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VOL 28. TORONTO, OCTOBER 19, 1894. No. 8.

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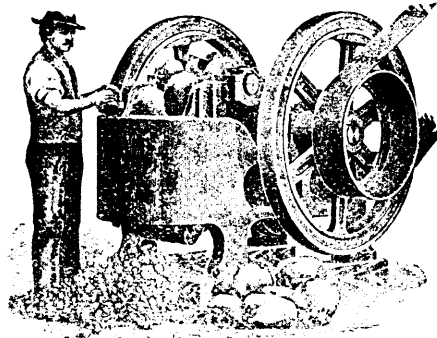
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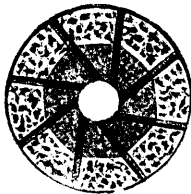
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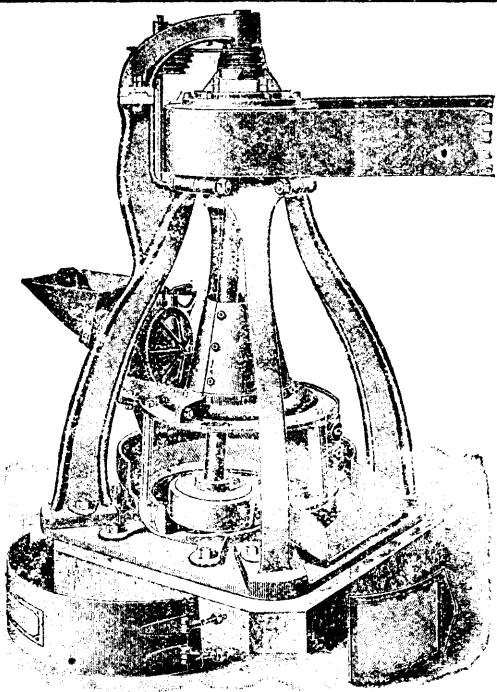
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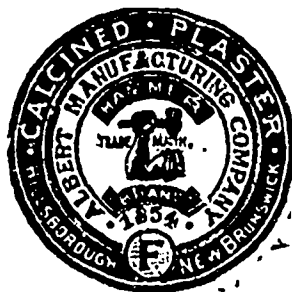
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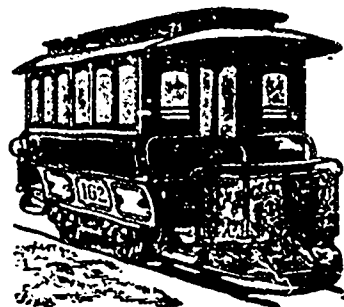
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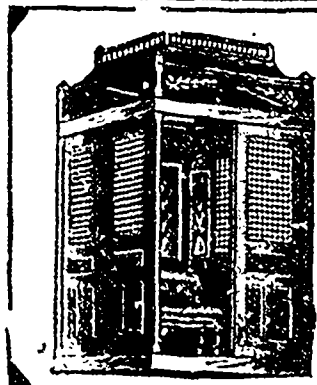
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CANADIAN-AUSTRALIAN TRADE.

The aim of the National Policy has always been to build up industries in lines that should supply the home market and also to encourage such manufacturing enterprise, skill and capital as should eventually enable our manufacturers to do an export trade. The first has been practically accomplished; returns still showing, however, that considerable quantities of goods such as are produced in

this country, are still imported; but it will be also found that in most cases these differ in some degree from those produced at home. Our nearness to the United States will at all times expose our market to attempts from that country to push its surplus on us, even at all abandonment of profit. So successful have many of our leading manufacturers been that they are now looking abroad for a market for their products, some as a field of legitimate and profitable operations, and others as a means of getting rid of surplus stocks. This is shown by the efforts made in Newfoundland and the British West Indies. These have not been without success, as the increased trade with these colonies testifies. The exports of our mills and factories to Newfoundland have increased nearly three fold since 1889, and those to the British Indies, though not very great in amount, have increased at a greater ratio, while those of the United States to the West Indies have declined. Satisfactory as this may be to us these markets at best are too limited to meet the ambition and needs of our manufacturers.

The Dominion Government have for some time been observing this state of things, particularly since the advent of the Hon. Mr. Bowell to the Department of Trade and Commerce. Naturally Mr. Bowell's eyes have been directed to our possibilities of trade in Australia and South Africa. These countries are large consumers. In their market our manufacturers would not suffer from home competition, and purchasers there are ready to meet our commercial advances in the most friendly spirit. Towards the encouragement of this traffic several things have been recently accomplished. The subsidizing of a line of steamers between Vancouver and Sydney, reducing the rates of freight and time of voyage; the visit of the Hon. Mr. Bowell to Australia, and his warm welcome there; the remarkable Colonial Conference at Ottawa last June, and the appointment of Mr. Larke as Canadian resident agent in Australia with instructions to watch over and encourage our trade with these Colonies. Colonial preferential tariffs and direct cable to Australia, two most desirable things, are now being pushed. The Dominion Government have done and are doing all that can reasonably be expected for the Australian trade. Doubtless it will in a short time accomplish as much for the trade with South Africa, which is quite as promising as that with Australia. It remains for the Canadian people to take advantage of the opening.

It is important to know what these colonies can take from us, and how they can pay us. With the exception of Holland and the Straits Settlements, and the small exchange island market of the Falkland Island, the people of Australia do the largest foreign trade—\$175 - per capita of any people in the world, three and a half times that of Canada, and six times that of the United States. About forty-five per cent. of this is inter provincial Australian trade. In 1892 and '93 the Australian Colonies suffered severely from financial depression. Their credit was too good and they used it too freely. The great natural wealth of their great plains, and vast deposits of minerals will effect a complete recovery which has already set in. A country that boasts of the largest gold mines, the largest silver mines, the largest tin mines and possibly the largest copper mines, and the broadest coal measures in the world,

in addition to its immense territory adapted to fruit, grain, stock and wool rising, cannot long remain in a condition of depression. The combined exports of Australia, Tasmania and New Zealand in 1892 were valued at \$316,858,340. Of these about \$65,000,000 were of minerals, chiefly gold, silver and tin, and \$174,000,000 of wool, the balance consisting chiefly of tallow, skins, hides, meats, gums, wheat, flour, butter and fruit. Of these latter Canada bought but a small quantity, but of wool, gum, and tin she purchased, through the United States and Great Britain, about \$750,000 worth. This trade can be materially increased. Owing to the alternation of seasons, British Columbia and the North-West Territories will be consumers of Australian oranges, lemons and other fruits, and it is probable that the hides, mutton, tallow and preserved meats of Australia will displace in part those now imported from the United States, into our Pacific Coast possessions.

The trade returns of the Australian colonies are not subdivided and particularized as minutely as might be wished to enable a clear estimate to be made of what Canada could sell to them. Of our natural products there will be but a small market. Doubtless there will be a market for the fruit of British Columbia; and New Zealand imports more timothy and clover seeds than Canada exports. Of provisions they import some choice bacon, hams and cheese, which Canada ought to be able to supply. They are considerable consumers of canned vegetables and fruits, jams and pickles. Of these the United States supplied last year \$89,462 worth. Canada ought to share in this trade which amounts to over one million of dollars. Of canned and preserved fish the total import of five colonies, chiefly of salmon, was over a million dollars. Of this amount Canada is credited, in our own returns, with sending \$89,000, about half of the value of the canned salmon supplied by the United States. With direct shipment this trade ought largely to increase. Australia is lacking in pine and soft woods. A species of pine is obtained from New Zealand and Tasmania, but it does not rank with the building timber of Canada, Norway, Sweden and the United States. The trade depression alluded to made a marked decrease in the imports into the colonies. The normal value of their imports—that of 1890—was about \$10,000,000, of which Canada supplied \$115,872, which was less than a tenth of that supplied from the United States. Even to New South Wales Canada only shipped about one-third the value of the timber sent from Norway and Sweden. There should be room for an enlargement of this trade. In minerals the exports would probably be limited to asbestos and mica, for which there is some small demand.

In manufactures, the statistics to hand cover the five chief colonies of New South Wales, Queensland, Victoria, South Australia and New Zealand. The subdivisions are neither minute nor always clear, as the general heading of one colony includes a larger variety of products than are included under similar headings in the others. These figures are too general to be of more value than to indicate the extent of the market in those colonies for Canadian products.

Agricultural implements: Imports valued at \$1,121,940. Of this the United States supplied \$294,429. The Massey-

Harris Company have made a promising opening in this trade for Canada.

Apparel and slops: In some of the Colonies this includes hats and caps, in others it does not. The imports were \$11,767,050. Some of the tweeds woven in Canada should be suited to the Australian market. They are as cheap as anywhere; and our clothiers can make them up.

Blankets, \$703,955: In some lines our manufacturers believe it is in their power to meet the market.

Boots and shoes: \$4,332,245; and other leather goods and leather, \$1,211,390. Canada is to-day exporting leather. This leather is probably made into boots and shoes and other leather goods for Australia. Canada should be able to share in this trade. The United States supplies \$208,000 worth.

Carts, waggons and carriages: \$394,385; and carriage material, \$458,790. Of the former item, a considerable number are carriages from England, or those exchanged between the colonies. In carriage materials our bent wood manufacturers believe there is a good opening for them. The United States supply carriages and material to the value of about \$250,000.

Carpets, \$885,545: The indefatigable and pushing manager of the Toronto Carpet Mfg. Co. is ready to test the market with his specialties, and other manufacturers would do the same thing.

Cottons and cotton goods, \$3,747,500: The Canadian Cotton Mills, who are already sending to China and the United States about a half a million dollars worth of goods per year, will no doubt discover an opening in the Australian market.

Furniture and wooden ware, \$1,392,365: An expert in the interest of the Canadian furniture industry has recently visited Australia and advises against attempting that market until the depression had passed away; but he believes that there will be a good market there in the near future. The United States supply Australia with such goods to the value of \$230,940.

Hardware, \$5,361,009: This covers stoves and heating apparatus as well as hardware. In some lines of specialties Canadian manufacturers have made a successful opening, and others manufacturing stoves, tools, etc., are testing it. With a refund of duty on imported material given them, a very considerable business should be done in these lines.

Machinery, \$1,898,050: This does not include boilers or sewing machines. Petrolia has already secured a market for her drilling engines and machinery. The high reputation which some of our makers of special tools have achieved abroad as well as at home ought to ensure success in these lines.

Printing and wrapping paper and bags, \$2,984,460: Of this the United States sent over one-third. With production cheaper and by new processes and new machinery, our makers are rapidly cutting the price of paper to an export basis. With our unrivalled supply of pulp, and large water powers, Canada at no distant day must secure a large share of this trade.

Musical instruments, \$1,392,670: The larger portion of these goods consists of pianos, of which Germany supplies the cheap lines and Great Britain the higher grades. Can-

Canada has sold a considerable number of organs to Australia, and it is hoped that a like success may be yet attained in pianos and brass instruments.

Matches, \$693,730 : As in paper, Canada should share in this trade.

Woolens, including flannels, \$8,436,510 : As in tweeds and blankets, some considerable trade in these lines should be done.

There is also a market for ales, beer and spirits of about \$10,000,000, and in which a beginning has been made; also in lubricating oil, patent medicines, chemicals, manufactured tobacco, saddlery and harness, manufactures of tin, rubber, etc., to large amounts.

Canadian manufacturers are desirous of entering this Australian market; but to most of them there is the great obstacle of expense in exploiting one so distant. There are a few concerns possessed of sufficient capital to enable them to do this, but as a rule our manufacturers are not exporters. Not all Canadian manufacturers sell to the Canadian retailer, many preferring that their merchandizing be done by the jobber. Much more desirable is it that there should be a similar medium between the manufacturer and consumer in distant markets. A trading company with warehouses in Australia, securing the best rates of freight and reducing the cost of handling its commodities to the minimum, would speedily secure a large market for Canadian goods. Even without this medium the energetic efforts which are now being put forth by some Canadian manufacturers must lead to similar success to those secured by the same means by firms that have previously entered that field.

CANADIAN MANUFACTURERS AND THE IMPERIAL INSTITUTE.

The Imperial Institute of the United Kingdom, the Colonies and India was founded and incorporated by Royal charter in 1887 as the National memorial of Queen Victoria's jubilee; and the Institute buildings, the erection of which was designed to afford a thorough and living representation of the progress made by the many sections of the British Empire, in the development of their resources, were opened with much eclat by the Queen in person in May of last year, reference to which, and many interesting particulars regarding the Institute, were given at the time in these pages.

That Canada is deeply interested in the success of the Institute is evident from the fact that when Sir Somers Vane, in its behalf, visited the principal British colonies, where the authorities and commercial bodies were made acquainted with the objects of it, and where much interest was aroused in it, which was demonstrated by promises of practical co-operation, the extent of Canada's interest was shown by practical contribution of over \$100,000 to it, and the Dominion is now represented on the Governing Board by our High Commissioner, Sir Charles Tupper, each of the provinces being also represented by governors of their own choice.

The internal organization of the Institute has for its guiding principles the broad plan laid down by the organizing committee in 1886. It is intended that the contents of the buildings shall constitute a living representation of the resources of the Empire and of the conditions of its industries and commerce; it being also embraced in the plan that occasional special exhibits of colonial products and of particular industries be made.

The Institute through the agency of such collections and exhibits as are made, is a central source of information upon all matters relating to the resources and commerce of every part of the Empire, and affords facilities to any who may be interested for acquiring practical knowledge regarding them. The manufacturer, the merchant and the consumer in all portions of the Empire are here enabled to obtain samples of the products of all other parts of the Empire, with all necessary particulars regarding them. The hearty co-operation and important material support which Canada and other portions of the Empire give the Institute afford conclusive evidence of an earnest desire to be thoroughly represented in the Mother Country. The establishment within the Institute of enquiry offices, museums, and sample rooms, with their accessories, are a feature of it which is deserving of special attention.

It is deserving of special attention on the part of Canadian manufacturers who may desire to extend their trade beyond the boundaries of our own country. The Dominion Government are giving special attention to building up and encouraging an export trade. Commissioners and commercial agents have already visited distant portions of the Empire with a view to facilitating our export trade; and the recent visit of Mr. Bowell, our Minister of Trade and Commerce, to Australia, and the appointment of Mr. J. S. Larke as Canadian Commissioner in that country to look after and encourage our trade in that direction, indicate that as far as official effort can go, every facility will be afforded our manufacturers for engaging in a lucrative export trade.

Canada has already done something in the way of making exhibits at the Imperial Institute, and ought to do a great deal more. The necessary space in the exhibition department is already apportioned but, unfortunately, but too sparsely occupied. In addition to the space at the control of the Dominion, other spaces are also allotted to each of our provinces, in charge of curators appointed by the provincial authorities, where manufacturers are invited to make exhibits of their products. Such displays should be made. One of the most interesting and instructive object lessons that could be presented to the world would be that where it was shown that Canada is a manufacturing country; that Canadian manufactures are of intrinsic merit equal with those of any other part of the world, and that they can be sold at prices that should command for them the attention of consumers in every part of the British Empire. Both the Dominion and the Provincial Governments make appropriations from year to year for meeting their proportion of the necessary expenses of maintenance of their respective departments in the Institute. In 1891 the Ontario Government placed in the Institute a very complete collection of the minerals found in the province; and during the past summer they sent a large selection taken from the Ontario exhibits at the Chicago World's Fair, consisting of grains, and fruits preserved in liquid. The Ontario representative on the Board of Directors of the Institute reports that all these Ontario exhibits have been recently removed to more spacious quarters, and that there is therefore at his disposal room sufficient to warrant a large increase in our exhibits. Exhibits of manufactures as desired, such as can be arranged in a neat and attractive manner.

We have endeavored to show that it would be greatly to the advantage of those of our manufacturers who desire to do an export business to show specimens of their products at the Imperial Institute. We have shown that the space necessary for such exhibits is available, and that the articles would be in charge of curators chosen by our own Governments, whose duty it is to give all information regarding them. We have also shown that the Dominion Government are doing all they can to promote our export trade; and it now rests with our manufacturers to bestir themselves and take advantage of the happy and propitious circumstances that are now so fully within their reach.

The New Canadian Laws AFFECTING ELECTRICAL INDUSTRIES,

CONFIRMED JULY 23rd, 1894. TO COME INTO EFFECT APRIL 1st, 1895.

A TRUE COPY FROM THE OFFICIAL TEXT

THE Canada Gazette of October 6th, 1894 contains the Official Proclamation of the Governor General, dated September 7th, 1894 bringing into force the new Canadian laws affecting Electrical Industries, confirmed by the Dominion Parliament July 23rd, 1894, and which are to come into effect April 1st, 1895. Alluding to Chap. 39—An Act respecting the Inspection of Electric Light—the Proclamation recites that amongst other things in effect enacted by that Act that so soon as the standards and apparatus have been obtained and approved, the Governor in Council may issue a Proclamation, fixing a day not less than six months from the date of such Proclamation upon which the provisions of the Act respecting inspection shall go into operation, and may from time to time determine at and for what places inspectors shall be appointed, and that until such inspectors are appointed, the Act shall be deemed not to have come into operation with respect to such places; and it also states that whereas such standards and apparatus having been obtained and duly approved, it is expedient that the provisions of the said Act should come into force upon the first day of April, 1895.

CHAP. 38.

An Act respecting the Units of Electrical Measure.

[Assented to 23rd July, 1894.]

