in extent and importance. Considering the tremendous development of the telephone in the period mentioned, it does not seem at all improbable to predict that in the future the telephone will be as common as is the door-bell of to-day. In 1882 the first experiments at electric traction were being made at Menlo Park by Edison. To-day the country may be said to be covered with a network of trolley tracks, so that the statement that the capital invested in electric railroads in the United States equals the cost of the civil war is probably not far fetched. In electro-chemistry and metallurgy the progress has been as great. The American output of copper may be said to be refined by electricity. Aluminum has been made commercially possible by electrical science. Electricity for heating and for cooling is in every-day use. With the building of the Pacific cable which will be begun within a year, the fabled girdling of the earth in forty minutes will not be so far off. He would be indeed bold who, with the record of the past twenty years in sight, would set a limit to the further extension and development of the applications of that mysterious essence, electricity.

**TO MANUFACTURERS****DO YOU WANT THIS?****A DIRECTORY**

TO THE

**IRON AND STEEL WORKS**

OF

**THE UNITED STATES and CANADA****REVISED TO THE CLOSE OF 1901****By JAMES M. SWANK**

The American Iron and Steel Association has just completed a thorough revision of its well-known Directory to the Iron and Steel Works of the United States and Canada, bringing down to the closing months of 1901 complete descriptions of the equipment of all the

**Blast Furnaces, Rolling Mills, Bessemer Steel Works, Open Hearth Steel Works, Crucible Steel Works, Tinplate and Terne Plate Works, and Forges and Bloomaries**

in the United States, with names of owners, officers and selling agents, post-office addresses, full account of all products, names of brands, and all other information that will naturally be looked for in a work of this character.


It also contains a complete account of the Iron and Steel enterprises in

**THE DOMINION OF CANADA**

which had been completed or undertaken down to December 31, 1901. The names of officers, descriptions of plants, etc., are given in full detail.

This Directory makes a cloth-bound book of nearly 450 well-printed pages—**No part of it is devoted to advertisements.** It is an invaluable book of reference for all business men who wish to correspond with Iron and Steel manufacturers, forming in every respect a **complete guide** to the Iron and Steel works of the United States and Canada. It is well arranged for ready reference to any establishment; contains an index to the names of firms and companies and also to the names of works; also an index to brands of Pig Iron. The book will be sent by mail in a strong flat envelope, thus assuring its receipt in perfect condition.

**PRICE \$10.00 (40s.) per Copy**

 To save unnecessary trouble please enclose Express Money Order payable to

**Canadian Manufacturer Publishing Co. Limited**  
TORONTO, - CANADA



## CAPTAINS OF INDUSTRY.

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

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belt- ing, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalis, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

The National Mica Grinding Co., Gananoque, Ont., has been incorporated with \$50,000 capital, to manufacture mica and talc as lubricants, annealing compounds, etc. The provisional directors include J. W. Logan, W. J. Dorey and W. D. Pennell, all of Gananoque.

The Galena-Signal Oil Co., has been granted a license to manufacture lubricating, valve and signal oils in Ontario. L. L. Miller, Toronto, has been appointed attorney.

The Dominion Motor & Machine Co., Toronto, has been incorporated with \$40,000 capital, to manufacture automobiles, gasoline engines, etc. The provisional directors include T. D. Lovering, G. W. Grant, T. H. Hamilton and E. J. Philip, all of Toronto.

The National Box Co., Toronto, has been incorporated with \$20,000 capital, to manufacture boxes, box-shooks, etc. The provisional directors include J. H. Lavellee, Orillia, Ont.; and W. R. Williams and Hilton Williams, both of Toronto.

The Canadian General Electric Co., Toronto, have sent us a notice which reads as follows:—Having recently acquired the sole right in Canada to manufacture and sell the S.K.C. System of alternating current apparatus, we have enlarged our factories and have also purchased the manufacturing plant of the Royal Electric Co., Montreal. These

additions will admit of orders for all kinds of electrical apparatus being filled promptly and with the same high grade of workmanship for which this product has been noted in the past.

The London Brass Works Co., London, Ont., have sent us a circular illustrating and describing the Walton's patent renewable seat and disc valve manufactured by them. This valve, we are told, is constructed on a new and improved principle in that the bonnet is threaded on the inside face. This invention secures a detachable seat, renewable without separating the valve from its pipe connections. The seat is firmly held in place by a follower, and can be removed and replaced in a couple of minutes. The circular gives the names of a number of well-known Canadian concerns who testify to the excellence of these valves.

The publisher, Richard Boardman, Tiverton, R.I., has sent us a copy of "Practical Cotton Calculations," a treatise relating to cotton yarn, cloth structure, loom and miscellaneous mill calculations; by Ernest Whitworth, formerly principal of the Designing and Cloth Analysis department of the New Bedford Textile School. The principal object of the publication was to put into convenient form for reference a text book of practical cotton yarn, cloth and general mill calculations. The book is of convenient size, contains 120 pages including full index, and a number of

blank pages for memoranda are also included. Price \$1.00, to be had of THE CANADIAN MANUFACTURER.

The Canadian Pacific Railway Co., will increase its elevator capacity at Fort William, Ont., from 5,550,000 bushels to 9,000,000 bushels. The proposed extensions will involve an expenditure of about a million dollars.

The organization meeting of the recently formed Atlantic Pulp & Paper Co. was held in Toronto March 4, when the following directors were elected: W. C. Edwards, M.P., lumberman, Ottawa, President; R. Y. Ellis, director of the P. W. Ellis Co., Toronto, Vice-President; C. H. Waterous, President of the Waterous Engine Works, Brantford, Ont.; R. H. Thompson, wholesale paper dealer, Buffalo, N.Y.; A. J. H. Eckhardt, manufacturer, Toronto; Chas. Lyman and J. W. Wardrope, Montreal, and W. R. P. Parker, Toronto. The company intend developing their property on the north side of the Baie des Caleurs at an early date, and manufacture principally for export trade.

The Dominion Harness Co., Port Elgin, Ont., has been granted a loan of \$10,000 for the purpose of establishing a new factory there.

The Automobile Garage, Toronto, has been incorporated with \$40,000 capital, to manufacture automobiles, cycles, motors, etc., and to acquire business now carried on by O. L. Bickford & Co. The provisional directors include O. L. Bickford, E. H. Bickford and W. R. P. Parker, all of Toronto.

The factory of the Columbia Handle Works, London, Ont., was destroyed by fire March 9. Loss about \$25,000.

The grain elevator of Hogg & Lytle, at Mariposa Station, Ont., was destroyed by fire recently. Loss about \$12,000. The elevator will be rebuilt immediately.

The Gurney Foundry Co., will erect a \$30,000 foundry plant at Toronto Junction, Ont., where they will employ about seventy-five hands.

The sawmill and stave factory of J. E. Murphy, near Owen Sound, Ont., were destroyed by fire March 7. Loss about \$8,000.

## Pneumatic Tools and Appliances ARE GREAT MONEY SAVERS.

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

### INGERSOLL-SERGEANT

PISTON 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.

Lake Erie & Detroit River Railway Co., will build a coal hoist at Rondeau, Ont., to cost about \$50,000.

The Imperial Rolling Stock Co., Toronto, has been incorporated with \$1,000,000 capital, to manufacture locomotives, cars, etc. The provisional directors include J. S. Lovell, E. W. McNeil and Robert Gowans, all of Toronto.

Hamilton, Ont., capitalists have closed a deal for 300 feet of valuable water front at Sault Ste. Marie, Ont., and will construct a large fueling and merchandise dock, representing an investment of \$50,000.

The McLachlan-Joy Electric Co., Toronto, has been incorporated with \$37,000 capital, to manufacture electrical machinery and supplies. The provisional directors include George McLachlan and H. H. Joy, both of Toronto, and E. H. Alston, Woodstock, Ont.

The Blonde Lumber & Mfg. Co., Chatham, Ont., has been incorporated with \$80,000 capital, to manufacture timber, lumber, shingles, etc. The provisional directors include Benjamin Blonde, Jacob Blonde and N. H. Stevens, all of Chatham, Ont.

The Rolland Paper Co., Montreal, have sent us copies of a conspicuous notice printed in both English and French, addressed to employes in Canadian factories, mills, workshops, etc., who are requested in all their private purchases

to buy, as much as possible, only goods of Canadian manufacture, which may be told by observing that the name of a Canadian manufacturer is on the goods or on the label. The Rolland Co. inform us that they have had the notice posted throughout their paper mills; and in this scheme we can say we are in full accord. As they say, the time has certainly arrived when Canadians should have confidence in the products of their mills and factories, and show it by buying the Canadian make.

The Goold, Shapley & Muir Co., Brantford, Ont., have sent us an illustrated circular having reference to the patent roller bearings made by them. The illustrations show some of the different ways and positions in which the bearings are used, such as an adjustable post hanger, adjustable drop hanger, adjustable pillow block, etc., all equipped with patent steel roller bearings. There are also a number of testimonials from some of the best Canadian concerns who use them testifying to their economy in saving power, etc. The company will send further particulars upon request.

The Caledon Mountain Trout Co., will erect a club house at Credit Forks, Ont., to cost about \$15,000. The plans are being prepared by W. & W. Stewart, Hamilton, Ont.

Peterborough, Ont., will improve its water works system at a cost of about \$230,000.

Clinton, Ont., will have a new post office to cost about \$8,000.

Iroquois, Ont., will construct an electric light plant at a cost of about \$12,000.

The Sauquoit Silk Mfg. Co. has recently placed an order with the Buffalo Forge Co., Buffalo, N. Y., for eight of their high speed automatic engines, which will be used in their works at Scranton, Philadelphia and Bethlehem, Pa., four at the first and two at each of the latter plants. These will be of the enclosed type, running in oil, which thus presents no difficulties in the way of damage to goods by throwing oil on them. The engines will be located at various points throughout the factories and used principally as auxiliaries in the case of break downs to the main engines, so that the separate sections of the mills may be kept running without loss of time. The decreased efficiency of small, high speed engines over a central unit will be made up for in this case by the avoidance of belting.

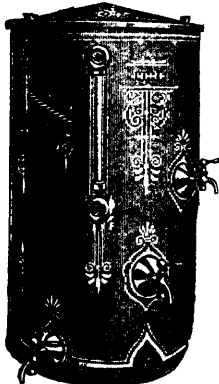
Lindsay, Ont., has recently given a ten years' contract to an acetylene gas company for street lighting by acetylene gas. Pipes have been laid on the principal thoroughfares, and the company has undertaken to supply 125 lights of 150 c.p. each at the rate of \$15 per lamp per year, and 61 lights of 500 c.p. each, at \$35.

Deseronto, Ont., will have a \$16,000 public building.

## A Public Man

once remarked that political platforms were made to run on, and not to stand on.

Same way with some advertisements. But when we say that



## ... CROSS ... OIL FILTER

will cut down your oil bills at least 50 per cent., we stand back of our promise—not one cent of money changes hands until a 30 days' trial of the Filter has convinced you that it is the best that money can buy.

Adopted by nine governments and used in twenty-eight different countries. Can we send one?

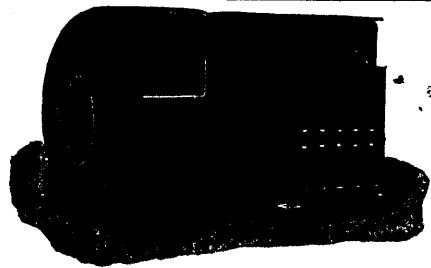
### THE BURT MFG. CO.,

AKRON, OHIO, U.S.A.

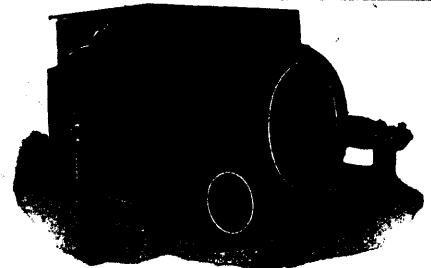
Also to be had from Oil Companies,  
Engine Builders and Power Contractors.

## BUFFALO STEEL PLATE FANS

HEATING - VENTILATING - DRYING  
AND  
MECHANICAL DRAFT.



Left Hand Top Horizontal Discharge, Steel Plate Pulley Exhaust Fan, Drawing Through Heater.



Right Hand Bottom Horizontal Discharge, "B" Volume Exhaust Pulley Fan, Drawing Through Heater.

## BUFFALO FORGE COMPANY,

BUFFALO, N.Y., U.S.A.

The Prince Albert Elevator Co., Prince Albert, N.W.T., will increase its capital from \$5,000 to \$25,000, and will change the name to the Prince Albert Elevator & Milling Co. The company has asked that a bonus be granted them to enable them to erect a 100 barrel flour mill and a new elevator of 25,000 bushels capacity.

Cobourg, Ont., will have a drill hall and armory at a cost of about \$15,000.

Geo. C. Roe, Ottawa, is forming a company to build new steel works at Ottawa.

The Walkerville Match Co., Walkerville, Ont., will rebuild a factory on the foundation of the one recently destroyed by fire.

The Sissiboo Pulp & Paper Co., recently shipped twelve cars of pulp from Weymouth Station, N.S., to Halifax, for shipment to England.

It is understood that the yield of gold from mines in Nova Scotia is the second largest that has ever been obtained. The

highest was 31,000 ounces. It is stated that the yield during the past year was in the vicinity of 30,000 ounces. The value of this quantity of gold is about \$570,000.

Messrs. John Dewar & Son, St. George, N.B., have sold their mill and 30,000 acres of timber lands to New York parties, who will erect a pulp mill on the property.

St. Michael's College, Toronto, will be remodelled at a cost of about \$150,000.

A new passenger and freight dock to cost about \$40,000 will be built at Port Arthur, Ont., by the Canadian Northern Railway Co.

The old question of utilizing the power of the famous "reversing fall" at St. John, N.B., to generate power for city lighting and other purposes is again to the fore. A private concern asked the city for certain privileges to enable them to test the matter, and the request brought out a largely signed petition praying that the city grant no lease or

franchise, but engage an expert to examine the property and water power, with a view to the installation of a plant, if practicable, under civic control. The rise and fall of the tides, from 20 to 25 feet, with the ever downward pressure of the waters of the St. John river and tributary lakes, combine to produce the phenomenon known as the reversing falls. The power developed, whether the tide be rushing up or down, is enormous, and there seems no reasonable doubt that it can be utilized for industrial and commercial purposes. It is merely a question of storage and transmission. A man who had something to do with the development of power at Niagara will look into the question here. It is a matter of very great importance, for if the power can be utilized it opens up great possibilities.—Maritime Merchant.

The Dominion Iron & Steel Co., Sydney, N.S., will manufacture sulphuric acid on a large scale.

Mr. John Mitchell is erecting a sash and door factory at River John, N.S.

**CAMEL BRAND**  
**BALATA**  
**RUBBER**

Linen Fire Hose,

Water and Steam Hose,

Packings, Etc., Etc.

**THE STANDARD**



**GOLD WATER PAINT**

WEATHER PROOF, FIRE PROOF  
WHITE AND COLORS.

**MILL SUPPLIES**

Lubricating Oils and Greases  
PAINT, PAINT OILS, ETC.

**W. A. FLEMING & CO.**

Montreal and St. John, N.B.

"RATHBUN'S  
STAR."

**Portland Cement**

"BEAVER"  
BRAND

MANUFACTURED BY

**THE CANADIAN PORTLAND CEMENT CO.**  
LIMITED

Capacity of Works—500,000 Barrels per Year.

THE RATHBUN COMPANY,  
310-312 Front Street West,

Telephone Main 1379.

TORONTO, ONT.

