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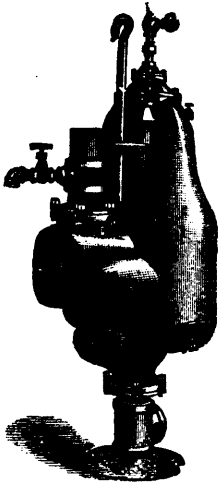
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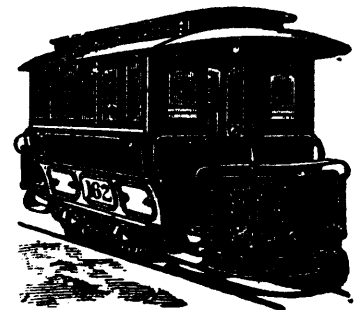
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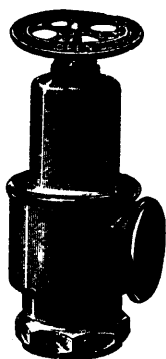
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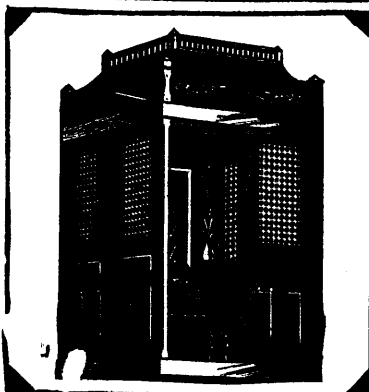
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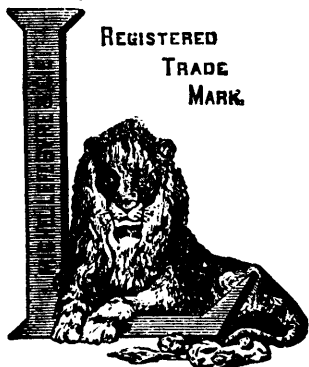
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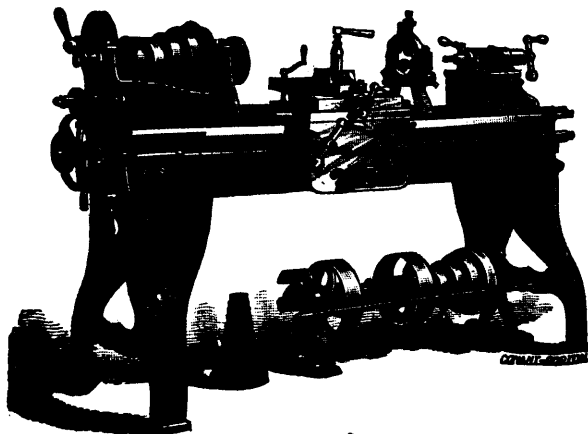
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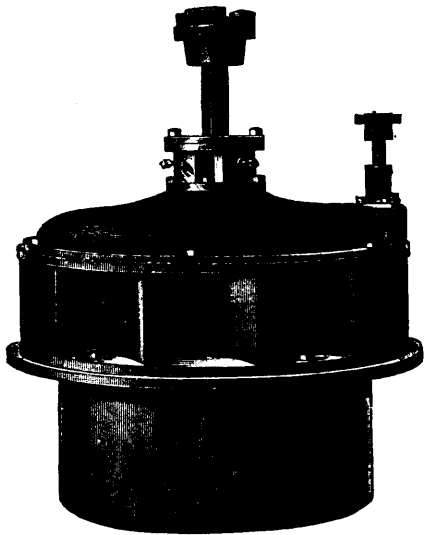
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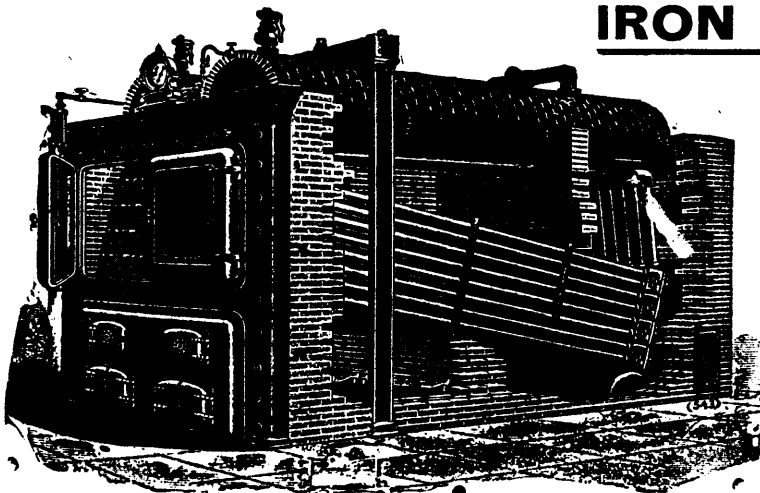
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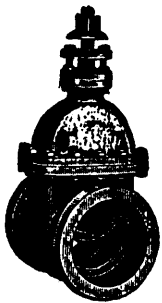
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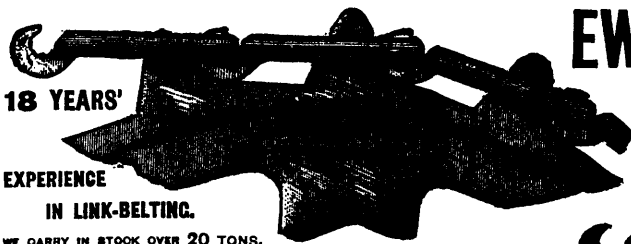
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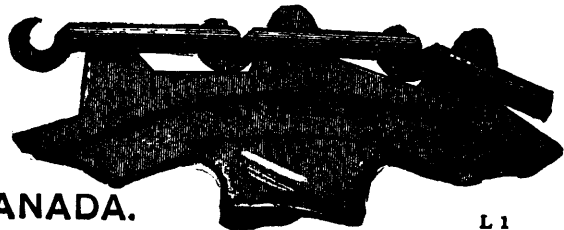
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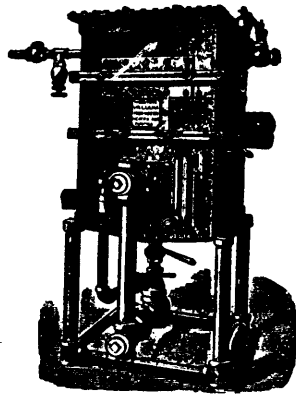
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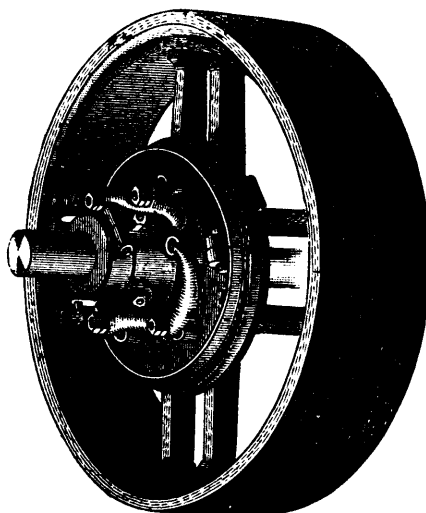
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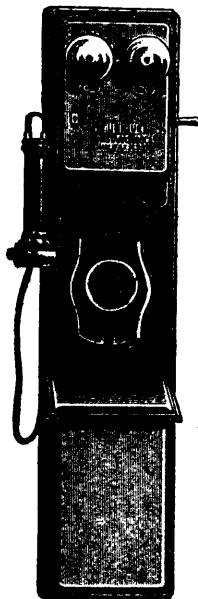
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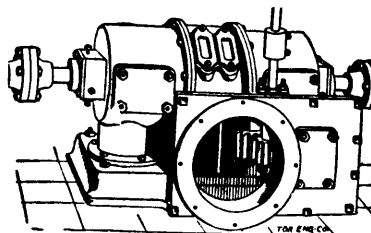
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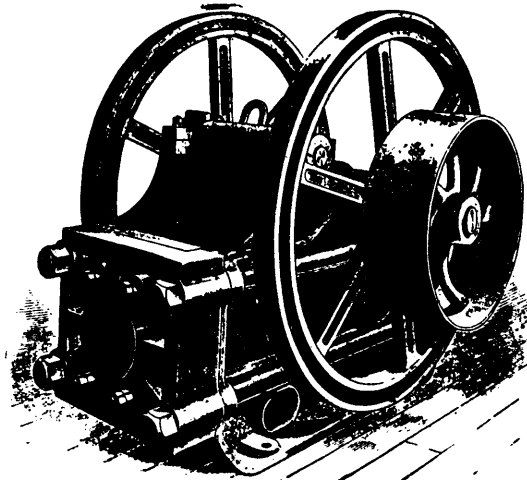
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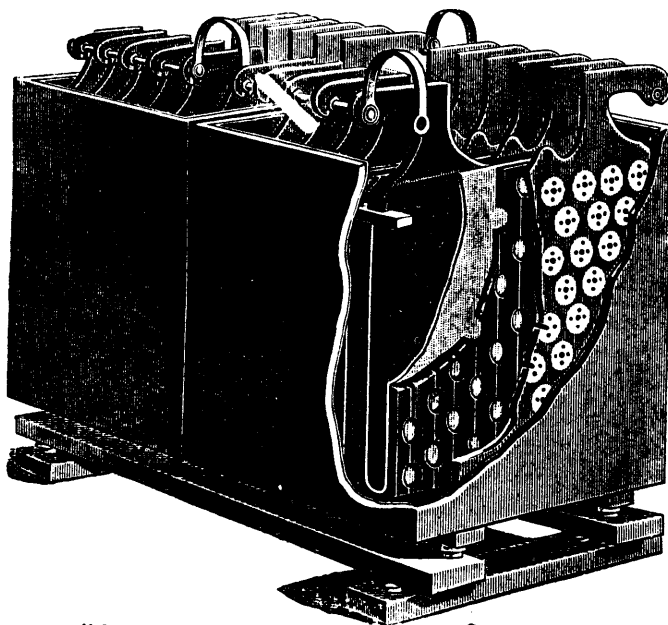
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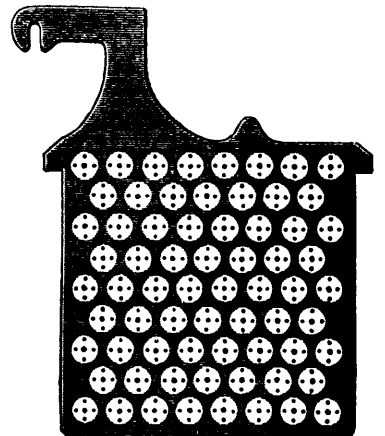
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THE TORONTO INDUSTRIAL EXHIBITION.

The success which has attended the Toronto Industrial Exhibition which opened this week with the largest, finest and most representative display ever presented to the public during its record of seventeen years is a legitimate source of pride and satisfaction to the people of Toronto and the Dominion generally. In the address of welcome made by President Withrow, reference was made to the fact that this institution has grown from comparatively small beginnings to be the largest annual Exhibition not only on the Continent of America, but in the world. Surely such noteworthy circumstance might appropriately have been more strongly emphasized than it has hitherto been, without passing the limits of legitimate self-assertion, and President Withrow did

wisely in placing the statement boldly and prominently before the public and challenging contradiction.

There is no class more deeply interested in the continued prosperity of the Fair than the manufacturers, whose active co-operation has done so much to advance its interests—bound up as they largely are with their own. The position which it has attained, and bids fair to hold against all comers, is a token of the enterprise and energy of the Canadian people in all departments of industry, and their progressiveness in the arts of civilization. It is an indication from year to year of the growth of the country and the degree of prosperity enjoyed. All men of business tact and judgment realize the advantages of such displays as tending to stimulate enterprise, arouse the ambition, to excel and secure in the most effective manner that degree of publicity which so largely conduces to success. The competition between different manufacturers bring out in bold relief the strong points of excellence or weakness, and the comparison is a great incentive to the adoption of improved methods and processes, with a view to the attainment of perfection. An annual fair, such as the Toronto Exhibition, cannot but be a most beneficial educational agency, and a continual stimulus to inventive genius, and technical skill, and expertness. If the manufacturers have contributed in large measure to make the Industrial Fair, the fair is doing much year by year to build up the manufacturing enterprises, encourage the judicious investment of capital in Canadian industries, and advertise the Dominion to the world as a country which holds a high rank in those arts upon which national greatness and stability rests.

The Board of Directors and the officials of the Exhibition may justly congratulate themselves upon the continued growth of the institution they have labored so faithfully to build up. We trust that the Exhibition which commenced so auspiciously last Tuesday will be successful until its close, and that as Hon. Dr. Montagne promised in his speech at the opening ceremonies, the Dominion government will give its favorable consideration to the proposal to it give a recognized status as a Dominion institution which it has fairly earned.

AS TO UNDERVALUATIONS.

In a recent editorial in these pages, discussing, the question of undervaluation of imports, it was stated that the Government were right in insisting that the market price of the article in the country of production should be, when the article is imported, the value for imposing ad valorem duty; that any other system would place a premium upon dishonest undervaluation, and that in acting as they have done the Government seeks to save itself from the results of the fraudulent practices of dishonest importers. The Montreal Herald takes exception to this position and seeks to create and widen a breach between the Government and all importers, very plaintively asking "How much longer do the importers mean to vote the Conservative ticket?" In its saintly office of truth teller it says:—

The importers of Montreal who have been complaining to Ottawa, and, failing satisfaction, have put their case in the hands of lawyers, will please recognize that in the eyes of the manufacturers, who own the Government, body, bones and breeches, they are nothing but dishonest and rascally men,

who need constant watching. This is the theory on which the Department of Customs is administered.

The importers in the instances to which we are referring are willing to pay duties on the actual value of the articles in the country whence they come, as provided for by the law; and the ground of their objection is that the Government has, at the instance of the Canadian manufacturers interested in limiting these importations, put an excessive estimate of value on them, and has refused to entertain the most positive proof of the unfairness of its action. The reason for its attitude is given by the Manufacturer; it is because it regards the importers as rascals, thieves and perjurers, not entitled to consideration.

As we understand it, the theory on which the Department of Customs is administered is that where ad valorem duty is imposed upon imports, such duty shall be collected. The method of obtaining knowledge of the value of the imports is established by law, which the Customs officers are bound to observe. The only question, then, between the Customs officers and the importers, as alluded to by the Herald, is whether the spirit as well as the letter of the law is observed; and in deciding this question there is no necessary suggestion or intimation of dishonesty on the part of either the importers or the officers. The law says that the fair, general and usual price to consumers, or in the trade, in the country of production, shall be the value for customs purposes of the article imported. The contention of the importers in some of the cases alluded to by the Herald is that the price paid by them for their goods in the country of production shall be the true and only standard to be observed by the Customs officers in collecting the ad valorem duty.

It is quite evident that if this contention prevailed great injustice would result. No doubt the Herald has knowledge of instances, as we have, where merchandise has been purchased in foreign countries for export to Canada, at prices far below what the producers thereof would sell for consumption in their own country. Such circumstances are in the nature of relieving an overstocked market. The manufacturer there would not find it to his interest to depress the price of his own product in his home market, for doing so would unnecessarily establish a price at which there would be no margin of profit whatever, and which would naturally lead to the closing down of his works. But he might afford to dispose of his surplus product at actual cost, or at a sacrifice even, if it was to be taken out of the country. When such a circumstance occurs—where his product is sold at or below cost to be exported to another country, to Canada for instance—it would be manifestly unfair to the Government, and also to the Canadian manufacturer of a similar product, that the slaughter price should be the value for duty; and it is this view of the case, we imagine, that the Customs Department take in such transactions. The slaughter price is not the fair market value of the article in the country of production, as the law specifies; and the importer, having obtained the advantage of the slaughter price in the foreign market might well be satisfied with that circumstance, and not endeavor to force the Customs authorities to accept the prices stated in his invoice as the correct valuation for duty. But this insistence is made in certain cases, and it is in some of such cases that the importers are invoking the order of the courts to compel the acceptance of their views by the Customs authorities.

It is plainly to be seen, we think, that if such a view is to prevail, and that the price shown in the invoice is always to

be accepted by the Customs officers as the valuation for duty, the door would be open for the perpetration of the grossest frauds upon the Revenue of the country, and the most oppressive injustice to our own manufacturers. And this injustice would extend also to other importers. Two Canadian importers might on the same day, in the same foreign country, purchase identically the same article of merchandise, one purchasing in the open market at the price prevailing there at the time, the other from a producer possibly upon the verge of bankruptcy, but who might be saved therefrom by a ruinous sacrifice of his goods. Both the transactions would be perfectly fair and legitimate; but when the merchandise was placed on sale in the Canadian market, the importer who had paid the lower price would evidently have an advantage over the other. But why should he not pay as much duty as the other? In this suppositious case there is no suggestion of fraud.