Her Majesty, by and with the consent of the Senate and House of Commons, of Canada, enacts as follows:

1. This Act may be cited as The Electrical Units Act.
2. The units of electrical measure for Canada shall be the following:—
 - (a) As a unit of resistance, the ohm, which is based upon the ohm equal to 10^9 units of resistance of the centimetre-gramme-second system of electro-magnetic units, and is represented by the resistance offered to an unvarying electric current by a column of mercury, at the temperature of melting ice 14.4521 grammes in mass, of a constant cross-sectional area and of the length of 106.3 centimetres.
 - (b.) As a unit of current, the ampere, which is one tenth of the unit of current of the centimetre-gramme-second system of electro-magnetic units, and is represented sufficiently well for practical use by the unvarying current which, when passed through a solution of nitrate of silver in water, and in accordance with the specification contained in schedule one to this Act, deposits silver at the rate of 0.001118 of a gramme per second.
 - (c.) As a unit of electro-motive force, the volt, which is the electro-motive force that, steadily applied to a conductor whose resistance is one ohm, will produce a current of one ampere, and which is represented sufficiently well for practical use by $\frac{1}{1000}$ of the electro-motive force between the poles or electrodes of the voltaic cell known as Clark's cell, at a temperature of 15° centigrade and prepared in accordance with the specification contained in schedule two to this Act.
 - (d.) As a unit of quantity, the coulomb, which is the quantity of electricity transferred by a current of one ampere in one second.
 - (e.) As a unit of capacity, the farad which is the capacity of a condenser charged to a potential of one volt by one coulomb.
 - (f.) As a unit of work, the joule, which is equal to 10^7 units of work in the centimetre-gramme-second system, and is represented sufficiently well for practical use by the energy expended in one second by one ampere in one ohm.
 - (g.) As a unit of power, the watt, which is equal to 10^7 units of power in the centimetre-gramme-second system, and is represented sufficiently well for practical use by the work done at the rate of one joule per second.
 - (h.) As the unit of induction, the henry, which is the induction in a circuit when the electro-motive force induced in that circuit is one volt, while the inducing current varies at the rate of one ampere per second.

3. The units of electrical measure described in the next preceding section, or such standard apparatus as is necessary to produce them, shall be deposited in the Department of Inland Revenue and shall form part of the system of standards of measure and weight established by The Weights and Measures Act.

SCHEDULE ONE.

In the following specification, the term silver voltameter means the arrangement of apparatus by means of which an electric current is

passed through a solution of nitrate of silver in water. The silver voltameter measures the total electrical quantity which has passed during the time of the experiment; and by noting this time, the time average of the current, or, if the current has been kept constant, the current itself, can be deduced.

In employing the silver voltameter to measure currents of about one ampere, the following arrangements should be adopted. The cathode on which the silver is to be deposited should take the form of a platinum bowl not less than 10 centimetres in diameter and from 4 to 5 centimetres in depth. The anode should be a plate of pure silver 90 square centimetres in area and 2 or 3 millimetres in thickness. This is supported horizontally in the liquid near the top of the solution by a platinum wire passed through holes in the plate at opposite corners. To prevent the disintegrated silver which is formed on the anode from falling on to the cathode, the anode should be wrapped round with pure filter paper, secured at the back with sealing wax.

The liquid should consist of a neutral solution of pure silver nitrate, containing about 15 parts by weight of the nitrate to 85 parts of water.

The resistance of the voltameter changes somewhat as the current passes. To prevent these changes having too great an effect on the current, some resistance besides that of the voltameter should be inserted in the circuit. The total metallic resistance of the circuit should not be less than 10 ohms.

SCHEDULE TWO.

The cell consists of zinc and mercury in a saturated solution of zinc sulphate and mercurous sulphate in water, prepared with mercurous sulphate in excess, and is conveniently contained in a cylindrical glass vessel.

The mercury.—To secure purity it should be first treated with acid in the usual manner, and subsequently distilled in vacuo.

The zinc.—Take a portion of a rod of pure re-distilled zinc, solder to one end a piece of copper wire, clean the whole with glass paper, carefully removing any loose pieces of the zinc. Just before making up the cell, dip the zinc into dilute sulphuric acid, wash with distilled water, and dry with a clean cloth or filter paper.

The zinc sulphate solution.—Prepare a saturated solution of pure ("pure re-crystallized") zinc sulphate by mixing in a flask distilled water with nearly twice its weight of crystals of pure zinc sulphate, and adding zinc oxide in the proportion of about 2 per cent. by weight of the zinc sulphate crystals to neutralise any free acid. The crystals should be dissolved with the aid of gentle heat, but the temperature to which the solution is raised should not exceed 30° C. Mercurous sulphate treated as hereinafter described, should be added in the proportion of about 12 per cent. by weight of the zinc sulphate crystals, and the solution filtered, while still warm, into a stock bottle. Crystals should form as it cools.

The mercurous sulphate.—Take mercurous sulphate, purchased as pure, and wash it thoroughly with cold distilled water by agitation in a bottle; drain off the water, and repeat the process at least twice. After the last washing, drain off as much of the water as possible.

Mix the washed mercurous sulphate with the zinc sulphate solution, adding sufficient crystals of zinc sulphate from the stock bottle to ensure saturation, and a small quantity of pure mercury. Shake these up well together to form a paste of the consistence of cream. Heat

the paste, but not above a temperature of 30° C. Keep the paste for an hour at this temperature, agitating it from time to time; then allow it to cool, continuing to shake it occasionally while cooling. Crystals of zinc sulphate should then be distinctly visible, and should be distributed throughout the mass. If this is not the case, add more crystals from the stock bottle, and repeat the whole process. This method ensures the formation of a saturated solution of zinc and mercurous sulphates in water.

Contact is made with the mercury by means of a platinum wire about No. 22 gauge. This is protected from contact with the other materials of the cell by being sealed in a glass tube. The ends of the wire project from the ends of the tube; one end forms the terminal; the other end a portion of the glass tube dip into the mercury.

CHAP. 39.

An Act respecting the Inspection of Electric Light.

[Assented to 23rd July, 1894.]

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as The Electric Light Inspection Act.
2. In this Act, unless the context otherwise requires,—
 - (a) The expression "contractors" means any person undertaking to furnish electricity to any purchaser for lighting purposes.
 - (b.) The expression "purchaser" means any person to whom electricity is furnished for lighting purposes.
 - (c) The expression "meter" means electric light meter, and includes every kind of machine, apparatus, or instrument used for measuring the quantity of electrical energy furnished to the purchaser.
 - (d.) The expression "purchaser's terminals" means the ends of the electric lines or conductors situate upon the purchaser's premises at which the supply of electricity is delivered from the service lines.
 - (e.) The expression "department" means the Department of Inland Revenue.
 - (f.) The expression "Controller" means the Controller of Inland Revenue.
3. The commercial unit of supply of electrical energy shall be one thousand watt-hours, or the equivalent thereof in ampere-hours.
4. Before commencing to give a supply of electrical energy for illuminating purposes to any purchaser, the contractors shall declare to such purchaser the constant pressure at which they propose to supply energy at his terminals.
 2. The variation of pressure at any purchaser's terminals shall not under any conditions of the supply which the purchaser is entitled to receive, nor at any time, exceed three per cent. from the declared constant pressure, whether such variation is due to the resistance of the service lines or apparatus belonging to the contractors, or to any action or effect produced by such apparatus, for which the purchaser cannot be shown to be responsible, or partly to a variation of pressure in the distributing mains from which the supply is taken.
 3. The contractors shall not be liable for any variation of pressure caused by unavoidable accident to the generating plant or apparatus, or by the uncontrollable condition of the elements.
 5. The contractors shall be responsible for all electric lines, fittings and apparatus, belonging to them or under their control upon the purchaser's premises, being maintained in a proper condition and in all respects fit for supply energy; but they shall not be responsible for any damages arising from the use of the electric current in lines, fittings and apparatus not belonging to them or under their control.
 6. If the contractors are reasonably satisfied, after making all proper examination by testing or otherwise, that at some part of a circuit a connection with the earth exists of such resistance as to be a source of danger, and that such connection does not exist at any part of the circuit belonging to the contractors, any officer of the contractors duly authorized by them in writing, may, for the purpose of discovering whether such connection with the earth exists at any part of the wires upon any purchaser's premises, at all reasonable times, after giving one hour's notice of his intention to do so, enter such premises and disconnect the purchaser's wires from the service lines, and may require the purchaser to permit him to inspect and test the wires and fittings belonging to the purchaser and forming part of the circuit.
 7. If on such testing the officer discovers that a connection exists between the purchaser's wires and the earth, and that such connection has an electrical resistance not exceeding five thousand ohms, or if the purchaser does not give all due facilities for such inspection and testing, the contractors shall forthwith discontinue the supply of energy to his premises, giving immediate notice of such discontinuance to the purchaser, and shall not recommence such supply until they are satisfied that such connection with the earth has been removed.
 8. If any purchaser is dissatisfied with the action of the contractors, either as to the mode of making the test or in discontinuing the supply of electricity to his premises, the wires and fittings of such purchaser may, on his application to the department, be tested for

the existence of such connection with the earth by an electric light inspector.

9. If the contractors make default in complying with the requirements of any of the foregoing sections as to supply, they shall be liable for every such default to a penalty not exceeding twenty dollars for every day during which such default continues.

10. Any person who maliciously or fraudulently abstracts, causes to be wasted or diverted, consumes or uses any electricity shall be deemed guilty of theft and punishable accordingly.

11. Any officer of the contractors authorized in writing by the inspector may, at all reasonable times, enter any premises to which electricity is or has been supplied by the contractors, in order to inspect their electric wires, meters, accumulators, fittings, works and apparatus for the supply of electricity, or for the purpose of ascertaining the quantity of electricity consumed or supplied, or, where a supply of electricity is no longer required or the contractors are authorized to take away and cut off the supply of electricity from any premises, for the purpose of removing any electric lines, accumulators, fittings, works and apparatus belonging to the contractors, repairing all damage caused by such entry, inspection or removal.

12. Inspectors of weights and measures, or of gas, or other officers of inland revenue, may, after examination as to their qualification, be appointed and may act as electric light inspectors under this Act; but no such inspector shall be a seller of electricity or electric meters, or be employed by any person or company supplying electricity or meters; and no electric inspector shall repair or adjust any meter inspected or verified by him.

13. The amount of electrical energy supplied by contractors to any purchaser under this Act for lighting purposes, or the electrical quantity contained in such supply, shall, if the purchaser so desires, be ascertained by means of a suitable meter, duly certified in accordance with regulations established under the authority of this Act.

2. Whenever a reading of a meter is taken by the contractors for the purpose of establishing a charge upon the purchaser, the contractors shall cause a duplicate of such reading to be left with the purchaser.

14. No electric light meter shall be fixed for use which has not been verified and stamped as hereinafter provided.

15. No meter shall be fixed for use unless it plainly indicates by means of suitable dials the amount of current or energy passing to the purchaser's wires.

2. Electrolytic meters at present in use may be continued unless objected to by the purchaser; but the number of such meters shall not be added to, and all renewals of meters shall be made by the substitution of the direct-reading types.

3. The capacity of every meter fixed for use shall be marked in a conspicuous place with the number of amperes or watts it is constructed to record.

16. No meter shall be stamped which is found by the inspector to register, or to be capable of being made to register, when working to its full capacity, quantities varying from the legal standard unit of electricity more than three per cent. in favour of either the contractor or the purchaser.

17. The verification of each meter shall be attested by affixing or impressing on some essential part thereof, a stamp or mark of such description and in such manner as is directed by regulations made by the Controller.

18. Within twelve months after the expiration of five years from such verification and stamping, every meter shall again be verified and stamped.

19. No meter duly stamped as aforesaid shall be liable to be re-verified or re-stamped within a period of five years from the then last verification or re-verification thereof, although it is used in any other place than that at which it was originally stamped, but shall be considered as a lawful meter throughout Canada, unless found incorrect under this Act, or requiring re-verification by lapse of time as aforesaid, and the purchaser or the contractor may at any time, at the cost of the party in fault, require the verification of the meter used.

20. In every case the owner shall keep the meter in good repair, and shall be responsible for the due inspection thereof, and, except as herein otherwise provided, shall pay the fee lawfully chargeable for such inspection, and shall be liable for all penalties incurred with respect to such meter.

21. The verification and testing of meters shall be performed in accordance with the provisions of this Act and with such further regulations, not inconsistent therewith, as are made by the Controller.

22. The contractors shall provide electricity and wiring and all other reasonable facilities for testing, free of charge, at such places as are agreed upon between the contractors and the department.

23. If any dispute arises between the contractor and the purchaser or between the contractor and the inspector, respecting the correctness of such meter, the inspector shall, if required by any person dissatisfied, refer such dispute to the department for final decision.

2. The purchaser may at any time, on payment of a fee to be fixed

by the Governor in Council, call on an inspector to test the pressure of the electricity supplied by the contractor, and to furnish a certificate thereof.

24. The inspector shall give to either the contractor or the purchaser, or to both, on payment of the proper fee, a certificate stating the result of his inspection, and the time at which it was made, and at whose instance, and any other particulars he thinks it right to insert for the information and guidance of the persons concerned; and such certificate shall be prima facie evidence of the condition of the meter inspected, and shall bear an adhesive stamp or stamps representing the fee lawfully chargeable for such certificate.

25. The contractors shall at all times keep in their office, in a book or books, the names and addresses of purchasers for the time being—which book or books shall be open to the inspector during office hours, and from which he may take such extracts as he thinks fit; and for any failure to comply with the requirements of this section, the contractors shall incur a penalty of fifty dollars.

26. The fees for inspection of purchasers' wires and the testing of lamps and meters shall be determined from time to time by the Governor in Council and published in the Canada Gazette, and such fees shall be regulated so that they will, as nearly as may be, meet the cost of carrying this Act into effect; and all fees received under this Act shall be accounted for and paid to the Minister of Finance and Receiver General and in such manner as the Controller directs, and shall form part of the Consolidated Revenue Fund of Canada.

27. The Governor in Council may from time to time direct stamps to be prepared for the purposes of this Act, bearing such device as he thinks proper, and may defray the cost thereof out of any unappropriated moneys forming part of the Consolidated Revenue Fund of Canada; and the device on such stamps shall express the value thereof, that is to say, the sum at which they shall be reckoned in payment of the fee hereby prescribed.

28. Separate accounts shall be kept of all expenditures incurred and of all fees and duties collected and received under the authority of this Act; and a correct statement thereof up to the thirtieth day of June then last past, shall be yearly laid before Parliament within the first fifteen days of the then next session thereof.

29. Every person who, except under the authority of this Act, makes, causes or procures to be made, or knowingly acts or assists in making, or who forges or counterfeits, or causes or procures to be forged or counterfeited, or knowingly acts or assists in the forging or counterfeiting any stamp or mark used for the stamping or marking of any meter under this Act, shall incur a penalty not exceeding two hundred dollars and not less than fifty dollars; and every person who knowingly sells, utters or disposes of, lets, lends or exposes for sale, any meter with such forged stamp or mark thereon, shall, for every such offence, incur a penalty not exceeding two hundred dollars and not less than twenty dollars; and all meters having on them such forged or counterfeited stamps or marks shall be forfeited and destroyed.

30. Every person who knowingly repairs or alters, or causes to be repaired or altered, or knowingly tampers with or does any other act in relation to any stamped meter, so as to cause such meter to register wrongly, or who prevents, or refuses lawful access to any meter in his possession or control, or obstructs or hinders any exam-

ination or testing authorized by this Act, shall incur a penalty not exceeding one hundred dollars and not less than fifty dollars, and shall pay the fees for removing and testing, and the expense of purchasing and fixing a new meter: Provided that the payment of any such penalty as aforesaid shall not exempt the person paying it from liability to indictment or other proceeding to which he would otherwise be liable, or deprive any other person of the right to recover damages against such person for any loss or injury sustained by such act or default.

31. Every person who fixes for use, or causes to be fixed for use, any meter, before it has been verified and stamped as herein required, shall incur a penalty of twenty-five dollars for every such unverified or unstamped meter.

32. Every inspector who stamps any meter without duly testing and finding it correct, or who refuses or neglects, without lawful excuse, for three days after being required under the provisions of this Act, to test any meter, or to stamp any meter found correct on being so tested, or who neglects to perform any duty imposed upon him by this Act, or by any regulations made under the authority thereof, shall incur a penalty not exceeding fifty dollars and not less than ten dollars, and shall be liable to dismissal from office.

33. All penalties imposed by this Act, or by any regulation made under the authority thereof, shall be recoverable in a summary manner, with costs, before any justice of the peace for the district, county or place in which the offence was committed, if the penalty does not exceed twenty dollars, and before any two justices of the peace if the penalty exceeds twenty dollars, and may, if not forthwith paid, be levied by distress and sale of the goods and chattels of the offender, by warrant under the hand and seal of the justices, by whom also any imprisonment to which the offender is liable may be awarded.

34. No action or prosecution shall be brought against any person for any fine or penalty under this Act, unless it is commenced within three months after the offence is committed.

35. Before supplying electricity to purchasers, the contractors shall obtain from the department, or from an officer appointed for the purpose, a certificate of registration and shall pay the officer issuing such certificate the fees prescribed by the Governor in Council.

2. Such certificate shall expire on the thirtieth day of June, in each year, and shall be renewable from year to year.

36. So soon as the standards and apparatus have been obtained and approved, the Governor in Council may issue a proclamation, fixing a day, not less than six months from the date of such proclamation, upon which the provisions of this Act respecting inspection shall go into operation, and may from time to time determine at and for what places inspectors shall be appointed; and until such inspectors are appointed, this Act shall be deemed not to have come into operation with respect to such places.

37. The Governor in Council may establish rules and regulations—
(a.) For the testing of electric light lamps for illuminating power;
(b.) For instituting tests to determine what style or make of meter shall be used to measure the quantity of electrical energy supplied; and

(c.) Such other regulations, not inconsistent with this Act, as are necessary for giving effect to its provisions, and for declaring its true intent and meaning in all cases of doubt.

Recovering Valuable Products.

The recovery of valuable products from the waste waters of many manufacturing industries is not only a matter of interest to the manufacturers, but of vital importance, in view of the very narrow margins of profits in production. And this is especially true as regards woolen mills, dye houses, bleacheries, slaughter and packing houses, print works, etc., the proprietors of which should consider that they now waste thousands of dollars annually instead of turning it into profit. We allude to the reclaiming of valuable products from the waste liquors now running into the streams. Take, for instance, a woolen mill scouring 50,000 pounds of wool per week, and having a shrinkage of 60½ in average. It sends out in the waste water every week—

12,500 lbs. of grease worth 2 cents per lb.....	\$250.00
6 tons of fertilizing material worth \$10 per ton..	60.00
	\$310.00
The cost of reclaiming this is ½ cent per lb.....	\$ 62.00

Leaving a net profit per week of..... \$248.00 or more than \$12,000.00 per annum. This does not include what could be saved from the soap liquor in the fulling room or in the dye house, which would bring it in a mill of that capacity up to some \$18,000.

