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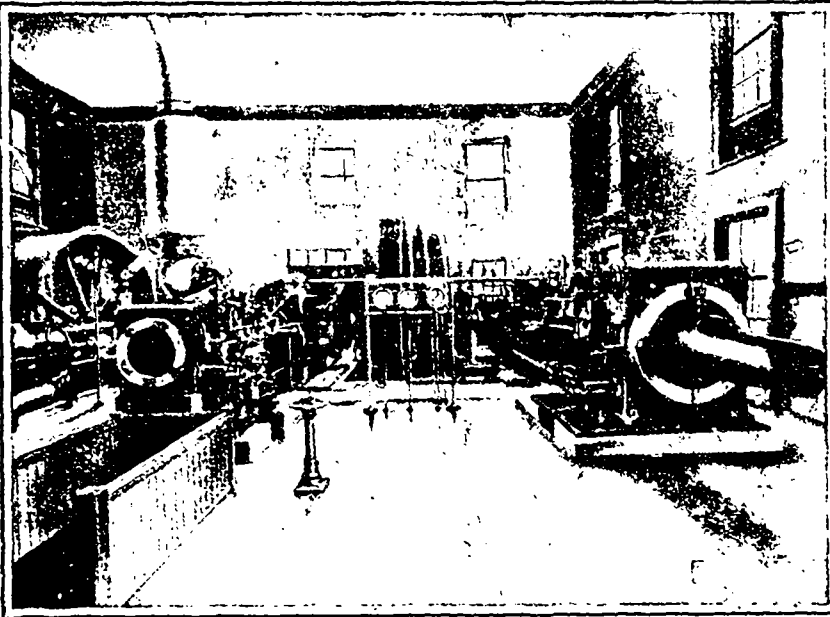
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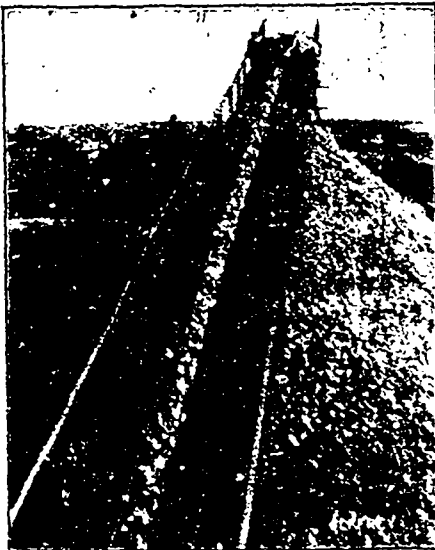
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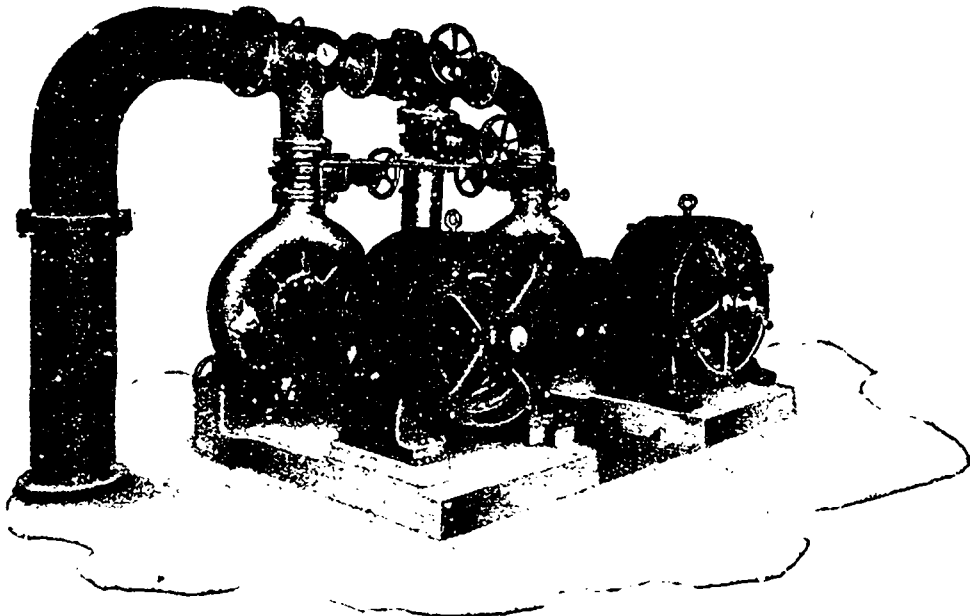
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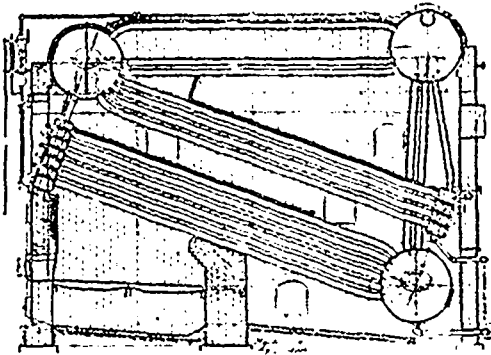
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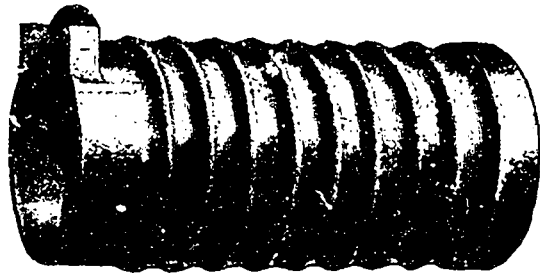
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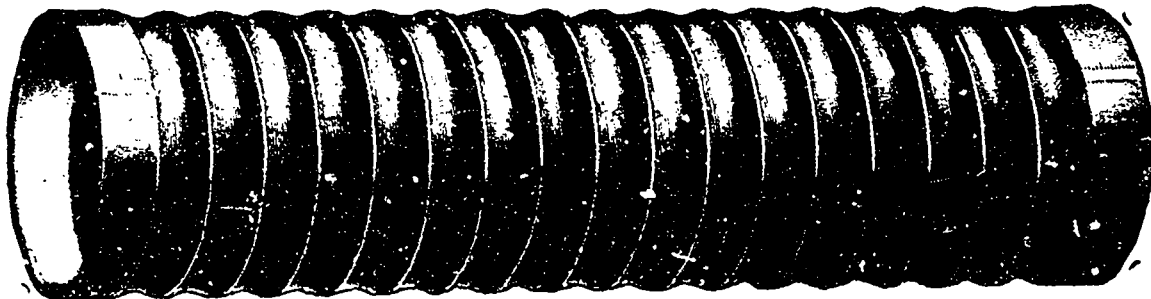