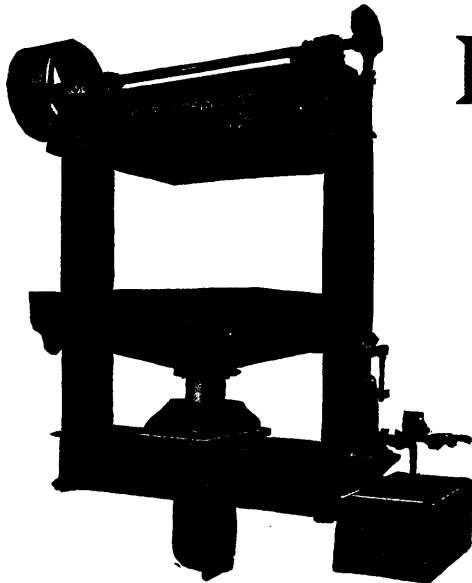
SALES  
AGENTS

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

Telephone Main 3987.

MONTREAL, QUE.

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# Hydraulic **PRESSES**

We Build Presses  
for...

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

SEND FOR  
CATALOGUE  
AND PRICES

## William R. Perrin & Company

TORONTO, - CANADA

The W. J. Poupore Co., Montreal, has applied for incorporation with \$300,000 capital, to construct railways, canals, bridges, etc., and to acquire business now carried on by Poupore & Malone. The applicants include W. J. Poupore, F. L. Monck and J. G. Poupore, all of Montreal; and J. C. Malone, Three Rivers, Que.

The output of coal from the Vancouver, B.C., collieries was 1,383,374 tons during 1900, which exceeded that of any previous year. The consumption of Vancouver Island coal in California is increasing yearly, while Welsh, English and Australian coals are in less demand. This coal is used by the United States navy in preference to that mined elsewhere. The output of coke is also increasing. The mines give employment to 3,700 hands. The average earnings of the miner is \$3 to \$4 per day.

The B. Greening Wire Co., Hamilton, Ont., are erecting a large brick addition to their works.

A meeting of the Canadian section of the Society of Chemical Industry was held a few evenings ago in Chemical building of the University at Toronto, when a paper on the production of caustic soda and bleaching powder at Sault Ste. Marie, prepared by Mr. B. J. F. Rhodin, of the Clergue works, was read by Professor Lang.

Mr. F. H. Clergue, of Sault Ste. Marie,

Ont., when recently in Toronto, stated that the Algoma Steel Co. works would soon turn out 700 tons of steel rails per day.

The Hahn Brass Co., New Hamburg, Ont., has been incorporated with \$40,000 capital, to manufacture brass goods. The provisional directors include Lewis Hahn, E. R. Beger and Alfred Hahn, all of New Hamburg.

It is stated that the New Brunswick Petroleum Co., Memramcook, N.B., will shortly make arrangements for refining their crude product.

Messrs. Henderson & Potts, paint manufacturers, have opened up a factory in Montreal.

The Marsh Medicine Co., Toronto, has changed its name to the Marsh Mfg. Co., and will manufacture varnishes, paints, enamels, soaps, lubricants, etc.

The largest single entry ever passed at the port of Winnipeg, Man., was that recently put through the customs house there, and was an importation made by the Canadian Northern Railway, the total value of which was over \$350,000.

The Shawinigan Water & Power Co., Shawinigan Falls, Que., has almost completed arrangements for the transmission of power from the Falls to Montreal. The company will use aluminum wire for transmission purposes.

The Canadian Pacific Railway Co., Montreal, has just compiled the annual order for rolling stock, which is the largest in the history of the company, and will bring its freight car service alone up to over 30,000 cars and its locomotives to about 1,000. Of the eighty locomotives, the great majority will be of the heavy Atlantic pattern, with ten drivers, weighing on an average 160 tons. Of passenger cars, the company will build twenty first-class cars of the recent heavy improved style, six combined smokers and first-class, two diners, six sleepers, two parlor, five baggage and two observation cars, to be used in the Rocky Mountains. Of freight cars there is being finished an order for 719 40-ton flat cars, 300 40-ton coal cars, 55 standard vans, 50 30-ton refrigerator cars, 270 stock, and 1,350 40-ton box cars.

Messrs. Dean Bros., Toronto, brass founders and finishers, manufacture all kinds of brass, phosphor bronze, zinc, copper and aluminum castings to order. The company manufacture a special line of phosphorine babbitt metal, which is made in fine grades.

The Waldron-Drouin Co., Montreal, has applied for incorporation with \$90,000 capital, to manufacture hats, caps, etc. The applicants include Alfred Eaves, S. G. Waldron and F. B. Drouin, all of Montreal.

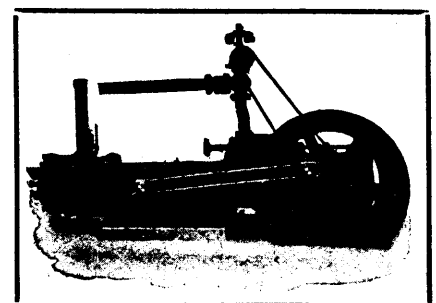
**BOILER, RAILWAY and MACHINE SHOPS CONTEMPLATING THE USE OF**

## PNEUMATIC TOOLS

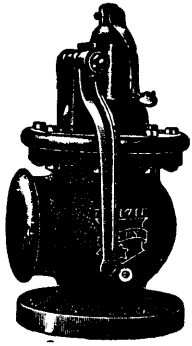
WILL DO WELL TO COMMUNICATE WITH US BEFORE  
INSTALLING PLANT

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

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



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A  
VALVE  
YOU  
CAN  
RELY  
ON  
  
SEND  
FOR  
PRICES

## CROSBY STEAM APPLIANCES EXCEL

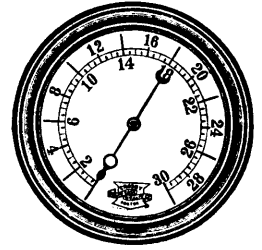
Steam Engine Indicators.  
Recording Gages.  
Revolution Counters.  
Pressure and Vacuum Gages.  
Lubricators, etc.



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

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

A TRUTHFUL GAGE  
IS THE  
ONLY GOOD GAGE



Robert G. Reid, Montreal, is among the applicants for a charter to erect a bridge across the Strait of Canso, to connect Cape Breton with Nova Scotia. The plan most likely to be adopted provides for an 1,800-foot cantilever bridge, with two piers in eighty feet of water, with approaches of 1,070 and 300 feet of trestlework on either side. The bridge is to carry two lines of railway tracks, with wide carriage roads on each side. The bottom girder of the bridge will be 150 feet above high-water mark. The bridge will cost \$4,500,000.

The North American Coal & Development Co., Halifax, N.S., has been incorporated with \$1,000,000 capital. The charter members include A. L. Meyer and R. J. Campbell, of New York, and E. Guerin, Montreal. The company have obtained control of large coal areas at River Inhabitants, Cape Breton.

Edgar G. Murphy, of New York City, representing an American syndicate, has purchased extensive timber lands in New Brunswick. It is the intention of the syndicate to erect a large pulp mill at St. George, N.B.

Messrs. Smith Bros., London, Ont., manufacturers of felt and paper, have removed their factory to Ingersoll, Ont.

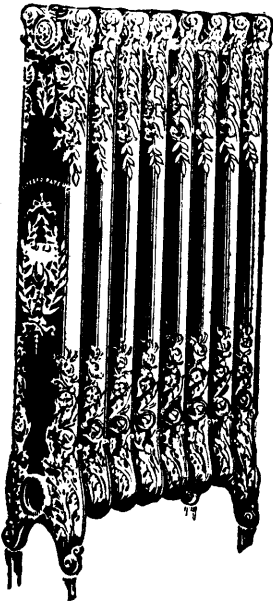
The Barrie, Ont., Board of Trade is negotiating for the establishment of a sheepskin tannery at that place. This town will probably exempt the concern from taxes, give them free light and water, and make them a loan to cover cost of building and machinery.

The Burt Mfg. Co., Akron, Ohio, have issued two very neat little booklets describing their Cross oil filter and Burt exhaust head, copies of which will be sent to anyone upon application. It may

be mentioned that the Cross oil filter was awarded the highest medal at the Pan-American Exposition and that its sale has extended to twenty-eight different countries, while nine governments have adopted them for use in their navies, arsenals, etc.

The American Tent & Awning Co., Toronto, has been incorporated with \$40,000 capital, to manufacture tents, awnings, flags, etc. The provisional directors include Lawrence Solman, Eugene Parsons, and H. A. Van Uurn, all of Toronto.

The following firms were awarded the tenders for the Manufacturers' Building for the Toronto Industrial Exhibition: Wiring, Gee Electrical Engineering Co., Toronto; tinsmith work, Metal Shingle & Siding Co., Preston, Ont.; and steel and iron work, Canada Foundry Co., Toronto.



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up-to-date Heating.

## WARM UP YOUR

# Buildings

WITH

# "Safford Radiators"

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

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

**THE DOMINION RADIATOR CO., Limited,**  
**TORONTO**  
HEAD OFFICE, - - DUFFERIN STREET

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# THE BEST PIPE THREADING and CUTTING-OFF MACHINES

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

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools.

Send for Catalogue 27.

Factory: BRIDGEPORT, CONN.

New York Office: 139 CENTRE STREET.

The Metal Shingle & Siding Co., Preston, Ont., manufacturers of metal ceilings, galvanized safe lock shingles, corrugated sheets, etc., informs us that their different building materials are fire proof, lightning proof and frost proof, and are neat, serviceable and low in price. For further information address the company as above.

The Ontario Beet Sugar Co., will erect a 600-ton sugar refinery at Berlin, Ont., which will be ready for operation by October of this year.

Carbonic acid gas supplied by the Toronto Liquid Carbonate Co., Toronto, was recently exhibited to the chemical class of the Toronto Technical School in the form of gas, and also solid frozen gas. Mercury was frozen and artificial ice was made.

The work of completing the pulp and paper mills of the Sturgeon Falls Pulp Co., Sturgeon Falls, Ont., will be proceeded with at once.

The Nova Scotia Steel & Coal Co., New Glasgow, N.S., has decided to locate their new blast furnaces at Sydney Mines, N.S. Work on the construction will be started immediately. Improvements will be made whereby the company will be enabled to quadruple the present output of coal, bringing the annual production to upwards of a million tons.

The Flint Lake Mining Co., has placed an order for a 50-ton milling plant to be delivered at Rat Portage, Ont. The ore of this mine is said to be very rich, and as it is a very large vein the owners have decided to quarry a large portion of it

and put the quartz through the mill as soon as it is erected.

The entire stock of lumber and timber of Seaman & Co., including the saw mill plant on Little Turtle Lake and 15,000,000 feet of sawn lumber at Gash Point, has been taken over by Graham & Horne, and the Rat Portage Lumber Co., Rat Portage, Ont.

The Montreal Street Railway Co., is building at its Hochelaga shops ten cars, each fifty feet in length. The car bodies will be set on double trucks, and four high speed motors, capable of developing a speed of forty miles an hour will be installed on each car.

The capital of the Sissiboo Pulp & Paper Co., Montreal, will be increased to \$650,000.

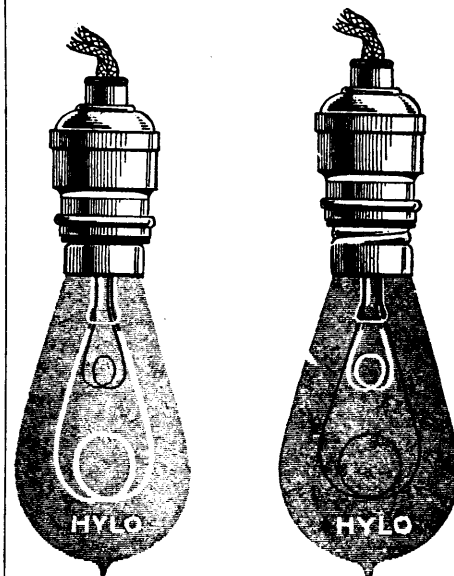
The carriage factory of A. C. Lariviere, Montreal, was damaged by fire recently to the extent of about \$2,000.

The Montreal Pulp & Paper Co., represented by W. C. Phillips, C. D. Warren and E. F. B. Johnston, Toronto, will erect a pulp and paper mill on the Ottawa river above Pembroke, Ont., at a cost of about \$500,000, to have capacity to produce 150 tons of pulp daily and employ 250 hands. In consideration of this expenditure the company is given the right for twenty-one years to cut spruce, poplar or whitewood for use in their pulp mills from an area of 1,660 square miles.

The D. S. Perrin Co., London, Ont., will erect a six storey addition to their factory at a cost of about \$12,000.

## THE HYLO ELECTRIC LAMP.

The accompanying illustrations are of the Phelps Hylo electric lamp, manufactured by the Packard Electric Co., St. Catharines, Ont. One illustration shows the 16 c.p. filament aglow while the baby filament, of 1 c.p. is not in use; the other shows the baby filament emit-



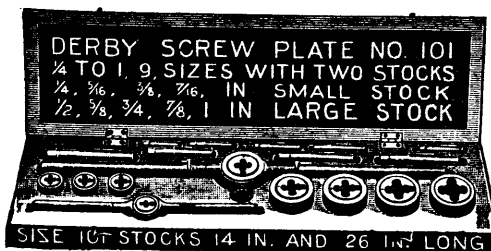
High, 16 c. p.

Low, 1 c. p.

ting only a faint light while the larger filament is not glowing.

The Hylo lamp has two light giving carbon threads. One is of the usual size, making 16 candle power. The other is

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.**



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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.**

exceedingly small, a baby filament, making only one candle power. The least little turn of the Hylo bulb will put out the big filament and light up the baby. The mechanism which makes this change is part of the lamp itself and is so wonderfully simple that satisfactory operation is assured.

Ever since Edison subdivided the electric light 20 years ago, people have wanted some way to make the incandescent lamp turn down. It is just as necessary and reasonable to modulate electric light as to regulate the brightness of oil light, gas light or sun light, but, it is claimed, there was no successful turn-down electric globe until Phelps invented the Hylo. The superior advantages of this lamp are:

1. Can be turned up and down—a simple twist of the wrist does it.
2. Saves five-sixths of the light bill when turned down.
3. Lasts as long as 3 common lamps.
4. Goes into any-socket like a common lamp.
5. Takes up no more room than a common lamp.

6. May be moved from one socket to another.

7. Can be used with any open shade or reflector.

8. No skill is required to put up or operate.

9. Eliminates fire risk from paper or towel tied around a common lamp to tangle the light.

The two filaments of the Hylo have a combined life of 4,000 hours, 1,000 for the big filament and 3,000 for the baby. The yearly expense for electric globes will be no more with Hylo than with common lamps.

A very common meter rate is one cent for a 16 c.p. lamp burned one hour. At that rate, five-sixths of a cent will be saved every hour that the Hylo baby filament is turned down, and when it has been turned down a total of 90 hours the saving will be 75 cents. In a bath-room or hall, the lamp will pay for itself in two weeks and the current saving and comfort after that will be clear profit.

There is no comfort or real economy in total darkness and in fumbling for switches wherever you go. Six Hylo lamps turned

down in six different rooms take no more current than one common lamp and save ever so much time and temper.

In the home for halls, bath, porch, library, cellar, in baby's room, it a convenience not measured in dollars and cents.

In mercantile houses, offices, stores, hotels, any place where a light is needed all night—in dark halls, elevators, closets, vaults, it will reduce the cost of lighting over 75 per cent.

Considering the fact that these lamps embodying two distinct filaments are now made in Canada, it may be interesting to know, as many do not, how these filaments are made.

Although used so universally, very few, even of those who have spent years in the electrical business, have even seen an incandescent lamp in the process of manufacture, says Cassier's Magazine. The best absorbent cotton is generally used as the basis of the filament. The raw cotton is placed in a pot or vessel, treated with zinc chloride, and worked to a pulpy mass which permits of filtration, and is then carefully filtered through fine-mesh

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Copper Castings  
a Specialty

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ONTARIO

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Cottonades, Tickings, Denims,  
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Flannelettes, Gingham,  
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AND

### ... Finishers ...

### Phosphorine Babbitt Metal

Copper and Aluminum  
Castings a specialty.