On the other hand if the price stated in an invoice must be accepted as the correct valuation for duty, without reference to the market value of the article in the country of production, what assurance could the Customs officers have that any invoice was absolutely correct and truthful? There would be no other evidence as to the value of the merchandise than the oath of the importer; and if he should declare that his purchase was made at a slaughter sale, who should say him nay? Or what would there be to prevent collusion between the seller and the buyer in the foreign market, by which the price stated in the invoice would be fictitious, untruthful, and intended to deceive the Customs officers? The Herald knows as we know, that such things occur. An honest importer would not lend himself to such a practice, but the Herald knows, as we know, that all importers are not honest. If, then, such a practice is countenanced it is evident that the honest importer will be at such a great disadvantage as to force him out of competition with the dishonest importer. Surely our contemporary cannot fail to comprehend that such a system would be demoralizing in the extreme.

The Herald graciously informs us that the importers to whom its article alludes are willing to pay duties on the actual value of the articles in the country from whence they come, as provided for by the law. That is right; but it must not be expected that special values, or prices paid at special sales, and far below the fair and usual market price will be accepted. The law says that the value shall be assessed in another way. But because Canadian manufacturers ask for a fair and uniform method of valuation upon exports, for the reasons as herein set forth, and as maintained by this journal, the Herald declares that we regard all importers as rascals, thieves and perjurers. There is no argument in such language. It knows that what it says is false. It knows that in attributing such sentiments to us it wilfully ignores decency, truth and common sense.

PROTECTION AND SHIP-BUILDING.

The New York Tribune says it is by the policy of subsidizing mail steamship lines that Great Britain has built up the greatest mercantile marine in the world. "There is scarcely one British trade route," says The Tribune, "that is not marked from end to end with postal subsidies and other forms of encouragement." The Tribune should know that the policy of protection simply abolished the mercantile marine of the United States, when it promised in a few years, if let alone,

to equal that of Britain. The protective tariff frustrates every effort by the United States to artificially force a mercantile marine. With carrying vessels the cost of transportation affords no protection, and the country of tariffs cannot compete with the country of freedom. Anyone seriously intending to embark in ship-building would be lacking in natural intelligence if he selected a port where everything required would be taxed a third of its value. The only locations suitable for ship-building are those where the world's products may be bought without the intervention of customs authorities. American efforts to establish by artificial aid a mercantile marine while maintaining protection are ridiculous.—The Globe.

The Globe is ignorant. It was not the policy of protection that abolished the mercantile marine of the United States, but the Alabamas and Shenandoahs of the Confederacy that swept it from the seas. It is true that at the time of the breaking out of the war of the rebellion the United States possessed a fleet of clipper ships employed in its foreign commerce the equal for fleetness of any sailing under the British flag, but as the United States at that time did not do a tithe of its own carrying trade, and as Britain then as now did a very large proportion of the carrying trade of the world, including the United States, it is difficult to see, as The Globe professes to see, that the United States would, in a few years, if let alone, have equalled Britain in that respect. When the war broke out about all the mercantile marine of the whole world, and most of the war vessels, were constructed of wood. During the time of the war, and to a most important extent stimulated by it, Britain developed an iron ship-building industry that placed her much farther in advance of all other nations than she had previously been with her wooden ships; and when the United States emerged from its struggle for national life, it had no mercantile marine whatever with which to again engage in foreign commerce. The ante-bellum point at which the country had arrived, as alluded to by the Globe, where, if let alone it would soon have equalled Britain in maritime greatness, was substantially the same as that prevailing at this time, a strong and important feature of the situation being that no foreign ship could engage in the domestic carrying trade. If reference is had to this domestic trade, then The Globe is far off in its conclusion that the protective tariff of the United States has frustrated any efforts made there to build up a mercantile marine. Under the laws of that country, where the home business is kept strictly in the control of American shipping, a mercantile marine has been built up that is the wonder and the admiration of the whole world. This fact is in evidence to anyone who will observe the fleets of American steamers that sail every day from the port of New York to every other port on the Atlantic and Gulf coasts, from Maine to Texas, and to the West Indies and South America countries also; and from San Francisco to all important ports on the Pacific coast, from Alaska to Chili. Of course this traffic with foreign ports is open to the competition of ships of other countries; but it would never have been built up if it had not had the parentage, and if it were not the offshoot of the coastwise carrying trade. But if this salt water traffic is large and important, what is to be said of the marine traffic of the United States upon the Mississippi, Ohio, Missouri and other inland waters, and upon the great unsalted seas that divide that country from Canada. Surely The Globe ought to know that more American tonnage passes through the St. Mary's Canal during the half year it is

open for navigation than all the tonnage of all nations, including Britain, passing through the Suez Canal during the whole year. Surely it ought to know that more American tonnage passes through the port of Detroit during the few months of the year when the Detroit river is open for navigation than arrives and departs from both Liverpool and London during the whole year. The ship-building industry is a most valuable and important feature in the welfare of the United States, and many, many millions of dollars are profitably invested in it; and yet The Globe informs us that anyone seriously intending to embark in ship-building would be lacking in intelligence if he invested his money in that country where a duty is imposed upon materials entering into the construction of ships; that the only locations suitable for ship-building are those where free trade prevails. It may be able to deceive itself, but anyone who has ever been as far as the end of the Yonge street wharf knows that when it says that American efforts to establish a mercantile marine while maintaining protection are ridiculous, it displays its own ridiculous ignorance.

THE MANUFACTURE OF BIRCH OIL.

In the issue of The Canadian Manufacturer of July 19th last appeared an article having reference to the manufacture of birch oil, which we here reproduce:

The farmers of Connecticut have found a profitable side-issue to their farming in gathering birch saplings and branches for the birch oil distilleries that have been established in that State. There are altogether about ten brick mills or distilleries in this country, several of which are located in Connecticut, and they have created such a demand for the black or sugar birch that all farmers owning woodlands producing these trees cultivate them for the annual harvest of branches and saplings. Black birch flourishes in many parts of the country, and if properly attended to annual crops of the twigs and young branches can be gathered without injuring the trees. With the farmers of Connecticut it has become a science and a study to gather the crop without injuring the wood permanently.

The branches have to be gathered when bare of foliage, and they must not measure more than two inches in diameter at the utmost, to be saleable at the mills. As the young saplings grow rapidly, the farmers can produce crops very easily by protecting the small growths. The manufacturers of birch oil make a big profit, the oil bringing from five to eight dollars a pound. When the distilleries were first established the farmers were paid \$1.50 per ton for birch brush but now they receive \$3 a ton. As the brush frequently has to be carted a long distance over rough country roads to the mills, the farmers do not consider their pay too large. Of late years other oils on the market have reduced the demand for birch oil so that the manufacturers receive less for their products. As the result of this some mills are paying much less than the regulation \$3 a ton for brush.

A few farmers near the mills have planted their woodlands with birch trees, and where the haul is short they make a good living. But as only about 600 pounds can be carried on a one-horse wagon, it follows that there is little money in the work when the brush must be carried seven or eight miles. Among the mountains of Connecticut there are large patches of birch woods that seem to be free to any one, and many poor people go there to gather the birch brush for the market. But their work is irregular and at starvation rates. It takes them all day to gather one load and cart it to the factory, for which they get 91 cents.

There is no reason why the farmers should not co-operate in manufacturing the birch oil themselves. The work is of the simplest kind, and a plant costs very little. A distillery is

never anything more than a rough old frame building, much less expensive than the farmer's barns. The machinery inside is equally inexpensive. The work of making the oil is as follows: the birch twigs are cut into even lengths of five inches, and then thrown into water tight tanks with copper bottoms. A coil of steam pipes is arranged in the bottom, and three feet of water poured in. The tops are hermetically sealed, and steam is then turned on. The water is kept boiling for six hours. Into the side of each boiling tank a steam pipe is inserted and runs in the form of a worm into a barrel of cold water. Cold water is flowing continually into this barrel. The steam rising from the boiling birch twigs passes through this pipe, and is condensed in the worm, while the oil drops from the end of the pipe into the small receiving jar or pail. As the oil drips down it is a dull brown, and it must be clarified until it is a very light green. The oil is no longer clarified by chemical processes, but by simply spreading a heavy woollen blanket over the wood inside the tank. In a properly constructed mill the oil now drips out pure and ready for market. This oil will always bring \$3 a pound and sometimes much more, and one ton of birch yields four pounds of oil. Surely farmers ought to be bright enough to construct a mill of this character, and make their own oil at a big profit.

The publication of the article excited considerable attention, and quite a number of letters were received at this office asking further information in the matter. Inasmuch as the black birch, of which birch oil is made, abounds in almost all Canadian forests; that the process of manufacturing the oil is exceedingly simple; that the necessary apparatus is quite inexpensive and easily obtained, and that the oil is of considerable commercial value, we made efforts to obtain reliable information therein with the following results:

Through the kindness of Mr. H. B. Small, Secretary of the Dominion Department of Agriculture our enquiry made to that Department was referred to Mr. Frank I. Shutt, acting director of the Chemical Laboratory of the Dominion Experimental Farms at Ottawa, who informs us that birch oil is sold under the name of oil of wintergreen, with which it is almost identical. It is distilled from the bark and leaves of *Betula Lenta* in which it does not pre-exist. Chemically birch oil is known as Methyl Salicylate. Artificial methyl salicylate is being much used now by druggists since the fall in price of salicylate which occurred about a year ago. In the New York drug market oil of birch commands about \$1.30 per pound and as the Canadian duty upon the article is ten per cent. ad valorem, it is worth more in this country. If birch oil were made in Canada there would undoubtedly be a large export demand for it, and in that way a large output could be disposed of.

Our application for information to the Ontario Department of Agriculture was referred by Mr. C. C. James, the Deputy Minister, to Mr. Thomas Southworth, Clerk of Forestry, of the Crown Lands Department, a most reliable authority, whose report is very valuable. Mr. Southworth informs us that in the manufacture of birch oil the birch used is known as black birch, cherry birch or sweet birch, of which there are considerable quantities in Canada scattered through the forests on steep hill-sides, and often as a thick second growth on deforested pine lands.

As the small limbs and even the twigs of the birch are used in the manufacture of the oil, it is evident that the distillation of the oil of birch would be of great value to the country,

in that it would use up a product that now is not merely a waste, but is a detriment and a danger to the rest of the forest, from being left on the ground where the tree was felled. While the business has been so far a profitable one to the men engaged in it in the United States, there are not many of our farmers, his opinion, so situated as to make the venture a wise one on their part. The cost of the plant need not exceed that of a modern maple sugar outfit, and the process of distillation is quite as simple, in fact requires less care or expert knowledge than the manufacture of first-class maple sugar, but to make the investment advisable on the part of a farmer he would need to have at hand, first a good supply of birch wood, and secondly a good stream of running water, preferably one that would furnish light power for the purpose of operating a machine for chopping up the wood into short lengths. These conditions furnished and there could scarcely fail to be a good profit in the enterprise.

In Pennsylvania the distillery is generally located where there is a good supply of wintergreen. The oils from both birch and wintergreen are chemically and physically alike and are sold indiscriminately. Wintergreen is used for the production of oil during the summer and fall months, the cheap labor of children being used to collect it, and through the winter and spring birch oil is distilled. Some farmers in Pennsylvania grow regular plantations of birch for the manufacture of oil. The trees are cut when about twenty or twenty-five feet high and as they grow up again from the stumps very readily, a new cutting can be taken off in from five to ten years. A new chemical compound made from salicylic acid and wood alcohol and called artificial oil of wintergreen has been placed on the market and has lessened the production of the oil of birch but as the latter is preferred for medicinal purposes the price is likely to be maintained at about the present standard, \$3.00 a pound. One ton of wood produces four pounds of oil. While the industry is not likely to become very general in this country it would undoubtedly pay well in places advantageously situated as to water and birch supplies and if a good supply of wintergreen could also be obtained in the vicinity the element of risk would still further be eliminated from the venture.

The following description of the plant and method of distillation is by Mr. Henry Trimble, of Philadelphia, and is in some respects even more explicit than the excellent description contained in *The Canadian Manufacturer*. Mr. Trimble says: "The trees are hauled to the distillery, where, by means of a water wheel and a trip hammer device, in which one or two heavy knives take the place of the hammer, the trunks and branches are cut into pieces one or two inches in length. The still holds from half a ton to a ton of the birch, and consists of a wooden box with a copper bottom, and in some cases copper heads also. They are filled to within twelve inches of the top, water is run to one-third the contents of the still, and after macerating over night distillation is commenced by means of a wood fire. The vapor is conducted into a copper or tin worm, placed in a barrel and kept cooled by a continuous stream of water from a cold mountain stream. The steam is condensed in this coil and issues below as mixed oil and water. The oil in this case being heavier than water, settles to the bottom of the receiver, which is usually a quart fruit jar, while the water is conducted off and run into a barrel to be used again with the next lot of wood."

EDITORIAL NOTES.

The Maritime Provinces Board of Trade, recently in session at Halifax, passed a resolution protesting against the Dominion Government granting subsidies to steamers landing Canadian freight at Portland or Boston, and insisting that all subsidized steamers should land Canadian freight at Canadian ports.

Mr. J. W. Easton, connected with the John Abell Engine and Machine Works, Toronto, has filed a claim against the City of Toronto for \$300 damage for having procured and put in operation at Centre Island a dynamo and automatic regulator covered by patents held by him. Mr. Easton brought suit against the Thompson Electric Company, from whom these articles were purchased, to recover possession of the patents, and won it. As far back as November, 1894, he notified the city that the Thompson Company was not the legal owner of the patents, and that users of them would be held liable.

The New York Tribune, in recent comments on the incandescent lamp situation, stated that "the continued lowering of the price has driven many of the small factories out of business, and only about half a dozen concerns outside of the Edison company are in the market to-day, but these are vigorous and vexatious competitors." For the information of our daily contemporary we would state that there are now in operation in the United States more than twenty incandescent lamp manufacturing companies making a daily product estimated at 30,000 lamps.—Electrical Review.

Included in the number of incandescent lamp manufacturing companies in the United States is the Packard Company, who also have a large factory at St. Catharines, Ont., and who produce a lamp the equal of any made anywhere else, and which are sold at exceedingly low prices.

For some time past Mr. Archibald Blue of the Ontario Bureau of Mines, accompanied by Dr. Coleman, mineralogist of the bureau, have been making a tour of inspection through the Rainy Lake gold district, and have also been over a large portion of the Mattawin iron ore region. Writing to the department from Rainy Lake, Mr. Blue says that after a careful examination he is perfectly satisfied that in the Mattawin district alone there is iron ore in the amplest abundance, and of the finest quality, to maintain an iron industry that would fully supply the demand in Canada for an indefinite period. He says there are mountains containing seams of hematite ore of from 50 to 500 feet in width, and from a quarter to half a mile long, and that there is very little doubt that it runs from the Mesaba range, near the mouth of the Mattawin River, clear across to Hunter's Island.

For some time past Local Union 3 of the Brotherhood of Electrical Workers, L. A., 5,468, K. of L., have been agitating greater safeguards placed about the wiring of buildings for electric lighting purposes. Measures have been introduced in the Legislature a number of times, but only one or two have passed. The idea of the State Examining Board was defeated last year. The union has recently taken pains to point out to the Board of Wire Underwriters any glaring defect in the electric wiring of buildings, and last week a re-

port was made of the condition of wiring in theatres, with the result, it is said, that the Board of Underwriters has condemned the wiring in nearly every theatre in the city, and it is reported at the headquarters of the Board of Delegates that the wiring in these theatres will have to be done all over again.—New York Financial News.

The following telegram sent out from Port Dover, Ont., on August 19th, relates to a matter of much importance to all manufacturers in Ontario, particularly to those in and west of Toronto:

The great coal steamer, Shenango No. 1, arrived in this harbor at 5 p.m. from Conneaut, Ohio. This event, bridging Lake Erie at its center, making a cheap coal route direct from the mines of Pennsylvania to Ontario, with a return route, carrying out ore, lumber and other products, and passengers, is an event far reaching in its benefit to the whole province. The landing and transfer of cars was successfully made, and is regarded as a trial trip. A formal opening of the route will take place later on. The steamers for this route will run winter and summer. They are 300 feet long, 54 feet beam, 25 feet deep, and carry, in addition to passengers and freight, 28 loaded coal cars, each 34 feet long. The engines are 2,700 horse-power, with a screw in the bow as an ice crusher, 250 electric lights and a 5,000 candle search-light to light the steamer. Port Dover is happily situated at the lake terminus of the line, already a favorite summer resort for Americans as well as Canadians. The manufacturing facilities of Port Dover will now be of the first order. Railway and water transit both winter and summer, with cheap coal, should be an attraction to capitalists to develop this locality.

Coal imported by this route for consumption in Toronto is already beginning to arrive in this city.

If the Dominion Government is faithful to its pledges it will see that a thriving industry recently established in the Dominion is properly fostered. As yet no effort has been made to prevent live sea serpents from entering the Dominion via the St. Lawrence and supplying the home demand, which, by the way, has always been firm. The manufacture of sea serpents has in consequence been left to struggle along against a ruinous competition. The one industry established in Montreal has already been "swept out of existence." The difficulty could be met by the following addition to the tariff schedule:—Sea serpents, alive, dead, or manufactured from sawdust, leather or putty, n.e.s., 10 cents a pound and 35 per cent. ad valorem.—Toronto Globe.

The funny part of this business is that the new industry recently established in Montreal and so soon swept out of existence was of free trade newspaper origin from start to finish. It originated with the Herald, of course, for no self-respecting journal in that city would have embarked in an enterprise that promised such rapidly disastrous results. No doubt the Globe is or was interested in the fake, else it would not have desired sea serpents to be placed in the dutiable list. The Herald's snake story, illustrations and all, had quite as much truth in it as is usually found in its editorials re the National Policy. What, oh, what would be the fate of the Herald if whiskey were in the free list?