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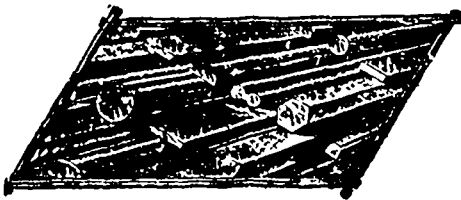
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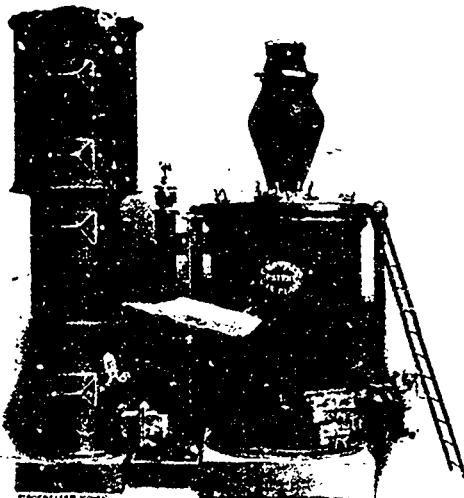
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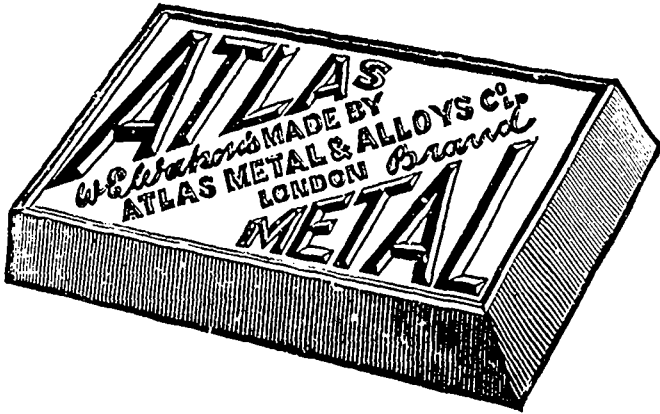
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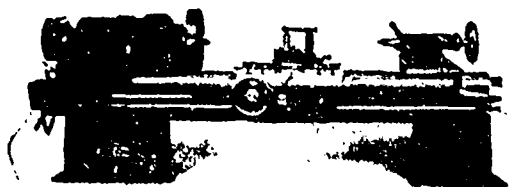
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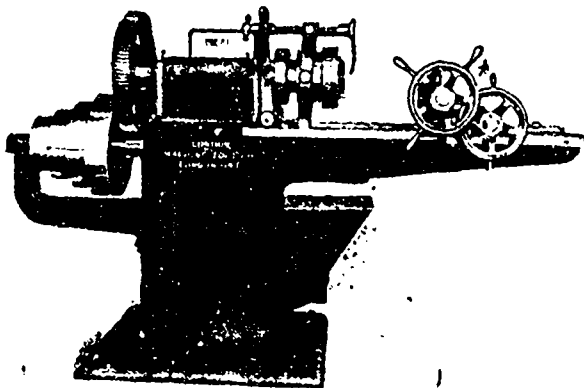
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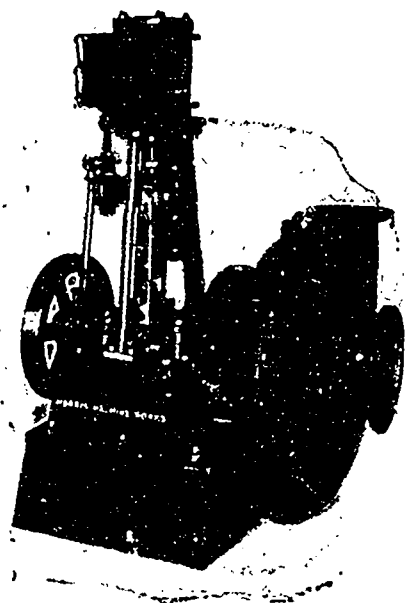
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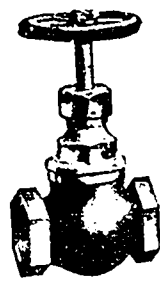
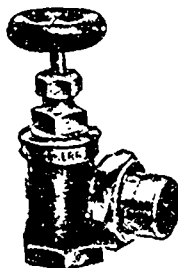