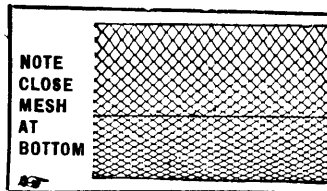
184 RICHMOND ST. WEST,  
TORONTO.



platinum filters. After being filtered several times the density is brought to the desired value for what is known as the squirting process. The "mass," as the pulpy material is called, is then placed in spheroidal-shaped vessels, which are provided with openings at both top and bottom. The lower ends are provided with platinum dies, the openings in which are of sufficient size to permit the passage of the mass and form it into a thread of a certain diameter, dependent upon the kind of lamp desired. This is accomplished by subjecting the mass to air pressure which varies from four to twelve pounds per square inch, depending upon the condition of the mass, temperature, atmospheric conditions, etc. The temperature of the water-bath in which the vessels are placed at the time of squirting is about 90 degrees C.

The filament passes from the die into a glass jar which is filled with methyl alcohol containing a 10 per cent. solution of hydrochloric acid. It immediately hardens in this solution, and the acid neutralizes any alkaline effect which may have been retained from the zinc chloride treatment. At this point the filament is of a yellowish-white color, and as it slowly passes through the die and coils itself in the alcoholic solution it looks very much like vermicelli. After remaining in this solution for three or four hours the filament is washed in acid solutions, in pure distilled water, and finally in a bath of methyl alcohol, the entire washing process taking about 24 hours. It is then wound up on velveteen drums which are about 18 inches in diameter, and is allowed to dry. When thoroughly dried it is cut to the desired lengths and the individual filaments are made up in bunches of ten or more. They are next wrapped around carbon forms to produce the desired shape.

These forms, each accommodating a number of filaments, are placed in a crucible and packed in graphite, there being first a layer of graphite, then a number of forms, etc., the top layer being graphite. The cover is then placed on the crucible and the whole is sealed, small openings being left for the escape of the gases which are driven off in the carbonizing process. The crucible is placed in the carbonizing furnace and the temperature is gradually raised to about 2,500 degrees Fahrenheit and maintained at

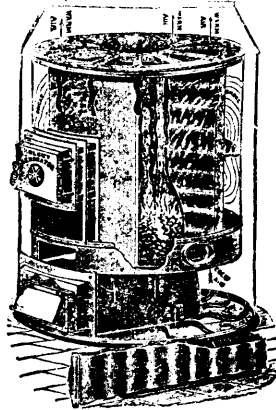


NOTE  
CLOSE  
MESH  
AT  
BOTTOM

**Page Acme Poultry Netting**

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

The Page Wire Fence Co., Limited, Walkerville, Ont. 5



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**KELSEY CORRUGATED WARM AIR PATENTED GENERATOR**

**You Are Assured of** Most Heat with Least Fuel; Better Quality of Air; Good Ventilation; Cool Cellar; No Escaping Gas or Smoke; All Rooms Warm at All Times.

If interested, write us when we will send you descriptive printed matter, and arrange to have a competent and practical heating man call and give you an estimate.

**The JAMES SMART MFG. CO., Limited**  
Exclusive Makers for Canada. **BROCKVILLE, ONT.**

**"SCIOTO" FIRE BRICKS**

are the best. WHY NOT USE THEM?

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

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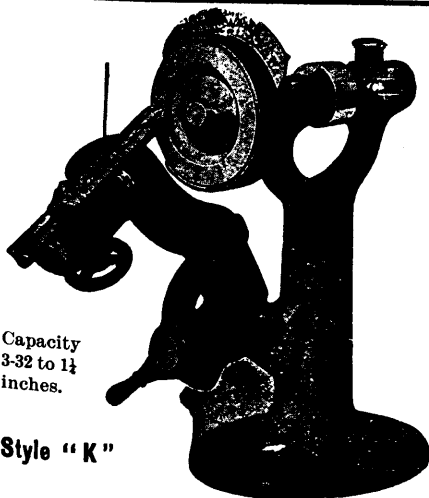
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Capacity 3-32 to 1 1/4 inches.

Style "K"

**The "NEW YANKEE"**

**Drill Grinder**

**SAVES 50 PER CENT. OF TIME IN ADJUSTMENTS**

**COMPLETELY SELF-CONTAINED**

**O**UR 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**

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this point for about twenty-four hours. The temperature is then raised to about 4,500 degrees Fahrenheit and kept at this point for several hours longer, after which the crucibles are allowed to cool slowly. The time occupied in the carbonizing process depends upon the size of the filaments, and for very large filaments may be much longer than the just-mentioned period. The crucible is finally unpacked and the filaments are removed, the graphite and forms being preserved for further use.

After having been sorted, the filaments are again classified according to their electrical resistance, and are then ready for the flashing process.

The earlier forms of filaments were far from being of uniform cross section, and the flashing process was introduced to render them more uniform. The process consists essentially in placing the filaments in a jar containing hydrocarbon vapor—generally gasoline or pentane—and raising them to incandescence by sending an electric current through them. The high temperature decomposes the hydrocarbon vapor, and pure graphitic carbon is deposited upon the surface of the filament. If the latter is uniform the deposit occurs equally over all portions. If, however, the electrical resistance is abnormally large in some portions, a greater temperature results in those portions due to the increased expenditure of energy at these points, and a larger deposit of carbon occurs there, the filament becoming more uniform.

#### CANADIAN PULP WOOD.

Mr. D. Lorne McGibbon, of the Laurentide Pulp Co., Grand Mere, Que., read a paper before the Canadian Forestry Association in session in Ottawa a few days ago, in which he urged that Canada take steps to get a little more profit out of her splendid forests of pulp wood than she now gains in permitting them to be shipped across to the United States to be made up there into paper. This country, he said, should watch her forests as carefully as she guards any other asset she possesses. At present our spruce is exported to the United States realizing about \$3.50 per cord when shipped across the line. That same cord of wood manufactured into paper right here in Canada would bring forty dollars. Why, said Mr. McGibbon, should not Canadians insist on getting all they can out of this industry. Our raw material is permitted to go into the United States without restriction while a high tariff is imposed to keep out our pulp and our paper. At present there are over a million cords of pulp wood being exported annually, worth from three and a half to four million dollars. The conversion of this raw material into paper on our side of the border would mean an expenditure for labor and material of more than thirty million dollars annually. Canada might be this much better off if she would adopt the policy that is clearly in her own interests.

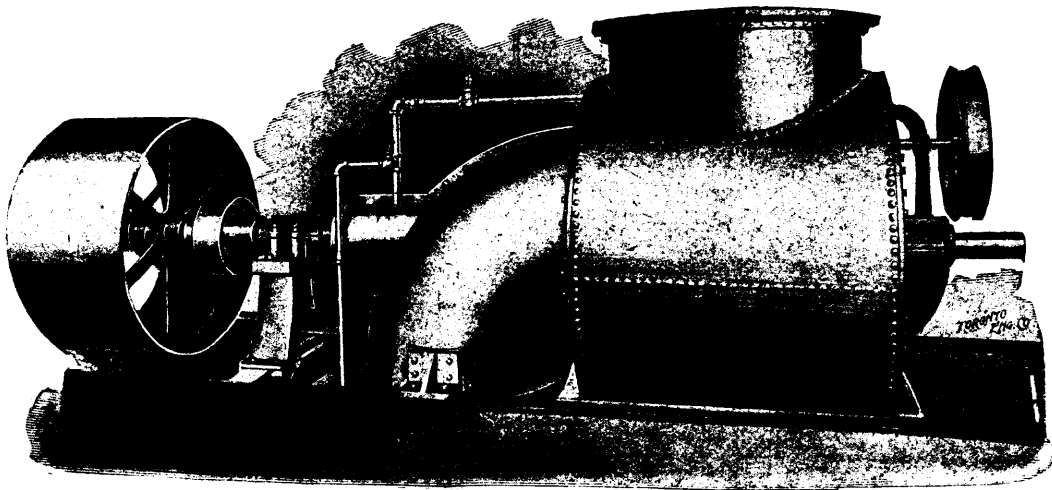
Mr. E. G. Joly de Lotbiniere, Quebec,

read a paper in which he called for the strictest enforcement of regulations to prohibit the destructive methods of cutting employed in the spruce forests of his province. A sufficient crop of young trees ought in all cases to be left to replace in a few years that which has been removed.

The meeting passed a resolution urging the Dominion Government to grant a larger appropriation for reforestation in Western Canada.

#### THE PULP INDUSTRY IN ONTARIO.

New agreements making extensions of time and calling for increased expenditures and other important changes, which have just been concluded between the Commissioner of Crown Lands and three respective pulp companies, have been laid before the Legislature. In two cases, those of the Blanche River Pulp & Paper Co., and the Nepigon Pulp, Paper & Mfg Co., provision is made that the companies shall in the development of water power and the construction of their mills and works "use cement and machinery of Canadian manufacture, so far as the same is reasonably practicable." The delay in the carrying out of the original agreement in each of these cases, both of which were signed in 1900, was due to difficulty in securing suitable water power, a problem which has now been settled. The Blanche River Co., which proposes to build at the Le Cave Rapids, near Mattawa, agreed originally to expend



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

## CROCKER PATENT TURBINE

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

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

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

**THE JENCKES MACHINE CO.,**

28 Lansdowne Street,

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

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\$200,000 by April 14, 1904, and now undertakes a total expenditure of \$750,000 by October 14, 1905, of which \$300,000 must be spent by October 14 of the present year. They must also ultimately employ 200 hands and produce 100 tons of pulp per day. It is further provided that the company's head office shall be forthwith moved from Toronto to Mattawa.

The Nepigon Co., which originally agreed to spend \$200,000 by April 18, 1904, now agrees to spend \$250,000 within that time, of which \$50,000 must be laid out by February 4, 1903, and an additional \$75,000 by August 4, 1903. The original agreement called for an expenditure of \$75,000 by October 18, 1901.

The new agreement with the Sturgeon Falls Pulp Co. is rendered necessary by the long shut-down during the litigation with Edward Lloyd, Limited. This company on October 6, 1898, agreed to spend \$1,000,000 within three years. The new agreement provides that in addition to what has already been disbursed the company shall, commencing January 15, 1902, expend \$50,000 before July 1, a further \$100,000 before September 1 of this year, and a further \$150,000 before July 1, 1903, and the total expenditure by July 1, 1904. A deposit of \$20,000 security with the Government is required. It is also provided that the company may not transfer its franchises or privileges prior to completion of its contract under the agreement to any person or persons whatsoever, except to the Imperial Paper

Mills of Canada. The last report of the Crown Lands Department states that the Sturgeon Falls Company have expended over \$100,000 on their buildings, have contracted for \$120,000 worth of machinery, and \$150,000 worth of work on buildings, dams and canal, and expect to have a 100-ton pulp mill in operation during the coming summer.

### GROWTH OF CANADIAN TRADE.

Canada's trade is still on the up grade, and steadily advancing. For the seven months ended January 31 the increase in the aggregate over the same period a year ago amounted to the remarkable sum of \$18,555,575. The figures were \$253,737,739, as against \$235,182,164. If the present rate of progress is maintained the end of the fiscal year will show the unprecedented total of \$416,000,000, or \$30,000,000 more than for 1901.

The exports for the last seven months exhibit the following increases in round figures:

Agricultural products.....	\$4,500,000
Fisheries.....	2,250,000
Animals and their products..	2,000,000
Manufactures.....	1,250,000

Exports of the mine diminished by about \$2,000,000.

The imports for the seven months amounted to \$110,211,708, or \$8,412,811 in excess of the corresponding period of the previous year.

The exports for the seven months of

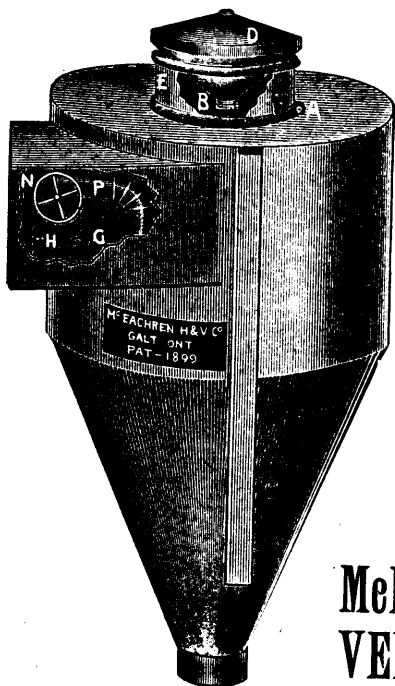
purely domestic produce aggregated \$126,837,494, or more than \$9,000,000 of same period in the preceding fiscal year.

The following is a comparative statement of the imports and exports for January and for the seven months. In the exports foreign products and coin and bullion are excluded:

Imports entered for consumption, (Seven Months.)		
	1901.	1902.
Dutiable goods.	\$60,069,596	\$65,583,120
Free goods.....	41,729,301	44,328,588
<b>Total.....</b>	<b>\$101,798,897</b>	<b>\$110,211,708</b>
Exports, (Seven Months.)		
	1901.	1902.
The mine.....	\$25,491,497	\$23,450,565
The fisheries..	7,491,699	9,890,667
The forest....	20,410,273	21,420,757
Animals and their pr'dce	39,863,673	41,731,512
Agriculture...	15,396,365	20,005,691
Manufactories.	9,068,907	10,319,077
Miscellaneous.	42,915	19,225
<b>Total....</b>	<b>\$117,765,329</b>	<b>\$126,837,494</b>

### NEW DYESTUFFS.

Indon Blue 2 R and 2 B.—These two new products are dyed in the same way as other basic colors, and when dyed a heavy shade the 2 R quality produces a deep reddish blue, the 2 B brand being of a bright dark navy blue. These two products are the best basic substitute for



## Dust and Shavings Separators

FOR WOOD REFUSE

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

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

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

IN THEIR NEW FACTORY . .

32, 34, 36, 38 and 40 DUNDAS STREET

THE . . .

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

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

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

Quotations Supplied on Application.

PHONE 1103

Indigo, and are especially adapted for the production of the popular bronzy Indigo shades. Indon 2 R and 2 B are extremely fast to light and are also possessed of a very good resistance to washing. Both brands can be employed to advantage in all the various branches of cotton dyeing, and particularly for brightening substantive colors or for topping colors to produce a deep navy blue. They are also adapted for the printing of union fabrics that have been previously treated with tannic acid and discharged with caustic soda.

**Katigen Brown v. Extra.**—This new dyestuff produces a catch brown of a violet tone and is double the strength of the older Katigen Black Brown N. The dark shades of Katigen Brown v. Extra are very similar to those generally produced with a combination of logwood and catch and the new color is dyed in exactly the same manner as the older members of this series. Katigen Brown v. Extra is distinguished for its great productivity, and even its direct dyed shades are extremely fast to light, alkalis, washing and boiling. When after-treated with bichrome and copper sulphate the shade becomes yellower and its properties on the whole are slightly improved. It is of great importance for the production of fast shades in all the various branches of cotton dyeing, and as a combination color for Katigen Black Brown N. and Katigen Yellow Brown G. G., whereby a large range of fashionable shades can be produced. As it is

easily soluble and dyes easily level, it is also well adapted for machine dyeing, and it can be employed the same as other Katigen colors with the addition of sulphide of soda for printing calico on nick-eled copper rollers.