Mr. George Johnson, Dominion statistician, has compiled a statement for the forthcoming volume of the Year Book of the Dominion, by which it appears that from confederation to the close of the fiscal year 1894, a period of twenty-seven years, the imports from Great Britain have amounted to \$1,205,349,158, or an average of \$44,643,000. During the

same period the imports from the United States have been \$1,211,131,392, or an average of \$44,857,000 per annum, so that the excess of imports from the United States has not averaged a quarter of a million dollars per annum since confederation, showing that Canada has pretty fairly divided her purchases between the Mother Country across the seas and her next door neighbor. The value of the total imports for home consumption from all countries during the twenty-seven years has been \$2,747,953,259. Deducting our imports from the United Kingdom and the United States, as shown above, there is left \$431,472,709 as our imports for home consumption from all other countries, or an average of about sixteen million dollars a year. In other words, out of an average importation during the twenty-seven years of confederation of about one hundred and five million dollars per annum, we have taken rather more than forty-four millions and a half each from the United Kingdom and the United States, and about sixteen million dollars a year from all the rest of the world.

The Canadian Manufacturer is under obligations to the American Electrical Works of Providence, R.I., for an invitation to participate in the celebration of the twenty-fifth anniversary of that concern, the event including a real old-fashioned Rhode Island clam bake, all of which transpired as per programme on August 17th last. From a knowledge of the fact that the American Electrical Works have for many years observed the delightful custom of entertaining their friends at clam bakes, and the avidity and unanimity with which invitations thereto are accepted, it is quite evident that as far as the electrical fraternity is concerned, there is a strong and enduring affinity between them and clam bakes. And why not? Ever since the time when the memory of the oldest New Englander runneth not to the contrary, clam bakes have been a rock-ribbed institution there; and as far as our knowledge goes there is no record to show that the very first clam bake inaugurated on Plymouth Rock, or on the shores of Narragansett Bay was not cooked to the proper turn by electrical agency. We know that fires have often been started by electricity, and we hear with more or less frequency of incautious ones whose fingers have been burned, perhaps metaphorically, by those ignorant of the potential force, or the lack of it embodied in either the knowledge box or the bank account of the inexperienced electrician, but it should be understood that there are no inexperienced electricians connected with the American Works, and the craft well know that Mr. Eugene F. Phillips, who is an expert in engineering clam bakes, is also an expert in the other branches of his business, as is in evidence in the fact that his small beginning in 1870, when he embarked in the manufacture of insulated wire in his barn, has now eventuated in one of the largest, best equipped and best known works in the United States. Electricity, personal magnetism, thorough business fitness and clam bakes have been the means of placing in the forefront of American manufacturers one of the most important and flourishing enterprises on the continent.

The Ministers composing Lord Salisbury's new cabinet are, nearly all of them, men actively engaged in manufacturing, mercantile and similar business pursuits. Sixteen of them

hold no official relations with business companies, but twenty-five are directors in sixty-two corporations, including banks, life insurance and other enterprises of like character. The others are not so easily classified. Thus, Viscount Cross (Privy Seal) is a director in the Manchester, Sheffield and Lincolnshire Railway, one of the few English companies which are preparing to extend their lines; Sir Matthew Ridley, (Home Secretary of State) is also on two railway boards; the Right Hon. C. T. Ritchie (President of the Board of Trade) is chairman of an important Colonial steamship firm; Mr. Joseph Chamberlain (Colonial Secretary of State) is a director in the Andros Fibre Company; Lord Balfour of Burleigh (Secretary for Scotland) is deputy-governor of the Bank of Scotland and vice-president of the National Telephone Company; Commissioner of Works Akers-Douglas is on the directorate of the London, Chatham and Dover Railway; Mr. Walter Long (President of the Board of Agriculture) is chairman of a brewing company; the Under Secretary to the War Office (Mr. Broderick) is a director in three sub-marine cable lines to Brazil and Africa; Mr. Gerald Balfour (Chief Secretary for Ireland), besides holding an official relation with electric light, telegraph and debenture corporations, as well as a newspaper in Leeds, is the chairman of a company formed to manufacture aluminium; Sir John Gorst (Vice-President of the Committee of Council) is chairman of the London Board of the New Zealand Shipping Company; the Earl of Lathom (Lord Chamberlain) is chairman of a Canadian ranch company and a director in the Savoy Hotel; while Sir Michael Hicks-Beach (Chancellor of the Exchequer) is chairman of the County of Gloucester Bank. The fact that the holding of corporation offices on the part of members of an existing government excites so little attention in England is striking proof that such holdings are not regarded as disqualifying a man from doing his duty to the Crown, and is thus strong evidence of the incorruptibility of British public men.

. RESUSCITATION FROM ELECTRIC SHOCK.

Dr. Augustin H. Goelet of New York, who is an acknowledged authority upon the subject, has formulated a number of practical suggestions for resuscitation from apparent death from accidental electric shocks, and we have pleasure in reproducing the same, as they appeared in a recent issue of the *Electrical World*. The illustrations show how the suggestions should be carried out.

Now that electricity has come into such general use, and that not only those whose business is in connection with that subtle and wonderful fluid, but others also are liable to meet with accidents from it, it would be well for those into whose hands these suggestions may come to carefully preserve them against the occurrence of an emergency.

Dr. Goelet's suggestions are as follows:—

The urgent necessity for prompt and persistent efforts at resuscitation of victims of accidental shocks by electricity is very well emphasized by the successful results in the few instances recorded. In order that the task may not be undertaken in a half-hearted manner, it must be appreciated that accidental shocks seldom result in absolute death unless the victim is left unaided for too long a time, or efforts at resuscitation are suspended too early.

In the majority of instances the shock is only sufficient to suspend animation temporarily, owing to the momentary and imperfect contact of the conductors, and also on account of the indifferent parts of the body submitted to the influence of the current. It must be appreciated also that the body under the conditions of



accidental shocks seldom receives the full force of the current in the circuit, but only a shunt current, which may represent a very insignificant part of it.

When an accident of this nature occurs, the following rules should be promptly adopted and executed with due care and deliberation.

1.—Remove the body at once from the circuit by breaking contact with the conductors. This may be accomplished by using a dry stick of wood, which is a non-conductor, to roll the body over to one side, or to brush aside a wire, if that is conveying the current. When a stick is not at hand, any dry piece of clothing may be utilized to protect the hand in seizing the body of the victim, unless rubber gloves are convenient. If the body is in contact with the earth, the coat-tails of the victim, or any loose or detached

piece of clothing, may be seized with impunity to draw it away from the conductor. When this has been accomplished, observe Rule 2.

2.—Turn the body upon the back, loosen the collar and clothing about the neck, roll up a coat and place it under the shoulders, so as to throw the head back, and then make efforts to establish artificial respiration (in other words, make him breathe), just as would be done in case of drowning. To accomplish this, kneel at the subject's head, facing him as shown in Fig. 1, and seizing both arms draw them forcibly to their full length over the head, so as to bring them almost together above it, and hold them there for two or three seconds only. (This is to expand the chest and favor the entrance of air into the lungs). Then carry the arms down to the sides and front of the chest, firmly compressing the chest



walls, and expel the air from the lungs, as shown in Fig. 2. Repeat this manoeuvre at least sixteen times per minute. These efforts should be continued unremittingly for at least an hour, or until natural respiration is established.

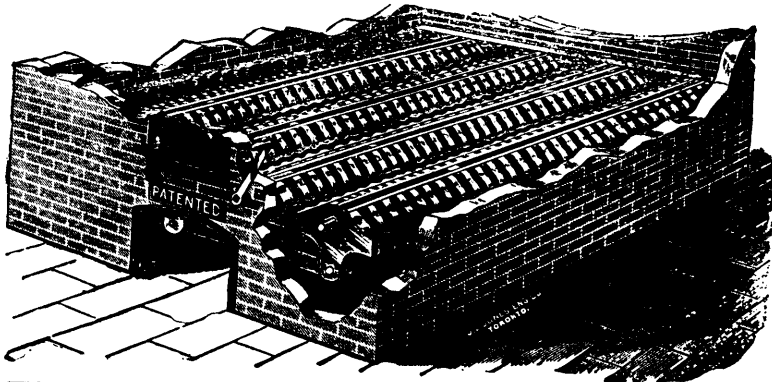
3.—At the same time that this is being done, someone should grasp the tongue of the subject with a handkerchief or piece of cloth to prevent it slipping, and draw it forcibly out when the arms are extended above the head, and allow it to recede when the chest is compressed. This manoeuvre should likewise be repeated at least sixteen times per minute. This serves the double purpose of freeing the throat so as to permit air to enter the lungs, and also by exciting a reflex irritation from forcible contact of the under part of the tongue against the lower teeth, frequently stimulates an involuntary effort at respiration. If the teeth are clenched and the mouth cannot be opened readily to secure the tongue, force it open with a stick, a piece of wood, or the handle of a pocket knife.

While this is being done, a physician should be summoned, who, upon his arrival, can best put into practice Rules 4 and 5 in addition to the foregoing, should it be necessary.

4.—Forcible stretching of the sphincter muscle controlling the lower bowel excites powerful reflex irritation and stimulates a gasp (inspiration), frequently when other measures have failed. For this purpose, the subject should be turned on the side, the middle and index fingers inserted into the rectum, and the muscle suddenly and forcibly drawn backwards towards the spine. Or, if it is desirable to continue efforts at artificial respiration at the same time, the knees should be drawn up and the thumb inserted for the same purpose, the subject meanwhile retaining the position on the back.

5.—Oxygen gas, which may be readily obtained at a drug store, if the accident occurs in a city or large town, is a powerful stimulant to the heart if it can be made to enter the lungs. A cone may be improvised from a piece of stiff paper and attached to the tube leading from the tank and placed over the mouth and nose while the gas is turned on during the efforts at artificial respiration. It is both useless and unwise to attempt to administer stimulants to the victim in the usual manner by pouring it down his throat, therefore this should not be attempted.

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I am asked my opinion as to the benefits of the Heeson Rocking Grate over others that I have used and had the opportunity of investigating. I have much pleasure in stating that as far as I have been able to judge, I consider your grate bar superior to any other grate bar that I know of. Having used one under my boiler for the past two seasons I am confident there is a saving of at least 15 per cent. in fuel over and above the ordinary grates, and I have no hesitation in recommending persons wanting economical grate bars to purchase yours.

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Will be placed on trial under any boiler in the Dominion for thirty days, at the end of which time, if they are not satisfactory, we will remove them and return the old bars to their place free of expense.

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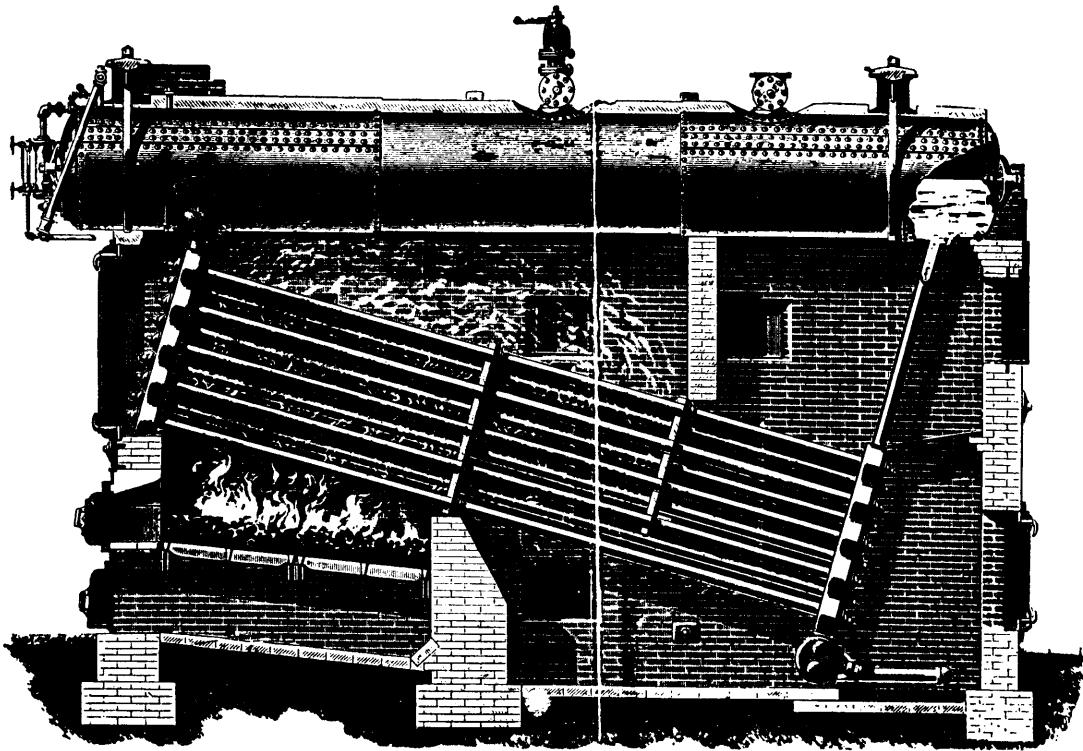
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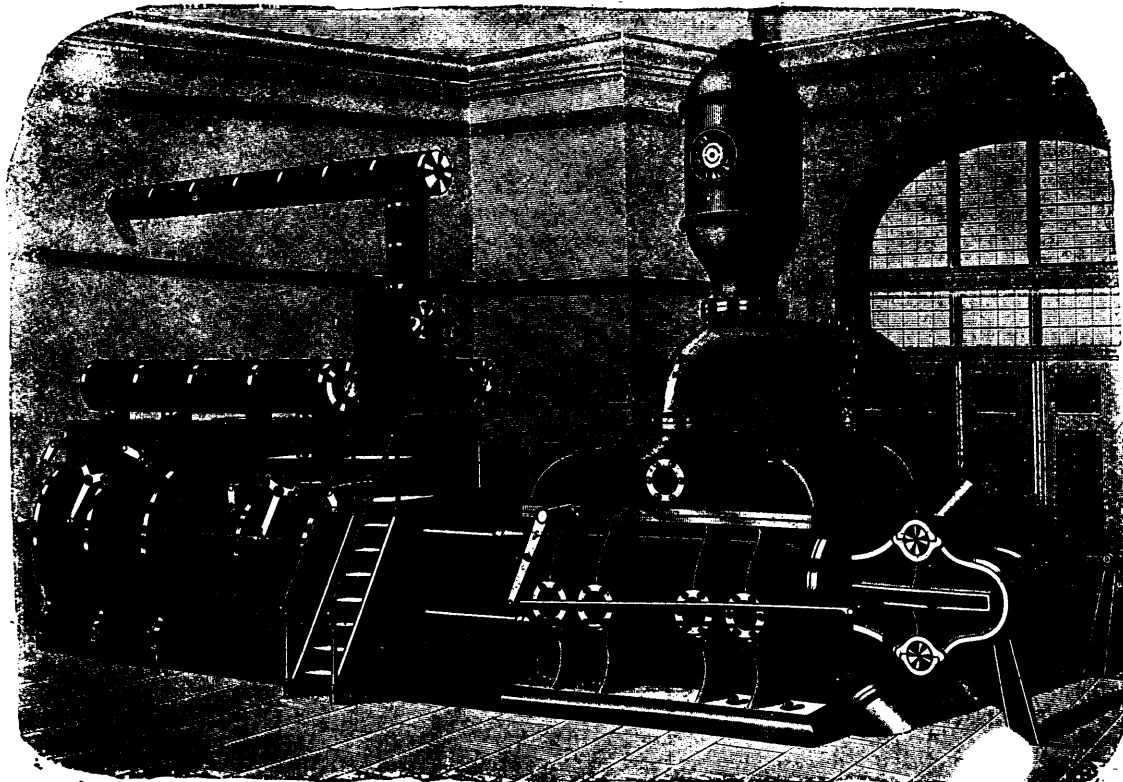
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CAPTAINS OF INDUSTRY.

This department of the "Canadian Manufacturer" is considered of special value to our readers because of the information contained therein. With a view to sustaining its interesting features, friends are invited to contribute any items of information coming to their knowledge regarding any Canadian manufacturing enterprises. Be concise and explicit. State facts clearly, giving correct name and address of person or firm alluded to, and nature of business.

Mr. George Rumpel, Berlin, Ont., will erect a large tannery.

The Manufacturers' Committee of the City of Toronto have recommended the Council to grant the request of the Metallic Roofing Co., of Toronto, to erect a building on the corner of Dufferin and King sts., the land to be leased from the city for 21 years. The building will cost about \$6,000 and employment will be given to about 40 men.

The lumber yards and steam saw mill of Messrs. A. L. Hurtubise & Bros., at Hurtubise, on the C. A. R. near Casselman, Ont., were destroyed by fire August 27th; loss about \$35,000.

The Royal Paper Mills Company have commenced work on their new saw mill at Angus, Que., which will cost over \$10,000.

The Nelson Sawmills Co., Nelson and Rossland, B.C., have sold their Rossland business to Bell & Naden.