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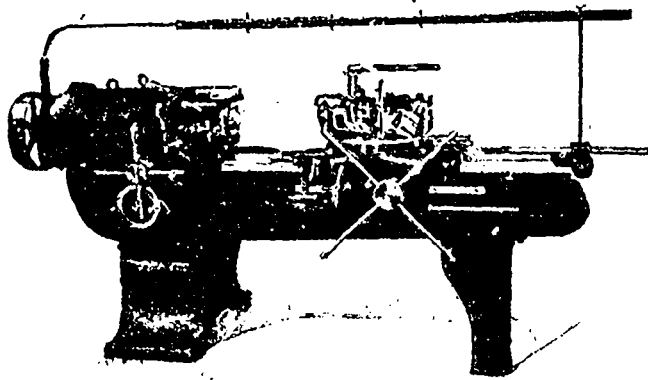
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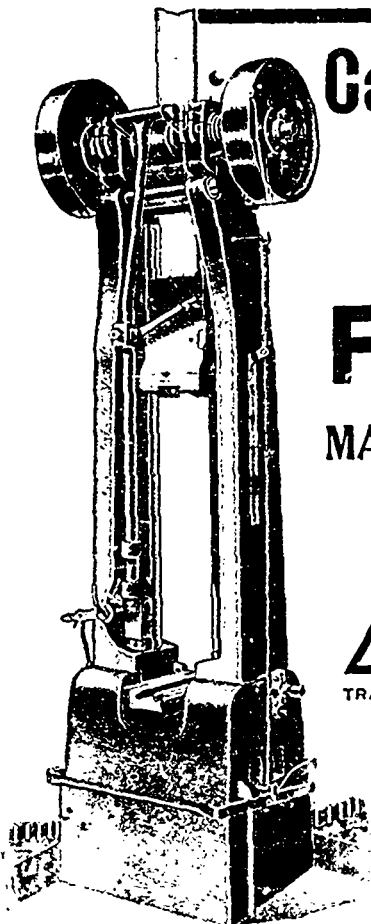
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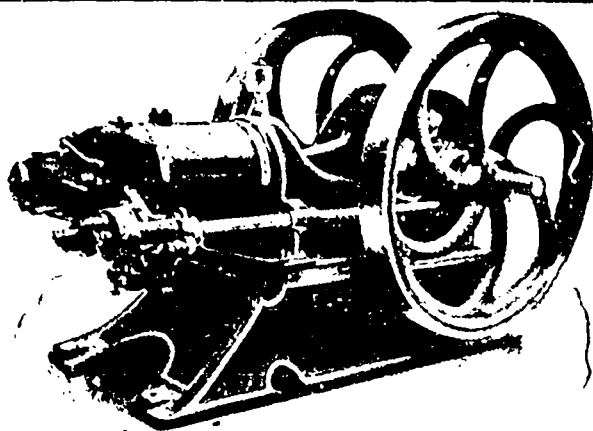
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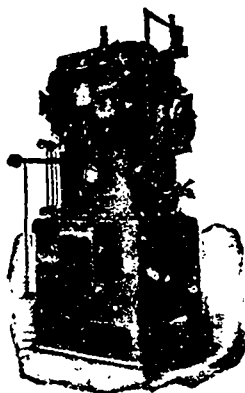
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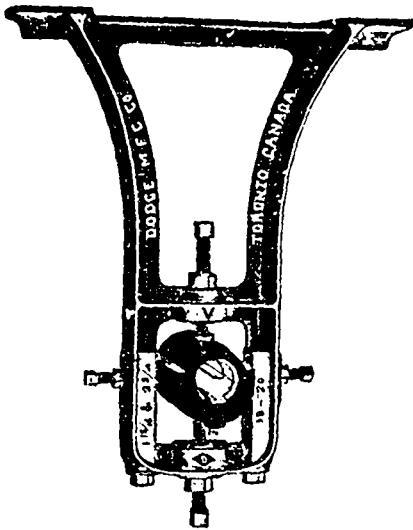
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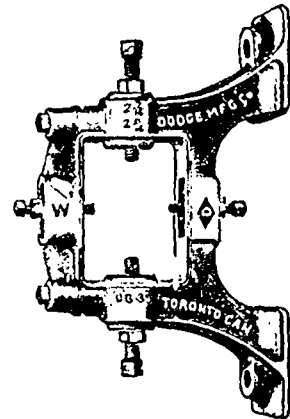
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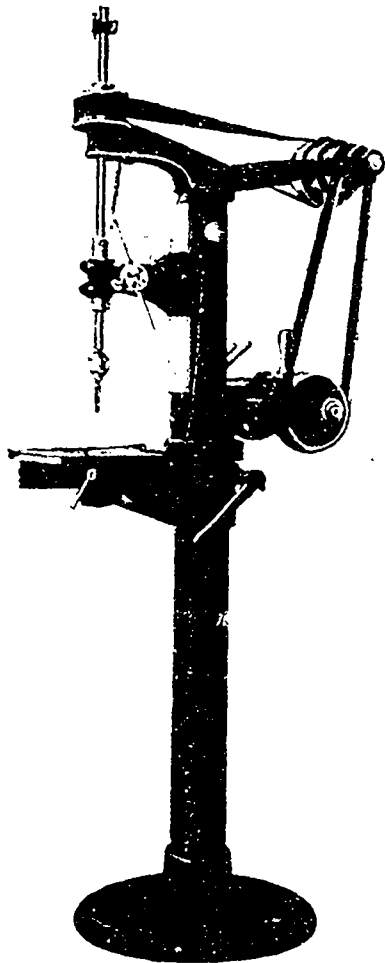
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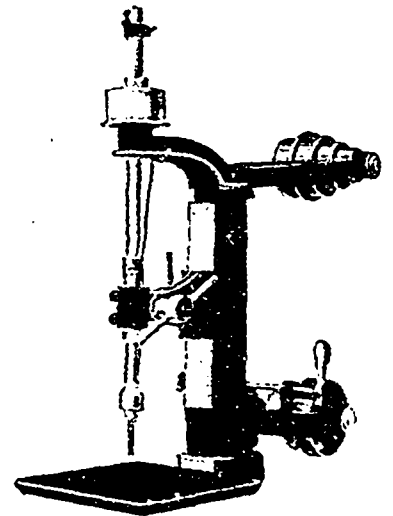