**Diazo Rubine B.** is a new diazotisable dyestuff which is suitable for the production of Bordeaux shades fast to washing. The direct dyed shade, which is a distinct bright orange is of no importance, but when diazotised and developed with Developer A., very fine deep bluish red shades, which are just at present in fashion, can be obtained, the properties of which are equally as good as those of diazotised Primuline. Diazo Rubine B. can be employed for the dyeing of cotton in all its branches, and is to be recommended for the production of Bordeaux shades on yarns; further, the diazotised and developed shades can be discharged fairly well with tin crystals or zinc powder.

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

#### BUFFALO DOWN DRAFT FORGES.

The Buffalo Forge Co., Buffalo, N. Y., are in receipt of a letter from Mr. William Garstang, Superintendent of Motive Power of the Cleveland, Cincinnati, Chicago and St. Louis Railway Co. "Big Four Route," at Indianapolis, Ind., which explains itself. It says:

Gentlemen:—Replying to your enquiry in regard to the performance of the down draft forges designed and furnished for our blacksmith shop at Wabash. These forges were purchased and placed in service in 1895, and, since that time they have given satisfactory performance.

We consider the down draft system an excellent one, first, on account of the thoroughness in removing smoke from the shop, and second, on account of not requiring overhead pipe or other obstructions to interfere with or prevent the handling of heavy work with cranes, etc.

#### THE USE OF STEAM.

In THE CANADIAN MANUFACTURER of January 3 was an exceedingly interesting article entitled "The Generation of Steam," prepared by the Educational Committee of the Canadian Association of Stationary Engineers, of which Mr. A. M. Wickens is chairman. The article had been prepared by instruction of the Association, and was one of a series of such papers intended to be placed in the hands of the members, which they are expected to study preparatory to their examination as to efficiency before being awarded certificates as to competency as engineer by the Association.

The committee are now sending out to the members another paper entitled "The Use of Steam" which is as follows:

Steam is a colorless, expansive, invisible fluid, and is produced by heating water or other liquids.

# COWAN & CO.

GALT, - ONT.

**Wood-Working  
Machinery**

**Patent Feed  
Water Heaters  
and Purifiers**

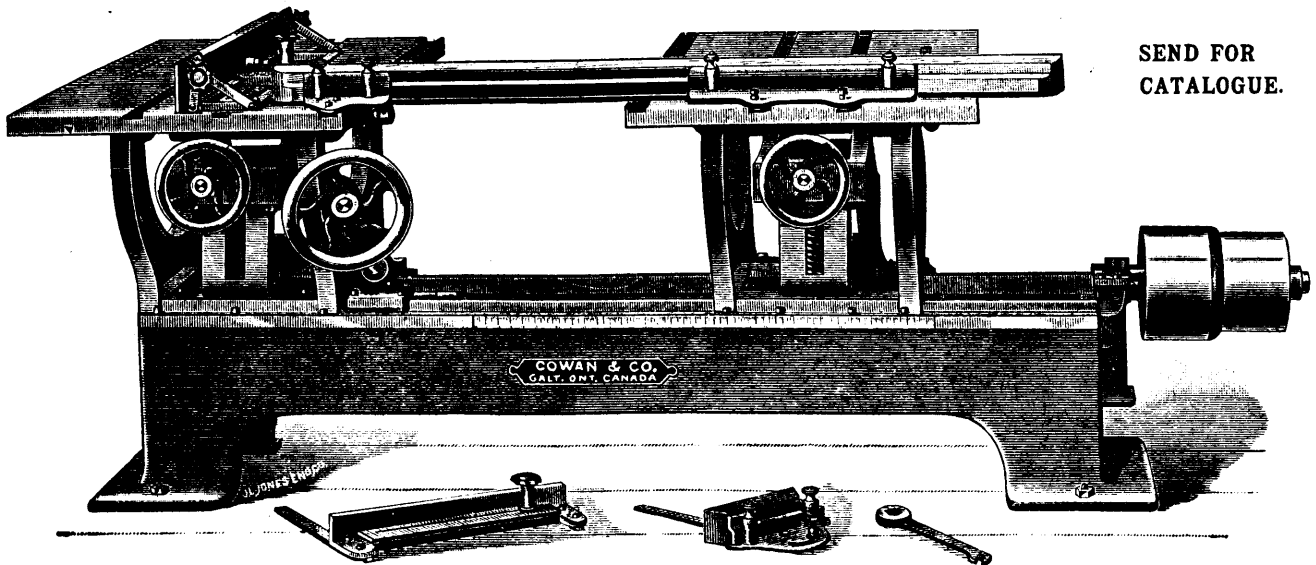
**Engines AND  
Boilers**

**SAW MILL  
MACHINERY,**

Etc., Etc.

SEND FOR  
CATALOGUE.

Montreal Branch, - 368 St. James St.



NEW IMPROVED PATENT RIP AND CROSS-CUT SAW.

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"HALITUS"**

**THE FINEST VENTILATOR OR CHIMNEY  
COWL MADE.**

It gives a positive upward draft under all conditions—can't get out of order—and exhausts more cubic feet of air per minute than any other ventilator. Made of Galvanized Steel or Sheet Copper.

The perfect simplicity and clever mechanical arrangement of the "HALITUS" will delight you, if you want a ventilator that really and perpetually ventilates. Read all about them in our catalog.

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**Corrugated Iron**

*For Sidings, Roofings,  
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Absolutely free from defects—made from very finest sheets. Each sheet is accurately squared, and the corrugations pressed one at a time—not rolled—giving an exact fit without waste.

Any desired size or gauge—galvanized or painted—straight or curved. Send us your specifications.

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**Metallic Skylights**

The acme of Skylight perfection!

We make them from hollow bars of Copper or Galvanized Steel—in styles and sizes to suit all kinds of roofs.

They are very strong, and unaffected by cold or heat, as there is neither contraction nor expansion—and, if glazed with our fire-proof wired glass, they are absolutely fire-proof.

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Wholesale Manufacturers,  
TORONTO, CANADA.

The subjects of steam and heat are therefore very closely connected. We cannot have steam without heat, neither can we have heat without motion, and this is one of its great factors of usefulness to mankind. Our steam engines then are in reality heat engines, and the steam is the medium by which the heat is carried from the coal to completed work at the engine cylinder. We say steam is an expansive fluid: and in this expansion is its great factor of usefulness to us. If we take water at 32 degrees F., and add 180 heat units to it, under our atmospheric pressure it boils, and its temperature is 212 degrees F. Up to this point we can measure the heat with a thermometer, this is called the sensible heat of steam. We also have what is called the Latent (or lost) heat of steam; this cannot be measured by the thermometer and comes about in the following manner:

If we take one pound of water at 32 degrees F. and apply a fixed and known quantity of heat to it until it boils, we will assume that it takes 20 minutes, and we have supplied the water 180 heat units, which added to the 32 contained in the water at the start makes 212 degrees F. or heat units, and is the sensible heat of steam at atmospheric pressure. Now let us continue the same quantity of heat per minute until all the water has evaporated into steam, we will find it has taken 5/1-3 times as long or 107 minutes to do this work. Consequently we have used 5/1-3 times 180 or 960 heat units (or to be exact) it is 966 heat units. Now the temperature of the steam is the same as the water from which it was evaporated, or 212 degrees F., and this 966 heat units is the latent heat of steam at atmospheric pressure. All steam has a sensible heat corresponding with the temperature of the water it is evaporated from. If you boil water under a pressure of 5 atmospheres or 75 pounds pressure, the

sensible heat is 306 degrees F., the boiling point at that pressure, but the latent heat has decreased by the same number of heat units that the boiling point increased so the total is the same in all cases. In the first case we have 212°—32+966 or 1146, and in the second case, 306°—32+872= the same 1146 heat units.

In evaporating our pound of water under atmospheric pressure, the temperature remained at 212 degrees, but the volume was increased to 1644 times that of the water in the second case; evaporating under 75 pounds pressure the temperature also remained the same 306 degrees F., but the volume is only 295 times that of the water it was evaporated from. This is one of the reasons it pays to run an automatic cut-off engine.

The expansion of steam follows what is called Marriott's Law of expanding gasses, which summed up means 1/2 the pressure doubles the volume. So if we let steam into an engine cylinder at 80 pounds pressure, and cut it off at 1/2 stroke, it is at 80 pounds up to the point of cut off, at 1/2 stroke, because it has doubled its volume it is reduced to 1/2 pressure, or 40 pounds; while at 3/4 stroke the volume has trebled and the pressure has dropped to nearly 27 pounds, and this is why it is economical to run engines that use steam expansively. Steam at 27 pounds pressure is very much cooler than steam at 80 pounds and this difference in its temperature has been converted into mechanical work by our steam (heat) engine.

Of the latent heat that disappears in the formation of the steam we can recover a great part of it again when steam returns to water, that is, it gives up its latent heat when condensed. That is one reason why steam is a good medium to heat our buildings, and also, a good reason why it requires so much cold water to condense the steam back to water quickly as in an engine condenser. Steam

also has a very rapid movement. It will flow under a pressure of 1 1/2 atmospheres into the air at a velocity of 67,500 feet per minute, and into a vacuum from a pressure of 1 atmosphere at the rate of 114,540 feet per minute, or 1,242 feet per second, this is why a steam pipe and the steam ports of a cylinder may have a very much smaller area than the piston itself, and the rate of flow of steam in pipes is how their sizes are determined. The whole science of the intelligent use of steam is to save, utilize and direct its heat, the more of which we can capture and harness the more money we can save for our employers. The whole success in steam engineering is to stop heat wastes, and the man who can accomplish that the best, is the man with the big salary every time.

All engineers should carefully study the use of exhaust steam. Very nearly 9-10 of all the heat in the steam escapes into the atmosphere from an ordinary engine running non-condensing, and any of this heat that can be put to good use is clear gain. One of the first uses to put the steam to is the heating of feed water for the boiler: another is to heat water for any other purpose about the building or factory. Still another is to heat dry kilns of different kinds, and also the heating of the buildings. All of these things can be accomplished without adding more than 1 or 2 pounds to the atmospheric pressure, against which all non-condensing engine pistons move. In the heating of feed water each 10 degrees F. added to it will save 1 per cent. of fuel—and if your feed water enters the boiler at say 40 degrees F., and you bring it up to 212 degrees F. by the use of exhaust steam, you have still left in the steam 966—212=744 heat units that may be used for other purposes. In heating your feed water from 40 to 212 degrees you have only condensed 2-11 of the steam used

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for that purpose. An economical 80 h.p. automatic cut-off engine using 30 pounds steam per h.p. per hour, and discharging into the atmosphere at a back pressure of 1 pound per square inch, will discharge heat enough to supply 9,000 square feet of radiating surface, or enough to heat a building containing 720,000 cubic feet of space.

What per cent. of fuel will you gain if you heat the feed water from 60 degrees to 210 degrees by the exhaust steam or other waste heat, the steam pressure being 60 pounds?

By your steam tables you will find the sensible heat of steam at 60 pounds pressure to be 30.7, and the latent heat will be 899, making the total heat units  $307 + 899 = 1,206$ . The total heat supplied per pound of steam is  $1,206 - 60 = 1,146$ , but the feed water increases in temperature from 60 to 210, a gain in heat of 150 degrees. There-

$150 \times 100$   
1,146  
= 13.86%

RULE.—Divide 100 times the difference between the final and the initial temperatures by the total heat units in the steam, minus the initial temperature of

the feed water; or the formula will be thus:

100 } Final temp. of feed—initial temp. of feed.  
Total heat units in steam—initial temp. feed water.

Example.—Initial temperature of feed water is 45 degrees, final temperature 210 degrees, steam pressure 100 pounds gauge. Find the gain. Ans.—14.1%

## S. K. C. STATIC GROUND DETECTOR.

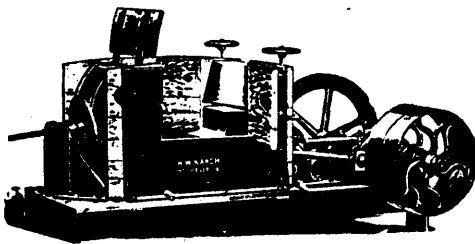
The Canadian General Electric Co. have sent us a Bulletin illustrating and describing the S. K. C. Static Ground Detector manufactured by them. Regarding this instrument they say:

This ground detector is essentially a differential static voltmeter composed of six metal vanes (two primary and four secondary) mounted upon a base, together with a movable vane of sheet aluminum carrying an index or pointer. The movable vane and pointer is mounted on a shaft and held central between the fixed secondary vanes by two sapphire jewel bearings; the whole being controlled by a spring.

Diagonally opposite fixed secondary vanes are electrically connected in pairs, and each pair is indirectly charged (statically) from one of the fixed primary vanes, which in turn receives its charge from one pole of some source of electrical supply; usually one of the line wires. The primary fixed vanes are thoroughly insulated, being embedded in the base of the instrument.

The movable vane is connected to "earth," and is inductively acted upon by each pair of fixed vanes so that the stress produced by each pair is equal but in opposite directions, thus causing the movable vane (and pointer) to take a position between the pairs of fixed secondary vanes, which position is, theoretically, the same whether the instrument is electrically charged or not, and is the position of "no ground," the pointer indicating zero on the scale. In case one wire of a circuit or line becomes grounded, the movable vane connected to "ground" is electrically connected to the fixed primary vanes representing the grounded wire, and the corresponding pair of fixed secondary vanes receives a charge of like character from one pole of the source, and the other pair of fixed secondary vanes receives a charge of opposite character from the other pole of the source. The action of the pair of fixed secondary vanes having the "like" charge is to repel the movable vane, while the action of the other pair of secondary vanes is to attract it. These two forces thus act in the same direction upon the movable vane and cause it to take a position entirely within the oppositely charged pair of secondary vanes, the pointer indicating a "ground" for that side.

Full descriptions are given of the different types of this apparatus, instructions for setting them up, prices, etc., full particulars of which can be had upon application to the company.



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**MICHIGAN LUMBER.**

The output of lumber for Michigan during the last year and the amount on hand December 1, has just been figured out. Some results of importance have been shown. The pine forests are now about cleared away, and the shipment of hemlock is greatly increasing, whereas in former years none of it was ever sent down the lakes. The conditions of the industry last year, while showing a diminished output, were most favorable as to prices obtained for the pine product and to the demand for stocks. Hemlock, while not in such active request, developed some improvement, and this applies also to hard woods. The quantity of lumber in the hands of manufacturers at the close of the manufacturing season is also shown. It is within bounds to state, however, that at the present time there is comparatively a smaller quantity of unsold lumber in hand than ever before. It is shown by the figures that the total output of all kinds of lumber in Michigan in 1901 aggregated 1,998,347,000 against 2,369,000,000 feet in 1900. A falling off in a single year of more than 350,000,000 feet furnishes an object lesson of the ruthless slaughter of the forest preserves of the state. While the lumber product diminished greatly last year, there was an increased production in shingles, due to the higher range of prices, which greatly stimulated production. A large proportion of the shingle output is cedar, the white pine available for shingle timber having decreased materially. In 1885, 3,578,138,732 feet of lumber and 2,574,675,900 shingles were shipped. In 1901 only 1,998,347,000 and 1,323,961,500 were produced throughout the state.—Marine Record.

**OPPORTUNITIES.**

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

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

716. A London house desires the names of the principal wholesale lumber exporters in New Brunswick.

717. A Liverpool firm wishes to hear from Canadian owners of deposits of molybdenite who are in a position to offer supplies.

718. A German importer asks to be furnished with the names of some Canadian shippers of molybdenite.

719. A Liverpool firm of provision merchants who have a large sale for bacon (wholesale only), are open to sell on commission for any reliable Canadian firm requiring representation.