The City Clerk of Chatham, Ont., will advertise for tenders for the erection of an electric fire alarm with 15 stations and all connections.

The Northumberland Paper and Egg Case Co., Campbellford, Ont., are applying for incorporation with a capital stock of \$100,000 to acquire the business formerly owned and carried on by the late Edmund G. Burke, under the name of The Northumberland Paper and Egg Case Co.

A. Dunlop's flour and grist mill at Watford, Ont., was destroyed by fire Sept. 1st, loss about \$12,000.

Arthur MacGregor, has started a sash and door factory at Middleton, N.S.

The Woodstock Waggon and Mnfg. Co., Woodstock, Ont., are applying for incorporation, with a capital stock of \$25,000 to manufacture waggons, buggies, sleighs, etc., and to acquire the business carried on by Messrs. McIlwrath & Clynick Bros., of that place.

The Imperial Brush Mnfg. Co., Montreal, has been incorporated with a capital stock of \$140,000 to manufacture brush machinery, brushes, brush backs, etc.

The Dominion Cartridge Co., Montreal, have increased their capital stock from \$100,000 to \$250,000.

The Canada Switch and Spring Co., Montreal, will manufacture railway, electrical and contractors' supplies, etc.

Messrs. Jno. Stevens & Son, Toronto, are applying for incorporation with a capital stock of \$50,000 to carry on the business of manufacturers of surgical instruments, druggists' sundries, etc.

The Cottingham Varnish Co., Montreal, are applying for incorporation with a capital stock of \$20,000 to manufacture varnishes, japans, oils, dryers, etc.

The Walter Cottingham Co., Montreal, are applying for incorporation with a capital stock of \$100,000 to manufacture paints, colors, leads, oils, glass, varnishes, etc.

W. L. Ross, manufacturer of soda water at Bonner's Ferry, Idaho, is moving his machinery, etc., to Rossland, B.C.

The McClary Mnfg. Co.'s Works, London, Ont., were damaged by fire Aug. 28th to the extent of about \$400.

Messrs. Shaw & McLeod have sold their Banner File Works, at Almonte, Ont., to Messrs. Thos. Graham & Son, Toronto.

The Laurentide Pulp Co., Grand Mere, Que., contemplate erecting a new pulp mill.

The Canadian Typograph Co., will manufacture ball-bearings, machines, bicycles and vehicles in which ball-bearings are used.

Messrs. Jno. Mundell & Co., Elora, Ont., have erected a large three story addition to their furniture factory.

Thos. Bell's new furniture factory at Wingham, Ont., is rapidly approaching completion.

Messrs. Arch. Campbell and K. J. Campbell, Brandon, Man., have formed a partnership, and will manufacture furniture, etc., under the style of Campbell & Campbell.

Messrs. Findlay, Durham & Brodie are re-building their cannery at Aberdeen, B.C., which was destroyed by fire last year. It is stated that the new cannery will be the largest on the Skeena River, and will

be fitted with every modern contrivance for salmon packing. The main building will be L shaped, 400 x 40, two stories higher, and will be finished early in November.

The Baylis Manufacturing Company's varnish factory, Montreal, was damaged by fire August 30th, to the extent of about \$5,000.

The Ontario People's Salt Manufacturing Company are applying for authority to change the corporate name of the company to that of The Ontario People's Salt and Soda Company, of Kincardine, Ont.

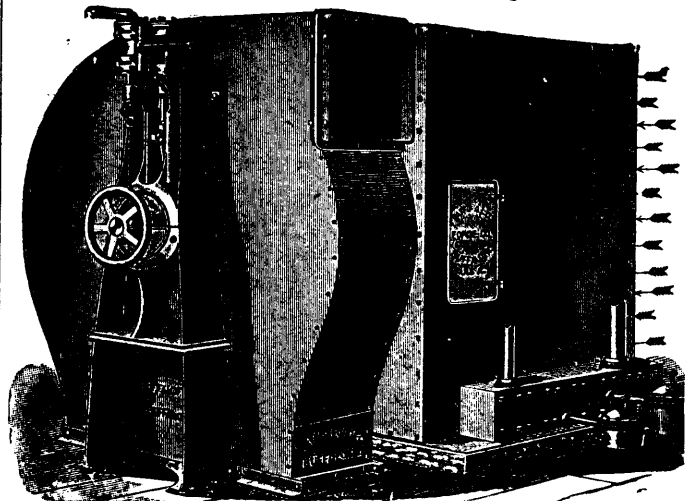
The Grant Tanning Company, Woodstock, Ont., are applying for incorporation with a capital stock of \$90,000 to acquire the businesses carried on by J. & T. Grant at that place; to manufacture leather, felt goods, etc.

The Office Specialty Manufacturing Company, Toronto, are applying for incorporation with a capital stock of \$75,000 to manufacture furniture, office, church and school furnishings, etc.

The Brockville Electric Railway Company, Brockville, Ont., are applying for incorporation with a capital stock of \$200,000 to construct lines of street railways in the municipalities of Brockville and Elizabethtown, Ont., etc.

The Buffalo Forge Company are in receipt of an exceedingly complimentary letter from the Martin Cantine Company, which explains itself as follows:—It gives us great pleasure in recommending your exhaust fans and super heating plans. We had very serious trouble in our factory caused by one-half our building being used as a dry room and the other half as a finishing room with only a one-inch board partition between, extending within 20 ft. from each end. The hot air would get through on the finishing side and cause the ceiling and all the machinery to sweat so much, that we frequently had to stop work until we could get both rooms to the same temperature. With the expenditure of less than \$800.00 we ventilated and are keeping two rooms side by side, each 300 ft. by 25 ft., 17 ft. ceilings, temperature in one 105 and the other 72, and not the slightest sweating. We can safely say that we saved more than our entire expenditure in the first six months your plans were installed in our building, besides the pleasure of having good wholesome air and temperature for our employes to work in.

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All users of Buffalo Kilns write letters similar to this one: "The Kiln answers every purpose to perfection; the Dry Rooms are run with exhaust steam at mere nothing in the way of cost, compared with the old way. Your arrangement is very simple and easily managed, besides being a money saver in operation. We are able, with the Kiln you sent us, to dry soft woods in three days, and hardwoods in five days. That's good enough for anyone."—SMITH BROS., Sayre, Penn.

Send for Catalogue.

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Toronto, Ont., by H. W. Petrie.
 Brantford, Ont., by Canadian Machinery and Supply Co.
 Montreal, Que., by Canada Machinery Agency.
 Chicago Store, 22 and 24 West Randolph Street.

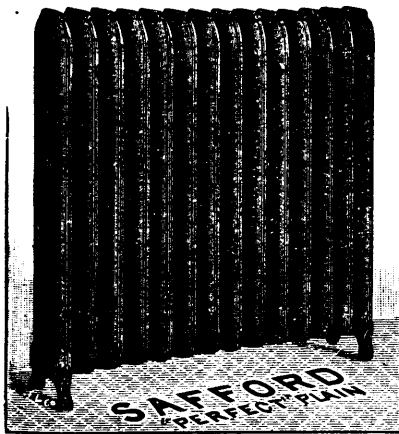
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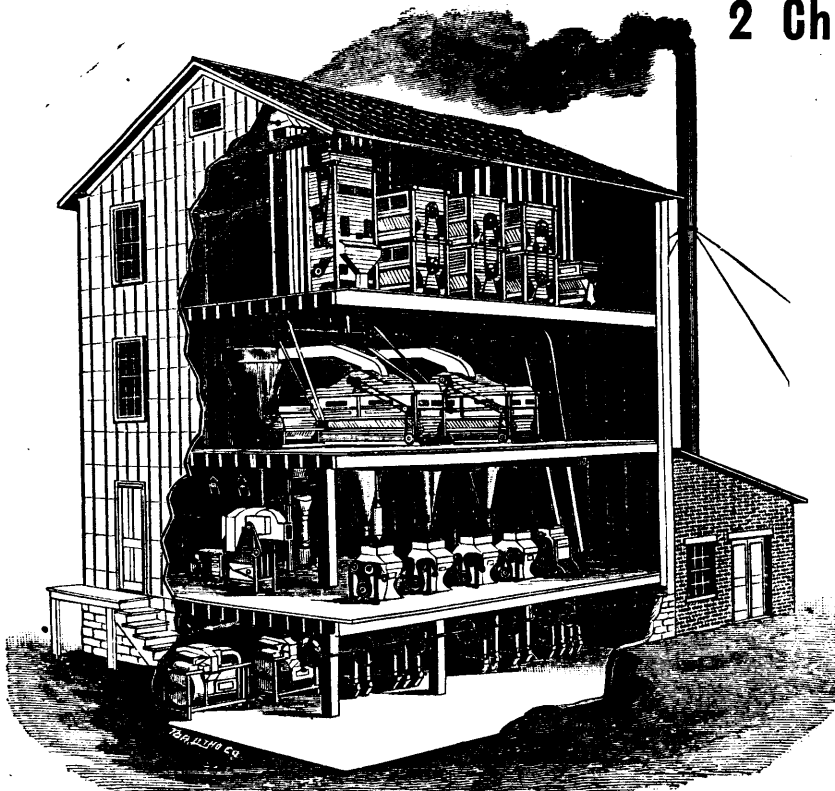
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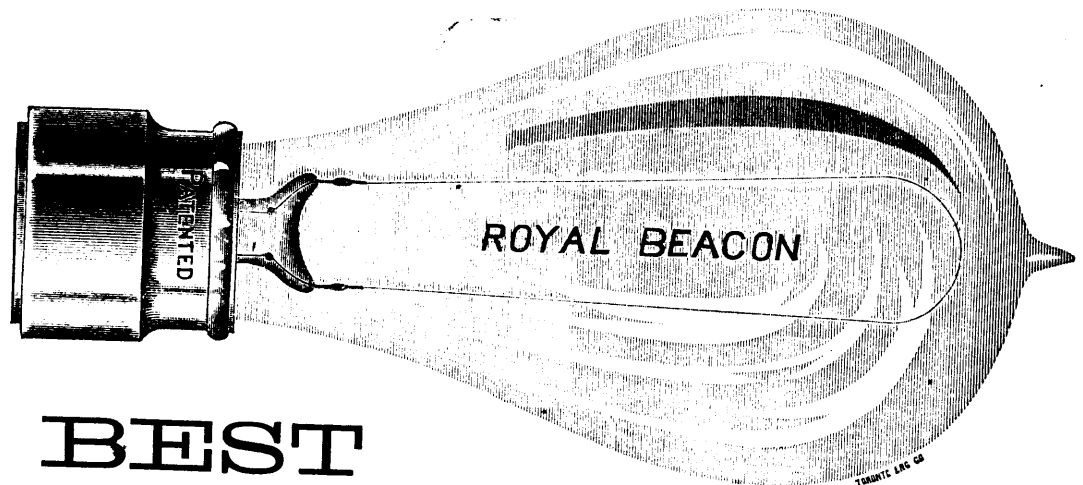
Electric Lighting, Power and Street Railway Supplies of all kinds

INCANDESCENT LAMPS

As the result of many comparative tests and long experience, we have found the Incandescent Lamps made for us by

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**Beacon
Lamp Co.**
BOSTON, MASS.



To be

THE BEST

We have obtained the sole right for the sale in Canada of Incandescent Lamps made by that Company, which are manufactured especially for us, and are known as

ROYAL BEACON

BEST EFFICIENCY. HIGH GRADE. LONG LIFE. SUSTAINED CANDLE POWER

Write for Prices and Catalogues

The Royal Electric Company

MONTREAL
QUEBEC.



Western Office—
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SOLE MANUFACTURERS FOR CANADA OF
THE ONLY PRACTICALLY COMPLETED SYSTEM IN OPERATION
TO-DAY FOR FURNISHING

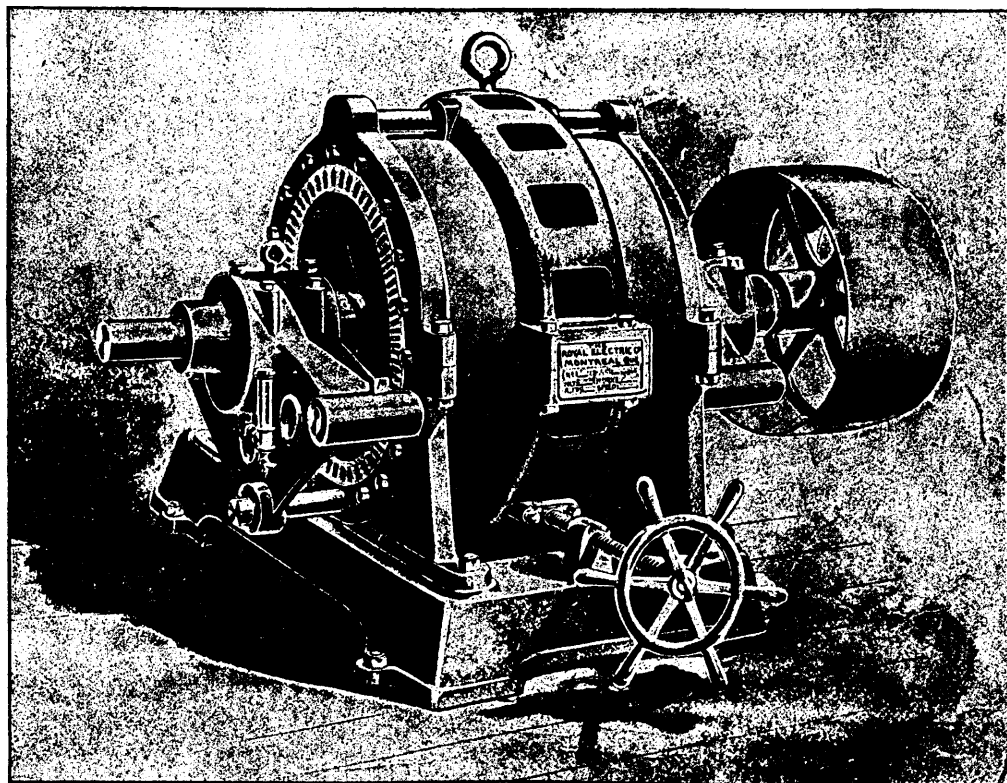
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FROM THE SAME ALTERNATING GENERATOR AND CIRCUITS.

Two-Phase - ENTIRELY NOVEL IN CONSTRUCTION Generators

HAVING NO MOVING WIRE
NO COLLECTOR—SLOW SPEED—
BETTER INHERENT REGULATION—
HIGHER EFFICIENCY—

Than any other Alternating Machine on the Market.



60 K. W. S. K. C. Two-Phase Generator.

S. K. C.

SYSTEM.

Self-Starting Two-Phase Motors

TRANSFORMERS

The BEST and MOST EFFICIENT on the Market

SUPERIOR IN MANY
WAYS TO
DIRECT CURRENT
MOTORS.

Patterson's planing mill Winnipeg, Man., was damaged by fire August 24th, to the extent of about \$5,000.

A rumor has been in circulation to the effect that the Massey-Harris Co., Toronto, have been admitted as stockholders in the Bain Bros. Mfg. Co., Brantford, Ont. The capital stock is to be increased to \$250,000 and the business probably removed to Woodstock, Ont. Mr. Lyman M. Jones, Genl. Manager of the Massey-Harris Co., when interviewed stated that the rumor was practically correct and that although the Massey-Harris Co. do not manufacture waggons they are large dealers and have been handling a great many of the Bain waggons during the past few years. Under the new arrangement, he stated, about 4,000 waggons will be built each year, and in all probabilities the concern will branch out into other kinds of vehicles. The business may be removed to Woodstock, if satisfactory arrangements can be made with the Patterson factory people at that place.

The Cant Bros. Co., of Galt, Ont., have just added to their list of wood-working machines, one to which they have given the name of The A 1 Fast Feed Flooring Machine, with single cylinder, designed for mills doing a large business, and especially for those who desire to do a much better quality of planing, matching and beading than is usually done, the amount planed in a given time being also increased. The frame is 10 ft. 9 inches long, heavy and well braced. It will match up to 12 inches wide, and plane up to 6 inches thick. The pressure bars on each side of the cylinder are arranged so as to move $1\frac{1}{2}$ inches to and from the cutter head, so as to allow the use of cutters for mouldings, rustic siding and other work. The feed consists of four 10 inch rollers, heavily geared and connected by heavy expansion gearing. The rollers are weighted and fitted with their parallel left, insuring a true bearing on the work at all times. The cylinder, which is of forged steel, is slotted on two sides, and is arranged so as to allow of four knives being put on. The journals are large and run in long, self-oiling bearings, lined with the best babbitt metal, and are connected by a bar extending across the machine and fastened to planed stands. The matcher head spindles are steel and run in long connected bearings, and can be both adjusted to any point across the width of the machine, so that the wear may be equalized. The bed piece is solid. The machine has two rates of feed, changeable by pulley. The capacity is such that a man can work from 40 to 60 feet of flooring per minute, according to the width and quality of the material.

The City Council of the City of Quebec have appointed a special committee to amend the Electric Street railway by-law, at the request of the American capitalists who are interested in the proposed electric street railway in that city. The amendment will provide that it will not be necessary for the company to change the trolley system to any other, and that in case of outlying municipalities being annexed to the city, it will not be necessary for the company in all cases to extend its lines therein, unless specially demanded by the residents thereof. It is scarcely likely that much work will be done on the streets this year by the company, as the engineering details, levels, etc., now being prepared, are occupying much more time than anticipated. The manufacture of rails and other works for the lines will be rapidly proceeded with during the winter.