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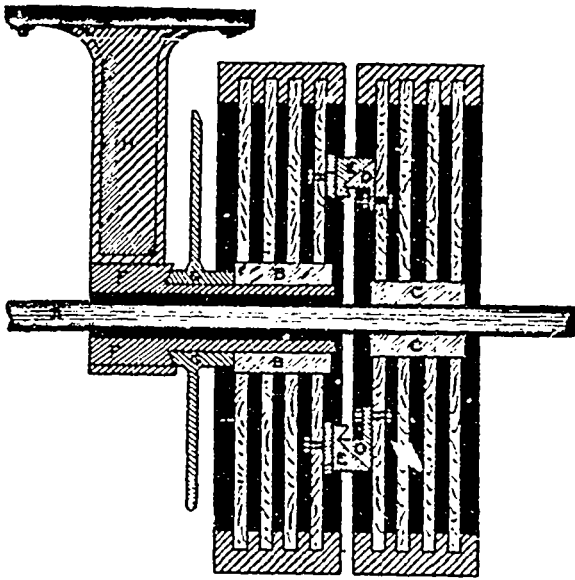
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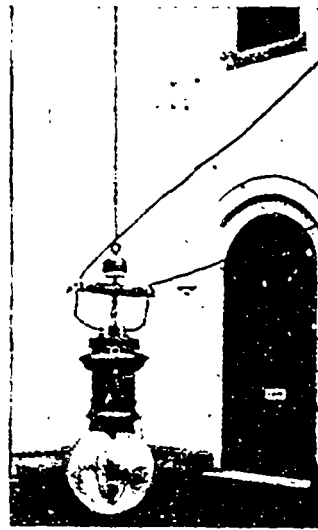
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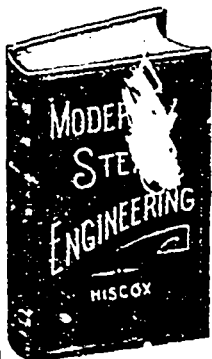
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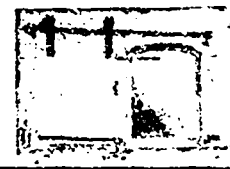
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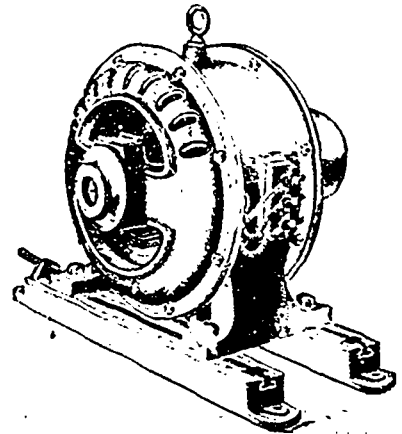
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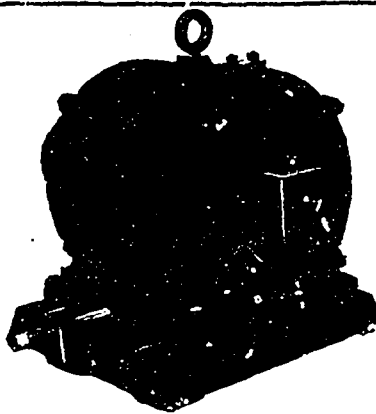
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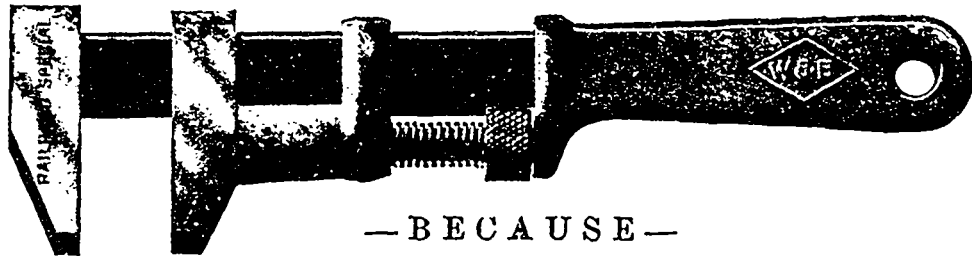
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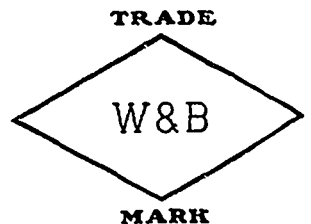
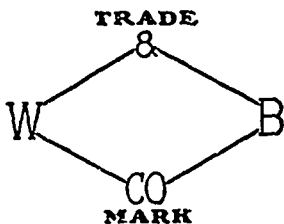
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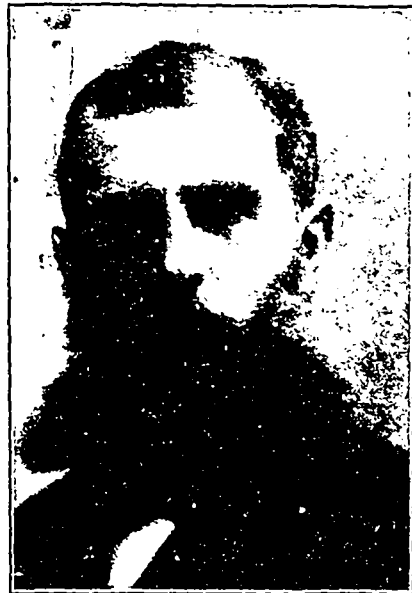
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The American Foundrymen's Association Convention.