720. A Dublin house asked to be referred to Canadian manufacturers of mouldings suitable for picture frames, etc.



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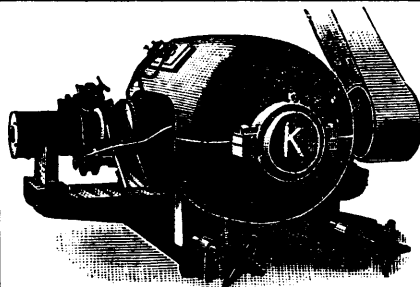
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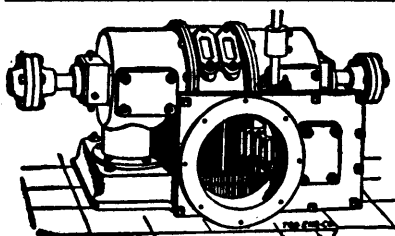


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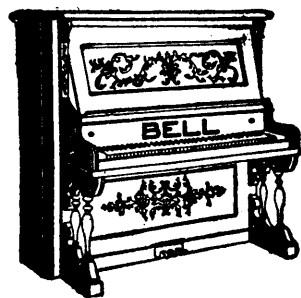
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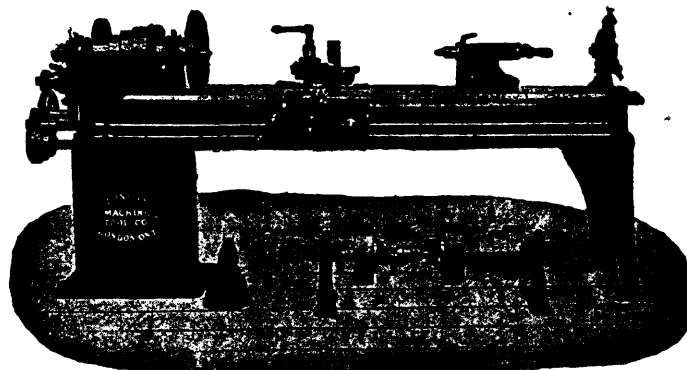
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CUPOLAS

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CRANES

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Temple Building, TORONTO

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721. A correspondent asks for the names of manufacturers in Canada of motor cars and motor car parts.

722. The names of leading importers of cotton and woolen goods, and of some first-class booksellers and stationers in Canada, are required by a correspondent in the north of England.

723. Enquiry has been received from a correspondent in Ontario respecting the demand for chair stock, seats, backs and legs of well-seasoned hardwood, of which he has large stocks on hand, turned and unturned.

724. A Canadian firm on the Bay of Chaleurs sawing spruce deals and cedar shingles, as well as manufacturing birch squares, broom handles, etc., desire to communicate with an English house open to buy or to contract for the sale of such lumber.

725. A firm in the Midlands is desirous of arranging for direct consignments of Canadian apples either on commission or at so much per barrel advanced against bill of lading.

726. A manufacturers' agent in Cape Colony, South Africa, desires to correspond with Canadian manufacturers of

shirt waists for gentlemen, open to do an export trade with that country.

727. A Toronto manufacturing concern desire to be put in correspondence with manufacturers of Canadian Balsam of Fir. They want to deal direct with producers.

728. A Liverpool firm asks to be placed in touch with the leading Canadian mining companies who use cyanide of potassium.

729. A London house wishes to be placed in correspondence with Canadian sawmills which can supply packing case shooks on a large scale.

730. A firm in Brussels desires names of Canadian shippers of teldspar of good quality.

731. The agent in London for French colored roans (sheep skins colored in various shades), and bends (stout sole leather), asks to be referred to Canadian importers of such goods.

732. A Lancashire firm manufacturing cotton main driving ropes, cotton bandings, shop twines, etc., desire to get into communication with Canadian users and dealers in these goods.

733. Enquiry is made by an Irish

house for all classes of timber, spruce sheetings, flooring, mouldings, etc.

734. A first-class house in Leith, Scotland, is desirous of getting in touch with a reliable firm in Canada exporting grain, peas, wheat, barley, etc.

735. A London agent has a demand for birch, maple, oak and pitch pine wood blocks for flooring; c.i.f. any port in the United Kingdom; also for furniture wood and coffins and caskets in shook.

736. A correspondent at Castellanza Italy, enquires for Canadian manufacturers and exporters of acetate of lime.

737. A Glasgow firm asks to be referred to makers of casein or lactarine in Canada.

738. Enquiry is made by a wholesale stationery firm for Canadian mills turning out large quantities of manilla folding box boards.

739. A Birmingham firm of carriage lamp makers are desirous of doing a business with Canada in this line, and request to be placed in communication with suitable firms.

740. The names of Canadian fishing rod makers are asked for by an English importer.

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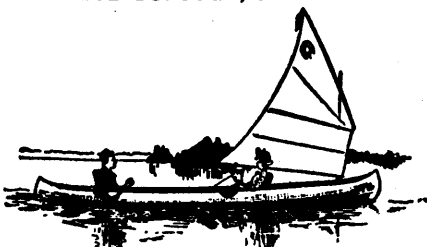
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**MARKETS.**

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

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

TORONTO, March 21, 1902.

Reports of coming trouble between employees and employers in several trades have had the effect of unsettling business in certain lines, and there is a tendency on the part of contractors to go slow in undertaking new work. The prospects for a busy season in the local building trades have influenced bricklayers and other workmen to make demands which the employers claim are unreasonable. It is expected, however, that the result of conferences between the men and bosses will be a satisfactory adjustment of the differences. Such a result, if obtained early, will inspire confidence among contractors, and stimulate business generally.

The past two weeks have been record ones in the speculative market, and traders on the bull side have made handsome profits. The transactions have chiefly been confined to Canadian Pacific, Dominion Steel and Dominion Coal. Call loans on the local market are quoted at 5 to 5½ per cent.

Minister Fielding's budget speech was disappointing to many business men. The government have decided to leave the tariff as it is, and no change will be made for a year, despite the urgent appeals of many industries. There is to be no assistance given toward the making of beet sugar, further than extending for another year the free admission of sugar machinery. Nothing at all was said about giving aid to shipbuilding. A hope was expressed of extending the trade treaty with France, and an excuse was offered for Germany's conduct in levying the maximum tariff on Canadian products. Mr. Borden gave notice of an amendment for the protection of industries, which reads as follows:—"This House, regarding the operation of the present tariff as unsatisfactory, is of opinion that this country requires a declared policy of such adequate protection to its labor, agricultural products, manufactures and industries as will at all times secure the Canadian market for Canadians, and while thus firmly maintaining the necessity of some protection to Canadian interests, the House affirms its belief in a policy of reciprocal trade preferences within the Empire."

It is learned that G. B. Hunter, of the big shipbuilding firm of Swan & Hunter, Newcastle-on-Tyne, has taken a large interest in the steel shipbuilding yard

which it is proposed to locate in Nova Scotia.

The Legislative Council of Nova Scotia has passed the Dominion Iron & Steel Co's bill, with an amendment to the second clause, providing that any new issue of stock shall be first offered to holders of common shares before being offered to the public. The chances are that the stock will be supported until the new stock is issued. Mr. Moxham, the former vice-president of the company, thinks that the buying of the stock is too general to be speculative in its nature, and is convinced that those who buy for investment purposes and are content to wait for eighteen months or two years, will not be disappointed.

The April dividend on 2,500 shares of amalgamated copper is offered at ½ of 1 per cent. The Boston market for copper is easier. President Heinze, of Montana, estimates that the copper war resulted in a loss of \$100,000 to amalgamated, and that though amalgamated has succeeded in closing the mines of a number of small companies, it has not seriously injured the larger independents.

BRITISH PIG IRON MARKETS.—Messrs. Wm. Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of March 7, 1902, quote as follows:

Since writing you last the iron market here has remained steady, and in view of the great demand from the States for iron and steel of all descriptions, we look for a further upward movement in the near future.

To-day's prices are:—No. 1 Gartsherrrie 66/6 per ton, f.o.b. Glasgow. No. 3 Gartsherrrie, 56/6 per ton, f.o.b. Glasgow. Nos. 1, 2, 3 Cumberland Hem-

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**BUFFALO PIG IRON MARKET.**—Office of Rogers, Brown & Co., Buffalo, N.Y., March 18, 1902.

The situation in the pig iron field at the present time is interesting from several viewpoints. Not the least of these is the absolute indifference of furnaces to taking on new business for any delivery. Most producers in this territory have sold their entire product for so many months to come that they seem anxious to avoid, if possible, making any further sales at present from the little tonnage remaining unsold for the last few months of the year.

Every now and then, a stray buyer, who has not covered for his entire requirements, comes to the front, and in seeking for a source of supply is sometimes obliged to canvas the whole market, often without obtaining the necessary tonnage.

Odds and ends which at irregular intervals are offered for early shipment, are snapped up as quickly as they are thrown on the market, the prices paid being in most cases much higher than open quotations for late delivery.

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

**IRON.**—Business has been rather quieter in the past few days, except in foundry pig iron, and in merchant pipe. Furnaces are quoting much higher prices in some cases for foundry, and there are reports that \$19, Pittsburg, has been paid for No. 2 foundry for the second half of the year.

Bessemer has advanced on light sales, and it is now practically impossible to get any second hand Bessemer at \$17 valley furnace, the lowest prices, at which we note sales, being \$17.25 and \$17.50. Some furnaces are asking still higher figures, and \$18 is the regular price for small lots for early shipment. Forge is also stronger at \$17.25 and up to \$17.75, Pittsburg, for second half, depending on the reputation of the furnace.

Nothing new in steel, offerings being very limited. Market practically nominal at \$31.50, Pittsburg, for Bessemer, and \$33 for open-hearth.

Finished material is in about the same shape as at last report. The belief now is pretty general that there will be an advance of \$1 a ton, or possibly \$2, on wire products at the next meeting of the wire makers, to be held toward the end of this month. The wire mills generally are sold up to about June 1.

**BARS.**—There is a fair enquiry for both iron and steel bars, but the main point to the market is that the mills are flooded with specifications on which they cannot ship, partly because specifications are coming in too promptly, and partly because the railroads cannot handle the material. The association prices are 1.60 cents for Bessemer steel bars and

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Special Castings and all kinds of

**FLEXIBLE AND FLANGE PIPE.**

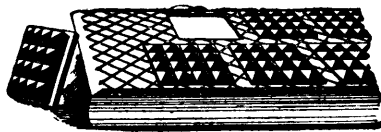
**WATER WORKS SUPPLIES**

**HAMILTON, ONT.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

**THE PATENT INTERCHANGEABLE RUBBER TREAD**

14 Gold Medals & other Awards.



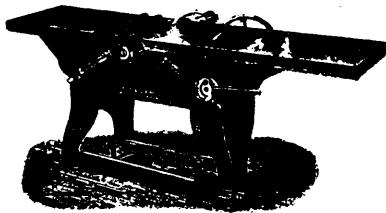
Silent Non-Slip-  
pling. Unwearable.

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

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

**CLARK & DEMILL**

MANUFACTURERS OF **Wood Working Machinery**



GALT, ONT.

Prices and description furnished on application.



Established 1799.

**EXPORT TRADE.**

Canadian Merchants and Manufacturers desiring to do business with

**GREAT BRITAIN, THE COLONIES or FOREIGN COUNTRIES,**

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

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

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

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

Dominion Branch—71 VICTORIA ST., TORONTO.

W. P. DENT, MANAGER.

Branches in Great Britain—Liverpool, Manchester, Birmingham, Glasgow, Leeds, Sheffield, Nottingham; also at Paris, Hamburg, New York, Bombay, Calcutta, Cape Town, Melbourne, Sydney, Dunedin, Buenos Ayres, etc.

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

"I am constantly receiving letters of enquiry for information that in most cases could be obtained in your Directory."—*British Consulate, Uruguay.*  
 "The only book consulted is Kelly's Directory."—*From British Consular Return, Riga.*  
 "Many of these inquiries would have been rendered superfluous by a reference to Kelly's Directory."—*Report from British Consul, Genoa.*  
 "The Directory has been of the greatest service to me in my former Consular posts, and will, I believe, be doubly useful here."—*B. C. Chicago.*  
 "We beg to express our appreciation of the thorough and exhaustive character of the Directory, which covers exactly the fields we desire to reach."—*Messrs. H. M. Anthony Co., New York.*  
 "The copy of Kelly's Directory has already been of great use to me."—*B. V.-C., Thorshavn.*  
 "It is a Directory which is very often consulted by the Merchants of our town."—*B. V.-C., Dedegatch, Turkey.*  
 "Your Directory was useful to me and the merchants in general."—*British Consular Agent, Tetuan.*

1.70 cents for open-hearth steel and common iron bars, all f.o.b. Pittsburg. Refined iron bars are 2 cents Pittsburg.

**TIN**—Periodically come reports of discoveries of new tin bearing lodes, generally accompanied with glowing accounts of their extent and richness. The discovery of tin in Australia had a depressing effect on values for a time, great things being then predicted of these discoveries. Australian production of tin has been gradually diminishing for years. Shipments from Australia in 1885 to Europe and America were 9,088 tons and have since declined to about 3,000 tons.

Spot tin opened firm in London March 18 at £115 0/0, futures at £111 7/6, and after sales of 60 tons spot and 80 tons of futures, closed firm at £115 0/0 for spot, £111 12/6 for futures, making price as compared with yesterday 5/0 higher on spot and 10/0 higher on futures.

Foreign coke tins f.o.b. dock New York; March 18: 14x20, 107 pounds, \$5.00 net; 14 x 20, 100 pounds, \$4.85 net; 28 x 20, 214 pounds, \$10.20 net.

Market remains strong at above prices.

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

**QUICKSILVER**—The quotation in New York is \$48.00 per flask for large orders. San Francisco quotations are \$47.50 to \$48.00 per flask for domestic trade, and \$44.00 for export. The London quotation is £8 15/0 per flask.

**PLATINUM**—Market is \$19.50 per ounce in New York. London prices are about on a parity with New York market.

**COPPER**—It is remarkable in the face of the outgoing shipments of copper that the market does not show more tone. Current dealings appear to be on a very quiet scale, and prices are a shade easier. Lake futures quote 12½c. and 12½c. and even at the lower price orders come in slowly.

We quote the market at 12½c. for Lake, 12½c. for Electrolytic, 12½c. to 12½c. for Casting.

**PROJECTED RAILROAD BUILDING**—The ninth semi-annual supplement of the Railroad Gazette contains a list of all railroad building proposed or incorporated in the United States, including Porto Rico, Hawaii and the Philippines, Canada and Mexico. There are 1,502 definite projects recorded, representing many different stages of advancement, in the interest of 1,142 companies. Of this number 1,308 are the projects of 995 companies within the United States, 157 are the projects of 119 Canadian companies, and 37 are new lines in Mexico in the interest of 28 companies. Projects for which contracts have been let number 453, of which 399 are in the United States, 42 in Canada and 12 in Mexico.

The Gazette notes the rapid increase in the investment of capital in the bridge business, saying:

The business making bridge and structural steel seems to be inviting to capitalists. Although production has been increasing fast the manufacturers cannot keep up with the demand, and the indi-

**PORTLAND CEMENT**

HIGHEST GRADES

**FIRE BRICKS**

Describe your requirement and we will supply a fire brick in shape and quality to suit.

Mention whether you burn coal, coke, gas or oil.

**F. HYDE & CO.**

31 Wellington St., Montreal

**Bellhouse, Dillon & Co.**

30 ST. FRANCOIS-XAVIER ST.

MONTREAL

**DYESTUFFS, CHEMICALS**

AND

**EXTRACTS**

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**ANILINE and ALIZARINE COLORS**

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**NOTICE.**

**Printers. USE PERUVIAN ASH,**

a marvellous CLEANSER for TYPE and COMPOSITION ROLLERS.

WRITE FOR PARTICULARS.

**Steam Users. VULITE**

is unrivalled as a

disincrustant.

ON H. M. GOVERNMENT'S LISTS.