The Brown & Sharpe Manufacturing Co., Providence, R. I., have sent us a copy of the new edition of their catalogue, which has been thoroughly revised and contains 306 pages—60 more than the preceding one. A large number of new tables have been added, making it especially valuable to the workman as a book of reference. As noted in the inset, the principal additions this year to the machines and tools which the company regularly manufacture are No 1 universal milling machine; No. 4 universal milling machine; No. 2 power lapping machine; No. 6 automatic gear cutting machine; No. 2 gear rim milling machine; No. 1 screw machine with automatic chuck and wire feed; No. 2 screw machine with automatic chuck and wire feed; No. 2 screw machine with brake; No. 1 case hardening furnace; hard coal tempering furnace; hand milling attachment for No. 0 plain milling machine; taper milling attachment for Nos. 1 and 2 universal milling machines; driving fixture for high speed milling attachment; 8 inch and $6\frac{1}{2}$ inch single dial index centres; Nos. 1 and 2 flanged vises; milling machine screw arbors; centrifugal water pump; geared water pump; new sets of tools for milling machines; new sizes side milling cutters; cutters for fluting reamers; sprocket wheel cutters; cutters for making four-lipped twist drills; end mills with centre cut; fly cutters; new sizes of T slot cutters; angular cutters with threaded holes; patent metric involute cutters; improved stocking cutters for involute gears; new sizes special bevel and mitre gear patterns; rubber tipped foundry rammers; test indicator to read to $1/50$ m. m.; 29° screw thread tool gauge, "acme standard"; No 20 screw pitch gauge. These catalogues are mailed to any address without charge, upon application, or are furnished by the hardware dealers.

Robin, Sadler & Haworth

MANUFACTURERS OF

Oak Tanned Leather Belting

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Orders addressed either to our Toronto or Montreal office will have prompt care.

Goods will be forwarded same day as order is received.

-Incandescent Lamps-

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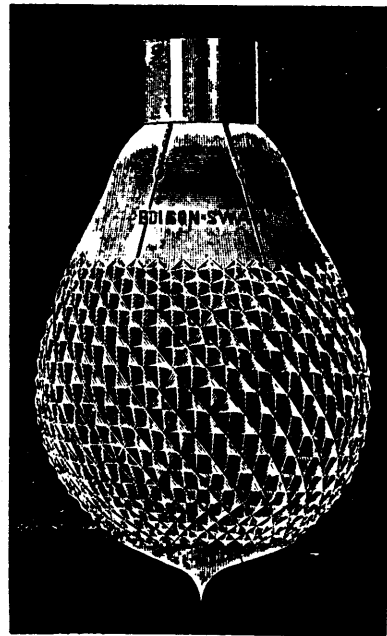
United Electric Light Co.

RUBBER COVERED WIRE

WEATHER-PROOF WIRE

MAGNET WIRE.

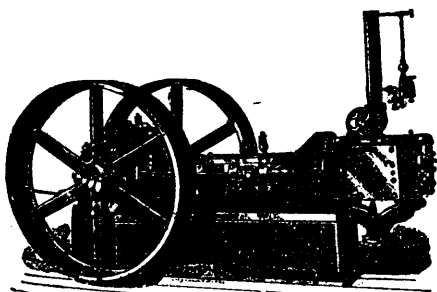
ELECTRICAL SUPPLIES OF EVERY DESCRIPTION.



John Forman, 650 Craig Street MONTREAL.

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AUTOMATIC
HIGH SPEED ENGINES



For Electric Lighting and
General Factory Purposes

Perfect Regulation and Highest Economy.

Steam Pumps, Shafting, Pulleys and
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Firstbrook Bros.

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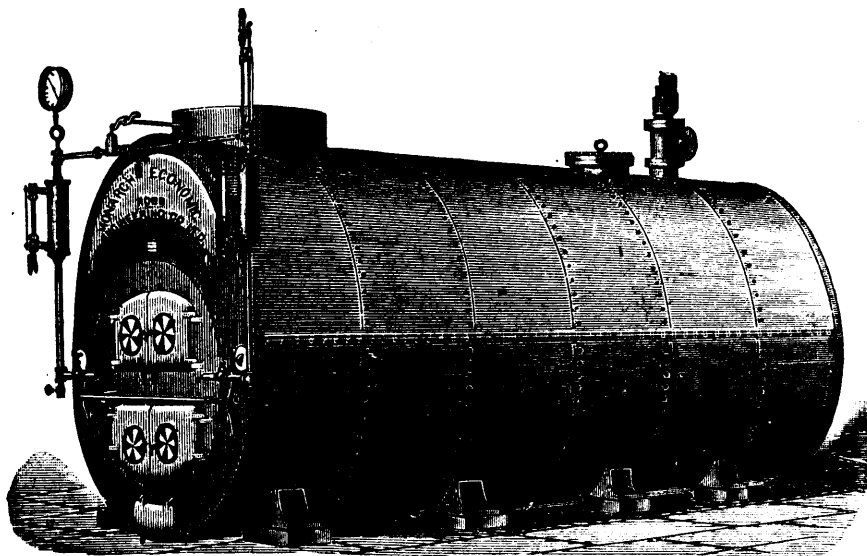
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Cigar Boxes. Shipping Cases.

TORONTO, ONTARIO.
Write for Prices.

If to wealth you would arise,
Bestir yourself and advertise.

Monarch Economic Boilers.



Require no brickwork and are guaranteed to save at least ten per cent. in
fuel over any brick-set boiler ; in some cases the saving has
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The Canadian Machinery Agency, 345 James Street, Montreal.

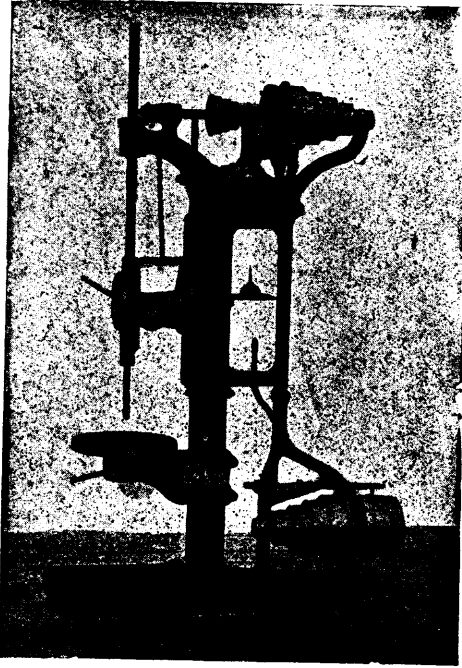
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MACHINE TOOLS AND SPECIAL MACHINERY



We have added many New and Handy Features to our 20" Geared Drill.

We are now placing on the market for light work a 20" Lever Drill of improved design.

PLAIN MILLING MACHINES

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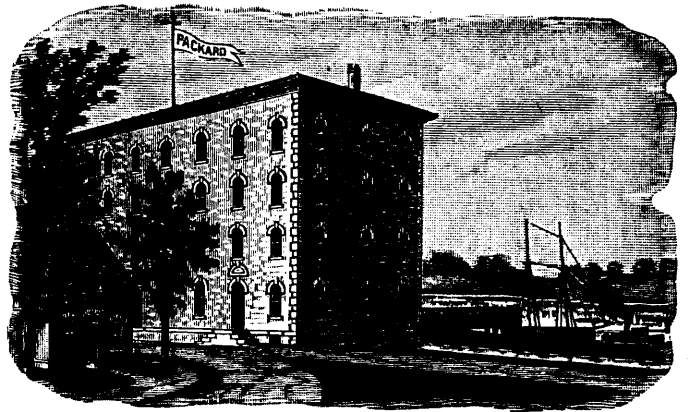
ENGINE LATHES

Our Prices are right for strictly First-Class Tools
Correspondence Solicited.

Montreal Office, 321 St. James St.

THOS. REID, Eastern Representative.

ANNOUNCEMENT!



WE are pleased to announce that our new factory, one of the finest manufacturing sites in the Dominion, is now in full operation manufacturing Lamps and Transformers.

Our factory is equipped throughout with new and improved machinery, and our product is, in quality, superior to anything in the same line heretofore produced. Our new "Packard Lamp" marks a distinct advance in the art.

In order to give the business personal attention, Mr. W. D. Packard has assumed the General Managership of the Company, with Mr. G. A. Powell as Assistant, and we can assure our customers that any orders with which they may favor us will receive careful attention. We have revised our prices and will be pleased to make quotations.

Respectfully,

The Packard Electric Co., Ltd.,

ST. CATHARINES, ONTARIO.

Manufacturers of Transformers, Incandescent Lamps, and Electrical Supplies.

Wm. Gordon's planing factory at Udora, Ont., was wrecked August 20th, by the explosion of the boiler. Loss about \$2,000.

The corner-stone of the Waterous Engine Works Co.'s new works at Brantford, Ont., was laid a few days ago. The new buildings are of gallery construction. The main building is 300 ft. long and 120 ft. wide, and has a central space of 40 ft. wide extending to the roof, over which a travelling crane will be operated. On each side of the centre is a 40 ft. space, with a gallery the full length of the building. The foundry is 80 ft. wide and 100 ft. long, with a central space of 40 ft. and two side spaces of 20 ft. each. The pattern-room, or vault, is on one side of the foundry, separated by a solid and heavy fire wall. The power-house is 40 x 60 ft. This building will be large enough to contain the boilers, engine, dynamo, pumps, air compressors, etc. The blacksmith shop is 50 x 80 ft. The boiler shop is 87 x 120 ft. Heating will be by the hot blast system. A railway track will enter the end of the main building, and also the end of the boiler shop, and there will be other tracks in the yard, from which shipments can be made and material received without the need of teaming. The works when completed will be capable of giving employment to about 400 men. Every care will be taken and arrangement made, to insure their convenience, and to permit of handling the work to be done with the least possible labor. The company are pushing the work forward as fast as possible, and expect by January 1st, 1896, to be fully located in their new premises.

The window placed in St. Paul's church by Mr. Bennett Rosamond, M.P., in memory of his father, who died this time last year, is a beautiful work of art. The central part of the two panels has for its subject "The presentation of Christ in the temple," (St. Luke 2:22-32). On the one panel are the figures of the Virgin Mother and Joseph, and on the other those of the infant Christ in the arms of Simeon and Anna the prophetess; the background, top and bottom, being filled with rich grisaille ornament. Underneath the figures is the text, "Lord, now lettest thou thy servant depart in peace." The lower part of the window shows two angels bearing scrolls with the words, "Blessed are the dead which die in the Lord." At the base is the inscription, "In memory of James Rosamond, born 14th February, 1805, died 8th August, 1894." The material of the window is rich antique glass, and the harmony of color is exquisite. It was designed and made in the studio of J. C. Spence & Sons, Bleury street, Montreal, and reflects credit on our Canadian industries.—Almonte Gazette.

Mr. W. H. Frost, proprietor of the Smith's Falls, Ont., Malleable Iron Works, has placed a 25-horse-power electric motor in his works, with which to drive the cupola blast blower, the capacity of the blower being 18-horse-power. The power to actuate the motor is supplied by the Smith's Falls Electric Light Company, of which Mr. Frost is president.

A despatch from Charlottetown, P.E.I., states that Mr. E. Franklyn Clements, of the Standard Telephone Company, of New York, is at present trying to obtain the consent of the Prince Edward Island Government to construct a transcontinental telephone system in that province. It is intended to lay the cable at Cape Traverse. Mr. Clements is also arranging for the establishment of an electric street railway in the city of Charlottetown, to be built by American capital.

A syndicate, which includes a number of Philadelphia capitalists, has purchased the rights of a power company which was recently formed to develop the Sault Ste. Marie canal, and has organized the Lake Superior Power Company, with a capital of \$2,000,000. The company has two large mills, and expects to operate the one on the Canadian side within a month. It is proposed to make paper pulp. The plant on the American side will be located at Sault Ste. Marie, Mich., but will not be in operation for some time. Among the Philadelphians interested are Mr. H. A. Berwind, of the Berwind White Coal Company; Mr. Samuel R. Shipley, and Mr. Edward V. Douglass.

A large deal is on the boards, contemplating the consolidation of the largest milling industries of Western Ontario. The deal has not as yet been fully consummated, but it has reached a stage which promises that within a week or two it will have become an accomplished fact. The mills interested are the Kent Mills, Chatham, Ont., owned by Mr. N. H. Stevens; the St. Thomas Mills, owned by Mr. John Campbell; the Aylmer Ont., Mills, owned by Mr. Stevens, and the Blenheim Mills, owned by Messrs. Campbell & Rutherford. The aggregate capacity of the four institutions is about 2,000 bbls. per day. To effect a consolidation of the business as now carried on individually by the four is the object of the negotiations in progress, and which, it is understood, will probably result in the formation of a joint stock company, with headquarters at St. Thomas, Ont. The deal is one of the largest of the kind ever undertaken in the province, involving, as it does, property to the value of perhaps \$250,000, and contemplating an investment of capital stock to the amount of half a million dollars.

1895.

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"MICA"

The well-known Electrical Insulator successfully adapted as an Insulator of Steam heat. Enormous Saving of Fuel Guaranteed by the use of Mica boiler and steam pipe covering.

Patented 1894 and 1895

Now being used with great success by the Toronto Street Railway Co., Niagara Navigation Co., Toronto Ferry Co., etc., etc. Has been tested and thoroughly examined by the highest authorities and pronounced the most effective in the market. Impervious to the extremes of heat or cold, damp or vibration. Made in any size mats in any shape. Can be applied and removed as often as desired without injury.

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IMPROVED **Corliss Engines**

High Pressure, Condensing and Compound
FEED-WATER HEATERS and PURIFIERS

Heavy Fly Wheels a Specialty.

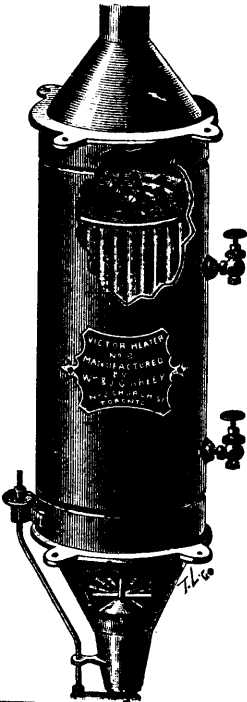
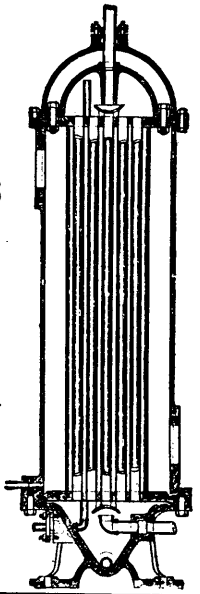
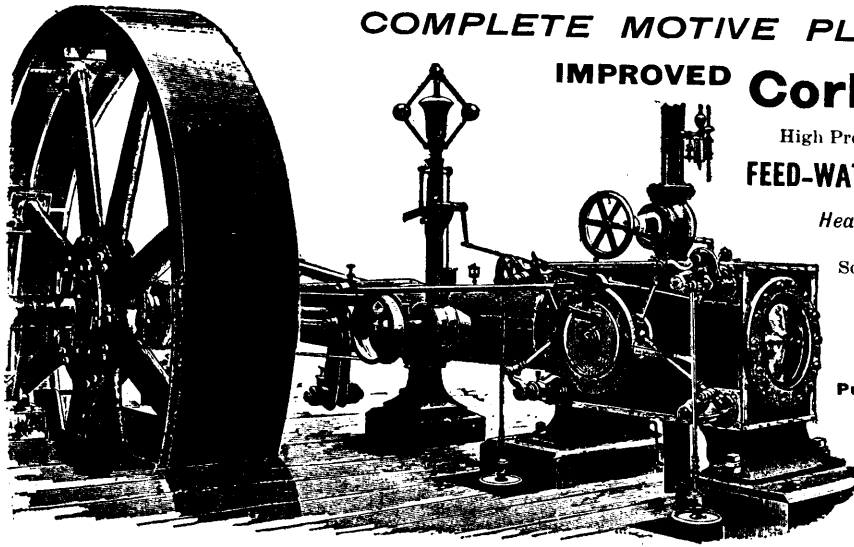
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Manufacture
**THE VICTOR
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The benefits
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**Engine Sized Superfine Papers
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**Steam
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G. T. Pendrith

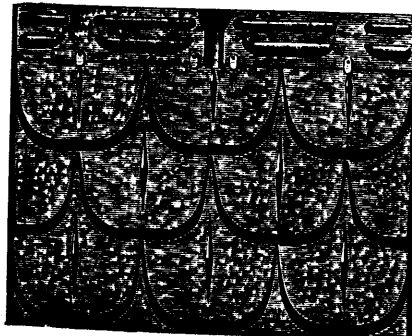
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METAL ROOFING

Those contemplating building the coming
season would do well to send for our catalogue.
Cheap as a wooden shingle. Will last a life time.



Guaranteed to be Water, Wind, Storm, Fire,
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THE PEDLAR METAL ROOFING CO.