At Toronto, June 8 to 13, 1908.

From all parts of America foundrymen and foundry foremen as well as representatives of foundry supply houses, will gather in Toronto, the Convention City of Canada, for the convention of the American Foundrymen's Association, the American Brass Founder's Association, the Associated Foundry Foremen, and Foundry Supply Association, and to examine the displays of foundry equipment and materials made by the members of the latter association.

Already the work of installing exhibits in Machinery Hall and the Process Building at the Toronto Industrial Exhibition grounds



DR. RICHARD MOLDENKE.

Secretary of the American Foundrymen's Association.

is well under way and from present indications this exhibit of foundry equipment will be such as has never been seen in Canada before and as is not likely to be seen here for years to come.

At the same time the preparation for the convention, i.e., the arrangements for papers by men taking foremost place in foundry and metallurgical practice and the planning of entertainment has been carried out by the committees in charge so thoroughly and on such a comprehensive scale that the meetings are bound to be of great interest and profit to all visiting foundrymen from both Canada and the United States.

Already the Baillet cupola, which Mr. Jules de Clercy, Montreal, proposes to operate, has been installed. This cupola is sure to be a centre of attraction, as iron will be melted and poured every day. It will be located in the temporary building, where visitors will also find the oil melting furnaces and the core ovens.

This melting installation is of special interest, on account of the fact that it is

planned to run for an hour or two in the morning, to shut the cupola down until after lunch without dropping the bottom, and then to continue melting iron for another two hours.

A plant of this kind demonstrating twice daily will be the Mecca for many manufacturers who desire a small amount of iron at intervals throughout the entire day to take care of the output of the new varieties of molding machines, which fill up the floor so rapidly that with the system now in general use of pouring all the molds late in the afternoon, the men have to carry the product of the machine a long way to fill the floor or else the machine must stand idle a considerable portion of the time. All foundrymen will appreciate the great economy of labor in pouring the molds continuously. A small cupola which can be run for the entire day giving a steady output of hot metal is something, which has long been desired; then, too, the advantage of being able to shut down during the noon hour, or any desired period is a point not to be overlooked.

FURNACES.