**Vulite Syndicate, Limited**

40 Wilson Street, Finsbury, London, E.C., England.

**Wanted—An Active Representative for Canada**



**NOTICE**—The following are the Factory Inspectors for the Province of Ontario:

JAS. T. BURKE, Parliament Buildings, Toronto.  
 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.

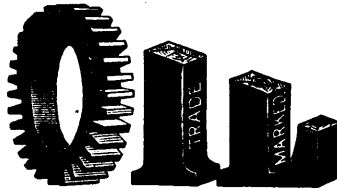
# "Capitol" Cylinder

"RENOWN" ENGINE

"ATLANTIC" RED

RELIABLE WELL-KNOWN BRAND

ALL ORDERS PROMPTLY FILLED



THE **QUEEN CITY OIL CO.** LIMITED  
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**THE EUGENE F. PHILLIPS ELECTRICAL WORKS**

MONTREAL, CANADA (LIMITED)

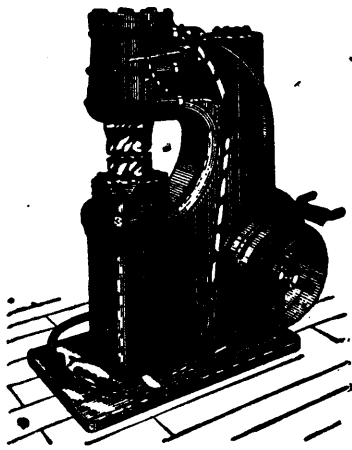
**BARE and INSULATED ELECTRIC WIRE**

ELECTRIC LIGHT LINE WIRE,  
INCANDESCENT AND FLEXIBLE CORDS,

**RAILWAY FEEDER and TROLLEY WIRE**

RUBBER-COVERED, MAGNET, OFFICE AND  
ANNUNCIATOR WIRES.

**CABLES FOR AERIAL and UNDERGROUND USE.**



The "**YEAKLEY**"  
**Vacuum HAMMER**, Patented

Is unique and unequalled by any other  
Power Hammer for its Simplicity, Power,  
Ease in Operating and Fewness of Parts;  
Nothing to Break, no Steam to Leak, no  
Pipes to Freeze, no Delays, no Expense  
for Repairs. SEND FOR CATALOGUE.

**GEORGE BRUSH**

SOLE CANADIAN MANUFACTURER,

MONTREAL

cations are that the year 1902 will be more profitable than 1901 to some of the manufacturers.

PROMINENT MARKETS OF THE UNITED STATES.—In the Bureau of Statistics returns of the foreign commerce of the United States for the calendar year 1901, the list of countries to which the United States exports largely contains 87 names. As compared with 1891, last year's exports to these 87 countries increased \$495,000,000. But of that increase \$457,000,000 came in the shipments to 14 countries only. In the subjoined table we give the figures of total export last year to each of these 14 countries, compared with those of 1891:

	1901.	1891.
Great Britain.....	\$598,766,799	\$482,295,706
Austria.....	6,843,980	1,235,504
Denmark.....	18,480,816	5,455,740
Germany.....	184,678,723	90,326,332
Italy.....	34,046,201	14,447,004
Netherlands.....	85,643,804	31,261,766
Sweden and Norway....	11,088,391	6,445,608
Canada.....	107,496,522	41,686,882
Mexico.....	36,771,568	15,371,370
Cuba.....	27,007,024	14,464,450
Argentina.....	11,117,521	1,909,788
China.....	18,175,484	8,031,606
Australasia.....	30,569,814	13,564,921
British Africa.....	24,994,766	3,511,668

TIN DEPOSITS BECOMING RARE.—Dr. Wahl, in the Journal of Franklin Institute, observes that it is a curious fact that the known deposits of tin in the world are far less extensive in area than those of gold. Specifically there are about 132 square miles yielding workable gold deposits to every square mile containing commercially available tin deposits. There is scarcely a country in the world in which gold might not be profitably obtained or from which it has not been obtained in the past, but there are at the present time probably not more than a dozen districts in the world where tin is being mined. The famous tin deposits of Cornwall are about exhausted, and the same is true of the deposits of Bohemia, Tuscany, southern Spain and the Pyrenees. In all the vast area of Asia there are but two workable districts—one in China and the other in the Straits Settlement and adjacent principalities, from the latter of which by far the largest quantity of metal has been obtained in recent years. Africa has no known deposits, and but little is produced in South America. Several deposits have been discovered in the United States, but not in profitable quantities. Australia and New Zealand contain the most promising new deposits, though at present they only produce about one-tenth that of the Straits.

SAWDUST FUEL.—Fuel from sawdust in cake or brick form has been produced in Prussia. The octagon-shaped bricks are 6½ inches long, 3½ inches wide, and ¾ of an inch thick, and weigh ½ pound each. In the district and surrounding towns where the factory was located the schools were heated by this fuel, which burns in air tight stoves without a large flame, and leaves but little ash. It is stated to be an ideal fuel, being clean, and no regulating of the stove being necessary. No binding ingredient is used; the sawdust is dried and pressed in the shape of the briquette. The absence of all tarry or oily substances prevents smoke.

# 99.99%

## The PACKARD LAMP

is not perfect, but is as near perfection as Mechanical and Chemical skill can make it.

We make Trans-  
formers too. **HYLO**  
Lamps.

Sole Agents in Canada  
for Scheeffer Recording  
Watt Meter.

**THE PACKARD ELECTRIC CO., LIMITED.**  
**ST. CATHARINES, ONT.**

**DYNAMITE.**—Dynamite is an explosive substance, patented by A. Nobel in 1867. It consists of a siliceous earth obtained at Oberlohe, in Hanover, known as kiesulguhr with 75 per cent. of nitro-glycerine, the object of the mixture being to facilitate the carriage and use of the substance by diminishing its susceptibility to explode by shock while not destroying its explosive force. The siliceous matter is of a diatomaceous origin; it is extremely friable and porous, and has a considerable absorbent power. Nitro-glycerine is a yellowish oily liquid, heavier than and insoluble in water, but dissolved by alcohol. The explosive force of nitro-glycerine, compared with that of an equal volume of gunpowder, is as 1 to 31. The mixture remains without change for any length of time, unless exposed to water. It burns away quietly if a light is applied to it, but explodes if heated to a high temperature. Usually it is exploded by a specially-arranged fulminating cap. It freezes at a temperature of 40° Fahr., and explodes if heated to 360° Fahr. In case of dynamite being frozen it should be thawed in a specially-made pan, with a double case. The explosive is placed in the inner case, and the outer case is filled with hot water. The heat given off from the water thaws the contents of the pan. Dynamite, when in a proper condition, is plastic, and may be safely handled, and is very convenient for use as an explosive. Irregularly-shaped holes may be easily charged with it, and it does not explode at ordinary temperature either by spark

or flame. Dynamite is mostly used for blasting purposes when shaft sinking and heading in hard rock. Sometimes dynamite is exploded by safety-fuse and detonator, the detonator being connected to the charge, and the whole carefully tamped. Fire is applied to the fuse, which ignites the priming mixture in the cap, which, in turn, fires the fulminate of mercury which explodes the charge. The best method of firing dynamite is by electricity. The necessary apparatus consists of the battery, the cable, and detonators. The latter are practically "high" tension and "low" tension, the low tension appearing to be the best for mining work, as it can be tested by a galvanometer. An ordinary detonator, consisting of fulminate of mercury in a copper tube, is fitted with the electric fuse, an arrangement consisting of an explosive composition, in which the ends of two insulated wires are embedded, between which the electric spark is formed, or between which, in case of the low tension fuse, a short piece of platinum wire is made hot. The two wires are attached to the two wires forming the cable which consists of a pair of insulated copper wires braided together in one cable. The detonator is inserted into the charge in the usual way, and when all is ready the workmen are withdrawn to a place of safety, and the other end is attached to the battery. The handle is turned until full speed is attained when the button is pressed, and the current passing along the wires to fire the shot.—The Science and Art of Mining.

**ARSENIC.**—A deputation from North Hastings, Ont., waited upon Premier Ross and the members of the Ontario Government last week and asked to have arsenic placed upon the bounty list. Among those on the deputation were: Messrs. Thos. Cross, J. C. Dale, Madoc; B. O. Loft, Anson; P. Kirkegaard, W. A. Hungerford, Delora; Joseph James, Actinolite, and M. Bonnell, Cleveland, O. The speakers dwelt on the immense deposits of arsenic in the county, the success of operations so far carried out, and contended that aid by bounty would induce the investment of immense capital, and soon place the county in the position of being able to supply the world with arsenic. The Premier stated that the deputation had made a strong impression on his mind, and he assured them that he would have the matter further looked into, and that the course of his Government would be guided largely by the action of the Dominion Government, who were also asked to contribute to the bounty.

**ELECTRICAL CARBON BISULPHIDE.**—Carbon bisulphide is a transparent fluid formed by the union of carbon and sulphur. It has properties of very great importance, such as its ability to dissolve India-rubber and sulphur, and its power to destroy bacterial and other noxious forms of life. It has found no small use in the electrical arts as the basis for insulating varnishes and paints, and the new process for its manufacture is one that will doubtless result in an extension

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**Foreign Freight**

**Contractors**

and

**Forwarders**

Through Bills of Lading to all parts of Europe, South Africa, Australia, Etc.

Invoices Collected Against Delivery.

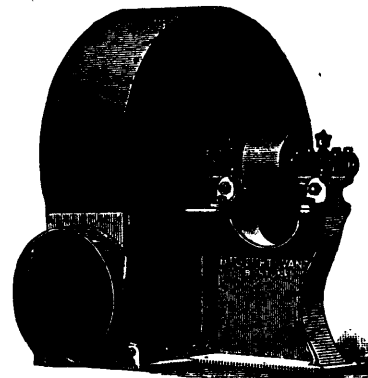
Foreign Financial Reports, Trade Lists, Etc., Etc., furnished on application.

89 Broadway, New York 138 Milk St., Boston

Agencies all over the World.

## Sturtevant Exhausters

Reduce the Cost of Conveying  
Light Materials



The shells are of steel plate of such thickness as to withstand the abrading action of the material. A cast-iron support attached to the side of the shell carries the continuous oiling boxes with the shaft and pulley, and sustains the entire strain. The fan wheel is overhung upon the end of the shaft, thus leaving the inlet entirely unobstructed for the free passage of the material to be handled. They are suitable for conveying chips, shavings, sawdust, wood pulp, tan, etc. Special fans are built for conveying wool, cotton, jute and similar fibrous materials.

**B. F. STURTEVANT CO.,**

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## Stanyon Engineering Co.,

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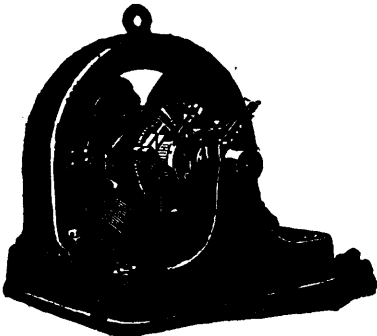
Have First-Class facilities for handling any business entrusted to them.

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

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CORRESPONDENCE SOLICITED.

## FOR SALE



### 50-Horse Power Induction Motor 7,200 Alternations, 400 Volts, 2-Phase.

Complete with transformers and auto-starter.

## T. & H. ELECTRIC CO.,

99-103 McNab St. North,  
HAMILTON.

## McLachlan Gasoline Engine Co.

LIMITED

115 Bay Street, Toronto, Can.

MANUFACTURERS OF

### ELECTRIC LIGHT AND POWER APPARATUS

GASOLINE ENGINES

For Launches, Horseless Carriages, etc

CORRESPONDENCE SOLICITED.

of its use through the lowering of its price. The electric furnace has come to play a very important part in the manufacturing arts, but no one who has watched the course of its development in the last few years can fail to see that its applications to industrial processes have only just begun. The possibility of combining electrolytic action, when this is desirable, with any degree of temperature up to a maximum approaching that exhibited in the sun, should make this branch of chemistry one of the most attractive and interesting of all.

**ECONOMY.** — Economy is the excuse advanced for the existence of nine-tenths of the shoddy gore in this country. Economy is an interesting thing. Let us drag it under the microscope and look at it a minute.

Economy has been defined as "doing without something you want when you want it, for fear you'll some day have to do without something you want when you don't want it."

Economy was first discovered by the meanest man in the community. It is called a virtue, but it is the most unpopular of all the virtues. It is only practised by some human beings. Nature is not economical. The sun is not economical. But some men are.

We once knew a man who was so economical that he picked up all the stray pins he saw on the street. It saved him at least 37 cents a year for pins, and it didn't take more than \$15 worth of his time.

We knew another man who sat by the fire all day to save shoe leather. He was a model economist. It cost him a good deal of money, but it saved him at least \$2 a year on shoes.

There was another great economist who used to eat more food than he wanted at every meal, just to save it from being wasted. His grave is in the cemetery.

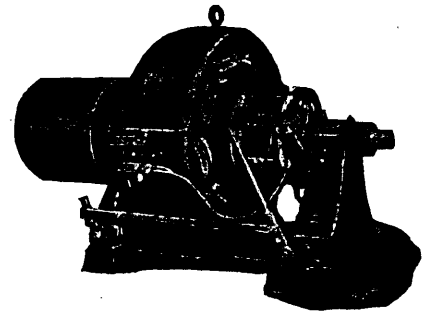
It takes a big man to be economical.

**MARK TWAIN ON BAD HABITS.**—"Bad habits, according to Mark Twain, are very good and helpful things for a man to have," said a Philadelphia editor.

"The first time I interviewed Mark I was smoking a cigarette, and I apologized for this. 'It's a bad habit, I know, sir,' I said humbly. 'Why, that's all right,' said Twain; 'I like to see young men have bad habits. I like to see them stir around and accumulate all of them they can. A man is like a balloon, and his bad habits are his ballast. Now, suppose he's taken suddenly down sick. He throws off some ballast—throws off, we'll say, the habit of smoking—and in a little while he's up and about again. But if he's very sick, and the throwing off of smoking doesn't bring him around, he gets rid of more ballast—gets rid, say, of the booze habit—and if even then he isn't cured he must throw off still more ballast; so that you can see easily enough what a fine thing it is for his health to have as many bad habits as possible. But if he has no bad habits and is taken sick, not being equipped with any ballast to throw off, the chances are that the unfortunate fellow will die.'"

## The Jones & Moore ELECTRIC CO.

### ELECTRICAL CONTRACTORS



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

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

20 and 22 ADELAIDE W.,  
TORONTO.

## KERR'S

# VALVES

ARE FOR SALE

BY ALL

FIRST-CLASS DEALERS

IN

STEAM

SPECIALTIES

ASK FOR KERR'S

## THE KERR ENGINE CO.

LIMITED

WALKERVILLE, . ONTARIO

CHARLES F. CLARK, President. JARED CHITTENDEN, Treasurer.

Established 1849.

## BRADSTREET'S

Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.

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

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

**BUSINESS CHANGES.**

FROM BRADSTREETS.