Office and Works: Oshawa, Ontario
In answering please mention this paper.

Bargains in Machinery.

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Will be sold cheap before removal, several Corliss Engines of the best make and in first-class condition, from 250 to 350 h.p. I can furnish with these engines heavy fly wheels or band wheels.

Also to close up an estate the following new Automatic Engines will be sold cheap, strictly high grade, one 20" x 36", one 12" x 20", and one 12" x 18".

Also in stock a Double 23" x 60" Corliss Engine; 16" x 36" and 12" x 36" Corliss Engines; 16" x 32" and 10" x 16" Buckeye Engines; 12" x 12" Ball, 12" x 15", and 9" x 12" Beck, 9" x 12" Trenton, 9" x 9" New York Safety Automatic Engines.

Large stock of Slide Valve Engines, Boilers, Pumps, Feed Water Heaters, Centrifugal Pumps, Hoisting and Marine Engines, Lathes, Planers, Shapers, Drill Presses, Milling Machines and Steam Hammers, and Wood-working Machinery; 500 and 600 Light Dynamos, 1 to 60 h.p. Motors.

FRANK TOOMEY,

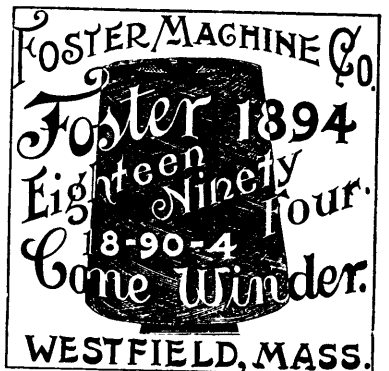
131 NORTH THIRD STREET

WAREHOUSES,

159 AND 161 CANAL STREET

976-982 BEACH STREET

PHILADELPHIA.



ADVERTISE IN THE

Canadian Manufacturer.

A Dunlop's flour and grist mill at Watford, Ont., was destroyed by fire September 1st., loss about \$12,000.

The new brick fireproof boiler and engine house which is being built by the Amherst Boot and Shoe Co. at Amherst, N.S., is nearly completed. A new Monarch boiler of 50 h.p. and a 40 h.p. Robb-Armstrong engine will be set up in the new building by the Robb Eng. Co.

Messrs. Stafford of the Glengarry Machine Works, at Lancaster, Ont., have received an order for eight machines for the manufacture of fibre chamois. The machines are to be sent to England, where the Fibre Chamois Co. have established a new factory. Sending Canadian machinery to Great Britain is a somewhat unusual occurrence, and is certainly an evidence that Canadian manufacturers are progressing rapidly.

W. Smyth is about to erect a saw mill and shingle factory at Bensfort, near Peterborough, Ont.

The Riordan Paper Company, Merriton, Ont., intend enlarging their machine shop.

Purves' mill at Carleton Place, Ont., recently destroyed by fire, will be rebuilt.

As a result of Mr. Jas. Dunsmuir's recent visit to Union, B.C., with Mr. A. Cunningham of Edinburgh, representing a big Scotch engineering firm, a plant to cost upwards of \$60,000 is to be erected at the mines to sort and wash the coal on a new and improved basis.—Victoria, B.C. Commercial Journal.

We are informed by Mr. Taylor, the manager, that the Ottawa Porcelain and Carbon Co., have completed the construction of their extensive works in Ottawa, and are now manufacturing their several specialties.

Mr. Hayes, the secretary and treasurer of the Toronto Carpet Manufacturing Co., has received a letter from a firm in Amsterdam, Holland, in which after receiving an invoice of carpets manufactured by this company, they say: "After careful examination of the same, we must acknowledge that the article has proved to be to our full satisfaction and we are very much inclined to duplicate orders, which please find inside." Which order included, besides a duplicate order, a new order for 25,000 yards of their celebrated Axminster carpets. Orders from such a distance as this must be extremely satisfactory to the Toronto Carpet Co., and is evidence that the quality of the goods they manufacture is fully appreciated.

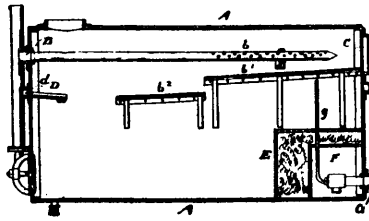
Contracts have been awarded for the construction of 160 platform cars, 75 box cars and 40 hopper cars for the Intercolonial Railway. Rhodes & Currie of Amherst, N.S., will build 75 platform cars, 40 box cars and 40 hoppers. The remainder will be built by the Rathbun Co. of Deseronto, Ont.

The Robb Engineering Co., Amherst, N.S. have sent us very beautiful lithographs of some of their products, including their Robb-Armstrong engine and electric generator combined; Robb-Armstrong cross-compound engine. Robb-Armstrong compound engine and Monarch Economic boiler. These pictures, which are printed on heavy card-board, are quite ornamental and accurately represent the machinery to which they refer.

The Robb Engineering Co., Amherst, N.S., are putting in a 30 h.p. Robb-Armstrong engine in the works of the Truro Condensed Milk Co., Truro, N.S., and a 50 h.p. Monarch Economic boiler for Messrs. E. Stephenson & Co., St. John, N.B.

The Hamilton Iron & Steel Co., Hamilton, Ont., have received about 100 tons of rails to complete the railway switch in to their works. The company have been notified that 1,800 tons of special fire-brick have been shipped from New Jersey by the Philadelphia Engineering Company for the smelting works, and the large engines, weighing 150 tons, will be on the way shortly with a great deal of other material.

The LOWE FEED WATER HEATER - AND PURIFIER -



The Canadian Patent for this most excellent apparatus is for sale on very reasonable terms, or a favorable arrangement will be entered into with responsible party to manufacture in Canada upon Royalty.

For full Illustrated Description, terms, etc., address:

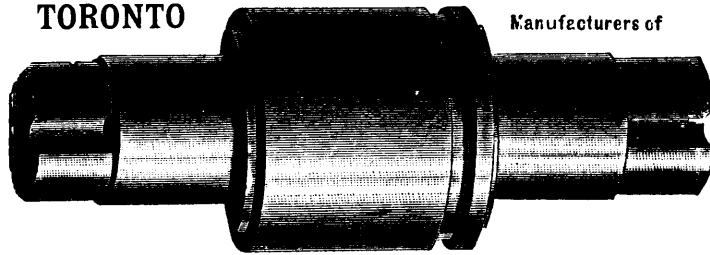
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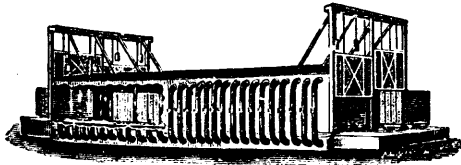
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also manufacture any
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FOR ANY CHAIN.

The Parmenter Patent Dry Kiln



THE LATEST, THE CHEAPEST AND BEST FOR DRYING LUMBER, STAVES, HEADING, ETC.

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HAMILTON, ONTARIO.

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WHIP YARN, in Beam, Chain or Skein, White or Colored. SINGLE AND DOUBLE YARNS, COP YARN, SINGLE AND DOUBLE HOSIERY YARN in all Colors, including genuine "FAST BLACK."

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Selling Agents for Beam Warps.

Toronto Carpet Mnfg. Co., Ltd.

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Were awarded Gold Medals at the World's Columbian Exhibition, Chicago, for their

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AND
"IMPERATRIX" AXMINSTER**CARPETS.**

SEVEN QUALITIES OF INGRAINS.

Kensington Art Squares, Axminster Mats, Rugs,
Squares, Body Border and Stairs.

Esplanade and Jarvis Sts., - Toronto

ESTABLISHED 20 YEARS.

A. KLIPSTIEN & CO.

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**ANILINES, DYESTUFFS, AND
CHEMICALS**

Of every variety, of the best quality and at the lowest prices.

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Dealers in and Manufacturers of

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English H and T Steel Card Clothing.

Williams' Heddles, Shuttles, Reeds, Heddle-frames, Loom Repairs.

DODGE WOOD SPLIT PULLEYS.

Best Oak Tanned Belting and Lace Leather.

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Manufacturers of Fancy Tweeds, Etc.

Selling Agents, D. MORRICE, SONS & CO., Montreal and Toronto.

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HOSIERY, SHIRTS, DRAWERS,

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FINE TWEEDS, CASSIMERES, AND FANCY
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FINE AND MEDIUM TWEEDS**Guelph Woolen Mill Co., Ltd.**

GUELPH, - - ONTARIO

Manufacturers of

Underwear, Hosiery, Wheeling, Fingering and Worsted Yarns
EIDERDOWN FLANNEL, ETC.

Selling Agents: Donald Fraser, Montreal E. H. Walsh & Co., Toronto.

The factory of Messrs. Geo. L. Diehl & Co., Toronto, manufacturers of mantels, grates, etc., was damaged by fire Aug. 16, to the extent of about \$8,000.

Messrs. Ricker and Nichol, Winnipeg, Man., have commenced the manufacture of starch.

The Mona Mills, Montreal, owned by the Hon. J. K. Ward, were destroyed by fire Aug. 14. Loss about \$15,000.

The Lake of the Woods Milling Co.'s elevator at Ninga, Man., was destroyed by fire Aug. 12. The elevator had a capacity of 25,000 bushels. It will be replaced by a larger one.

Mr. T. B. Caldwell will erect a saw mill at Lanark, Ont.

C. A. Price will erect a planing mill at Aylmer, Ont.

Messrs. Dow & Curry's oatmeal mill at Pilot Mound, Man., is being fitted with new machinery.

The Brunette saw mill near Westminster, B.C. which was recently destroyed by fire is being rebuilt.

The Uxbridge Piano & Organ Mfg. Co., Uxbridge, Ont., have added a new engine and boiler to their factory.

The Cookshire Mill Co.'s saw mills at Sawyerville, Que., were destroyed by fire Aug. 9. Loss about \$100,000. They will rebuild immediately.

The Walker foundry Co., Belleville, Ont., has been incorporated with a capital stock of \$20,000 to carry on the business of iron and brass founders, machinists, boiler makers, bridge builders, manufacturers of agricultural implements, etc.

The Central Light & Power Co., Montreal, are applying for incorporation with a capital stock of \$50,000 to construct works for the manufacture of electric machinery, and of electricity for the purpose of light, heat, power, etc.

The Shearer & Brown Co., Montreal, are applying for incorporation with a capital stock of \$100,000 to carry on business of saw mills, planing mills and drying kilns, and for the manufacture of sawn timber, boxes, etc.

The Canadian Electric Forging & Smelting Co., Toronto, are applying for incorporation with a capital stock of \$500,000 to manufacture chemicals by products, and gases by electricity; to manufacture machinery; and to carry on works for the forging, refining and smelting of ores, chemicals, etc.

R. J. Doyle has established a factory at Shallow Lake, Ont., for the purpose of making ornamental bricks.

The Cashmer Mfg., Cashmer, Ont., are applying for incorporation with a capital stock of \$20,000 to manufacture staves, hoops and lumber. The head office will be at Wallaceburg, Ont.

The Canonto Mica and Mineral Mining Co., Toronto, are applying for incorporation with a capital stock of \$22,000 to mine, cut and dress mica, etc.

The Standard Woodenware Co., Toronto, are applying for incorporation with a capital stock of \$25,000 to manufacture woodenware, toys, furniture, interior art woodwork, architectural wood carving, etc.

The McCrae-Hanes Co., Toronto, has been incorporated with a capital stock of \$24,000 to manufacture inks, mucilage, shoe dressings, stove polishes, etc.

The R. A. McCready Co., Toronto, has been incorporated with a capital stock of \$25,000 to manufacture bicycles, bicycle supplies, etc.

The Parry Sound Electric Light, Heat and Power Co., Parry Sound, Ont., are applying for incorporation with a capital stock of \$20,000 to supply light, heat and power to that town.

The Stevens, Campbell Milling Co., St. Thomas, Ont., are applying for incorporation with a capital stock of \$500,000 to manufacture flour, meal, etc.

Mr. Thomas H. Laner, who has been for the past three years working in the oil fields of Austria, returned home a few days ago. He was in the employ of Messrs. Bergheimer & McGarvey, the largest oil producers in Galezien, Austria. During his stay there he has been very successful in his undertakings, having finished seven flowing wells. He drilled the deepest well in that country, assisted by Colin McGill, an old resident of Petrolia. This well is 2,147 feet deep, commenced with a 24-inch bit and finished with a 2½ inch, inside of a 3-inch casing.—Petrolia, Ont. Advertiser.

Ashcroft, B.C. purposes putting in an electric light plant and a water works system by steam power.

San Francisco capitalists are endeavoring to lease the Revelstoke, B.C. smelter for five years. They will put in \$20,000 of improvements.

EASTON SYSTEM

—OF—

.Electrical Machinery.

Why do our competitors say, "Whatever you do

DON'T BUY ABELL'S MACHINE?"

WE needn't tell you why they say so. You can easily guess.

THE JOHN ABELL ENGINE AND MACHINE WORKS CO., LTD.,
TORONTO, ONTARIO, CANADA.

AUSTRALIA.

Boswell, Cross & Co.

CANADIAN MANUFACTURERS' AGENTS

Wynyard Square, Sydney, New South Wales.

All Communications promptly attended to.

References : { Menzie, Turner & Company, Toronto.
Dominion Suspender Co., Niagara Falls, Ont.

Canadian Rubber Co., MONTREAL.

A. ALLAN, President. F. SCHOLES, Managing Director. J. O. GRAVEL, Secretary-Treasurer.

CAPITAL, \$2,000,000.

J. J. MCGILL, General Manager.

Manufacturers of Superior Quality

Rubber Belting

of following grades

"Extra Star," "Fine Para"

"Extra Heavy Star"

"Forsyth Patent" Seamless

"C.R. Co. Stitched"

Rubber Hose

Made with our Patent Process Seamless Tube, including

Engine Hose, Hydrant Hose, Conducting Hose, Steam Hose, Suction Hose Galvanized Wire, Suction Hose Galvanized Smooth Bore, Suction Hose Hard Rubber, Rubber Valves, Gaskets, Packings, etc.

WESTERN BRANCH:

Cor. Front and Yonge Sts., TORONTO.



J. H. WALKER, Manager.

The Electric Storage Battery Co., Philadelphia, finding their business rapidly increasing, have established branch offices at 333 Exchange Building, Boston, Mass; 309 Dearborn street, Chicago, Ill; 15 First street, San Francisco, Cal.; 215 North Calvert street, Baltimore, Md., and 66 Broadway, New York, the office of the Electric Launch Co. in connection with the Electric Storage Battery Co. being at Morris Heights, New York City. The W. A. Johnson Electrical Co., 24 York street, Toronto, are the Canadian Agents. It is a pleasure to know that this concern is meeting with such large success as to require the establishment of the branch offices above alluded to.

THE DOMINION COAL COMPANY.

The report of the Directors, and accounts for the fourteen months ended with February 28th, 1895, submitted at the annual meeting of the Dominion Coal Company held in Boston on June 6th last, were as follows:—

In submitting this report the attention of shareholders is called to the fact that to the time of making the report for 1893 the operations of this company were carried on for about ten months, but in consequence of the change in the fiscal year, which now begins March 1st, this present report covers a period of fourteen months.

January and February are months when the mines are practically closed and no revenue is received. The accounts for these two months are shown separately. Had this statement included but twelve months from January 1, 1894, the net surplus would stand increased by the sum of \$64,597.65, or \$92,211.56 instead of \$27,613.91.

The quantity of coal mined was 1,020,537 tons, being an increase of 186,518 tons over the business of 1893.

In addition to this business much progress has been made in opening new pits, one on a seam of coal believed to be of superior quality, and in providing modern apparatus and machinery for mining and handling coal. This work is so far complete that no further expenditures are contemplated. As the coal seams of Cape Breton resemble those of the United States, it is believed that the same cheapening of cost will follow these improvements in the one case as in the other.

This cheaper cost of production and cheaper transportation will

enable the company to market its coal in places which would otherwise be inaccessible, thus making a larger output possible, increasing the length of time when mining operations can be carried on, increasing the revenue of the company and giving more employment and for a longer time to its employees.

The railroad to Louisburg is substantially completed as well as its piers at Sydney and Louisburg, and it is expected that the railroad will be open for freight and passenger business over the whole route on the first of July. The opening of the road to Louisburg will afford for the first time an opportunity for winter shipments of coal, and will consequently cheapen the cost of sea transportation to the lower Maritime Provinces, and to New England ports. The road is now forty-two miles in length, with grades exceedingly favorable. It is laid with 80-lb. rails and is in every respect first-class, and has connection by branches to all the company's collieries but one. That one is located at some distance from the main line and is equipped with a short piece of railroad and independent pier. During the past year a large amount of equipment, principally coal cars (of which four hundred are of a capacity of sixteen tons each) and three locomotives have been added. The local freight and passenger traffic has proved satisfactory.