Other melting exhibits will be the well known tilting crucible furnaces made by the Monarch Engineering & Mfg. Co., Baltimore, Md., the double-chamber furnaces of the Rockwell Engineering Co., New York City, the Schwartz furnaces shown by the Hawley Down Draft Furnace Co., Chicago, Ill., and the gyrating flame stationary crucible furnaces shown by Kroeschell Bros. Co., Chicago, Ill.

THE MOLDING MACHINES.

There will be ample demand for the molten iron too. In Machinery Hall will be exhibits of eight or ten molding machines, also core making exhibits by two firms, and possibly more, while two molding machines will be found in the Process Building. The molds made on these machines will be poured with metal from the cupola.

The molding machine exhibits in Machinery Hall thus far arranged for, in the order in which they are located in the building, beginning at the southeast corner, include the J. W. Paxson Co., the Arcade Mfg. Co., the Killing Molding Machine Co., the Berkshire Mfg. Co., Henry E. Pridmore, E. H. Mumford, who will also exhibit the French molding machines made by Ph. Bonvillien and E. Rozeceay, the Mitchell-Parks Mfg. Co., who, with their agents, A. Buch's Sons Co., and the Ontario Wind Engine Co., will show their gravity molding machines, the Tabor Mfg. Co., and the Herman Pneumatic Machine Co. All of these machines will be in operation.

The molding machines in the Process Building are the Reid molding machine shown by the Hamilton Facing Mill Co., and the Webb Molding Machine, shown by the Detroit Foundry Supply Co.

CORE MACHINES.

The core machines in Machinery Hall are those exhibited by George H. Wadsworth, of

the Falls Rivet & Machine Co., and the Diamond Clamp & Flask Co.

MOLDING SAND.

Procuring molding sand of suitable grade and then keeping the sand in condition are two difficulties which fall to the common lot of foundrymen. There will be two exhibits of machines designed to overcome these difficulties by mixing and tempering sand; one by the Standard Sand & Machine Co., and the other by E. H. Mumford Co. The latter will show one of the French Sand Mills, which has travelled from France especially to appear at this exhibit.

As has been the case in the last two exhibitions, the Chicago Pneumatic Tool Co.



MR. L. L. ANTIES, OF TORONTO.

Vice-President of the American Foundrymen's Association, and Convener of Local Committees.

will install a compressor which will furnish compressed air for those requiring it.

EXHIBITS IN ACTION.

The running exhibits, however, will not be confined entirely to molding machines, but will include a number of interesting devices of different character for economy of labor in the foundry. The Osborn Mfg. Co., Cleveland, Ohio, will have wire brushes in operation for cleaning castings made on the ground, while the Buffalo Forge Co., Buffalo, N.Y., will supply the exhaust fan for removing the dust. The fan for the cupola will be driven by a steam turbine furnished by the B. F. Sturtevant Co., Hyde Park, Mass. W. W. Sly Mfg. Co., Cleveland, Ohio, will show standard tumbling barrels and dust-arresting system. P. H. Baumgardner will have a core-room in full operation, and using the product of the Holland Linseed Oil Co., Chicago, Ill. In the Process Building will be installed several gas engines of recent design. The increasing use of gas power will make this exhibit of particular interest.

The A.F.A. Convention Programme.

TUESDAY, JUNE 9, 2 P.M. OPENING SESSION.

Address of welcome by His Worship, Mayor Oliver, of Toronto.

Response by President Stanley G. Flagg, jr., of the American Foundrymen's Association; Mr. Chas. J. Caley, President American Brass Founders' Association; Mr. E. H. Mumford, President The Foundry Supply Association, and Mr. Chas. Webb, President Associated Foundry Foremen.

Presidential address. Secretary-treasurer's report.

Formal opening of the Exhibition by His Worship the Mayor, and procession through the buildings.

TUESDAY EVENING, 8.30 P.M.

Reception of the delegates by His Worship the Mayor, the City Council and civic officials, at the City Hall. This reception will be purely informal and held in the beautiful City Hall, which will be suitably decorated for the occasion. Music and refreshments.

WEDNESDAY, JUNE 10, BUSINESS SESSION, 10 A.M.

The Exhibition will be closed during the early part of the session.

"Production of Automobile Cylinders," by L. M. Perrault, Waterbury, Conn.

"Automobile Cylinder Making," by F. W. Stickle, Hartford, Conn.

"Machine Molding," by E. H. Mumford, Philadelphia, Pa.

This group of papers will form part of a thorough discussion on molding machine practice to which practically the whole session will be devoted.

"Annealing Castings," by W. M. Carr, Chester, Pa.

"Specifications for Castings to be Machined," by H. E. Diller, Chicago, Ill.

WEDNESDAY AFTERNOON, 2 P.M. BUSINESS SESSION.

"Prevention of Accidents in the Foundry," by Thos. D. West, Sharpsville Pa.

"Core Sands and Mixtures," by Archie M. Loudon, Elmira, N.Y.

"Ferroy-Alloys in the Foundry," by W. M. Saunders, Providence, R.I.

"Titanium in Cast Iron," by Dr. R. Moldenke, Watchung, N.J.

"Foundry Warehouse Methods," by F. C. Everitt, Trenton, N.J.