**ONTARIO.**

BEAVERTON—Beaverton Brick & Tile Co., obtained charter.  
 CHATHAM—Blonde Lumber & Mfg. Co., obtained charter.  
 CLARKSBURG—Shipe Mfg. Co., mfrs. rims, skewers, etc., winding-up order granted.  
 DELHI AND NIAGARA—Delhi Fruit & Vegetable Canning Co., dissolved, W. A. Ferguson continues.  
 GALT—Cowan & Co., obtained charter.  
 GODERICH—Goderich Organ Co. Mfrs., small loss by fire.  
 HAGERSVILLE—Hagersville Contracting Co., obtained charter.  
 HEPWORTH—J. E. Murphy, lumber and cement, sawmill, etc., at Murphy burned.  
 INGLEWOOD—Inglewood Mfg. Co., machinists, sold to W. C. Thompson.  
 LONDON—Hobbs Mfg. Co., w. hardware, applying for incorporation.  
 Columbia Handle Co., burned out.  
 MEAFORD—Meaford Mfg. Co., obtained charter.  
 NEW HAMBURG—Hahn Brass Co., obtained charter.  
 NIAGARA FALLS—Niagara Metallic Furniture Co., E. R. C. Clarkson, provisional liquidator.  
 OTTAWA—Imperial Clothing Mfg. Co., assets to be sold at auction.  
 Columbia Asbestos & Mica Mining Co., seeking charter.  
 W. H. Fligg, Mfr. bicycles, meeting of creditors.  
 Imperial Clothing Mfg. Co., assets to be sold.  
 OAKWOOD—Hogg & Lytle, grain, elevator at Mariposa Station burned.  
 PETERBORO—Trent Valley Peat Fuel Co., assigned to R. R. Hall.  
 PORT COLBORNE—Mutual Natural Gas Co., obtained charter.  
 SAULT STE. MARIE—Algoma Tube Works, obtained charter.  
 TORONTO—Atlantic Pulp & Paper Co., obtained charter.  
 American Tent & Awning Co., obtained charter.  
 McLachlan-Joy Electric Co., obtained charter.  
 American Tire Co., bicycle sundries and sporting goods, E. R. C. Clarkson, permanent liquidator.  
 WELLESLEY—J. G. Reiner, mfr. woollens and miller, sold flour mill to the Tavistock Milling Co., who take possession April 8.

**QUEBEC.**

MONTREAL—Canadian Wrapper Mfg. Co., meeting of creditors.  
 La Compagnie de Papier Rolland, registered.  
 Empire Electric Co., registered.  
 Grant Hamilton Oil Co., registered.  
 A. C. Lariviere, carriage maker, factory damaged by fire.  
 McCormick Harvesting Machine Co., registered.  
 R. E. T. Pringle Co., registered.  
 Royal Hat & Cap Mfg. Co., stock sold.  
 United States & Canada Mfg. Co., registered.  
**NEW BRUNSWICK.**  
 St. JOHN—Cu-hing Box Co., mfrs. lumber, applying for incorporation.  
 St. MARY'S—Maritime Combination Rack Co., mfrs. implements, incorporated.  
 WOODSTOCK—Carleton Woolen Co., mfrs., damaged by fire.

**NOVA SCOTIA.**

PICTOU—Pictou Quarries Co., applying for incorporation.  
 Bailey-Underwood Co., machinists, applying for incorporation.  
 PORT HASTINGS—Canso Bridge Co., application for Dominion charter.  
 PORT HOOD—Inverness Electric Light, Heat & Power Co., applying for incorporation.  
 ST. MARGARET'S BAY—Dominion Lumber Co., applying for incorporation.  
 SYDNEY—Cape Breton Silicate Brick Co., applying for incorporation.  
 DeWitt & MacKinley, electricians, dissolved.  
 DeWitt Electric Co. succeeds.

**MANITOBA.**

CARBERRY—Carberry Acetylene Gas Co., burned out.  
 DARLINGFORD—Darlingford Farmers' Elevator Co., applying for incorporation.  
 MIAMI—Moore Cement Mfg. Co., applying for charter.  
 WINNIPEG—Dyson Co., mfrs. spices, etc., applying for incorporation.  
 Fuel Saving Smoke Consuming Mfg. Co., incorporated.

**NORTH-WEST TERRITORIES.**

CONDIE—Condie Farmers' Elevator Co., incorporated.  
 RED DEER—Red Deer Brick Co., incorporated.  
 PONOKO—Truman Bros., sawmill, sold to Loewen & Co.  
 WAPELLA—Wapella Farmers' Elevator Co., incorporated.

**BRITISH COLUMBIA.**

VANCOUVER—British Columbia Shingle Mfg. Co., burned out.

Main Factory—BRADFORD, ENG.

Main Showrooms—LONDON, ENG.

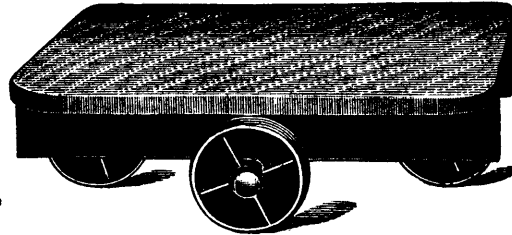
The Largest Truck Establishment in the World.

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

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

We make every truck that leaves our factory advertise us.

SPINS LIKE  
 A TOP.  
 RUNS  
 EITHER  
 WAY.



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

End Wheels Slide  
 on Axle.

**DIXON'S TWO THINGS**

**SOLID Belt Dressing.**

DOES  
**TWO THINGS**  
 AND DOES THEM  
 THOROUGHLY  
 STOPS THE BELT  
 FROM SLIPPING.  
 PLEASES THE MAN  
 WHO USES IT.

NOTHING  
 EQUALS  
 IT...

SAMPLE SENT FREE.  
 SEND FOR ONE.

**JOSEPH DIXON CRUCIBLE CO., JERSEY CITY, N.J. U.S.A.**

**Toronto Elevator Co.**

**MILLWRIGHTS AND ELEVATOR SPECIALISTS**

Estimates Given and Losses Adjusted

OUT-OF-TOWN WORK PROMPTLY ATTENDED TO.

PHONE **JOHN H. SHALES,** 74 ADELAIDE ST. WEST  
 1535 Manager TORONTO

AGENTS FOR...  
 Miller Bros. & Toms, Elevators  
 Leitch & Turnbull Co. Limited, Elevators.  
 Greening's Wire Ropes.

HYDRAULIC PRESSURE PUMP  
 SMALL POWER FEEDER  
 MARSH  
 LARGE BOILER FEEDER  
**MARSH STEAM PUMPS**  
 STANDARD FOR ALL UTILITIES  
 MANUFACTURED BY **AMERICAN STEAM PUMP CO.**  
 BATTLE CREEK MICH.  
 AIR COMPRESSOR  
 41,000 SOLD IN 12 YEARS  
 FOR DEEP WELLS  
 MAXIMUM STRENGTH AND SERVICE  
 LARGE TANK  
 WRITE FOR NO. 10 CATALOGUE

Canadian Agents **The A. R. WILLIAMS MACHINERY CO. LIMITED**  
 Head Office, TORONTO  
 Branch Office—MONTREAL

# HARDWARE, METALS, PAINTS and OILS

Current Prices, Revised to March 21, 1902.

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

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



**PATENT "SAFE LOCK" SHINGLES.**



**SKYLIGHTS.**

## Metal Building Materials

Fire Proof—Lightning Proof—Frost Proof



**PRESSED BRICK.**

Neat, serviceable and low in price. Exactly what every manufacturer requires. A trial order will make you a permanent customer. Would you like to know what many manufacturers who have used our goods think of them?

Our Galvanized "**Safe Lock**" Shingles are superior to slate or gravel.

Our **Steel Sidings** keep out the weather, make a warm and dry building, are durable and of handsome appearance.

We can help you to build cheaply and well.



**CORRUGATED SHEETS.**

### THE METAL SHINGLE & SIDING CO., Limited, PRESTON, ONTARIO.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



**BELLS.—Duty 30%.**  
 Church, 35 cents per lb.  
 Cow, 60% discount.  
 Door, \$5.50 to \$12 per doz.  
 Farm, \$1.75 to \$4.50 each.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**BUCKLES.—Duty 30%.**  
 Double Grip Trace, three loop, tinned and japanned, put up a dozen in a box, 14", 55 cents per doz.; 1½", 65 cents per doz.  
 Harness, japanned or tinned, 12 cents per lb.  
 Shoe, japanned or tinned, 12 cents per lb.

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

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

**CARBIDE, Bicycle.—Duty 25%.**  
 In Cases containing 2 doz. 1 lb. cans, \$1.75.  
 " " " 1 " 5 " " 2.75.  
 " " " 1 " 5 " " 3.00.  
 In Cans " 100 lbs., \$3.25.

**CASTINGS (Iron).—Duty 30%.**  
 Carriage, in 5 ton lots, 5 cents per lb.  
 " 3 " " 5½ " " "  
 " 2 " " 5½ " " "  
 " 1 " " 5½ " " "  
 " ½ " " 5½ " " "

**CASTINGS (Brass)—Duty 20%.**  
 21 to 25 cents per lb.

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

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

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

**CHALK.**  
 Carpenters', colored, 45 to 75 cents per gross.  
 Crayon, 14 to 18 cents per gross.  
 Red, 5 to 8 cents per lb.  
 White Lump, 60 to 65 cents per 100 lbs.

**CHAIN.—Duty 5%.**  
 Brass, Jack, 30% discount.  
 Coil, 3-16, \$11.00 per 100 lb.; ½, \$8.75 per 100 lbs.; 5-16, \$5.50 per 100 lbs.; ¾, \$4.90 per 100 lbs.; 1, \$4.40 per 100 lbs.; 1½, \$4.00 per 100 lbs.; 2, \$3.50 per 100 lbs.  
 Iron, Jack, 25% discount.  
 Safety, 55

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

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

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

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

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

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

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

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

**DYES (Aniline).**

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

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

**EMERY CLOTH.—Duty 25%.**  
 Bader & 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, 33¼% 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 25%.**  
 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.  
 Jowitt's, 25% discount.  
 Nicholson, 50 & 10% discount.  
 Stubbs', 15% discount.

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

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

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

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

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

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

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

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

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

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

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

**GOVERNORS.—Duty 25%.**  
 Gardeners', 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, \$3.00 per gross.

**HALTERS.—Duty 30%.**  
 Leather, 1 in. strap, \$3.87½ to \$4 per doz.  
 Leather, 1½ in. strap, \$5.15 to \$5.20 per doz.  
 Rope, 1, \$9 per gross.  
 Rope, 1 to 1½, \$11 per gross.  
 Web, \$1.37 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.  
 Tinnners', \$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.  
 Parlor door, \$3 to \$6 per set.

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

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



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

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

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

**HORSE NAILS.**—Duty 30%.—See Nails

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

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

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

**IRON.**—See Metals.

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

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

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

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

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

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

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

**LAWN MOWERS.**—Duty 35%.  
Pennsylvania, 50% discount.  
Stearns, 50 “ “  
Woodratt, 40 “ “

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

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

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

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

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

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

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

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

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

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

**Sheets, Black, Duty \$7 per ton.**  
“ 10—\$2.65, 100 lbs.  
“ 12—\$2.75, “  
“ 14—\$3.10, “  
**Sheets, Black, Duty 5%.**  
“ 17—\$3.10, 100 lbs.  
“ 18—\$3.20, “  
“ 20—\$3.25, “  
“ 22—\$3.30, “  
“ 24—\$3.50, “  
“ 26—\$3.75, “  
“ 28—\$4.00, “  
**Sheets, Tinned—7 $\frac{1}{2}$  cents per lb., Base price.**  
**Sheets, Galvanized Iron.**  
“ 17—\$3.80 per 100 lbs.  
“ 18—\$3.90 “  
“ 20—\$3.90 “  
“ 22 to 24—\$4.10 per 100 lb.  
“ 18 to 24—\$4.50 “  
“ 26—\$4.25 per 100 lb.  
“ 28—\$4.50 “  
“ 16—(Queen Head), \$3.90 per 100 lb.  
“ 18-22—(Queen's Head), \$4.15 per 100 lb.  
“ 26—\$4.40 per 100 lb.  
“ 28—\$4.65 “  
**Sheets, Corrugated—Galv., \$4.50 per 100 sq. ft.**  
**Shafting, Bright Steel.—\$3.50 per 100 lb.**  
**Shingles, Galv. Iron, Ordinary, \$4.90 per sq.**  
“ “ “Medium, \$5.45 “  
“ “ “Best, \$5.80 “  
“ “ “Painted Steel, Ordinary, \$3.15 per sq.  
“ “ “Medium, \$3.35 “  
“ “ “Best, \$5.80 “

**Iron (duty \$7 per ton).**  
“ Angle.—\$2.75 per 100 lb.  
“ Bar (Common).—\$1.95 @ \$2.05.  
“ Bar, “Swedes.”—\$4.50 per 100 lb.  
“ Lowmoor.—\$6.50 per 100 lb.  
“ Refined Bar.—\$2.60 per 100 lb.  
**Iron, Planished Sheet (duty 5%)**  
“ “A”—\$6.00 per 100.  
“ “B”—\$5.00 “  
“ Russia.—\$10.00 per 100 lb.  
**Pig Lead (duty 15%).—Domestic, \$3.75 per 100 lb;**  
pigs, imported, \$4.25 per 100 lb.; bars, \$5 per 100 lb.; sheets, \$5.50 per 100 lb.  
**Solder bar (duty 25%).—1st, refined, 18 cents per lb.;**  
half-and-half, 18 cents per lb.  
**Iron, Pig (duty \$2.50 per net ton). \$16.50 @ \$17 per ton.**  
**Iron, English Horse Shoe.—\$2.85 per 100 lb.**  
**Iron, Band.—\$2.05 per 100 lb.**  
**Iron, Hoop.—\$2.90 per 100 lb.**  
**Beams, Steel.—\$3 per 100 lb.**  
**Rods.—Brass, 24 cents per lb., base price.**  
**Rails, Small Steel.—\$3 per 100 lb.**  
**Steel, Cultivator.—\$4.50 per 100 lb.**  
“ Channel.—\$3 to \$4 per 100 lb.  
“ “Firths.”—12 cents per lb.  
“ “Crescent.”—9 cents per lb.  
“ Cant Hook.—7 $\frac{1}{2}$  cents per lb.  
“ Machinery (in the rough).—\$2.25 per 100 lb.  
“ Machinery.—\$2.75 per 100 lb.  
“ Mild.—\$1.90 per 100 lb.  
“ Sleigh Shoe.—\$1.90 per 100 lb.  
“ Spring.—\$3.00 per 100.  
“ Tire.—\$2.05 per lb.  
“ Toe Caulk.—\$2.20 per 100 lb.  
**Steel, Blister.—12 $\frac{1}{2}$  cents per lb.**  
**Steel, Hammer.—7 cents per lb.**  
**Steel, Decarbonized Sheet.—7 cents per lb., base.**  
**Tank Steel Plate (duty \$7 per ton).—3-16, \$2.60 per 100 lb.**  
**Plates, Steel Boiler (duty 10%).— $\frac{1}{4}$  and larger, \$2.50 per 100 lb.**  
**Steel Boiler Heads (duty 10%).—\$2.60 per 100 lb.**  
**Canadian Plates.—All dull, 52 sheets, \$2.90;**  
half polished, \$3.

**MOPS.**—\$1 per doz.

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

**NAILS.**—Duty, cut,  $\frac{1}{2}$  cent per lb.; wire, 3-5 cent per lb.  
Chair nails, 35% discount.  
Clout nails, blued, 65 and 5% discount.  
Coopers', 35% discount.  
Copper nails, 52 $\frac{1}{2}$ % discount.  
Cut, 2d \$3.65; 3d, \$3.30; 4 & 5d, \$3.65; 6 & 7d, \$2.95; 8 & 9d, \$2.80; 10 & 12d, \$2.75; 16 & 20d, \$2.70; 30, 40, 50 & 60d (base), \$2.65.  
Flour barrel nails, 30% discount.  
Galvanizing, 2 cents per lb. net, extra.  
Horse (C brand), 50 & 7 $\frac{1}{2}$ % discount.  
M brand, 50 & 10% discount.  
Steel cut nails, 10 cents extra.  
Trunk nails, black, 65 and 5% discount.  
Trunk nails, tinned, 65 and 10% discount.  
Wire, 2d \$3.85; 3d, \$3.50; 4 & 5d, \$3.25; 6 & 7d, \$3.15; 8 & 9d, \$3; 10 & 12d, \$2.95; 16 & 20d, \$2.90; 30, 40, 50 & 60d (base), \$2.85; fine, 3d, \$3.35.  
Wire nails in car lots, \$2.77.  
Miscellaneous wire nails, 70 & 10% discount.