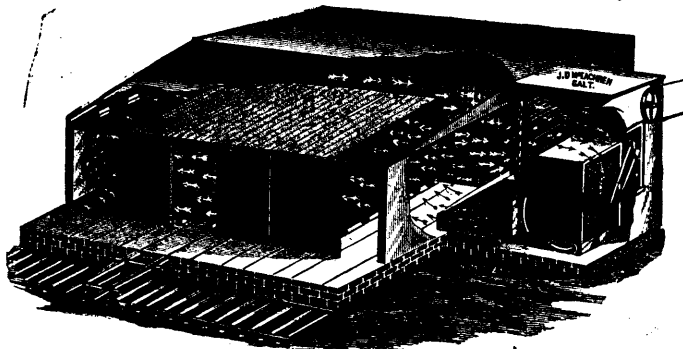
All the construction work in contemplation at the time of organization is now completed. All of the bonds held for this expenditure (\$1,500,000) have been sold at a satisfactory price. The proceeds (in part received) place the company in a satisfactory financial position.

The net revenue since organization has been sufficient to provide for all interest, sinking fund and dividend requirements on preferred stock, and to pay a considerable sum toward depreciation and expenses for change in the fiscal year. When the savings by the new methods begin to be realized, it is believed that the net results will show a gratifying increase which can be used for dividends on the common stock.

The sinking fund provision for the bonds requires the payment to the trustees, the New England Trust Company, of two cents per ton on all coal mined the first year (1893), three cents the second year, four cents the third year, and five cents thereafter, and after the sum of \$125,000 has been received by the trustees (which shall be held in cash or in securities) the bonds will be called for payment and cancellation. Even on the present basis of output a small amount will be required to be called in April, 1897,

McEachren's System of Drying, Heating and Ventilating

Under Recent Patents.



CHEAP AND EFFECTIVE.

HIGHLY APPROVED OF BY PRACTICAL MEN.

The following is a specimen of letters received from customers:

J. D. McEACHREN, Esq., Galt, Ont.

OTTAWA, April 1, 1895.

DEAR SIR.—Replying to your enquiry regarding Dry-Kiln purchased from you last summer, we beg to state that our lumber is stained hardwood, principally birch, which is put through a chemical process thereby rendering seasoning a very difficult operation. We tried to have it dried in the several styles of kilns used by factories in this district, all of which failed to take the moisture out of the core of the wood. In August last we put in one of your kilns with a capacity of 10 cars, or 30,000 feet, and since that time have seasoned most satisfactorily about 200,000 feet. The boards come out free from checks and warps, and we are now thoroughly convinced that it is the only dry-kiln in the market which fills the bill both as to efficiency and economy.

Yours truly,

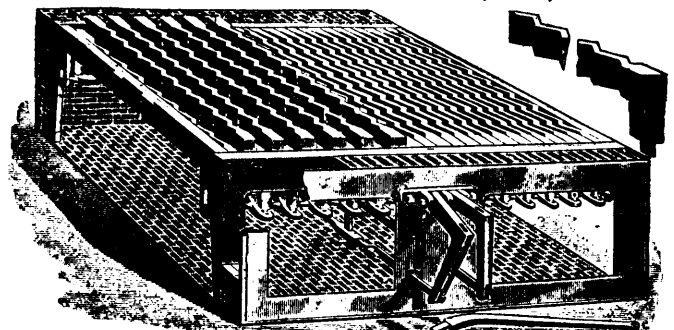
McRAE BROS. & CO.

For particulars address—

McEACHREN HEATING AND VENTILATING CO.
GALT, - - - - - ONTARIO

THE VOLCANIC PATENT SHAKING GRATE

MANUFACTURED BY THE GURNEY FOUNDRY CO., Ltd., Toronto.



TORONTO SOAP COMPANY, June 3, 1895.

The Gurney Foundry Co., Ltd., Toronto:
Gentlemen.—We have had a set of the Improved Volcanic Shaking Grate for three weeks under one boiler and is working splendid. With my practical experience of over 20 years, it is as follows:

1st. Its small fire place. It takes less fuel to cover furnace and the large amount of heat derived from it. The economy which its large area admits. The air is taken in from one end to the other of the grate without any breaking in the air space, which, I find, adds greatly to the fire keeping even over the entire surface. The grate works splendid when shaking and no coal goes in the ashpit. There is another saving. I see there is very little smoke comes out of the stack. Over 75 per cent. of smoke is consumed in the furnace. This is due to plenty of air passing through the grates, which forms a combustion. This also is a big saving on fuel. Our old furnace was 4x2. Yours is 3x2. I find that I have over three feet more air space in yours than in the old. I could only boil one kettle and keep my water feeding in boiler with the old furnace and I had to fire heavy then. I now boil the kettle, run re-meller and engine, and keep my feed water going at the same time with half labor in firing. I am satisfied that we are saving over twenty-five to thirty per cent. There is no grate in the market to-day to equal it for economy. I have run four days without cleaning tubes and find there is no more soot in tubes than in one day's run with old furnace.

I remain, yours respectfully,

J. McCLAY, Mechanical Engineer

W. A. Bradshaw & Co., Proprietors.

THE GURNEY FOUNDRY CO., Ltd., TORONTO.

and thereafter an amount equal to five cents per ton on the output. The amount now in the sinking fund has been invested in United States bonds.

Report of the Treasurer, January 1, 1894, to February 28, 1895.

Net proceeds \$1,020,537 tons coal, less cost mining, transportation, royalty, etc.....	\$184,075 01
Profit on Steamships, railway, barges, etc.....	196,873 43
	\$380,948 44
From which has been paid—	
Balance sinking fund (1893).....	\$320 43
Interest	176,864 31
Dividends, preferred stock	120,000 00
General expense.....	47,857 69
	345,042 43
Balance	\$35,906 01

Add—Surplus from 1893.....	\$51,977 48
4 months' interest allowed in 1893 statement afterwards paid in above interest account	30,000 00
	81,977 48
Total	\$117,883 49
For which provision must be made for—	
Dividend preferred Stock, 2 months, Jan. and Feb., 1895 ..	\$20,000 00
Sundry accounts payable.....	3,343 45
Sinking fund	28,055 50
	51,398 50
Add subsidy received for railway construction	64,000 00
	\$66,484 99
Gross surplus	\$130,484 99

Berlin - Machine - Works

JACKSON, COCHRANE & CO.

Manufacturers of

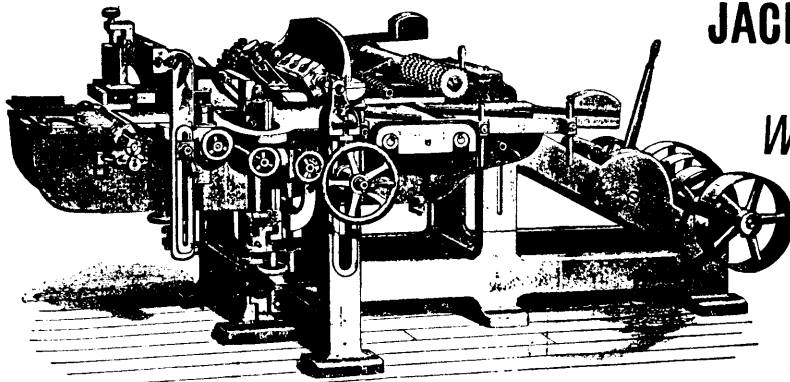
WOOD WORKING MACHINERY

SHAFTING, PULLEYS, ETC.

REPAIRING AND CASTING

PROMPTLY ATTENDED TO

BERLIN - ONTARIO



MILLERS! READ

The following letter from A. Moyer & Co., Palmerston, Ont. Our mills all start up the same way. No vexatious and expensive delays. A few \$100 SAVED in the cost of putting in your mill is easily SPENT by sending out poor flour to your critical customers when starting up, injuring a reputation that will take months to re-establish.

STRATFORD MILL BUILDING Co.,
STRATFORD, ONT.

PALMERSTON, ONT., *June 16th, 1895.*

DEAR SIRS,—After running and thoroughly testing the 100 barrel mill that you re-modell-ed for me, I take pleasure in stating that you have completed the contract to my entire satisfaction. The quality of flour and yield is even better than I expected, or your guarantee called for. The mill started off without a hitch, and the flour proved satisfactory from the start, and not a spout or a piece of cloth had to be changed. I shall be pleased to show anyone who is interested in modern milling our mill. Hoping that you will meet with the success you deserve, we are,

Yours truly,

A. MOYER & CO.

The Stratford Mill Building Co. Ltd.
STRATFORD, ONT.

Written off as follows—

Subsidy to suspense account for future depreciation railway and equipment.....	\$64,000 00	
To profit and loss, depreciation in property.....	21,054 98	
To profit and loss, provision doubtful accounts.....	5,638 42	
To profit and loss, sundry items properly chargeable to 1893 business.....	12,177 68	
		102,871 08
		\$27,613 91

Net surplus carried over ..

NOTE—This surplus remains after deducting expenses of two unproductive months, costing as follows—	
Maintenance of mines, offices, etc.	\$29,597 65
Interest on bonds.....	15,000 00
Dividend, preferred stock.....	20,000 00
Total.....	\$64,597 65

Balances, February 28, 1895.

Assets—

Property.....	\$19,194,123 54	
New supplies warehouse and stores	107,315 09	
Agents' balances.....	188,085 10	
Bills receivable.....	3,000 00	
New England Trust Co. sinking fund.....	15,469 28	
New England Trust Co. interest account.....	63,465 00	
New England Trust Co. special account.....	106 00	
American Loan and Trust Co. dividend account.....	1,892 00	
Cash.....	54,041 76	
		\$19,627,497 77

Liabilities—

Common stock.....	\$15,000,000 00	
Preferred stock.....	1,500,000 00	
First mortgage bonds.....	2,100,000 00	
Bills payable.....	719,147 64	
Unpaid coupons.....	63,465 00	
“ dividends.....	1,892 00	
Coal, balance payable.....	29,026 91	
Accounts payable.....	3,343 45	
Royalty, 5 months.....	32,082 73	
Acerued dividend, 2 months.....	20,000 00	
Sinking fund.....	28,055 05	
Railway subsidy, suspense account	64,000 00	
To profit and loss.....	38,871 08	
“ surplus 1895.....	27,613 91	
		\$19,627,497 77

BOSTON, June 6, 1895.

J. S. McLENNAN,
Treasurer.

The partnership heretofore existing between Samuel Rogers, A. S. Rogers, J. P. Rogers, Toronto, and W. D. Morris, Ottawa, oil merchants, under the style of The Saml. Rogers Oil Co., has been dissolved and the Rogers & Morris Co. has been incorporated.

Are You Looking

FOR ANY KIND OF MACHINERY?

We call attention specially to the following :

- Upright Engine 6 h.p. and Boiler 8 h.p.
 - 1 Horizontal Engine 8½" x 16"
 - 1 Horizontal Boiler 10" x 42"
 - 1 Northey Steam Pump 5" x 3" x 5"
 - 1 National Heater, No. 4.
 - 1 Rope Drive, Transmits 20 h.p.
 - Iron and Wood Pulleys, New and Old.
 - Shafting, Hangers and Belting. All Sizes
- Full assortment of Iron and Wood Working Machinery always on hand.

WRITE—

W. R. SCOTT, 489 Church St.
TORONTO

Above
all

COMPETITORS

Coal is money, why not save it by using the

T.J.C.
INJECTOR

the most economical boiler feeder in the world.

20 per cent.

saved in coal over any other make. Absolutely automatic. Easily attached. Applicable to all kinds of boilers.

NOT
EXPENSIVE

Will outwear any other make and is simple in construction. It is easy to operate, and is the most powerful feeder in the world.

The T. J. C. Injector

is the best because you cannot possibly go wrong with it. With high or low steam the result is equally satisfactory.

It combines the utmost simplicity with perfect efficiency, and any boy can operate it.

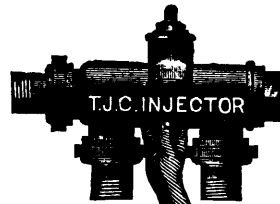
PRICE LIST :

No.	PRICE.	HORSE POWER.
7.....	\$ 7 00	4 to 8
10.....	7 00	8 to 16
15.....	10 50	16 to 40
20.....	15 00	40 to 72
25.....	22 50	72 to 120
35.....	30 00	120 to 220
45.....	45 00	220 to 300

HAMILTON BRASS MFG CO.

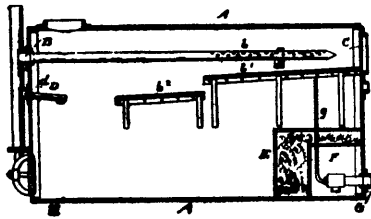
LIMITED

HAMILTON, - ONT.



THE LOWE FEED WATER HEATER AND PURIFIER.

The accompanying illustration and description is of the Lowe Feed Water Heater and Purifier recently patented in Canada by



Robert Lowe, Washington, Penn. It is simple in construction, original in shape and design, efficacious in its operation and can readily be cleansed. The important feature of it is the manner in which the exhaust steam comes in contact with the cold water, thereby quickly causing

condensation and obviating any back pressure upon the engine. There is an arrangement embodied in the heater, whereby the grease, oil and other impurities floating on the water is skimmed off and carried a way. There are also two fixed shelves upon which the feed water falls; as this water becomes heated the impurities contained therein become separated therefrom, leaving the impurities upon these shelves, such as do not remain there falling upon a movable shelf at the bottom of the heater, which is easily accessible.

The Manufacturers' Natural Gas Company at Cannonsburg, Penn., have one of the Lowe Heaters and Purifiers in operation in their works in connection with their battery of boilers supplying steam

for engines aggregating 1,200 h. p., regarding which Mr. N. Johnson the superintendent, states that the water in the heater maintains a temperature of from 208 to 210 degrees, although the apparatus is distant from the boiler about 75 feet. He says that the heater is cleaned out every three weeks, when the sediment removed therefrom amounts to from three to five barrels full. We are informed that a heater and purifier made by one of the most popular concerns in the United States, that had previously been in use in the works of the Manufacturers' Gas Company, and which up to that time had been considered the very best to be had, was displaced to make room for a Lowe apparatus. We are also informed that a Lowe apparatus in use in the works of the Cannonsburg Penn. Iron and Steel Company, of which Mr. J. F. Buake is Superintendent, is affording the utmost satisfaction. Mr. Lowe the inventor, has the permission of the superintendents of both these large concerns to refer to them, and these gentlemen will cheerfully testify to the excellence of the apparatus.

Mr. Lowe desires to either sell outright his Canadian patent for the apparatus, or to make arrangement with some manufacturer who will make and sell the apparatus in this country. Any who may desire to obtain fuller information regarding the matter should write to Robert Lowe, 444 West Maiden street, Washington, Penn.

The contract for lighting the town of Trenton, Ont., for ten years has been awarded to the Brush Electric Light Company, of Cleveland, Ohio, represented by Col. W. S. Rogers. The magnificent water-power, capable of producing 12,000 horse-power, north of the town, on which a suitable power-house was constructed last year, will be used for the purpose. Besides an incandescent system of lighting, the company will develop the power by putting in large generators, and distribute the power through the town for manufacturing purposes.

A. G. NEFF, CHARTERED ACCOUNTANT
Canada Life Bldg., Toronto.

A specialty of Audits and investigations, or work requiring expert knowledge of Accounts of Manufacturers, Companies, Estates, Municipalities, etc.

George White Fraser

C.E., D.T.S., A.Am. Inst. Elec., Eng.

CONSULTING ELECTRICAL ENGINEER

Electric Railways and Electric Light Construction Superintended.

18 IMPERIAL LOAN BUILDING TORONTO

Special Sale of Machinery.

We have no opposition in prices on the following:—1 4 h.p. Doty Engine and Boiler with all connections, 1 18 h.p. Plain Horizontal Engine and 30 h.p. Boiler with all connections; 1 12 h.p. Engine and Boiler on wheels.

The above have been thoroughly overhauled and are in fine condition. We also have a large stock of wood and iron working machines, new and second-hand; also a large quantity of 1" Steam Pipe and Shafting; Bargains in all.

The Toronto Machinery Supply Co., 164 KING ST. W. TORONTO

A. J. LINDSAY, Manager.

The Canadian Rand Drill Company, SHERBROOKE, QUEBEC, CANADA

Straight-Line and Duplex Air Compressors.



The "Slugger" and "Little Giant" Rock Drills For Mining and Tunneling.

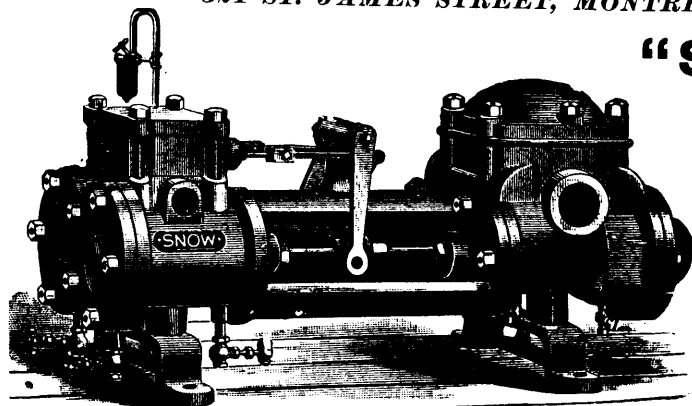
Duplex 12" x 18" Compound Condensing Steam Air Compressor, WITH HALSEY'S PATENT POSITIVE MOTION AIR VALVES

We furnish a line of Belt and Steam-actuated Compressors for mechanical purposes in connection with manufacturing plants for compressing gasses and for use in chemical works, breweries, and other establishments where large bodies of liquids are to be moved.