"Patternmaking for the Specialty Shop," by H. M. Lane, Cleveland, O.

"Foundry Transportation Methods," by David Goehr, Cleveland, O.

"Oxy. Acetylene Welding of Castings," by G. H. Taylor, Philadelphia, Pa.

"Further Notes on the Application of Thermit," by N. E. Olds, Toronto.

WEDNESDAY EVENING.

Moonlight excursion by invitation of the Canadian Manufacturers' Association. Steamer leaves foot of Yonge Street at 8.30 p.m. for a trip around Toronto Bay and Lake Ontario.

THURSDAY, JUNE 11. 10 A.M. BUSINESS SESSION.

The Exhibition will be closed during the early part of this session.

"Cupola-Thermics," by S. H. Stupakoff, Pittsburgh, Pa.

"Further Notes on Sandless Castings," by V. B. Lamb, New Haven, Conn.

"Chemical Reactions in Foundry Cupola Practice," by Jules de Clercy, Montreal.

This group of papers will form part of a discussion on cupola practice and will embrace such points as the use of bearings in the cupola, radiator core-clamping molds, sea coal facings, castings for mine water, and the like.

THURSDAY AFTERNOON, 2 P.M. BUSINESS SESSION.

"Shop Management," by H. F. J. Porter, New York.

"Foundry Waste," by Harrington Emerson, New York.

"Report of the Committee on Costs of the American Foundrymen's Association," by Kenneth Falconer, Chairman, Montreal.

"The Development of a Cost System for the Foundry," by E. M. Taylor, New York Member of Cost Committee. The above report and papers form a group relating to costs in the Foundry discussion.

"The Winona Technical Institute," by Prof. E. A. Johnson, Indianapolis, Ind.

"By-Product Foundry Coke," by G. A. T. Long, Chicago, Ill.

"Coke Making in the United States," by Dr. R. Moldenke, Watchung, N.J.

This talk illustrated with the stereoptican views taken personally during an inspection of the industry last year.

THURSDAY EVENING.

Trolley ride to Scarborough Beach.

FRIDAY, JUNE 12, 10 A.M. BUSINESS SESSION.

"Report of the Committee on Industrial Education," by P. Kreuzpointner, Chairman. General discussion of the subject.

Unfinished business. New business. Election of officers. Adjournment.

FRIDAY AFTERNOON.

Visit to plants.

FRIDAY EVENING.

Smoker: Mutual Street Rink.

Ample provision has been made for the entertainment of the ladies each afternoon and evening during the convention.

Summary of Exhibitors.

From The Foundry.

Arcade Mfg. Co., Freeport, Ill.—Three new types of molding machines will be shown in operation by this concern, including a large automatic machine which was recently introduced to the foundry trade; two styles of rock-over machines and a No. 3 "Modern" machine.

Baird & West, Detroit.—This concern will furnish Solvay process coke for the cupola.

Ballou's White Sand Co., Millington, Ill. Various grades of foundry sands mined and prepared by this concern will be shown in the booth of the Hamilton Facing Mill Co., Hamilton, Ont. This will include natural magnesia core sand, white, washed silica furnace sand, fire and silica molding sand, sand blast, silica core, steel casting and yellow silica sand. The natural magnesia core sand will be shown in actual use in the booth of the Falls Rivet & Machine Co., as well as in the exhibit of the Diamond Clamp & Flask Co.

Berkshire Mfg. Co., Cleveland.—Automatic molding machines will be shown in operation, including the Berkshire improved machine. Patterns of different kinds will be mounted to demonstrate the adaptability of this machine to various classes of work.

Buch's, A., Sons Co., Elizabethtown, Pa.—No. 2 gravity molding machine, which will be shown in operation, demonstrating the various classes of work to which this machine is adapted, and various patterns will be mounted.

Buffalo Forge Co., Buffalo.—The exhaust fan that will remove the dust from the polishing wheels in the exhibit of the Osborn Mfg. Co., will be furnished by this concern.

Calumet Engineering Co., Harvey, Ill.—The Calumet cupola will be shown as well as other foundry equipment, including ladles, tumbling mills, etc.

Canadian Gas Power & Launches, Limited, Toronto.—Gas engines for driving a Crocker-Wheeler generator for furnishing current to the exhibitors.

Canadian Machinery, Toronto. Carborundum Co., Niagara Falls, N.Y.—Grinding wheels and abrasive material. Castings, Cleveland.

Clercy, J. De, Montreal.—The ballot cupola, which will supply iron to the molding machine exhibitors, will be furnished by this concern. The cupola will be supplied with blast from a steam turbine driven Sturtevant blower set.

Cleveland Tumbling Barrel & Mfg. Co., Cleveland.—The tumbling mills made by this concern will be exhibited by the J. S. McCormick Co., Pittsburg, Pa.

Cleveland Wire Spring Co., Cleveland.—This exhibit will consist of steel boxes, barrels, barrel trucks, core trays, shop stools, shelving, etc., for foundry use.

Detroit Foundry Supply Co., Detroit.—Molding machines, which will be shown in operation and a full line of foundry supplies.