Messrs. A. P. Mende & Co., New York, who own a patented process for the recovery of these waste products, write us concerning this matter as follows:—

Our patented process of reclaiming from such waste waters is finding recognition. We have just taken a second contract for an apparatus for a mill that is now running away from \$25,000 to \$30,000 per annum.

The process of reclaiming in the old country is not adapted for this

side. It is too slow and too expensive, and that accounts to some extent why our mills have not taken it up sooner. Our process recovers the valuable materials at about one-half the cost and produces a higher percentage; furthermore, we attain in 24 hours what European mills take 10 days to accomplish; and last, but not least, with one-fourth of the manual labor, for our process is almost wholly automatic.

We furnish the apparatus and sell the working right of the patent in such a manner, that the investment repays itself to the mills in about one year, and thereafter it becomes a clear profit. It seems to us that a great many mills can make use of that additional profit and, at the same time, send purer water into the streams.

According to a French engineering paper, experiments recently made at Rheims are said to have shown that gasoline gas is more suitable than coal gas for the singeing of textile fabrics. When coal gas is employed, the blue part of the flame—which is the part yielding the intensest heat—is so situated that it never comes in contact with the fabric. The latter, being reached by the yellow part of the flame only, has to be passed through it again and again, the number of times being in proportion of its fineness, because of the low temperature of this part of the jet. In the case of gasoline gas, on the other hand, the blue part of the flame—that is to say, the part furnishing the maximum of heat—is applied to the surface of the piece under treatment. Consequently, as the heat is better utilised, the number of passages of the material through the flame is reduced by one-half or one-third, according to the class of goods under consideration. The apparatus is in the possession of the manufacturer, and is perfectly under his control, so that he can regulate the pressure according to will. This is only one of several advantages which will readily occur to experienced persons.

Canadian Ceramics and Ceramic Machinery.

In the issue of the CANADIAN MANUFACTURER of October 5, was an article having reference to the native and Portland cements manufactured in Canada, and mention was also made of some of the principal concerns engaged in the industry. One of these thus mentioned was the Rathbun Company of Deseronto, Ont., and this article has reference not only to the cement works of that company, but also to the other ceramic industries in which they are engaged, and to machinery used by them.

Some estimate may be formed of the importance of the Rathbun Company from the fact that they possess and operate seven miles of dock frontage, eleven miles of railway sidings and over one hundred miles of standard gauge steam railway. In connection with this railway system they own of locomotives, box cars, flat cars, etc., a sufficient number for all the purposes of their business; and they also own and operate a large fleet of steam tugs, barges and transports, some of their barges having capacity to carry 30,000 feet of lumber. The operations of the company include mining, lumbering, ship building, railway car building, flour mills, paper mills, chemical works, brick and terra cotta works, etc. These industries are carried on upon a paid up capital of \$1,750,000, under a charter granted by the Dominion Government, the stock being held wholly or entirely by Mr. E. W. Rathbun, Sr., and members of his family, Mr. Rathbun being president and general manager, and his two brothers, Mr. F. S. Rathbun, and Mr. H. B. Rathbun, and his son, Mr. E. W. Rathbun, Jr., being holders of other important offices in the company, and actively engaged in looking after superintending its interests. More than three thousand workmen are employed in the various industries carried on by the Company; and we are informed that no strike or serious labor dispute has ever occurred among them.

The first illustration, Fig. 1, reproduced from a photograph, is a view of a portion only of the Rathbun works and a glimpse of Deseronto bay, one of the most beautiful sheets of water in Canada. On the left of the picture is seen the Rath-

These brick and terra cotta works have been in operation a little more than four years, but without at first being a profitable undertaking, until in September of last year a Cummur dryer was added to the plant, manufactured for the purpose by F. D. Cummur & Son Co., of Cleveland, Ohio. This was a Style A dryer, and Mr. E. W. Rathbun, Jr., who has charge of these works, speaks of it as being most effective and satisfactory in its operation.

The drying of the clay, which was originally the cause of excessive expense and trouble, is now, with this machine, accomplished with perfect success, so much so that the capacity of it is greater than the needs of the works, a ten hours' run of it drying enough clay for 14,000 pressed brick, with a consumption of from 2 to 2½ cords of wood valued at \$1.10 per cord; the labor required being one fireman and two men feeding the dryer. The power to drive the machine is, of course, extra, and is computed to be not more than ten h. p. As only a certain quantity of dried clay is required in the works, the dryer is not worked to its full capacity; and the

company express the opinion that, using the same quantity of fuel as at present, at least 25 per cent. more dried clay would be produced if the full quantity were fed into it that it could take.

The illustrations representing the front and the rear views of the Cummur dryer in these works, Fig. 2 and Fig. 3, were reproduced from photographs taken on the spot under somewhat difficult circumstances of position and light. The front view is of the furnace end, and exhibits part of the bank of clay ready to be caught up by the buckets of the elevator, or endless belt conveyor.

The Cummur dryer is a machine in which the inventor boldly discarded the old methods of drying by transmitted heat, by radiation, or by air heated by either of these, utilizing the full, direct furnace heat, products of combustion and all, thus avoiding the waste caused by the intervention of other materials, by the conversion of water into steam, etc., as when indirect heating is used. The furnace is so designed that the products of combustion are gases at a very high temperature reaching 3,000 degrees Fahr., or more. At this temperature with a proper use of air there can be no unconsumed carbon or other matter present to discolor the material being dried; and the products of combustion rarely consist of anything but carbonic dioxide. This very hot air or gas, direct from the furnace, is brought down to the required temperature by an admixture with atmospheric air, in which operation there is no waste of heat units, the heat being distributed in the air mass, coming into direct contact with the material being dried. From the working of this dryer at the Deseronto works, Cum-

mer's claim of being from three to five times more economical than the usual system of indirect or conducted heat, appears to be perfectly justified. To quote the inventor's words, putting the case as clearly as possible, "Where indirect heat is used, steam for instance, much more heat often passes up the smoke stack from the boiler that makes the steam, than passes into the boiler from the furnace. Consequently in this case more than half the heat generated goes up the stack unused and is wasted. Another point: The heat under a boiler is not generated as economically as it is by my method because I get combustion so complete that no smoke whatever is seen in the furnace. The result is that I make almost twice as much heat with a given amount of fuel in my furnace as is obtained by ordinary firing in a boiler furnace; and being able to obtain such complete combustion, I am able to use the entire products of combustion. In other words, I can pass all the heat of the fire, mingled with such an amount of air as is desirable,

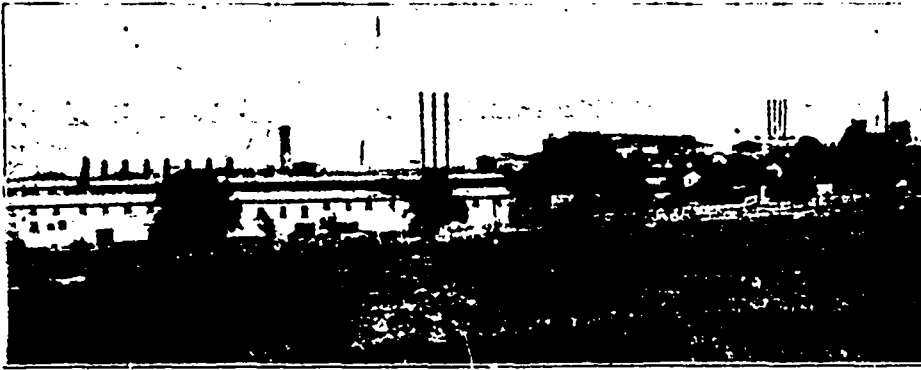


FIG. 1. THE RATHBUN BRICK, TERRA COTTA AND CEMENT WORKS, DESERONTO, ONT.

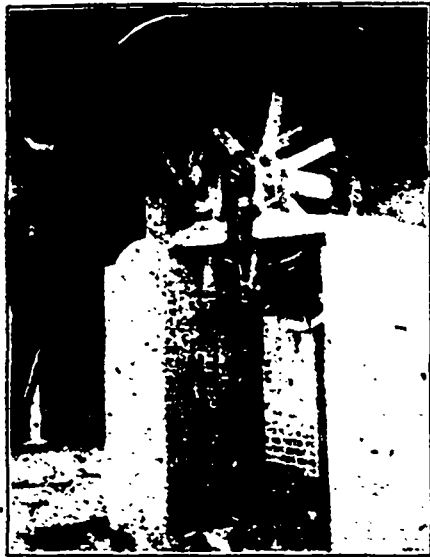


FIG. 2. - REAR VIEW, TERRA COTTA WORKS DRYER.



FIG. 3 FRONT VIEW TERRA COTTA WORKS DRYER.

bun brick and terra cotta works.

In these works are manufactured immense quantities of porous terra cotta tiles for flat and arch floors in fire proof buildings; what is known as terra cotta lumber, and all forms of terra cotta fire proofing, including studding blocks, hard hollow brick for wall furring, dry pressed facing brick, and ornamental terra cotta for trimmings of every kind. The greater portion of the clay used in these works is brought by rail from other parts of the Rathbun estates. Unmixed with other clays it burns a cream color, analysis showing its constituents to be as follows:—

Silica.....	per cent.	44.
Alumina.....	"	16.5
Oxide of Iron.....	"	1.5
Lime.....	"	16.
Magnesia.....	"	3.5
Carbonic Anhydride.....	"	18.5
		100.

through the materials to be dried, without depositing among it unconsumed carbon or smoke. As I generate twice as much heat as is generated by ordinary firing under a boiler, and all of it utilized, instead of passing half of it up the stack, it follows that at least four times as much work is done with a given amount of fuel as could be done by using steam in the most economical way known."

In the manufacture of the Cummer dryer each machine is specially designed for the purpose for which, and the conditions under which it is to be worked, the modifications and adjustments needed in each case being introduced. The principle is exceedingly simple, being that of the use of very hot air, furnace gas, or product of combustion, mixed, with a proper quantity of atmospheric air, moved by means of a fan or blower, and made to pass over and among the material to be dried. The illustration, Fig. 4, gives a side view of the dryer before being enclosed.

The Cummer dryer in use in the cement works of the Rathbun Company is also a Style A machine, and is, as far as external appearances go, identical with that in the terra cotta works, the internal arrangements not differing to any considerable extent. In the cement works a blue clay is used which contains silica, alumina, and iron, and is free from sand. The marl, which in some seasons carries as much as 50 per cent. of water, is taken from deposits some 15 miles distant from Deseronto. The marl and clay are mixed in proper proportions, and made thick enough to flow from the pug mill similar to a stiff brick mud. In these works, as in the other, the Cummer machine is not required to work up to anything like its full capacity, being usually used only some two days per week, as but a comparatively small

proportion of material needs to be dried. This portion is taken from the mixer, then passed through the dryer and returned to the mixture from which it was taken, giving it the proper stiffness and consistency. In this operation it is found that one third of a cord of inferior wood will produce one ton of dried material which had contained, before drying, 50 per cent. of water.

The stream of stiff mud passing from the pug mill is cut into lengths of about three feet each. These are placed upon cars and run into a Sturtevant tunnel where they are thoroughly dried and from whence

they are taken from the kiln to be burned. In this burning process the material, now as dry as it can be made, and the fuel, are fed into the kiln at the top; and the cement as it is burned falls into a lower chamber whence it is removed to a mill where it is crushed and pulverized, thus becoming the Portland cement of commerce, the barrels in which it is packed being made on the company's premises.

As before stated, these dryers are made by the F. D. Cummer & Son Co., Cleveland, Ohio. They are made in six sizes with capacity to prepare from three to twenty tons of clay per hour for dry pan or pulverizer. The clay is handled mechanically from the pit from which

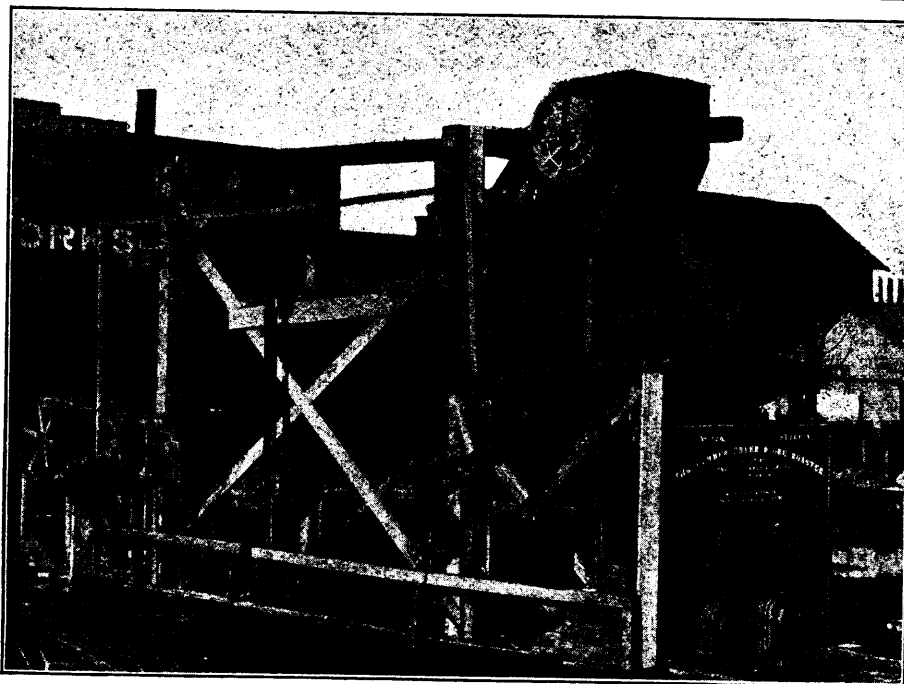


FIG. 4.—SIDE VIEW OF DRYER BEFORE INCLOSING.

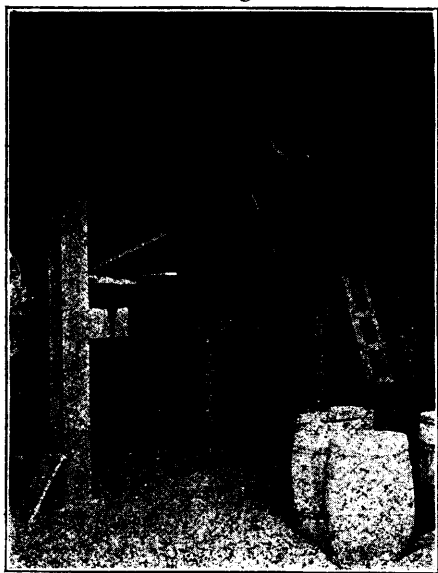


FIG. 5.—REAR VIEW—CEMENT WORKS DRYER.

it is taken to the finishing process. As compared with other methods, a very large proportion of the labor is dispensed with; very little fuel is required; great freedom from breakdown and getting out of order; superior products obtained; clay dried summer and winter; capacity to prepare phosphate, sand, earths, paint stock, peat, coal, salt, marl, chalk, cereals, night soil, animal manures, etc. A general view is given of the dryer in page 396 of this issue of the CANADIAN MANUFACTURER.

The illustrations appearing in this article are from photo-engravings very kindly loaned us by Messrs. Windsor & Kenfield, publishers of "Brick," a most excellent magazine devoted to the brick, tile, terra cotta and allied clay industries, published monthly at Chicago.

A Fine Electric Goods Depot.

Mr. John Forman has handsomely and conveniently fitted up his large warerooms at 650 Craig St. Montreal, where he now carries a full stock of electrical supplies. The warerooms comprise the ground floor and basement of the building, each of which is 125 ft. by 30 ft. extending back to a side street, by which the best shipping facilities are afforded. The interior of the ground floor is finished in white wood and is divided into several departments for different classes of goods. On the right of the entrance is the office which is separated from the rest of the store by a counter, and has no high partitions, so that the light of the large front windows is not obstructed. Opposite the office are show-boards upon which are samples of fittings and small goods so that a selection can be conveniently made by a purchaser without overhauling the stock. Behind the office is the small goods department, and next is the handsome electrolier show room, containing electroliers and brackets of the latest and most artistic designs, which are wired so that the effect when they are illuminated can be seen. In the rear is the shipping department and on the lower floor is carried the stock of heavy goods.

Mr. Forman has the agencies of a number of the best foreign and American manufacturers of electrical supplies and does a strictly wholesale business, undertaking no construction or installation work whatever. A specialty is made of high grade incandescent lamps of which a stock is carried of any candle power and voltage, and to fit any base desired. A large trade is also done in I. R. G. P. rubber covered wire which has a core of soft Para rubber and a covering of vulcanized rubber, thereby ensuring a very high insulation resistance and great durability. A complete stock of general supplies is carried, including a full line of standard American goods and of porcelain cut-outs, rosettes and other goods of artistic design and fine finish. An interesting display is made of heating utensils which range from a large oven to a small flat iron. Dynamos and motors of various sizes from ¼ to 20 h.p. are at hand, besides alternating and continuous current arc lamps and a full line of portable storage batteries. The practical part of the business is in charge of Mr. Geo. H. Hill.

Probabilities of competition from the Bell Telephone Co. are very remote, thinks Prof. J. P. Barrett. In an interview in the Chicago Tribune he is quoted as saying:—"So far as I can see telephone competition in large cities is not an immediate probability. Any company that undertakes to compete with the Bell company, in this city, for instance, must face an expenditure of \$5,000,000 before it can begin the operation. The Bell Telephone instrument reserve is something few people know about. It has a device combining the transmitter and receiver which may be fixed in the pigeon hole of a desk. A man may lean back in his chair and talk to a person in New York in an ordinary tone just as I am talking to you. He needn't put a transmitter to his lips. He just talks into the air. He doesn't put a receiver to his ear either. The voice of his correspondent issues clear and loud from the pigeonhole. This device may be placed in a man's bedroom and he can lie abed, look up at the ceiling, and converse with a person anywhere. This and equally wonderful devices are simply being held back ready to be slapped into use if any competing company makes it necessary."

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.

The H. G. & B. Ry. Co., Hamilton, will extend the line of their electric road from Hamilton to Burlington Beach.

McCormack Bros' planing mill at Brandon, Man., was destroyed by fire Sept. 19, loss about \$4,000. The firm will rebuild immediately.

The Wood Vulcanizing Co., Montreal, has been incorporated with a capital stock of \$75,000 to treat wood by vulcanizing processes, etc.