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

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

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

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

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

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

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

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

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

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

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

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

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

**LEAD, RED.**—Duty 5%.  
Genuine, 50 lb. casks, \$5.50 per cwt.  
Genuine, 100 lb. kegs, \$5.75 per cwt.  
No. 1, 50 lb. casks, \$5.25 per cwt.  
No. 1, 100 lb. kegs, \$5 per cwt.

**COLORS (Dry).**—Duty 25%.  
Burnt Sienna, pure, 10 cents per lb.  
“ Umber, pure, 10 cents per lb.  
Raw, 9 cents per lb.  
Canadian Oxides, \$1.75 to \$2 per 100 lb.  
Chrome Greens, pure, 12 cents per lb.  
Chrome Yellows, pure, 18 cents per lb.  
Drop Black, pure, 9 cents per lb.  
English Oxides, \$3 to \$3.25 per 100 lb.  
English Vermillion, 80 cents.  
Fire Proof Mineral, \$1 per 100 lb.  
Genuine English Litharge, 7 cents per lb.  
Golden Ochre, 3 $\frac{1}{2}$  cents per lb.  
Mortar Color, \$1.25 per 100 lb.  
Pure Indian Red, No. 45, 90 cents per lb.  
Super Magnetic Oxides, \$2 to \$2.25 per 100 lb.  
Ultramarine Blue, in 28-lb. boxes, 8 to 24 cents per lb.  
Venetian Red (best), \$1.80 to \$1.90 per 100 lb.  
Whiting, 12 cents.

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

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

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

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

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

**PITCH.**  
85 cents 100 lbs.

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

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

**PIPE.**—Duty 30%.  
Galvanized Iron.  
1/2, \$5.15 per 100 ft.; 3/4, \$5.50 per 100 ft.; 1, \$7.95 per 100 ft.; 1 1/4, \$10.80 per 100 ft.; 1 1/2, \$12.95 per 100 ft.; 2, \$17.35 per 100 ft.

**PIPE, BLACK IRON.**—Duty 30%.  
1/2, \$4.65 per 100 ft.; 3/4, \$3.40 per 100 ft.; 1, \$3.45 per 100 ft.; 1 1/4, \$3.30 per 100 ft.; 1 1/2, \$3.75 per 100 ft.; 1 3/4, \$3.25 per 100 ft.; 2, \$12.75 per 100 ft.; 2 1/2, \$22.75 per 100 ft.; 3, \$30.00 per 100 ft.; 3 1/2, \$37.50 per 100 ft.; 4, \$42.75 per 100 ft.; 4 1/2, \$51.50 per 100 ft.; 5, \$57.50 per 100 ft.; 6, \$74.50 per 100 ft.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**SCYTHES.**—Duty 25%.  
Grass, \$8 to \$10 doz.  
Grain, \$12 to \$14 "

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

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

**SHOT.** See Ammunition.

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

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

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

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

**SOLDER (Plumbers).**—See Metals.

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

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

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

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

**STEEL**—see Metals.

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

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

**TACKS, BRADS, etc.**—Duty 35%.  
Carpet tacks, blue, 80 & 15% discount.  
" " tinned, 80 & 20 "  
" " in kegs, 40% discount.  
Cheese-box tacks, blue, 85 & 12 1/2% discount.  
Copper tacks, 50% discount.  
Cut tacks, blue, in dozens only, 80% discount.  
" weights, 60% discount.  
Fine finishing, 40% discount.  
Leather carpet tacks, 55% discount.  
Lining tacks, in papers, 10% discount.  
Patent brads, 40% discount.  
Picture frame points, 10% discount.  
Strawberry box tacks, bulk, 75 & 10% discount.  
Swedes, cut tacks, blue and tinned, in bulk, 80 & 10% discount; in dozens, 75% discount.  
Swedes, upholsterers', bulk, 85, 12 1/2 & 12 1/2% dis.  
" brush, blue and tinned, bulk, 70% dis.  
" gimps, blue, 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.  
" " Brock's," 25% discount.  
" " Trimco," 25 "

**TRAPS.**—Duty 30%.

**TRUCKS.**—Duty 30%.

**TURNBUCKLES.**—Duty, 1/2 cent per lb., 25% ; 3/4% discount.

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

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

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

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

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

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

**WIRE.**  
Brass Wire, (duty 10%), 50 to 50 & 2 1/2% discount.  
Copper Wire, (duty 15%), 45 & 10% discount net cash 30 days, f.o.b. factory.  
Smooth Steel Wire, (duty 20%), is quoted at the following net selling prices:  
No. 6 to 8 guage, \$2.50 per 100 lbs.  
" 9 " 2.30 "  
" 10 " 2.37 "  
" 11 " 2.30 "  
" 12 " 2.35 "  
" 13 " 3.15 "  
" 14 " 3.37 "  
" 15 " 3.50 "  
" 16 " 3.65 "

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

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

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

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

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

**WRENCHES.**—Duty 30%.  
Agricultural, 60% discount.  
Alligator, 50 "  
Trimco, pipe, 25 "

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

**ZINC.**—See Metals.

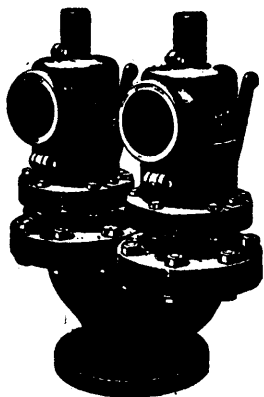
# INDEX TO ADVERTISEMENTS.

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

Agriculture, Ontario Minister of, Toronto.....	33	Forman John, Montreal.....	5-8	Oakey, John & Sons, London, Eng.....	5
Albert Mfg. Co., Hillsborough, N.B.....	6	Frick, H. C. Coke Co., Pittsburg, Pa.....	obc	Ontario Malleable Iron Co., Oshawa, Ont.....	obc
Algoma Steel Co., Sault Ste. Marie, Ont.....	30	Frost, W. H., Smith's Falls, Ont.....	obc	Ontario Wind Engine & Pump Co., Toronto..	31
Allan & Co., E. M. & A., Toronto.....	10			Owen Sound Portland Cement Co., Owen	2
American Steam Gauge & Valve Mfg. Co.,	42	Gartshore, John J., Toronto.....	43	Sound, Ont.....	
Boston, Mass.....		Gartshore-Thomson Pipe & Foundry Co.,	32		
American Steam Pump Co., Battle Creek,	37	Hamilton, Ont.....		Packard Electric Co., St. Catharines, Ont.....	34
Mich.....		Gee Electrical Engineering Co., Toronto.....	22	Page Wire Fence Co., Walkerville, Ont.....	23
Anglo-Russian Trade Messenger, Moscow,	43	Goldie & McCulloch Co., Galt, Ont.....	3	Parke, Roderick J., Toronto.....	8
Russia.....		Gooding William, London, Eng.....	33	Parker, Alfred S., New Toronto, Ont.....	43
Archbold, George, Prescott, Ont.....	41	Gordon, Drummond & Co., London, Eng.....	31	Patent Clothboard Co., Parry Sound, Ont.....	43
Armstrong Mfg. Co., Bridgeport, Conn.....	23	Gowdey, J. A., Reed & Harness Mfg. Co.,	23	Perrin, Wm. R. & Co., Toronto & Chicago, Ill.	19
		Providence, R. I.....	29	Peterborough Canoe Co., Peterborough, Ont.	6
Bale & Co., London, England.....	31	Gray, R. A. L. & Co., Toronto.....	29	Petrie, H. W., Toronto.....	43
Barber, Wm. & Bro., Georgetown, Ont.....	43	Greening B. Wire Co., Hamilton.....	28	Phillips, Eugene F., Electrical Works, Mont-	
Bellhouse, Dillon & Co., Montreal.....	33	Gutta Percha & Rubber Mfg. Co., Toronto..	ofc	real.....	34
Bell Organ & Piano Co., Guelph, Ont.....	29			Pitt & Scott, New York City.....	35
Benson, W. T. & Co., Montreal.....	2	Hamilton Brass Mfg. Co., Hamilton, Ont.....	5	Plummer, F. O., Boston, Mass.....	43
Bertram, John & Son, Dundas, Ont.....	3	Hamilton Cotton Co., Hamilton, Ont.....	5		
Big Four Route, Boston, Mass.....	2	Hamilton Facing Mills Co., Hamilton, Ont.....	obc	Queen City Oil Co., Toronto.....	ofc-34
Blagden, Waugh & Co., London, England.....	32	Hamilton, Wm., Mfg. Co., Peterborough, Ont.	31		
Bourne-Fuller Co., Cleveland, Ohio.....	32	Hay, Peter, Galt, Ont.....	4	Rehder Plating & Mfg. Co., Thorold, Ont.....	43
Broadstreets, Toronto and New York.....	36	Hore, F. W. & Son, Hamilton, Ont.....	43	Rice Lewis & Son, Toronto.....	21
Bristol Co., Waterbury Conn.....	obc	Howard, E. Clock Co., Boston, Mass., and	23	Riley, C. E. & Co., Boston, Mass.....	ofc
Brown & Co., Paris, Ont.....	6	New York City.....	31	Robb Engineering Co., Amherst, N.S.....	6
Brush, George, Montreal.....	3	Hyde, F. & Co., Montreal.....	3	Rosamond Woolen Co., Almonte, Ont.....	43
Brunner, Mond & Co., Northwich, Eng.....	5			Rossendale Belting Co., Manchester, Eng.....	7
Buchanan, R. H. & Co., Montreal.....	7	Imperial Oil Co., Petrolea, Ont.....	3		
Budden Hanbury A., Montreal.....	43	Jenckes Machine Co., Sherbrooke, Que.....	24	Schoellkopf, Hartford & Hanna Co., Buffalo, N.Y.	
Buffalo Forge Co., Buffalo, N.Y.....	17	Jones & Moore Electric Co., Toronto.....	36	Scioto Fire Brick Co., Sciotoville, Ohio.....	23
Burt Mfg. Co., Akron, Ohio.....	17			Slingsby, H. C. for Canada, Montreal.....	37
Butterfield & Co., Rock Island, Que.....	21	Karch, H. W., Hespeler, Ont.....	28	Smart, James, Mfg. Co., Brockville, Ont.....	23
		Kay Electric Dynamo & Motor Co., Toronto.	29	Smith & Cameron, Toronto.....	obc
Canada Foundry Co., Toronto.....	5	Keller, John J. & Co., New York, N.Y.....	2	Smith Woolstock Co., Toronto.....	43
Canada Iron Furnace Co., Montreal.....	2	Kelly's Directories, Toronto and London,	2	Stanyon Engineering Co., Toronto & Pitts-	
Canada Switch & Spring Co., Montreal.....	obc	Eng.....	33	burg, Pa.....	36
Canadian Canoe Co., Peterborough, Ont.....	31	Kemp Mfg. Co., Toronto.....	6	Storey, W. H. & Son, Acton, Ont.....	43
Canadian Colored Cotton Mills Co., Montreal.	22	Kerr Engine Co., Walkerville, Ont.....	36	Stowe-Fuller Co., Cleveland, Ohio.....	36
Canadian Heine Safety Boiler Co., Toronto.	8-15	Kingston Foundry, Kingston, Ont.....	2	Sturtevant, B. F. Co., Boston, Mass.....	35
Canadian Manufacturer Pub. Co., Toronto.....	43	Kinleith Paper Co., St. Catharines, Ont.....	32	Syracuse Smelting Co., Montreal.....	7
Canadian Office & School Furniture Co., Pres-	18	Klipstein, A. & Co., New York, N.Y.....	6		
ton, Ont.....		Laurie Engine Co., Montreal.....	43	Taft Dr. Bros. Medicine Co., New York City..	43
Canadian Portland Cement Co., Deseronto,	19	Leitch & Turnbull, Hamilton, Ont.....	43	Tallman, J. N. & Sons, Hamilton, Ont.....	22
Ont.....	18	Lewis, Rice & Son, Toronto.....	21	Thompson, W. G. M., St. Catharines, Ont.....	43
Canadian Rand Drill Co., Montreal.....	7	London Machine Tool Co., London, Ont.....	29	Toronto & Hamilton Electric Co., Hamilton,	
Canadian Rubber Co., Toronto and Montreal.	obc	Lumsden, J. & Co., Montreal.....	23	Ont.....	36
Carrier, Laine & Co., Levis, Que.....	ofc	Mason Machine Works, Taunton, Mass.....	43	Toronto Elevator Co., Toronto.....	37
Carruthers, Robert, Lowell, Mass.....	ofc	Merrimac Chemical Co., Boston, Mass.....	43	Toronto Paper Mfg. Co., Cornwall, Ont.....	43
Case, Egerton R., Toronto.....	ofc	Metallic Roofing Co., Toronto.....	27	Trimont Mfg. Co., Roxbury, Mass.....	6
Cassella & Color Co., New York and Montreal.	33	Metal Shingle & Siding Co., Preston, Ont.....	38		
Clark & Demill, Galt, Ont.....	16	Milnes, J. H. & Co., Toronto.....	25	United Electric Co., Toronto.....	obc
Cooper, James Mfg. Co., Montreal.....	26	Montreal Pipe Foundry Co., Montreal.....	2	Vulite Syndicate, London, E.C., England.....	33
Cowan & Co., Galt, Ont.....	20	Morrow, John, Machine Screw Co., Ingersoll,	6		
Crosby Steam Gauge & Valve Co., Boston,	20	Ont.....	32	Walkerville Malleable Iron Co., Wakerville,	
Mass.....		Morton Co., Toronto.....	32	Ont.....	ofc
Darling Bros., Montreal.....	22	McArthur, Corneille & Co., Montreal.....	obc	Wallberg, E. A., Toronto.....	16-35
Dean Bros, Toronto.....	30	McEachren Heating & Ventilating Co., Galt,	25	Whiting Foundry Equipment Co., Harvey, Ill.	
Deseronto Iron Co., Deseronto, Ont.....	37	Ont.....	36	Williams, A. R. Machinery Co., Toronto.....	ofc
Dixon, Jos., Crucible Co., Jersey City, N.J	30	McLachlan Gasoline Engine Co., Toronto.....	32	Williams & Wilson, Montreal.....	5
Dodge Mfg. Co., Toronto.....	4	McLaren, D. K., Montreal and Toronto.....	43	Winn & Holland, Montreal.....	ofc
Dominion Bridge Co., Montreal.....	ofc	Neff, A. C., Toronto.....	43	Wilson Bros. Bobbin Co., Todmorden, Eng....	29
Dominion Dyewood & Chemical Co., Toronto.	ofc	New Toronto Woolstock Co., New Toronto,	43	Wilson J. C. & Co., Glenora, Ont.....	ofc
Dominion Oil Cloth Co., Montreal.....	20	Ont.....	43	Wire and Cable Co., Montreal.....	ofc
Dominion Radiator Co., Toronto.....	10	Northey Mfg. Co., Toronto.....	8	Worth & Martin, Toronto.....	9
Drummond, McCall & Co., Montreal, Que.....	18	Nova Scotia Steel Co., New Glasgow, N.S....	4	Wright & Dallyn, Hamilton, Ont.....	28
				Zanzibar Paint Co., Toronto.....	

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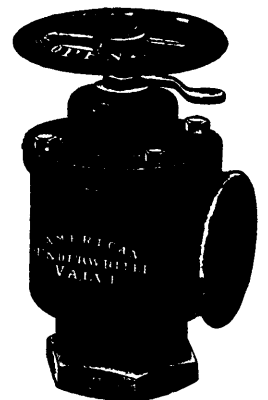
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