Branches—16 Victoria Sq., MONTREAL, 129 Hollis St., HALIFAX, N.S., 632 Cordovia St., VICTORIA, B.C.

CANADA MACHINERY AGENCY

321 ST. JAMES STREET, MONTREAL



"SNOW" DUPLIX STEAM PUMPS

..FOR..
EVERY SERVICE

*Iron Tools, Wood-
Working
Machinery*

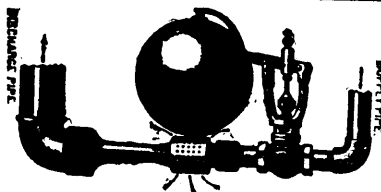
STEAM ENGINES, BOILERS OF EVERY TYPE, SAW
MILL MACHINERY, ETC.

CANADA MACHINERY AGENCY, W. H. NOLAN, Manager
321 St. James Street, Montreal

THE BRAENDER

JET PUMP, WATER ELEVATOR
AND CELLAR DRAINER

Patented
May 8, 1891.



This automatic device for removing water from Cellars, Excavations, Trenches, Wheel pits, or any depression where water accumulates, either from Springs, Surface Water, Leakages, or Tide Water, is so constructed as to be not only reliable at all times, but will, with a very small amount of water under moderate pressure, remove a large body of water and discharge it to a higher level. It will prevent the accumulation of water, and its construction is Strong, Durable, Uncorrosive, and is so simple, that it will last for years without attention. *Send for Catalogues and Price Lists.*

GARTH & CO., AGENTS AND MANUFACTURERS
536 to 542 Craig Street, MONTREAL.

William Crabb & Co., Manufacturers of all
kinds of

Hackles, Gill, Comb and Card Pins, Picker Teeth, Needle Pointed
Card Clothing in Wood and Leather for Flax, Jute, Tow, Etc.

Hackles, Gill and Wool Combs made and repaired; also Rope Makers' Pins, Picker Pins, Special Springs,
Loom and Shuttle Springs, English Cast-Steel Wire, Cotton Banding and General Mill Furnishings.

Bloomfield Avenue and Morris Canal, NEWARK, N.J.

A GOOD INVESTMENT

REQUIRING BUT LITTLE CAPITAL

The Inventor of a very ingenious and novel **HASP LOCK** offers the Canadian Patent for sale at a reasonable price.

It has proven itself to be a great seller in the United States.

Hardware dealers generally handle this lock and railway and car companies are adopting it.

The cost of machinery and tools to manufacture it is light while the profits are large.

Full information as to the machinery and tool furnished if desired.

The closest investigation as to its merits invited.

ADDRESS—

WM. E. DEIBERT, Shamokin, Pa., U.S.

C.G. ELRICK & Co.

FACTORY—Sheppard Street, Toronto.
MONTREAL OFFICE—Fraser Building.

MANUFACTURERS OF

HORN AND RUBBER COMBS, Etc.

Welland Vale Manufacturing Co.

• LOCK No. 2, ST. CATHARINES, ONT.
Manufacturers of

Axes, Scythes, Forks, Hoes
RAKES AND EDGE TOOLS.

FOUNDRY FACINGS

CEYLON PLUMBAGO

CORE COMPOUND

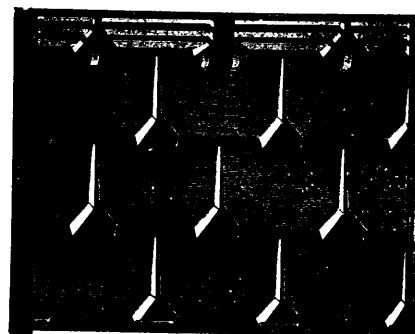
MOULDING SAND

FOUNDRY SUPPLIES

Hamilton Facing Mill Co.

HAMILTON, ONTARIO.

Eastlake Steel Shingles



Beware of Worthless Imitations.

METALLIC ROOFING CO., Ltd.

TORONTO

SOLE MANUFACTURERS.

ECO MAGNETO

Watchman's
Electric
Clock

WITHOUT BATTERIES.

Write for descriptive circular to

ECO

MAGNETO CLOCK CO.

Room 71, 620 Atlantic Avenue,
BOSTON, MASS.

MONTREAL ELECTRIC CO.'Y.

Agents for Province of Quebec

302 ST. JAMES STREET.

John Starr, Son & Co., (Ltd.)

HALIFAX, N.S.

Agents for the Maritime Provinces.

Haekney Power Hammers

Are superior in many respects to most
in the market. Made by

STEVENS, HAMILTON & CO.

Manufacturers of Iron Working Machinery
GALT, - ONTARIO.

TESTS OF INCANDESCENT LAMPS.

Prof. B. F. Thomas, of the Ohio State University, recently finished some extended tests of the Packard incandescent lamps, the object of which was to determine its candle-power and efficiency at suitable intervals during a period of at least 600 hours. The Electrical World prints an account of these tests as given by Prof. Thomas, in a report which forms a notable addition to the literature of the incandescent lamp.

Owing to the lamps being received too late to allow a test of the necessary length at the University before its close for the summer, the initial measurements only were made there, and an arrangement with the local Edison Electric Company made to place the lamps on circuit at its central station for the life run. The test circuit and photometer were set up and used in the lamp store room at this station.

Weston instruments were used for the electric readings—a milliammeter reading to .001 ampere for current strengths, and a voltmeter reading to .1 volt for E. M. F., the instruments being carefully compared with the University standards. For candle-power readings, a Summer-Brodhum sighting box was adapted to an accurately graduated portable photometer bar, 100 inches long. The lamp under test was placed at one end of the bar, and a 100-volt 16-cp lamp, which had been used some time, was placed at the other end and used as a working standard. This lamp and three similar check lamps were first carefully measured on the University standard photometer, against a Harcourt pentane lamp, whose value was well known from many series of comparison with the best sperm candles. During these tests, the incandescent lamps were supplied with current from a good storage battery. Electric readings were taken with the Weston instruments named above. All photometer readings, at the University and at the station, were made by Prof. Thomas. At least four settings were taken for each reading, and the sighting box was severed after each setting. Successive settings seldom differed by more than one per cent.

One hundred lamps, labeled "16-cp, 100 volts," were received, being about equally divided into two lots, having distinguishing marks inside the bulbs. Twenty-five lamps were taken at random from each lot for test. In order that the lamps might be run at as nearly constant voltage as possible, wires were run to the test room from the station circuit, which is brought back from the junction box at the mains of the general lighting system of the company. The mains were kept at as nearly constant potential as possible by an attendant at the switchboard, who was guided by the readings of a Weston voltmeter attached to pressure wires from the mains. It unfortunately happened that at a point between the mains and the station, a motor was run from the station circuit which supplied current for the test. The running of this motor caused momentary abnormal changes in voltage during the day, but at night it was not running, and the voltage was then quite steady. If the lamp circuit had been run from the station switchboard, it would have been necessary to provide for constant watching and regulation of the lamp voltage. As already stated, the voltage was not perfectly constant, and no attempt was made to secure unusual constancy for the reason that the circuit arrangement used enabled the lamps to be worked under the conditions ordinarily existing in central station practice. The results may, therefore, be considered as a better indication of what lamp users may reasonably expect from similar lamps, than if the lamps had been run at an unvarying voltage.

The 50 lamps were mounted, vertically downward, in four rows of keyless wall receptacles, wired at the middle of each row to a common point, and provided with a double pole switch and with fuses. The standard station voltage being 110, an iron wire resistance was inserted in one of the wires leading to the lamp rack, and adjusted so as to secure as nearly as possible 100 volts at the lamp terminals. No recording voltmeter was available, and no one was present throughout the whole of any day, and it is therefore impossible to say exactly what the average voltage was. From readings taken on different days and at different times of day, it is thought that the average voltage was about 99.

The photometer was carefully enclosed and thoroughly screened with dead black cloth, to cut off all indirect and reflected light. The rheostat used enabled the one observing the voltmeter to adjust the voltage very closely, when taking photometer readings. The lamp under test and the standard lamp were arranged in parallel, and wired with No. 14 wire, and all connections carefully made, so that there should be no appreciable drop or fall of potential in the wires or connections, the absence of such drop being verified by proper measurements. While these measurements were being taken, the voltmeter needle was often unsteady, obliging the

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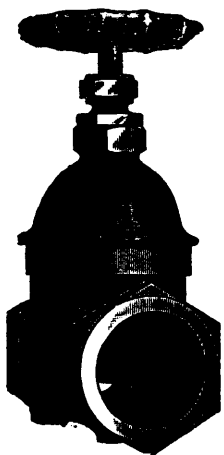
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observers to wait for periods when it was steady at the proper reading, before current readings could be made. The arrangement of the lamps in parallel, as adopted, made it unnecessary to wait for such periods of steady and proper voltage before taking the photometer readings; the slight momentary variations of voltage from the correct value affected the candle-power of both lamps alike within the range allowed in reading. The work was thus more rapidly done than otherwise would have been possible. This very convenient method is largely used in lamp factories, but it is a safe method only in case the voltage is quite steady, or the lamps under test are of the same efficiency as the working standard. If the test lamp's efficiency differs much from that of the standard, the ratio between the candle-powers of the test and standard lamps will vary with varying voltage. If their efficiency is the same, the candle-power ratio will be constant, though the voltage may vary.

Tables and curves give the results obtained. Tables I. and II. give, for each of the lots I. and II., the number of lamps burning, the observed candle-power (average of each lot), and the average watts per lamp, at the several times at which readings were taken. From these readings, the percentage of initial candle-power, the efficiency and the candle-power per watt, were computed and inserted in the tables.

The first readings at the test room were taken with a Sabine portable photometer 48 hours after starting the life run. The sensitiveness of this instrument was so inferior, and the readings obtained so much less uniform than those obtained with the Summer-Brodhun sighting box on the standard photometer during the initial measurements that they were discarded. The Summer-Brodhun instrument was then adapted to the bar at the test room,

and used in all subsequent readings, and is without doubt the best instrument yet devised for its purpose.

The values of Tables I. and II. are plotted in terms of candle-power and time in curve A, of percentage, initial candle-power and time in curve B, and of efficiency and time in curve C. As shown by these curves, Lot I. shows a marked increase in candle-power on the start, reaching a maximum of 17.9 candles at about 175 hours, then decreases uniformly until 600 hours, when a more rapid decrease sets in. The candle-power does not fall to its initial value of 15.54 candles until over 700 hours from the start. Lot II. shows only a moderate rise in candle-power, with a maximum at about 150 hours, and then decreases uniformly to its initial value at 400 hours. It shows also a sharp increase in declining brightness at 600 hours. This change may have been produced by strain due to abnormally high voltage at soon after the 600-hour point. Such a high voltage was observed for some time during the day preceding the evening on which the readings at 696 hours were taken, and its effect on the candle-power of Lot I. was particularly marked though less so than on Lot II. Curve B shows a rise of over 15 per cent. in the candle-power of Lot I., with a final value of only 6.5 per cent. below the initial value. The total range in candle-power, from beginning to end, is 22 per cent. for Lot I., and 14.5 for Lot II.

Tables III. and IV. give the total kilowatt-hours spent on each lot of lamps, and the total candle-power-hours, obtained from them. These values were obtained by taking average values from curves A and C for each 100-hour interval, multiplying by the number of lamps then burning, and by 100 hours, and adding the product to the sum of all products similarly found for the preceding 100-hour inter-

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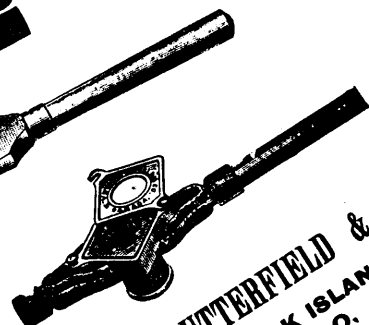
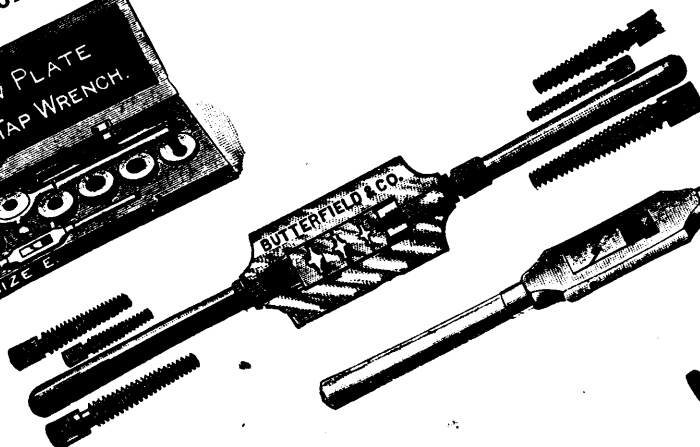
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duced up to a given time was found by multiplying the kilowatt-hours from the start to the given time. The total cost of the light produced at that time by an assumed price of 20 cents per kilowatt-hour,—a common price. This gave the cost of current only. To this was added the cost of 25 lamps at 20 cents each, or \$5, the sum being the total cost of light produced. The results are given in Column 4. The average cost of one candle-power for one hour at each interval was then found by dividing the total cost thus found by the total amount of light produced. Column 5 gives the results. These results are plotted in curve E for each lot.

Examining these curves, it will be noted that the lamps in Lot I. show a minimum average cost of the light produced by them, under the conditions assumed, at about 450 hours. Lot II. shows a minimum, under the same conditions, at 650 hours. The difference in cost of light produced by the two lots, at the minimum point for each lot, is about 7 per cent. in favor of Lot II. On comparing I. and II., curve B, it will be observed that the range in candle-power of Lot I., up to 450 hours, is about 15 per cent., while that of Lot II. is only 6½ per cent. up to 650 hours. Lot II. is better than Lot I. on this account also, as uniformity of candle-power is desirable, other things being equal.

One may readily obtain the economy curves of these lamps under other conditions by treating the figures in the second and third

columns of Tables III. and IV., as was done, for the price of lamp and energy here used. The prices were chosen because they fairly represent lamp cost and cost of energy as supplied by central lighting stations in this country to-day. Higher prices for lamps, or a lower price per kilowatt-hour, will bring the "smashing point" for either lot later than the times named, though no change in the relative value of the two lots will follow if compared under like conditions.

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No lamp of either lot showed any serious blackening, and the majority of the lamps were scarcely blackened at all. In conclusion, Prof. Thomas states that, taking economy, maintenance of candle-power and freedom from blackening into account, the results obtained from these lamps are much superior to any heretofore published. These lamps are manufactured in Canada by the Packard Electric Company, St. Catharines, Ont.

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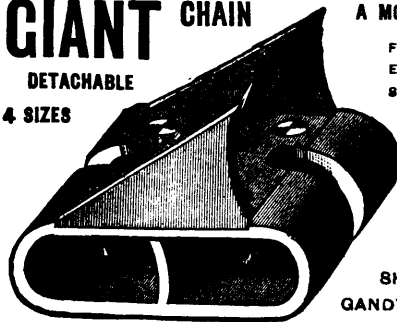
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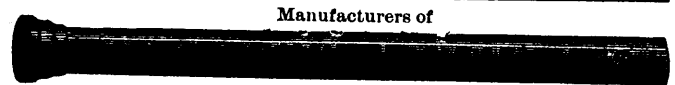
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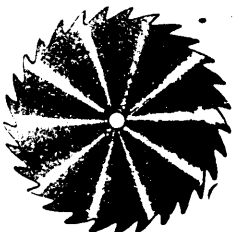
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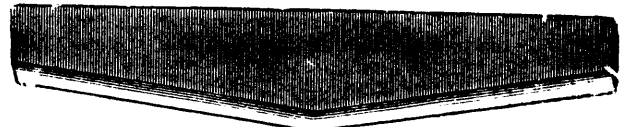
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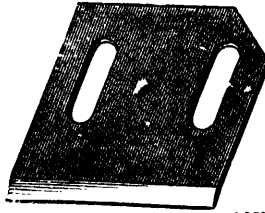


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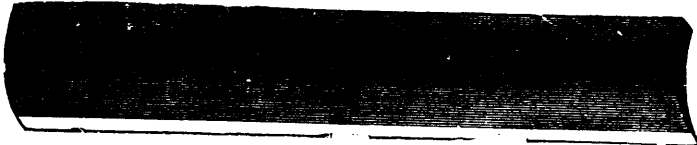
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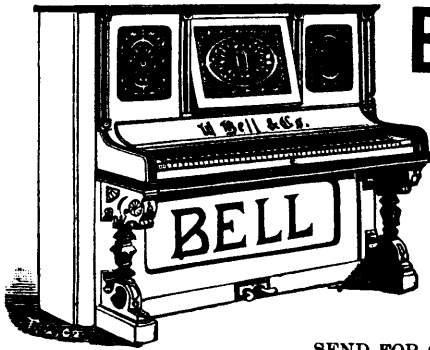
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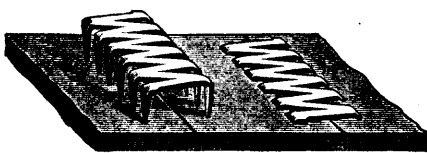
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