The capital stock of the Ames-Holden Co., of Toronto, manufacturers of boots and shoes, has been increased from \$40,000 to \$200,000.

The Truro Foundry and Machine Co., Truro, N. S., have been awarded a contract for the erection of an ore crusher plant at Cochran Hill, N. S., at a cost of \$20,000.

The works of the Gananoque Spring and Axle Co., Gananoque, Ont., have been equipped throughout with incandescent electric lights, supplied by the Electric Light Co. of that town.

Le Manufacture de Meubles de Victoriaville (The Victoriaville Furniture Manufactory, Victoriaville, Que.) has been incorporated with a capital stock of \$10,000 to manufacture furniture, etc.

The Kingston Vehicle Co. is being incorporated at Kingston, Ont., with a capital stock of \$70,000 to manufacture carriages, wagons, sleighs, bicycles, etc. Mr. John Hewton is an incorporator.

The Montmorency Electric Power Co., Montmorency, Que., will make application to the legislature for authority to increase its capital stock and to extend and enlarge the scope of its operations.

One of the finest and most substantial highway bridges, in Huron County, Ont., is the steel structure over the Maitland river at Wroxeter, built by the Central Bridge and Engineering Co., Peterborough.

The Canada Carriage Co., Brockville, Ont., whose exhibit at the recent Toronto Fair excited so much favorable notice, sold, during the time of the Fair, about 300 sleighs and nearly their entire exhibit of buggies.

The Electric Chronometer Co., Toronto, are applying for incorporation with a capital stock of \$100,000 to manufacture chronometers and other time indicators, etc. Thomas Shortis will be one of the incorporators.

The Southampton Lumber Co., Southampton, Ont., has been incorporated with a capital stock of \$10,000 to manufacture lumber, shingles, etc. J. E. Bowman, Waterloo, Ont., is one of the incorporators.

The St. Thomas, Ont., street railway has been sold to the syndicate which controls the Toronto, London, Cleveland and Montreal systems. The line will be extended and converted into an electric service.

The City Council of Stratford, Ont., have decided to proceed immediately with the erection of a fire hall of a sufficient size in which to install an electric plant for municipal lighting purposes at a cost of about \$12,000.

The Cataract Power Co. of Hamilton, Ont., are applying for incorporation with a capital stock of \$100,000 to carry on the business of an electric power company. W. H. Glasco and J. W. Hendrie and associates are incorporators.

The Compressed Fodder Co. of Ontario, with head office at Barrie, Ont., are applying for incorporation with a capital stock of \$100,000 to manufacture a patented fodder compress, etc. Herman Bunker, the patentee, of Barrie, is one of the incorporators.

The Galt & Preston Street Railway Co. will apply to the legislature for authority to increase their capital stock from \$50,000 to \$100,000, and to extend the line of their electric road, now in operation from Galt to Preston, through the township of Waterloo to Hespeler, Ont.

Mr. D. Johnson, lock manufacturer and brass founder, 14 Markham St., Toronto, announces to the trade that he has purchased the business carried on by the late Francis Hyde, for the manufacture of Hyde's patent taps and valves, together with the patent rights, patterns, tools, etc., and that he is prepared to fill all orders for such goods.

The new factory of the Gananoque Buggy Company at Gananoque, Ont., is nearing completion, and when finished will be a very fine building. The main building is 150 by 50 feet and three storeys high; an annex for boiler and kiln house 36 by 46 feet, two storeys, and one for an office 20 by 26 feet, two storeys, giving nearly 10,000 square feet of floor space. This new industry will soon be in operation.

The City Council of Hull, Que., has granted to Theophile Viau a valuable and important electric railway and lighting franchise. It covers a period of 35 years, the contractor not being bound to contribute anything in the way of mileage or percentage of receipts. The railway scheme contemplates branches to Aylmer, 9 miles; Gatineau, 4 miles, and Ironside, 5 miles from Hull. A company will be formed to construct and operate the works under the franchise.

The Robert Miller Co., Montreal, has been incorporated with a capital stock of \$30,000 to manufacture stationery, school supplies, etc.

Fire in the broom factory of Messrs. Chas. Boeckh & Sons, Toronto, on September 27, destroyed property to the value of about \$1,000.

The Montreal Watch Case Co., Montreal, are applying for incorporation with a capital stock of \$50,000 to manufacture watch cases, jewelry, etc.

The Hooley Bros. Packing Co., with headquarters at Sherbrooke, Que., has been incorporated with a capital stock of \$25,000 to pack and can animal meats, etc.

The sewer pipe for the sewers now being constructed in the town of Welland, Ont., is being supplied from the works of the Hamilton & Toronto Sewer Pipe Works at Hamilton, Ont.

The Phenix Printing Ink Co., Montreal, is being incorporated with a capital stock of \$20,000 to manufacture printing inks, lithographic inks, etc. Mr. J. D. Rolland is at the head of the concern.

The Montreal Transportation Co., will, it is said, contract a new dry dock adjoining their shipyard at Kingston, Ont., capable of accommodating the largest vessels that pass through the Welland Canal.

The Thomas Davidson Mfg. Co., Montreal, has been incorporated with a capital stock of \$500,000 to manufacture metal and other goods, etc. Messrs. James and T. C. Davidson and Edward Goodwill are interested.

The Central Telephone Co., Bridgewater, N. S., is applying for incorporation with a capital stock of \$3,000 to construct a telephone line connecting that town with New Germany, N. S., etc. Mr. Nelson P. Freeman, New Germany, will be a director.

The Canadian Mineral Wool Co., Toronto, have recently covered all the steam pipes in the new Drill Shed and in the Ontario College of Pharmacy, in Toronto, and in the works of the Toronto Electric Light Co., with their patent mineral wool sectional covering.

The Magnetawan Tanning Co., with head office at Burk's Falls, Ont., are applying for incorporation with a capital stock of \$50,000 to do a general tanning business. Messrs. C. G. Marlatt and W. T. Marlatt, of Oakville, Ont., and John Waldie, of Toronto, are to be the first directors.

The town of Galt, Ont., is to have incandescent electric light, the gas company there having closed a contract with the Canadian General Electric Company, of Toronto, for the necessary plant and machinery, the construction of which and the erection of the power house will be commenced immediately.

Mr. Wm. Young, who for some time has travelled in the interests of the Goldie & McCulloch Co., has taken an interest in the business of Messrs. Stevens & Hamilton, iron tool manufacturers. Mr. Albert Walker, son of Mr. W. T. Walker, will fill the vacated situation with the Goldie & McCulloch Co.—Galt Reporter.

The large wooden ware factory of Messrs. F. J. Wesley & Co., Toronto, was destroyed by fire Sept. 25, loss about \$35,000. It is understood that Mr. Wesley has arranged to take over the factory building at Toronto Junction, recently occupied by the Hess Mfg. Co. as a furniture factory, and will resume operations there at an early day.

La Compagnie Manufacturiere et Electrique de Montmagny (The Montmagny Manufacturing and Electric Co.) with headquarters at Montmagny, Que., has been incorporated with a capital stock of \$3,000 to manufacture lumber, to produce electric energy for commercial purposes, and to manufacture electric apparatus. Nazaire Bernatchez, M. P. P., is one of the incorporators.

It is expected that the Government will call for tenders in a few days for the work to be done in the proposed extension of the Trent Valley Canal. The proposed new works involve the construction of two lift locks on the stretch of water between Peterboro' and Lakefield, one being located near each of these points. The construction of the lift locks will obviate the necessity of building some six or seven ordinary locks.

The Toronto Machinery Supply Co., of which Mr. A. J. Lindsay is manager, is a new concern whose place of business is at 164 King street west. They are dealers in general machinery and supplies representing the best manufacturers in Canada and the United States; and they are also dealers in second hand machinery. They are agents for the Sebastian-May Co., of Sidney, Ohio, one of the largest and best known manufacturers of foot and power lathes, engine lathes, planers, shapers, drill presses, special tools, etc.

Under the name of the Petrolia Electric Light, Heat and Power Company a number of Toronto gentlemen have started an enterprise which, it is claimed, will revolutionize the oil industry of Petrolia, Ont. The idea is to pump oil by electricity from the oil wells from a central station, a scheme which, it is said, will cheapen the cost of production to a very great extent. The company also proposes to light the town of Petrolia by electricity. The capital of the company is to be \$50,000. The promoters are George Johnston Ashworth, Walter Macdonald, Frederick Charles Armstrong, William David Earnsey, and James Johnston Ashworth, all of Toronto. George J. Ashworth, Walter Macdonald and Fred. C. Armstrong are the first directors.

Stevens, Hamilton & Co., Galt, Ont., have lately shipped 12 of their high speed sensitive drilling attachments to London, England.

The Carbon Paint Company of New York and Philadelphia have written to Ald. Burns, chairman of the Manufacturing Inducement Committee, intimating their intention of establishing a branch in Canada and asking upon what terms they can locate in Toronto.

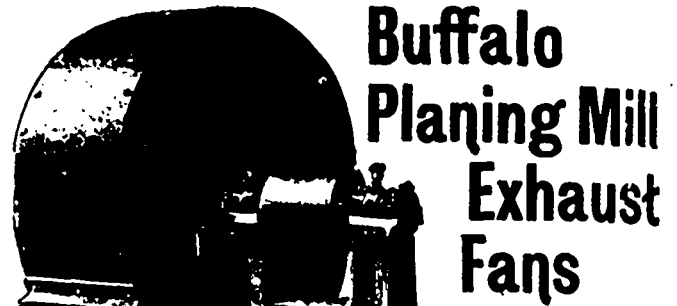
Messrs. Cowan & Co. are quite busy at present, having received quite a number of orders for machinery, including an entire planing mill outfit with engine for a firm in Parry Sound, a planer and matcher for a firm in British Columbia, and they have also large orders to fill for firms in Nova Scotia and New Brunswick.—Galt, Ont., Reporter.

A few days ago a cable message was received at Kingston, Ont., from Liverpool, Eng., stating that a syndicate with a capital of \$450,000, was organized there to work Canadian mining property. It includes iron ore and mica properties in the county of Frontenac and adjoining counties, and the gold belt recently discovered in the township of Clarendon.

A. P. Willis, of Montreal, accompanied by W. C. Motley, an expert who attended the Industrial Exhibition for the purpose of purchasing pianos, completed a contract on Saturday with the R. S. Williams, (Toronto) and Bell (Guelph) piano manufacturers for 1,000 pianos and 500 organs, which are to be put on the market in Eastern Ontario, the Province of Quebec and the lower provinces. This is the largest purchase of the kind ever made in Canada.—Montreal Star.

The electric road is doing quite a freight business between Galt and Preston and from Preston to the C.P.R. station. At the end of last week a car was loaded at the C.P.R. station, for the Stahlshmidt Furniture works and since considerable freight from the manufacturing establishments there have been hauled down. The freight car travels back and forward with its two or three tons of a load as if its weight was scarcely felt by the motor car.—Galt, Ont., Reporter.

Clarence H. Dimock, of the Wentworth Gypsum Co., Windsor, N. S. and J. B. King, of the firm of J. B. King & Co., manufacturers of plaster, New York, visited the new plaster quarries, owned by Mr. Dimock at Demoiselle Creek, last week. The plaster from these quarries has been tested and proved a superior quality. A new wharf has been built at Gray's Island, Hillsboro', affording ample shipping facilities. It is rumored that Mr. Dimock will build a plaster mill at the quarries next summer. This new industry, with the rock plaster to be shipped, will add much to the commercial interests of car town. A branch line from the Salisbury & Harvey railway is now being built to the quarries.—Albert, N.B., Star.



**Buffalo
Planing Mill
Exhaust
Fans**

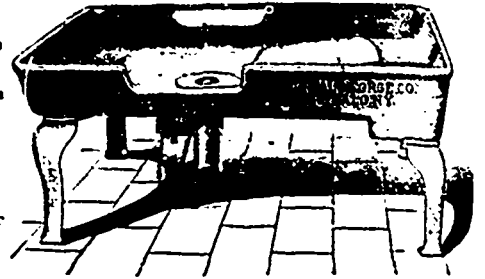
EFFICIENCY
UNEQUALLED
DURABILITY
UNSURPASSED
SMOOTH
RUNNING
INCOM-
PARABLE

THE LARGEST

FORGE

In the World

Thirty-Eight Other
Designs of
Portable and Sta-
tionary Types



BUFFALO LUMBER DRY KILNS

Blowers, Blacksmiths' Tools, etc.

H. W. PETRIE, Toronto Representative, Toronto, Ont.

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Brantford representatives.

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WE carry full lines and ship promptly. Repairs are given special attention, and experimenters' work is a specialty, both electrical and mechanical.

We have in preparation a new Telephone System for factories, warehouses and general communication. Enquire for our prices.

We manufacture an improved Storage Battery for lighting and other purposes.

It will pay you to enquire of us for anything you want.

The Toronto Electrical Works, 33, 35 and 37 Adelaide St. West,
TORONTO, ONT.

The stock of the Brockville Wringer Works has passed into the hands of the James Smart Manufacturing Company, and will hereafter be conducted as a part of their business.—Brockville Recorder.

The Whitney Electrical Instrument Co., of Sherbrooke, Que., will soon put an entirely new measuring instrument on the market, which it is expected, will have extensive use, and meet with as great success as the other instruments made by this company.

A by-law has been passed by the authorities of the town of Trenton, Ont., to apportion \$6,000 for the construction of an electric power house at the dam on the river north of that place to be used for lighting and manufacturing purposes. The water power on the Trent river, 1 1/2 miles north of the town, is one of the best in Canada, and as the location has many natural advantages as a shipping port, etc., it will no doubt induce manufacturers to locate there.

Pulp mills are starting up in every direction in the province of Quebec, owing to the increasing demands of the paper trade. A mill which has been built on the St. Maurice river is said to have cost \$1,000,000, and it will give employment to 1,000 men. American capitalists are going to build an immense pulp and paper mill at Notre Dame des Anges on the lower Laurentian railway, and English investors are concerned in a similar enterprise in the same locality of even larger dimensions. In Ontario we do not make the pulp, but ship the logs to the United States, for the benefit of our neighbors.—The Empire.

The Selater Asbestos Manufacturing Company has opened a large store and warehouse at 35 St. Peter St. and 48 and 50 Foundling St., Montreal, where a complete stock is carried of asbestos materials and engineers' and manufacturers' supplies, including pipe and boiler coverings, lubricating compounds and oils, belting, etc. Though a new concern, this company need no other introduction other than the statement that it is composed of Mr. Wm. T. Costigan and Mr. William Selater, who are well and favorably known to the commercial world. The practical part of the business is under the personal direction of Mr. Selater, who is a pioneer in the asbestos industry in Canada. The exceptional facilities enjoyed by this company for meeting the requirements of the trade are strengthened by connection with such reputable houses as the Keasbey and Mattinson Co., of Ambler, Penna., and the H. W. Johns Mfg. Co., of New York, for whom they are sole representatives in the Dominion, and therefore only the most satisfactory results can be expected. The company control the entire output of the Danville, Que., asbestos mines, which are said to be the largest in the world. The company are prepared at all times to make estimates of cost in any part of Canada, and to submit tenders at prices which will challenge legitimate competition.

The stave and hoop mill of Smith, Bros., at Stewart, Ont., was destroyed by fire Sept. 23, loss about \$9,000.

Ottawa is to have a saw factory provided the City Council gives freedom from taxation. The promoters of the factory are Mr. Bingham of Toronto and Mr. Feeney of Philadelphia. The factory will employ 50 men.

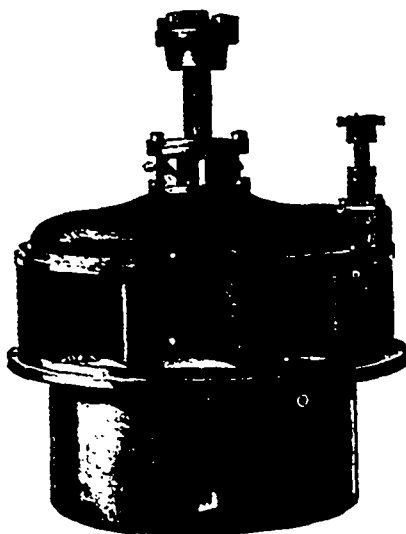
The Stanley Electric Manufacturing Co., Pittsfield, Mass., have recently made a contract with the Montmorency Electric Power Co., Quebec, Can., for furnishing them with three 675 h.p. two phase generators, which will be used for conveying the water power of the famous Montmorency Falls to the city of Quebec for light and power purposes. The Montmorency Falls, eight miles from Quebec, are famous the world over for their beauty. The Fall altogether is over 300 feet, there being one perpendicular fall of 268 feet. For the past ten years this water power has been used for supplying light in Quebec, the present plant consisting of three 2,000 light alternators, made by the Royal Electric Co., Montreal, and fifteen arc light machines with a total capacity of 600 lamps. These present alternators are single phase and run at 1,800 volts at the Falls, delivering 1,000 volts at Quebec, and simply supplying ordinary lighting service. The Montmorency Co. decided a short time ago to put in a modern plant. The three large machines which they have bought of the Stanley Company will generate a potential of 5,500 volts; the output of each machine will be carried on four wires to a sub-station in Quebec, where step-down transformers will reduce it to 2,000 volts and the distributing system through the town will be at this potential. One thousand k.w. capacity of Stanley step-down transformers will be employed for this purpose, which will be placed in a sub-station built purposely for their reception with very complete arrangements for keeping the transformers cool by air blasts. The current will be used for lighting, general power distribution by two-phase alternating motors and for running street railways by the use of rotating transformers. In the sub-station there will also be a very complete switchboard installation. There will be one switchboard for the railway service, one for the arc-light service and one for the two-phase light and power service. The offices of the company will also be in the same building. The drop in the line between the Falls and the sub-station will be 6 per cent. The progressiveness of the company and its success is largely due to the able management of the General Manager of the Montmorency Co., Mr. F.H. Badger, who is a son of the city electrician of Montreal and was with the Royal Co. for ten years. He connected himself with the Montmorency Co. on February 1, 1894, and is very careful and thorough, being an electrical engineer of more than ordinary acquirements.

ROE & GRAHAM

Iron Founders and Machinists

WATER WHEELS, ENGINES AND MILL MACHINERY A SPECIALTY . . .

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The . . .
**Standard
Water..
Wheel** 



Cut Showing Wheel Removed from Case

Made in sizes from 6 inches to 84 inches diameter. Wheel One Solid Casting. 94 per cent of power guaranteed In Five Pieces. Includes whole of case, either register or cylinder gate.

Water put on full gate or shut completely off with half-turn of hand wheel, and as easily governed as any engine.

Write for Estimates, References and Catalogues of the **STANDARD WATER WHEEL**, also Milled and Rough Gearing of every size and description; Engines, Mill Machinery and Electric Power Plants; Latest Improved Band Saw Brazing Tables; Shears and Gummers, also Surface Grinder for Shingle Saws.

Mr. John Shand, representative of Messrs. Bartram, limited, Edinburgh, Scotland, has arrived at Port Arthur, Ont. His company expect to furnish the machinery for the pulp and paper mill about being built at Kakabeka Falls. The mill will be the largest in the world, taking fourteen thousand horse-power to operate it, and the product will load a C.P.R. train every day in the year.

A fifteen-station watchman's time detector made by the Eco Magneto Clock Co., of Boston, Mass., has been installed in the Board of Trade Building, Montreal, by the Montreal Electric Co., who are agents of the Eco Co. for the Province of Quebec. The clock is contained in a handsome quartered oak case, and the generators in cases of the same wood. The wires are arranged in cables so that they cannot be tampered with, and the installation is a model one in every respect. The time detector is giving great satisfaction, and shows conclusively the advantage of the Eco system, which requires no batteries for its operation.

Readers of this journal have been long familiar with the business card herein of Mr. W.S. Rockwell, New York, constructing engineer of improved duplex oil fuel furnaces for annealing, forging, enamelling, welding, melting, etc., metals, the enamelling furnaces of the Kemp Mfg. Co., Toronto, the only concern in Canada manufacturing enamelled hollow ware, having been constructed by Mr. Rockwell. Mr. Rockwell has associated Mr. J.D. Swindell and Mr. F.S. Garrett with him in business under the firm name of W. S. Rockwell & Co., as furnace engineers and dealers in all kinds of fuel oil appliances. All these gentlemen bring ripe experience and important connection to the new undertaking. Mr. Rockwell has been about five years in this line, and was formerly connected with the same department of the Standard Oil Company's business. Since last May he had been doing business on his own account, under his own name, on the twelfth floor of the Havemeyer Building, at Dey and Cortlandt streets New York. The new firm are located on the eighth floor of the same building. Mr. Swindell was formerly in the furnace trade, and Mr. Garrett has also had considerable experience in a kindred line. Messrs. W. S. Rockwell & Co. have started out in a business-like fashion to build up an extensive trade. They have all the latest devices and appliances at the service of those who want them, and the scale of prices will be adjusted with due regard to the circumstances of the times. The fact that all the partners are practical men is a point of material importance.

The Dominion Coal Co., have just ordered two Lancashire boilers, 30 ft. long by 7 ft. diameter, from the Robb Engineering Co., Amherst, N.S.

The citizens of Vancouver, B.C., have voted \$100,000 for the erection of a civic electric street lighting plant and also to supply private consumers.

It was recently announced that Messrs. Stevens & Burns, foundry men, of London, Ont., were in financial difficulties. It affords us pleasure to state that the purchasers of the estate have organized a stock company to be known as the Stevens Mfg. Co., at the head of which is Mr. Stevens, Mr. Burns retiring from the concern. The works are again in full operation.

In the business card of Messrs. Adam Lomas & Son, manufacturers of flannels, dress goods, etc., Sherbrooke, Que., the trade will quickly recognize the familiar and well-known trade mark that appears upon all the cloth tickets attached to their products. This is one of the oldest firms in the woolen manufacturing business in Canada, having been established in 1842—fifty-two years ago—and which is nevertheless up to 1894 in every particular.

Messrs. W. D. Packard and J. W. Packard, of Warren, Ohio, and associates, including Messrs. C. C. Paige and F. E. Cavanagh, of Montreal, have been incorporated in Canada as the Packard Electric Co., with a capital stock of \$300,000 to manufacture electrical and other machinery and supplies with head office in Montreal. Mr. Paige is well known in the trade as Canadian manager of the Packard Lamp Co., and Mr. Cavanagh as an expert electrician of Montreal.

Messrs. Darling Bros., Montreal, advise us that they have received a second order from London, Eng., for 12 complete sets of their Morse valve reseating machines, the purchaser stating that his requirements will be from 15 to 20 machines per month. The demand for this article is increasing so rapidly that Messrs. Darling Bros. will duplicate their machinery for its production. They also advise us that they have recently received orders for their Webster vacuum feed water heater as follows:—One 400 h. p. machine for Montreal Park and Island Railway Co., Montreal, and one 250 h. p. machine for Central Prison, Toronto—a repeat order. They have also recently sent an 11-inch transmitter to the St. John, N.B., Gas Light Co. to drive their large dynamo now being placed in position.

WE CAN SUIT ALL.

Look for the Wire Shape you want and write for price.
We also Manufacture]

**Suspender Buckles
Suspender Furnishings, etc.**

McKinnon, Dash & Hardware Co.
OF ST. CATHARINES, LTD.
St. Catharines - - - Ont.

Fisher's woolen mills at Paisley, Ont., were destroyed by fire Oct. 3, loss about \$8,000.

Munro Bros., New Glasgow, N.S., have completed 750 farm crossing-gates for Government railways. Most of these gates were shipped to the Province of Quebec.

The Toronto Glass Co. are asking the Toronto City Council for exemption from taxation for a term of years on a new furnace they propose erecting for the manufacturer of flint glass.

A new electric light and gas company is being formed in Winnipeg and will apply to the city council for privileges at once. The object is to cheapen these necessary commodities to the citizens. The company guarantees, if granted the privileges it asks for, to reduce the price of gas to \$2.25 per 1,000 feet and electricity for both lighting and heating purposes in proportion. Work cannot be commenced on the instalment of the plant until next spring. Winnipeg Colonist.

Cleveland, Toronto and London capitalists have purchased the St. Thomas, Ont., street railway. Mr. E. R. Cameron, of London, has been elected president, and Mr. John Break, of Toronto, has been appointed secretary-treasurer and local manager. The tracks will be repaired, and a first-class horse car service given. Application will shortly be made to the City Council for a franchise for an electric road and extension of the tracks. If granted, the work will be done in the spring.

The Canada Machinery & Supply Co., Brantford, Ont., report a very busy season. Last month they filled orders for a large double planer to Holstein, Ont., a large engine and boiler and set of grist mill machinery with elevators, etc., to a new mill at Moorefield, Ont.; engine boiler, saw and shingle mill to Bruce Mines, Ont.; water wheel and saw mill to Chetwynd, Ont.; saw mill to Ottawa, Ont.; grist mill to Waterford, Ont.; planer to Shelburne, N. S.; planer to Welsford, N.B.; set of woolen mill machinery to St. David D'Yamaska, Que.; grist mill machinery to St. George de Windsor, Que.; portable boiler and engine to Glen Morris, Ont.; iron lathe to Gould Bicycle Co., Brantford, and large boiler to Edgar's Mills, Ont.

The official seal has been put upon what is recognized among cotton mill men as the greatest invention in cotton spinning since Arkwright's time, by the award of the Franklin Institute medal to Dunham and McKemie for their patent metallic drawing roll. The Institute's Committee on Science and the Arts has made a searching investigation, both as to the originality of the invention and as to its practical value. The official report as adopted by the Institute says:

The evidence collected in the course of this investigation, which is filed with the records of the case, is almost uniformly favorable, and indicates that the claims submitted in behalf of the invention, are well founded. It may be summed up in the statement that in substantially every establishment where the invention has been sufficiently long in use to determine its value, the verdict is that the metallic drawing rolls are yielding the most satisfactory results, giving increased production, superior yarn, less waste, and at greatly reduced cost. From the foregoing facts and consideration, the conclusion is reached that this invention has demonstrated in practical service its great utility to the cotton manufacturing industry of the United States.

These rolls are in extensive use in a great number of cotton mills in the United States and other countries, being manufactured exclusively in the United States by the Metallic Drawing Roll Co., Indian Orchard, Mass.

The old and well-known leather belting manufacturers, Robin & Sadler, Montreal, and G.F. Haworth (Haworth Belting Co.) Toronto, have joined forces and will hereafter carry on their united business under the firm name of Robin, Sadler & Haworth.

Messrs. Cowan & Co., Galt, Ont., write us that during the Toronto Exhibition they sold their No. 6 planer and matcher machines to the following parties: Ross & McPherson, Sussex, N. B.; John W. Hicks, Midgie, N.B.; Jas. Ayer, Sackville, N.B.; G.F. Burpee, Avondale, N.B.; Gilmour & Gilmour, Esdracelon, N.B.; W.A. & J.H. Hay, Millville, N.B.; R.K. Jores, Woodstock, N.B.; G.W. Upham, Woodstock, N. B., and to Mr. McLean of Windsor, Ont., a full outfit of wood working tools, also door and sash relisher with wedge cutting attachment to Haley Bros., St. John, N.B.

The Great Northern Transit Co., of Collingwood, Ont., have accepted the plans and specifications of Mr. Robert Logan, of Cleveland, for their proposed new steamer and work will be commenced at an early date. The engines will be fore and aft compound, of inverted cylinder, direct acting, jet condensing type, of 28 inches and 54 inches by 36 inches stroke. On the trial trip the engine is to be run for six continuous hours, under the inspection of the company's surveyor. The boilers are to be two in number, of the fire box type; length, 13 feet 9 inches; diameter, 9 feet 6 inches. They will be steel, having a tensile strength per square inch of not less than 60,000 pounds and not more than 67,000. The total tube surface in each boiler will be not less than 1,250 square feet. The total heating surface will be about 1,500 square feet. The working pressure required will be 130 pounds per inch. There will be two rectangular furnaces to each boiler, with curved tops flanged at ends for furnace doors and flues. Each boiler will contain 124 plain tubes 11 feet long, 3 1/2 inches in diameter, though the Serve's ribbed steel tubes, handled by Charles W. Whitney, of New York, had been under consideration. The boilers will be fitted with domes 3 feet 6 inches in diameter and 6 feet long, respectively. -Cleveland, O., Marine Record.

SPECIAL PRICES - -
On the following Second-Hand Machinery

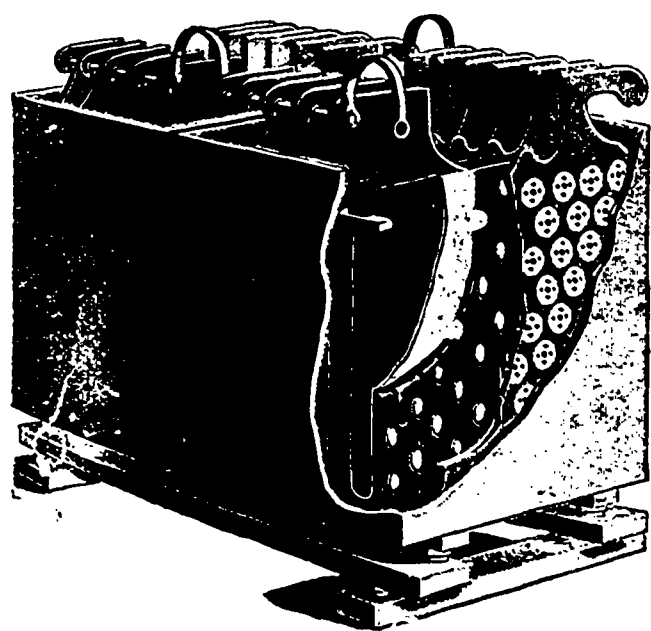
1 20 h.p. Engine, plain slide valve, Potrie's build; 1 9x12 High Speed, Arrington and Sims built; also a number of small Engines and Boilers, all sizes; 1 12 inch Press Planer; 1 24 inch Surface Planer; 2 Stickers; 1 Eclipse Planer and Matcher; 2 Hand Saws; 1 Shaper; 3 Rip and Cross Cut Saws; 3 Emery Grinders, etc.; 6 Iron Lathes, different sizes; 3 Drill Presses; 2 Pressure Blowers.

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Saws, Belting, Pulleys, Shafting, Emery Wheels, and everything in Machinery Supplies always on hand.

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Societe Anonyme Pour Le Travail Electrique Des Metaux, Paris, France.

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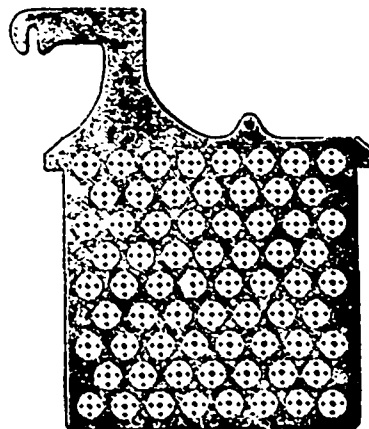
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Electrical Storage Cells of any
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Catalogue giving capacities, dimensions, weights, prices, etc., on application.



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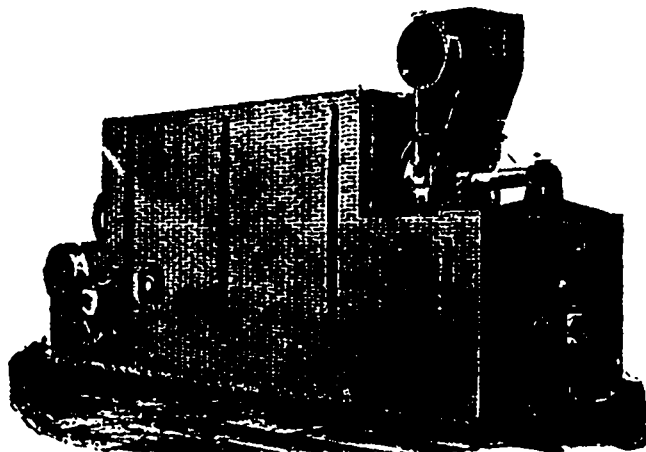
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All Oils Guaranteed To Give Satisfaction.

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Labor Dispensed With: Very Little Fuel Used: No Break Downs: Superior Product Obtained: Clay Dried Summer and Winter Rain or Shine, Are a Few of the Special Advantages Obtained by using the



CUMMER CLAY DRYER..



....SIX SIZES MADE....

Prepares from 3 to 20 Tons of Clay per hour for dry pan or pulverizer. The clay is handled mechanically (without men from bank to press or other machines. Dryers and Hot Air Apparatus can be seen in Daily operation in largest manufacturies in Canada.

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Munro Bros., New Glasgow, N.S., inform us that they are meeting with fine success with their newly patented wire church pew cushion. It is giving much satisfaction and is being introduced into many of the finest churches in the Maritime Provinces.

The F.E. Dixon Belting Co., Toronto, whose office and factory have heretofore been at 70 King street east, have removed to larger and more convenient premises at 39 Front street east. This concern are well-known throughout the country as manufacturers of first-class leather belts, particularly for electric light use. The leather of which these belts are made is produced at tanneries at Acton, Ont.

The Buffalo progressive lumber dryers are well and favorably known by all Americans interested in wood working industries, and their sales also extend to many foreign countries. They are unsurpassed for drying lumber in any form. Special study of the different kinds and sizes of lumber to be seasoned is made by the manufacturers of these dryers, and the various apparatus are designed with reference thereto. The Buffalo Forge Co., Buffalo, N. Y., recently received an order for a large outfit to be shipped to Reval, Russia, for drying veneers. The parties buying the outfit have tried various plans of seasoning this material with very unsatisfactory results, but after investigating plant previously installed by the Buffalo Forge Co., were so well pleased with that outfit, that they found it unnecessary to look further.

The Gurney Scale Co., Hamilton, Ont., have sent us an exceedingly handsome souvenir album, which contains letters from a very large number of concerns who have in use in their business weight scales manufactured by this Company. There are some 167 pages in the album, each page containing a letter from a user of the Gurney Scale Co.'s scale regarding its accuracy, durability and general excellence. These letters are from all parts of Canada, from Nova Scotia to British Columbia, and from parties in all manner of manufacturing and commercial business. The Company inform us that they have machinery specially designed for manufacturing scales, the only machines of the kind in Canada, and with a staff of expert workmen, are in a position to furnish everything in their line very quickly and in every way satisfactory. The tone of the letters in the album may be judged by the characteristic one from Mr. Thos. J. Watters, Acting Commissioner of Customs, Ottawa, dated Feb. 22, 1894, in which he says, in writing to the Gurney Scale Co.:—"This Department has received no complaints of the working of the various scales purchased from you and supplied to the Collectors of Customs throughout the Dominion." What everybody says is so must be so.

CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from June 11 to June 25, 1894, inclusive.

Information regarding any of these patents may be had on application as follows:—

Fetherstonhaugh & Co.,	Bank of Commerce Building,	Toronto.
Ridout & Maybee,	103 Bay street,	Toronto.
A. Harvey,	Central Chambers,	Ottawa.
J. A. Grenier,	Imperial Building,	Montreal.

Copies of American patents corresponding to Canadian patents can be procured from either of these attorneys for the sum of twenty-five cents each.

- 46,444 Construction of sheaf binding harvester, Ernest Samuelson, Banbury, Oxon, England, July 3.
- 46,445 Tie lifter and rail adjuster, James Mellon, Montreal, Que., July 3.
- 46,446 Card feeder for package filling machines, Henry Eyster, Philadelphia, Pa., July 3.
- 46,447 Process for treating oleaginous material, Ernest Fabrig, Baltimore, Md., July 3.
- 46,448 Package making machinery, Henry Eyster Smyser, Philadelphia, Pa., July 3.
- 46,449 Package making and filling machines, Henry Eyster Smyser, Philadelphia, Pa., July 3.
- 46,450 Slat weaving machine, Albert R. Tiffany, and Wesley Young, Dayton, O., July 3.
- 46,451 Combined surface condenser and feed water heater, John B. McCurdy, Joplin, Mo., July 3.
- 46,452 Manufacture of spirits and an apparatus for that purpose, Jerome J. Murphy, Ashton, Ireland, July 3.
- 46,453 Improved apparatus for effecting the washing, swelling, and germination of grain, Otto Hentschel, of Grimma, Kingdom of Saxony, Germany, July 3.
- 46,454 Car truck, Kenneth W. Blacwell, Montreal, Que., July 3.

ELECTRICAL SUPPLIES

Do not fail to write for Prices and Quotations on all kinds of Electrical Supplies.

We carry the largest stock of high-class fittings for Electrical Work in Canada.

FANCY PORCELAIN CUT-OUTS, ROSETTES, WALL PLUGS, SWITCHES, BRACKETS, ETC.

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IF so, do you know what a good Lamp is? We can give you Lamps at all prices, and have the best Lamp made in the world; namely: the genuine "EDISWAN," in any candle power, from one to two thousand; to fit any base. Don't buy lamps until you get our quotations.

Frosted Lamps - Colored Lamps - Mogul Lamps

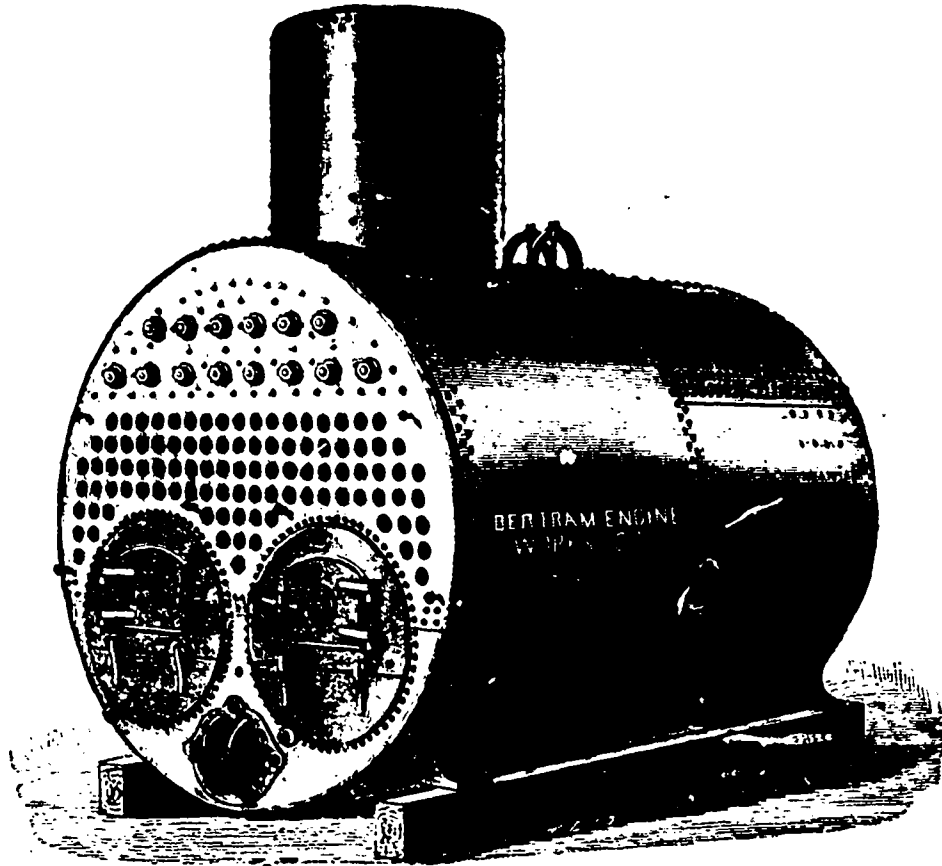
SEND US THAT RUSH ORDER.

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AGENTS:—Edison & Swan United Electric Co., and Hungarian Incandescent Lamp Co.

The Bertram Engine Works Co., Ltd.

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. BEST EQUIPPED PLANT IN THE DOMINION.

....FOR THE CONSTRUCTION OF....

Marine Engines and Boilers,

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Steel and Composite Yachts & Steamships.

CASTINGS & GENERAL MACHINERY.

The Bertram Engine Works Co., Ltd.

Bathurst and Niagara Sts. TORONTO, CANADA.

- 46,455 Wrapper for bottles, Jeffrey T. Ferres, Anderson, Ind., July 3.
- 46,456 Garment stays, Henry Johnston, Ypsilanti, Mich., July 3.
- 46,457 Method of and apparatus for forming joints between blocks of concrete or artificial stone, Rubertus G. Mayhew, St. Louis, Mo., July 3.
- 46,458 Rolls for holding and applying decorative films, Walter H. Coe, Providence, R.I., July 3.
- 46,459 Motor truck, John A. Brill, Philadelphia, Pa., July 3.
- 46,460 Friction clutch, Dodge Wood Split Pulley Co., Toronto, Ont., July 3.
- 46,461 Coupling, Irvin P. Doolittle, Los Angeles, Cal., July 3.
- 46,462 Primary voltaic batteries, William Walker, Birmingham Frank R. Wilkins, Handsworth, and Jabez Lones, Smethwick, Eng., July 3.
- 46,463 Capping and sealing bottles, William D. Flger, Brooklyn, N. Y., July 3.
- 46,464 Process of calendering goods of all sorts, Emil Claviez, Chemnitz, Saxony, Germany, July 3.
- 46,465 Cultivator, Malcolm Macleod, Los Angeles, Cal., July 4.
- 46,466 Combined burglar alarm and lock, Hudson Ferris, Chicago, Ill., July 4.
- 46,467 Bottle or vessel holder, Frank G. Kammerer, Chicago, Ill., July 4.
- 46,468 Type-writer, James D. Dougherty, Kittanning, Pa., July 4.
- 46,469 Machine for crimping wire, James H. Smith, Ingersoll, Ont., July 4.
- 46,470 Coupling for water closets, Joseph H. Savill, Philadelphia, Pa., July 4.
- 46,471 Air distributor for beer brewing apparatus, Carl Raffin, Schwerte, Prussia, July 4.
- 46,472 Grain purifier, Frank M. Schell, Perry, Kansas, July 4.
- 46,473 Method and means for compressing gases, Daniel McGill, Wellington, New Zealand, July 4.
- 46,474 Camp stool, Agnes Ellis, 2 Lansdown Grove, Neasden, Middlesex, Eng., July 4.
- 46,475 Railway car-seat, Henry H. Forsyth, Chicago, Ill., July 4.
- 46,476 Coating for metal building, Sarah E. Pedler, Oshawa, Ont., July 4.
- 46,477 Fire extinguishing compound, The Muskegon Chemical Fire Engine Co., Muskegon, Mich., July 4.
- 46,478 Method of making baskets, Albert R. Tiffany and Wesley Young, Dayton, O., July 4.
- 46,479 Shirt and cuff, Carl C F Hermans Von Clausen-Kaas, Dresden, and Egon E Von Fisher, Charlottenburg, Germany, July 4.
- 46,480 Folding box, William J. Sharman, Langford, and William J. Hamilton, Neepawa, Man., July 4.
- 46,481 Stove, Ferdinand Meyrose, St. Louis, Mo., July 4.
- 46,482 Fire pail, Frank B Comins, Providence, R.I., July 4.
- 46,483 Apparatus for developing, fixing and toning photographs, Elmer F. Mackusick, New York, N. Y., July 4.
- 46,484 Carpet beater, Franklin L. Goodenough, Windsor, N. Y., July 4.
- 46,485 Carpet beater, Franklin L. Goodenough, Windsor, N. Y., July 4.
- 46,486 Flexible pipe coupling, James A. Lynch, St. Louis, Mo., July 4.

- 46,487 Lifting jack, Allan A. Smith, Grande Island, Neb., July 4.
- 46,488 Burning fluid, William R. Wales and Robert A. Buehl, Buffalo, N. Y., July 4.
- 46,489 Automatic railway gate and signal, Edward Death and Edward W. Wyatt, Toronto, Ont., July 4.
- 46,490 Sprocket wheel, Peter D. Murphy and Edward Kobb, Lockport, N. Y., July 5.
- 46,491 Body garment, Frederick W. Warner, Rochester, N. Y., July 5.
- 46,492 Method of utilizing sulphite liquors, Carl D. Ekman, London, Eng., July 5.
- 46,493 Explosive, Benjamin C. Pettingell, Victoria, B. C., July 5.
- 46,494 Process of and compound for waterproofing soles of shoes, Edward H. Lewis, St. Louis, Mo., July 5.
- 46,495 Brake for carriages, Ernst Hecht, Paul Rasche and Berthold Krug, Tempelhof, Prussia, July 5.
- 46,496 Telephone, Parnell Rabbidge, London, Eng., July 5.
- 46,497 Driving mechanism for velocipedes, John B. Robertson, Belfast, Ireland, July 5.
- 46,498 Metal folding plate, Theodor Hildebrand, Gartow, Prussia, July 5.
- 46,499 Dyeing process, Ernest Heaffely, Bormen, Rhenish, Prussia, Germany, July 5.
- 46,500 Method of converting iron and steel, John A. Hunter, Philadelphia, Pa., July 5.
- 46,501 Twisting machine, George H. Sellers, Wilmington, Del., July 5.
- 46,502 Process of waterproofing leather, Edward H. Lewis, St. Louis, Mo., July 5.
- 46,503 Fertilizer, Sylvester B. Schenck, Newark, N. J., July 5.
- 46,504 Fitter, Charles C. Froelich, et al, Pottstown, Pa., July 5.
- 46,505 Spark arrester, Arend Hasper, Westfield, North Dakota, July 6.
- 46,506 Calendar, William K. David, Philadelphia, Pa., July 6.
- 46,507 Lock, George F. Elsey, Carman, Man., July 6.
- 46,508 Method of operating ordnance, William B. Gordon, Cold Spring, N. Y., and Thomas R. Morgan, Alliance, O., July 6.

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AUTOMATIC HIGH SPEED ENGINES

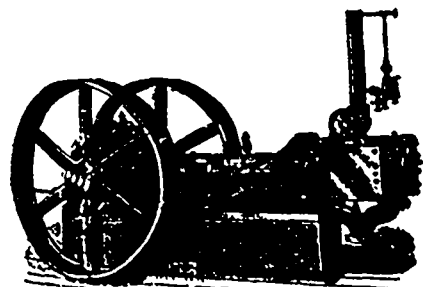
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ELECTRIC LIGHTING

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Perfect Regulation and Highest Economy.

Steam Pumps
SHAFTING, PULLEYS

—AND—
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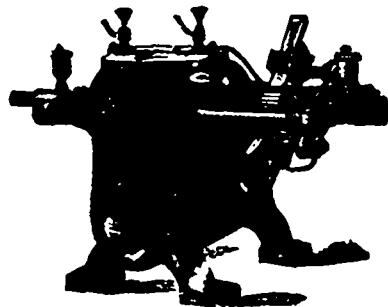
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Black Sheet Iron, all sizes.
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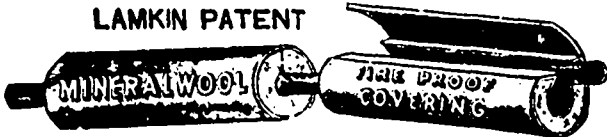
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FACTORY AND MILL LIGHTING VALUATION.

18 IMPERIAL LOAN BUILDING, - - TORONTO.

Suspender Buckles

AND....

Wire Shapes OF All Kinds.

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making above articles. . . .

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St. Catharines, Ont.

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*Robinson & Sadler, Oak Tanned Leather Belting,
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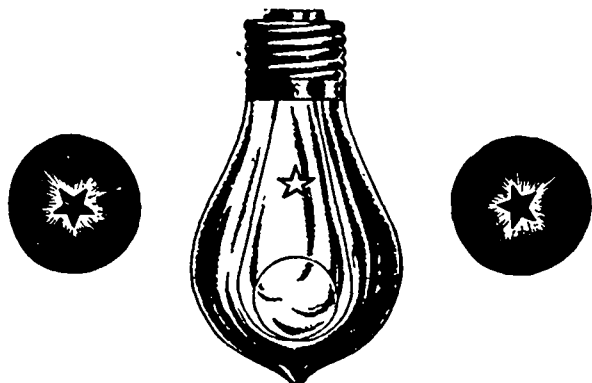
Hydraulic, Belt Power, Electric and Hand Elevators for
Passenger and Freight Service

AND General Machinery.

- 46,509 Shelf structure and support, Barnard R. Green, Washington, D.C., et al, July 6.
- 46,510 Railway signal, Charles C. Kahne, et al, Ashland, Ky., July 6.
- 46,511 Railway rail, Charles H. Jeune, Indianapolis, Ind., and the Mechanical Development Company, New York, N. Y., July 6.
- 46,512 Force pump, John H. Stoll and George Stoll, Hutchinson, Kansas, July 6.
- 46,513 Filter, James H. Finley and James Murphy, Buffalo, N. Y., July 6.
- 46,514 Process of treating butter, Joseph H. Campbell and Charles H. Campbell, New York, and John B. Finlay, Kittanning, Pa., July 6.
- 46,515 Coiled sliding door, Fredrick A. Schluns, Concord, N. H., July 6.
- 46,516 Compound for and method of preserving eggs, Francis M. Underwood, Pasadena, Cal., July 6.
- 46,517 Ballot box, Juan W. Ernest, Los Angeles, Cal., July 6.
- 46,518 Sheave, Francis B. Torrey, Bath, Me., July 6.
- 46,519 Wood graining machine, John Shannon, Pittsburg, Pa., July 6.
- 46,520 Ore crusher, James R. Gordon, Sudbury and Wm. W. Fraser, Ottawa, Ont., July 9.
- 46,521 Clothes mangle, George E. Overton, Chatham, Ont., July 9.
- 46,522 Furnace, Isaac D. Smead, Toledo, O., July 9.
- 46,523 Skate, John Forbes, Halifax, N.S., July 9.
- 46,524 Hand hay rake, Samuel Buschleu, Port Elgin, Ont., July 9.
- 46,525 Wind mill, Elmer E. Milliken, Bridgewater Centre, Me., July 9.
- 46,526 Clothes bar, John H. Stanton, St. Catharines, Ont., July 9.
- 46,527 Divan bed frame, Patrick Rooney, Montreal, Que., July 9.
- 46,528 Driving chain, Robert F. Hall, Birmingham, Eng., July 9.
- 46,529 Combined bee swarmer, catcher and separator, Nelson P. Fluent, Sand Creek, Wis., July 9.
- 46,530 Gas governor, John G. Smith, Montreal, Que., July 9.
- 46,531 Crane for cheese factories, etc., William Stafford, Lancaster, Ont., July 9.

- 46,532 Fare Box, Duncan S. Macorquodale, Toronto, Ont., July 9.
- 46,533 Railway signal wire compensator, John Fisher, Matlock, Derby, Eng., July 9.
- 46,534 Variable driving gear for bicycles, James Canan, Owen Sound, Ont., July 9.
- 46,535 Flue expander and beader, Joseph Coles, Aspen, Col., July 9.
- 46,536 Bottom bolt spring socket for folding doors, Benjamin Heymanson, Boise City, Ida., July 9.
- 46,537 Hay lifter Orson, Briggs, St. Louis, Mich., July 10.
- 46,538 Pipe union, Detley L. R. Rochlitz, and Fredrich E. Wolter, Hamburg, Germany, July 10.
- 46,539 Ice velocipede, Jacob Kolb, Wichita, Kan., July 10.
- 46,540 Artificial egg, Edward D. Hand, Fenelon Falls, Ont., July 10.
- 46,541 Dumping device for vehicles, Albert Tracy and William Abbott, Ottawa, Ont., July 10.
- 46,542 Curd cutter, Ormand Barnard, Oxford Mills, Ont., July 10.
- 46,543 Lifting jack, Magloire Thibault, Ottawa, Ont., July 10.
- 46,544 Cuspidor, Cyrille A. Bernard, and Napoleon Desmarais, St. Cesaire, Que., July 10.
- 46,545 Extension table, Joseph Bohr, Westphalia, Mich., July 10.
- 46,546 Milk cooler, Charles L. Kneeland, Lansing, Mich., July 10.
- 46,547 Clothes dryer, William J. Coulter, Chesley, Ont., July 10.
- 46,548 Air feeding device for furnaces, Thomas Craney, Bay City, Mich., July 10.
- 46,549 Steam boiler feeder, James Dean, Detroit, Mich., July 10.
- 46,550 Saw horse, Charles D. Snell, Haverhill, Mass., July 10.
- 46,551 Cheese press, Thomas Morrison, Brockville, Ont., July 11.
- 46,552 Breast collars for harness, Quintus P. Watson and Henry Price, Kenton, O., July 10.
- 46,553 Shingle package, Morgan J. Carkeek, Seattle, Wash., July 10.
- 46,554 Machine for sawing blocks from logs, Frankia L. Day, Glen Falls, N.Y., July 11.
- 46,555 Car coupler, James H. Swindell, Reidsville, Ga., July 11.
- 46,556 Cesspool, Matthew Moriarty, Bangor, Me., July 11.
- 46,557 Piston packing, David Spencer, Roanoke, and Philip P. Cooke and Edward D. Quarls, Richmond, Va., July 11.

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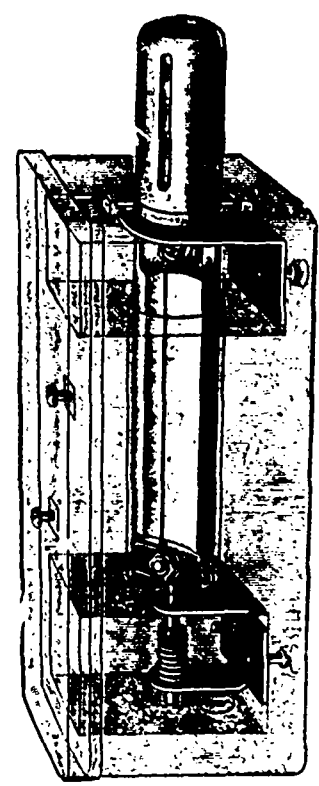


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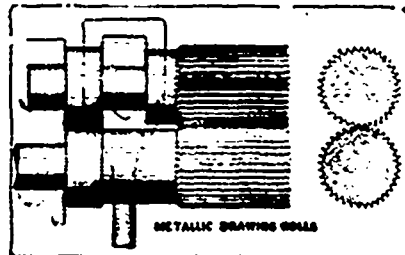
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- 46,558 Window shade bracket, Theodore H. Klein and Frank H. Gillette, Cleveland, O., July 11.
- 46,559 Hand car, Thomas Falbot and Bruno Charron, Mattawa, Ont., July 11.
- 46,560 Process for the production of objects in relief or in intaglio, Mario Russo and Giovanni B. Zanardo, Rome, Italy, July 11.
- 46,561 Bicycle tire, William A.D. Graham, Owen Sound, and Arthur P. Jamieson, South Dumfries, Ont., July 11.
- 46,562 Variable crank, Charles H. Davids, Brooklyn and John Stewart, New York, N. Y., July 11.
- 46,563 Brake-shoe, The Union Brake Shoe Co., Selma, Ala., July 11.
- 46,564 Boots, the firm of Whitney & Brown, Montreal, Que., July 11.
- 46,565 Carrier, Bell & Son, St. George, Ont., July 11.
- 46,566 Tricycle, Moses Lalonde and Alexander McDougall, Ompah, Ont., July 11.
- 46,567 Fanning mill, Levi Slipper and George H. Slipper, Forest, Ont., July 11.

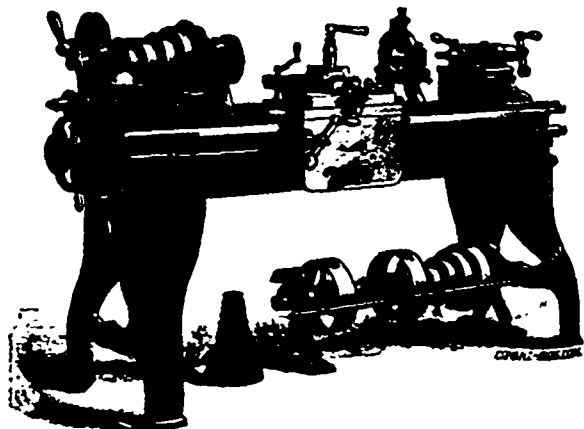
- 46,568 Horse hoe, The Cockshutt Plough Co., Brantford, Ont., July 11.
- 46,569 Cash register and indicator, Elmer S. Smith, Bound Brook, N. J., July 11.
- 46,570 Danger signal and lock for switches, George E. Edwards and William Hartwell, Brantford, Ont., July 11.
- 46,571 Lathe for making spools or bobbins, William McCrossan and John Paul, Paisley, County of Renfrew, Scotland, July 12.
- 46,572 Spike, James S. Palmer, Sherbrooke, Que., July 12.
- 46,573 Alternating current transformer, Frank H. Sleeper, Coaticook, Que., July 12.
- 46,574 Bust former, Natalie Schnell, San Francisco, Cal., July 12.
- 46,575 Art of covering insulated wire, Thomas W. Norman, Boston, Mass., July 12.
- 46,576 Fire extinguisher, Martin Wielandt, Berlin, Kingdom of Prussia, July 12.
- 46,577 Means of joining the edges of sheet metal, Frank A. Williams, Church Road, Albrighton, County of Salop, Eng., July 12.
- 46,578 Cloth measuring and stretching machine, Robert U. Irwin, and Henry Dixon, Shelburne, Ont., July 12.
- 46,579 Adjustable reflector, Peter W. A. Paasch, Hamburg, Germany, July 12.
- 46,580 Hydraulic apparatus for transferring hydrocarbon oil between tanks or ships, William Bucknell, Aspra, Sabina, Kingdom of Italy, July 12.
- 46,581 Portable engine, William Drain, Prince Albert, N.W.T., July 14.
- 46,582 Tailor's measure, Paul Ogulnik, Montreal, Que., July 14.
- 46,583 Machine for producing type matrices, Charles Meray-Horvath, Arad, Hungary, July 14.
- 46,584 Method of manufacturing lined taps for mineral water syphons and seltzogenes, Henry J. Nicole, London, Eng., July 14.
- 46,585 Treatment of ores, Henry L. Sulman, London, Eng., July 14.
- 46,586 Method of and machine for finishing cloth, William Heddon, Boston, Mass., July 14.
- 46,587 Hose coupling, Jules Doster, Montreal, Que., July 14.

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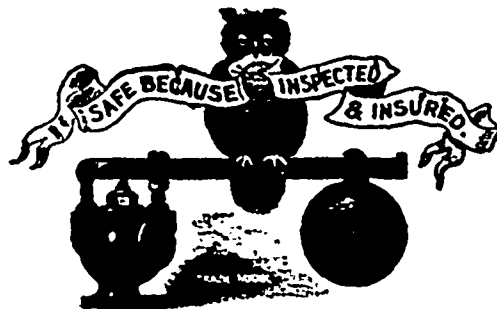
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- 46,588 Washing machine, Lars Grondahl, Red Wing, Minn., July 14.
- 46,589 Button hole attachment, Herbert S. Cawthorn, New York, N. Y., July 14.
- 46,590 Medicinal compound, John M. McLeod, Goderich, Ont., July 14.
- 46,591 Swing, Reuben A. Shorey and George E. Shorey, Fairfield, Me., July 16.
- 46,592 Prof'ess, Lorenzo Julia-Y-Ping, Guayaquil, Ecuador, South America, July 16.
- 46,593 Track laying machine, Thomas W. Paterson, Victoria, B.C., July 16.
- 46,594 Kitchen cabinet, Minnie S. Thomas, Waterville, Wash., July 16.
- 46,595 Stove pipe joint, Frank R. Braman, Saltloville, Ind., July 16.
- 46,599 Multiple gearing, William H. Bright, Washington, O., July 16.
- 46,597 Angle cock for trains, Isaac Dryell, St. Thomas, Ont., July 16.
- 46,598 Driving mechanism for machinery, Francis H. Crafts, Buffalo, N.Y., July 16.
- 46,599 Incubator, George Ertel, Quincy, Ill., July 16.
- 46,600 Thermostatic regulator for incubators, George Ertel, Quincy Ill., July 17.
- 46,601 Straw cutter, Auguste Voisine, St. Paschal, Que., July 17.
- 46,602 Nut lock, James Walsh, fr., Philadelphia, Pa., July 17.
- 46,603 Check rein attachment, Thomas C. Maggs, Detroit, Mich., July 17.
- 46,604 Furnace grate, Charles Thackeray, Montreal, Que., July 17.
- 46,605 Metallic crook for stone boats, William Allen, Greenwich, N. Y., July 17.
- 46,606 Drill, John W. McGivern and George P. Clapp, Montreal, Que., July 18.
- 46,607 Dynamo electric machine, The Canadian General Electric Co., Toronto, Ont., July 18.
- 46,608 Electric heater, The Consolidated Car Heating Co., Albany, N.Y., July 18.
- 46,609 Wire fabric, The White Mfg. Co., Minneapolis, Minn., July 18.
- 46,610 Snatch block, Squire J. Randall and Patrick A. Allen, Vancouver, B.C., July 18.

- 46,611 Conveying apparatus, Thomas S. Miller, South Orange, N.J., July 18.
- 46,612 Pipe, Edwin Barron, London, Eng., July 18.
- 46,613 Sewing machine, Oliver Bellefeuille, Montreal, Que., July 18.
- 46,614 Plough coulter, Charles A. Wren, Coral, Me., July 18.
- 46,615 Hinge, Alfred A. Oat, Sr., Philadelphia, Pa., July 18.
- 46,616 Pipe coupler, Thomas W. Moran, Louisville, Ky., July 18.
- 46,617 Curd mill, Arthur Stafford, Lancaster, Ont., July 18.
- 46,618 Feed trough, Jared G. Davis, Lee, Mass., July 18.
- 46,619 Attachment for school desks, Josiah C. Gooding, Covington, Ind., July 18.
- 46,620 Apparatus for distilling and gasifying hydrocarbon oil, Edwin Tatham, Lewisham, Kent, Eng., July 18.
- 46,621 Production of nitric acid, caustic, alkali and ferric oxide, Dr George Lunge, Zurich, Switzerland, and Farnham M Lytle, London, Eng, July 19.
- 46,622 Production of caustic alkali and chloride of lead for conversion into chlorine and refined lead, Farnham M. Lytle, London, Eng., and Dr. George Lunge, Zurich, Switzerland, July 19.
- 46,623 Dish washer, Walter C. Ellis, Picton, Ont., July 19.

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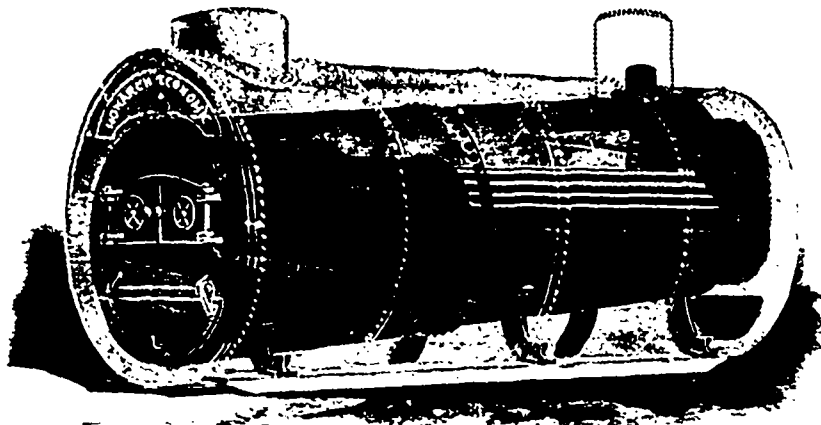
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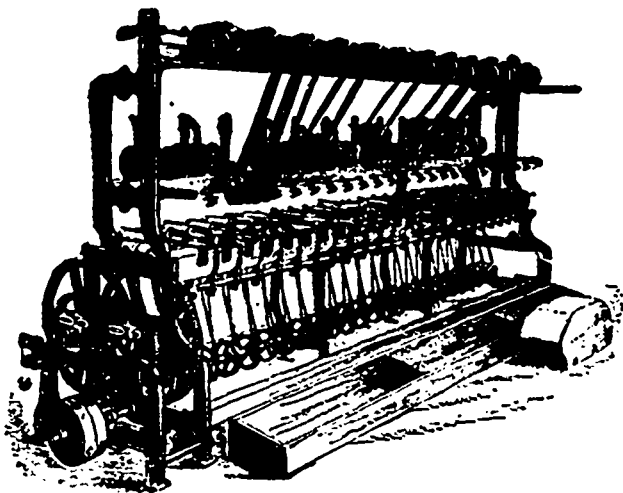
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STANDARD EMERY WHEEL CO., ALBANY, N. Y.

- 46,624 Clothes washing machine, Walter C. Ellis, Picton, Ont., July 19.
- 46,625 Method of treating lead ore, Ambrose G. Fell, New York, N. Y., July 19.
- 46,626 Flier for spinning, The John Good and Machine Co., Jersey, N. J., July 19.
- 46,627 Pulp strainer, David N. Bertram, Edinburgh, Scotland, July 20.
- 46,628 Lamp chimney cleaner, Peter Teeple, Watertown, N. Y., July 20.
- 46,629 Method of separating metals from ores, Edward R. Besemfelder, Breslau, Silisia, Germany, July 20.
- 46,630 Process of extracting gold and silver, John C. Montgomerie, Dalmore, Stair, County of Ayre, Scotland, July 20.
- 46,631 Length indicator, James W. Woods and David T. Barnett, Toronto, Ont., July 20.
- 46,632 Artificial stone, Pierre A. Moreau, Meung-sur-Loire, France, July 20.
- 46,633 Sprayer, Albert G. Provine, Puyallup, Wash., July 20.
- 46,634 Filter, Hugo Kohl, Euskirchen, Prussia, July 20.

- 46,635 Washing machine, Peter Neukirchen, Chicago, Ill., July 20.
- 46,636 Safety mining lamp, Hugo Wolff, Karlsruhe, Germany, July 20.
- 46,637 Letter file, The Eclipse Office Furniture Co., Ottawa, Ont., July 24.
- 46,638 Combined truck and bag holder, Edward Snell, Kalamazoo, Mich., July 24.
- 46,639 Chin check, Thomas Raymond, Walla Walla, Wash., July 24.
- 46,640 Harness pad, Edward Murby, St. Louis, Mo., July 24.
- 46,641 Pneumatic tire, J. B. Dunlop and J. B. Dunlop, Jr., Blackrock, Ireland, July 24.
- 46,642 Pattern for casting pipe, Henry Henderson and Louis J. Kennigott, Buffalo, N. Y., July 24.
- 46,643 Valve for air brake, Nathaniel B. K. Hoffman, New York, N. Y., July 24.
- 46,644 Metallic shingle, The Metallic Roofing Co., Toronto, Ont., July 25.
- 46,645 Harness, Agula M. Darr and Scott F. Keller, Monticello, Ill., July 25.

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|--|---|
| <p>46,646 Saw guard, Louis Corbeille, Francois H. Cote and Fred Krause, Everett, Wash., July 25.</p> <p>46,647 Water heater and purifier, George E. Hudson, George Sanderson and William J. Baker, Scarborough, England, July 25.</p> <p>46,648 Feed water heater, &c., James E. Crawley, and Thomas F. McGregor, Milwaukee, Wis., July 25.</p> <p>46,649 Double matching and cutting knife, Paul F. Bolton, Trenton, Ont., July 25.</p> <p>46,650 Car fender, Duncan S. Marcorquodale, Toronto, Ont., July 26.</p> <p>46,651 Carpet beater, Charles S. Chaffee, Alvin S. Hoffman, and Frank A. Green, Birmingham, Conn., July 25.</p> | <p>46,652 Clothes drier, Cyrus F. Rich, Saratoga Springs, N. Y., July 25.</p> <p>46,653 Wire stretcher, Joseph C. Duguay, Baie du Febvre, Que., July 25.</p> <p>46,654 Horse power machine, Joseph Casgrain, Montreal, Que., July 25.</p> <p>46,655 Steam motor or pump, Charles E. Beaumont, George P. Wallington, London, and Laurence A. Wallington, Clapham Common, Surrey, Eng., July 25.</p> <p>46,656 Waterproof garment, John W. Orr, Cortland, N. Y., July 25.</p> <p>46,657 Wagon jack, Charles H. Dwelly, Hanover, Mass., July 25.</p> |
|--|---|

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- 46,659 Electric railway, Charles D. Jenney, Center Township, Ind., July 25.
- 46,660 Wire rolling mill, Henry A. Williams, Boston, Mass., July 25.
- 46,661 Wagon, Charles W. Robinson, Reed City, Mich., July 26.
- 46,662 Order book, Samuel Shoup, Clifton Heights, Pa., July 26.
- 46,663 Wrench, James A. Lowe, North Branch, N.J., July 26.
- 46,664 Lamp chimney, Walter E. Mayo, Chicago, Ill., July 26.
- 46,665 Apparatus for treating disease, Emory J. Godman, Baltimore, Ind., July 26.
- 46,666 Apparatus for producing paper stock, Sidney W. Rowell, Albany, N.Y., July 26.
- 46,667 Tool holder, Henry V. Smith, Hartford, Conn., July 26.
- 46,668 Combined wrench and rod vise, John W. Wulff, Blair, Neb., July 26.
- 46,669 Rake head, William R. Jenkins, Bellefonte, Pa., July 26.
- 46,670 Electric heating device, Joseph A.G. Trudeau, Ottawa, Ont., July 26.

- 46,671 Pneumatic tire, Andrew C. Davidson, Yarmouth, Ont., July 26.
- 46,672 Fish line reel, Nelson H. McGregor and Cornelius Wheeler, Milwaukee, Wis., July 27.
- 46,673 Manufacture of nickel and cobalt, Pierre Manhes and the Societe Anonyme de Metallurgie du Cuivre, Lyon, France, July 27.
- 46,674 Tobacco pipe, Samuel D. Mott, Passaic, N.J., and Detlef C. Reusch, New York, N.Y., July 27.
- 46,675 Rim for bicycle wheels, The Raleigh Cycle Co., Nottingham, Eng., July 27.
- 46,676 Toy, Elmo F. Kellum, and Levi B. Kellum, Cripple Creek, Col., and Nathan A. Kellum, Missoula, Mont., July 27.
- 46,677 Process of treating fibrous vegetables, Henry C. Fellowes and William R. Crozier, London, and Henry Ferguson, Leytonstone, Essex, Eng., July 27.
- 46,678 Gear for vehicles, William Kyle, Brockville, Ont., July 27.
- 46,679 Car coupler, Levi Moore, Baraboo, Wis., July 27.
- 46,680 Whiffletree, Philemon C. Heath, Taleville, N.Y., July 27.
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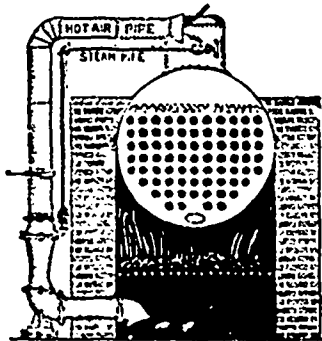
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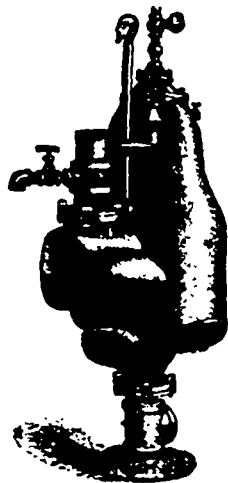
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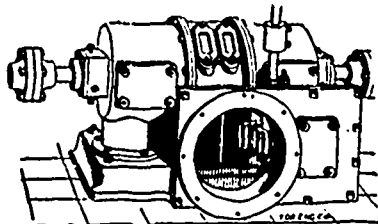
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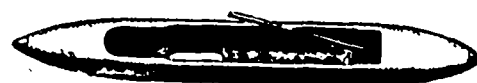
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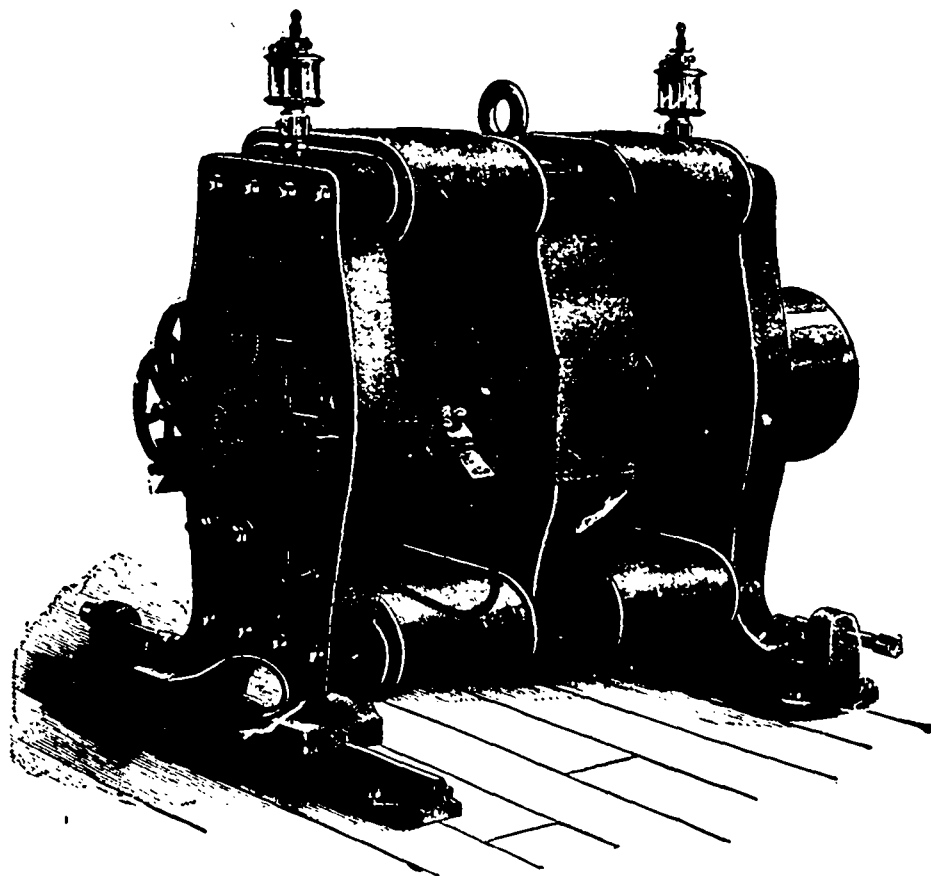
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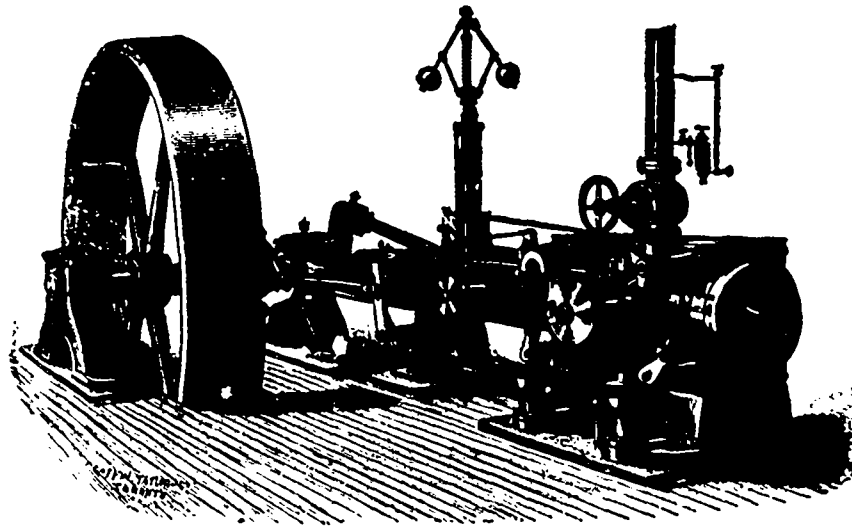
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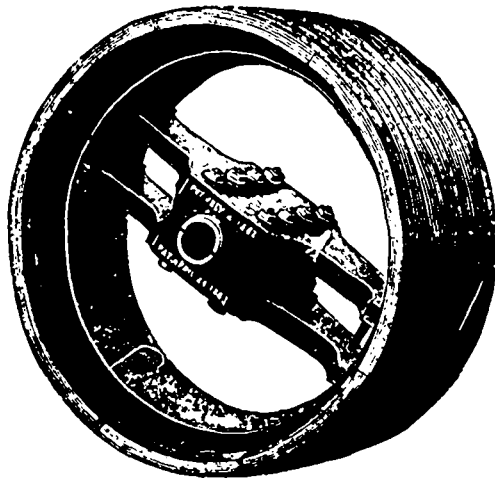
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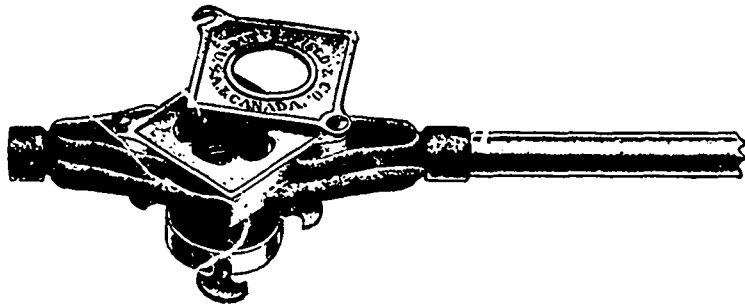
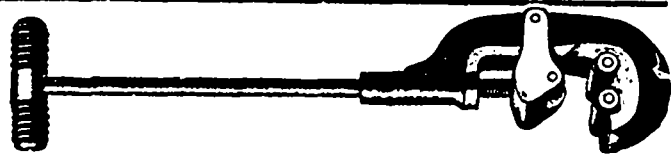
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1 1/2	1 1/2	5.94	"	3 1/4	3 1/2	26.60	"
1 3/4	1 1/2	7.46	"	3 1/2	3 5/8	30.94	"
2	1 1/2	9.83	4 cts.	4	4	42.33	5 cts.
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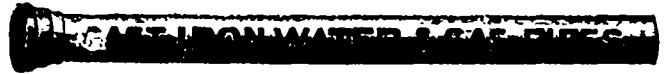
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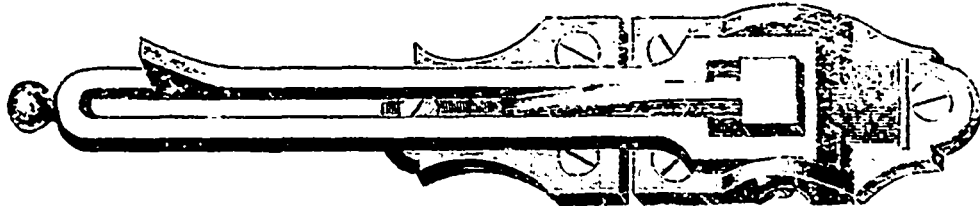
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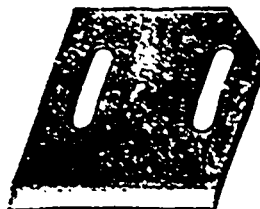
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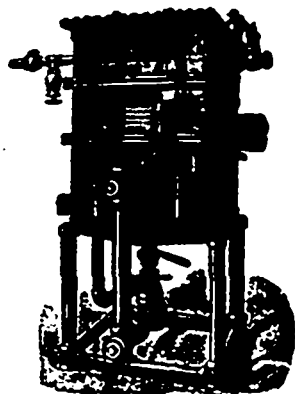
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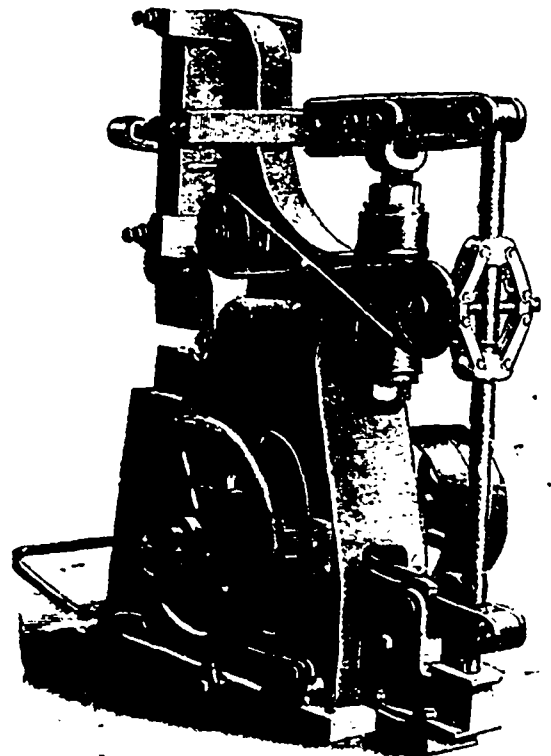
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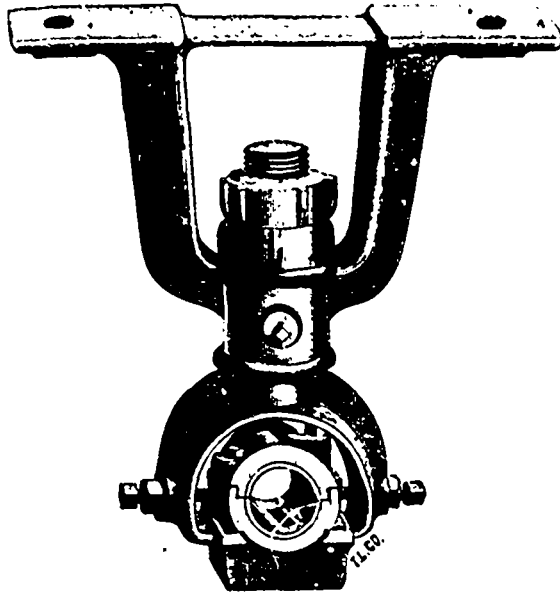
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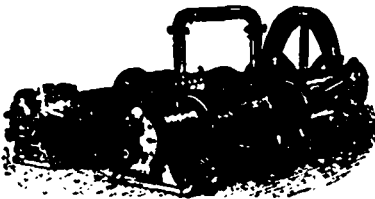
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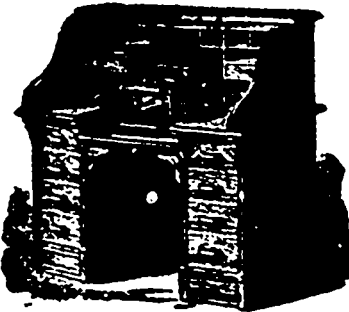
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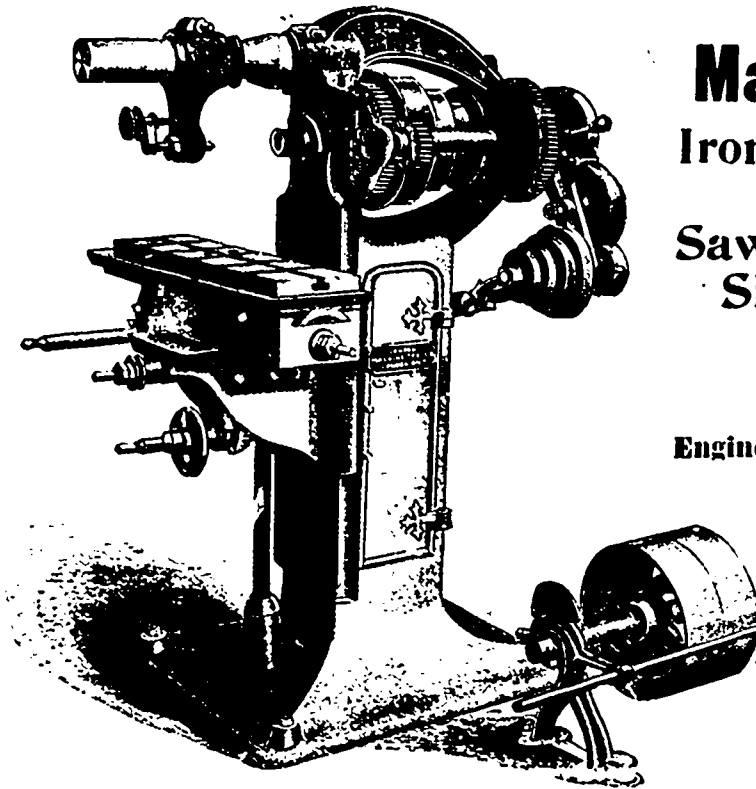
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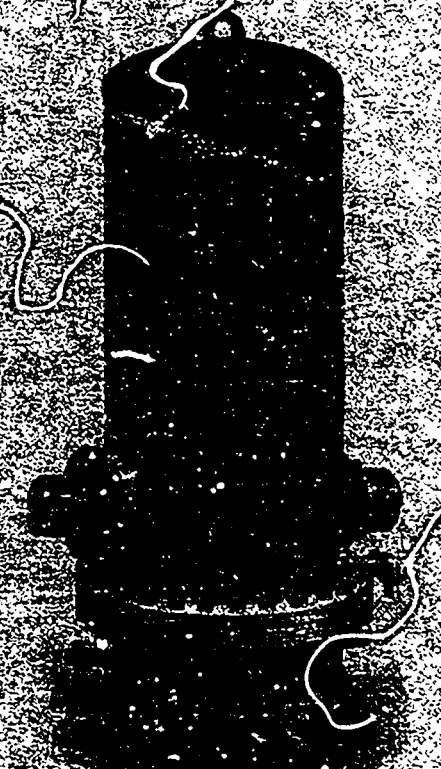
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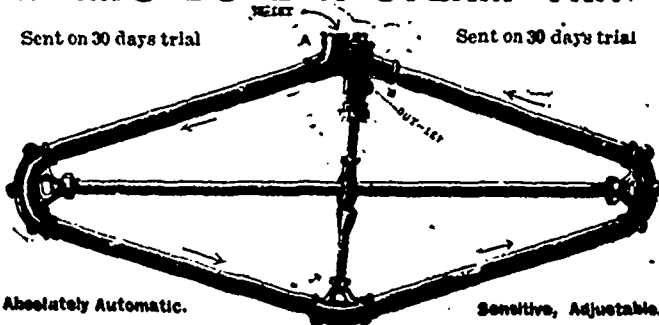
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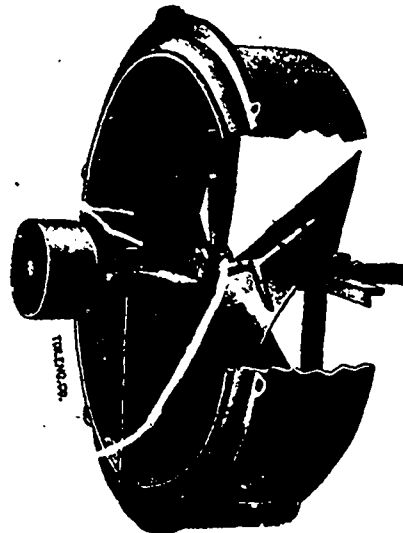
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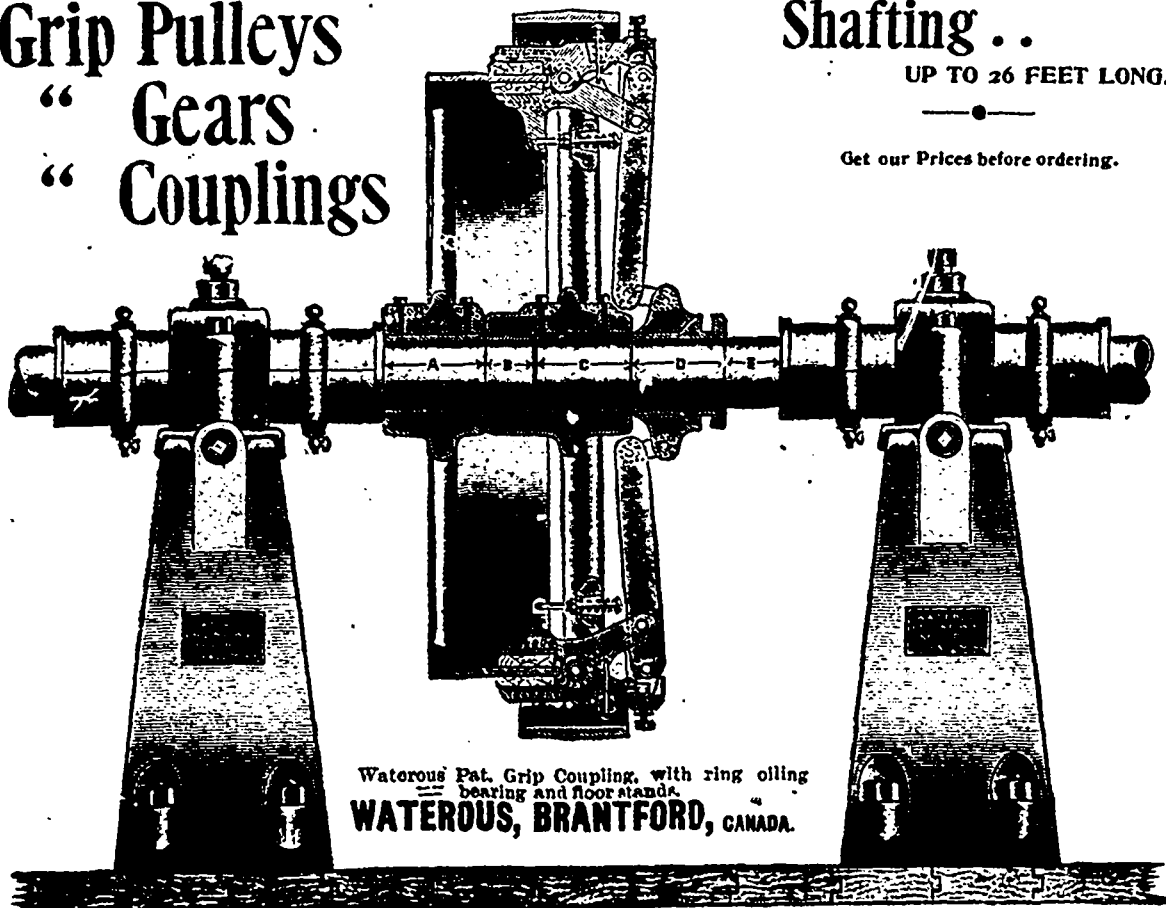
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