Detroit Testing Laboratory, Detroit.—The booth of this concern will be placed at the disposal of visiting foundrymen. A testing machine and several other pieces of apparatus used by chemists and engineers will also be exhibited.

Dixon, Jos., Crucible Co., Jersey City, N.J. Brass and steel foundry crucibles. Pots that have been used for a large number of heats will also be shown.

Dominion Foundry Supply Co., Montreal. All kinds of foundry supplies made by the S. Obermayer Co., Cincinnati.

Falls Rivet & Machine Co., Cuyahoga Falls, Ohio.—Full line of core machines, core cutting-off and coning machines, core oven and other foundry equipment.

Foundry, The, Cleveland. Foundry Specialty Co., Cincinnati.—In this exhibit will be shown "Fluxine" and "Partine," two of the foundry products made by this concern. The former is used as a flux for non-ferrous metals and "Partine" is a parting compound.

Fox Machine Co., Grand Rapids, Mich.—This exhibit will contain a complete line of pattern shop equipment, including wood trimmers and a new core box machine.

Goldschmidt Thermit Co., New York.—Titanium-thermit cans for purifying molten iron and steel and semi-steel cans for reviving dull iron and melting steel borings in gray iron for the purpose of making semi-steel castings. Appliances will also be shown for welding wrought iron and steel sections, butt-welding pipe and repairing castings. Pure metals produced by the aluminio-thermic process, such as manganese, chromium, molybdenum free from carbon, and manganese copper free from iron, ferro-vanadium, manganese-zinc, ferro-titanium, ferro-boron, will also be shown.

Gregg Co., Cleveland.—Wire straightening and cutting-off machine.

Hamilton Facing Mill Co., Limited, Hamilton, Ont.—Foundry facings, plumbago, molding sand, pressure blower tumbling mills, sand sifters, core machines, core ovens and molding machines.

Hawley Down Draft Furnace Co., Chicago.—Complete line of Schwartz metal melting and refining furnaces in sizes ranging from 300 pounds per heat up to the large size, having a capacity of 12,000 pounds per heat. These furnaces will be shown in operation under pressure, but no metal will be melted. This exhibit will also contain a complete line of castings, brass, bronze, aluminum, iron and steel made by these furnaces by the various manufacturers throughout the country.

Herman Pneumatic Machine Co., Zelenople Pa.—A jarring molding machine, 21 1/2 inches, provided with a complete turn-over arrangements for drawing patterns, will be shown in operation. The machine is well adapted for jobbing foundry work and is of the plunger type.

Hill & Griffith Co., Cincinnati.—Complete line of foundry supplies and equipment.

Holden, N. J., Co., Limited, Montreal.—This concern, which is the Canadian sales agent for the Chicago Pneumatic Tool Co., Chicago, will install a Franklin air compressor to furnish compressed air to all of the exhibitors. Chipping, caulking and riveting hammers will be shown in operation, as well as a piston air drill.

Holland Linseed Oil Co., Chicago.—This concern will have a working exhibit and will make cores with Holland core oil in the mixture and will bake them in some of the ovens that will be shown. The cores will later be set into molds, which will be cast, giving

a practical demonstration of the qualities of this core oil.

Interstate Sand Co., Cleveland.—This concern will furnish the sand used by the molding machine exhibitors.

Killing's, E., Molding Machine Works, Davenport, Iowa.—This concern will operate three different sizes of its new roll-over straight drop molding machines; a stripping plate machine, roll-out machine, automatic flasks, steel jackets and a universal saw table.

Koppel, Arthur, Co., Pittsburg.—Industrial railway systems and industrial cars.

Kroeschell Bros Co., Chicago.—The Kroeschell-Schwartz gyrating flame crucible furnace for melting non-ferrous metals will be shown in operation.

Lindsay, W. W., Philadelphia.—Complete line of chaplets for foundry use.

A. B. F. CONVENTION.

PAPERS AND DISCUSSIONS.

- "The Value of Liquid Fuel in Brass Foundry Practice," W. N. Best.
- "The Efficiency of Brass Melting Furnaces," F. A. Coleman.
- "The Metallurgy of the Bronze Age in Europe," W. M. Corse.
- "Modern Appliances and Processes in Foundry Work," F. H. Dimock.
- "Quality versus Quantity," J. N. Gamble.
- "Prolonging the Life of a Crucible," Dudley A. Johnson.
- "The Outside versus the Inside Man," W. A. Porter.
- "The Electro-Chemical Cleaning of Metals and Its Application to Commercial Uses," Chas. H. Proctor.
- "Oil as Fuel," W. S. Quigley.
- "The Relation Between the Chemical and Physical Characteristics of Molding Sands," Dr. Heinrich Ries.

Mitchell-Parks Mfg. Co., St. Louis.—Gravity molding machine and other foundry equipment.

Monarch Engineering & Mfg. Co., Baltimore.—This concern will have a working exhibit and will operate a No. 6 Monarch low pressure blower, driven by a No. 8 h.p. electric motor. The other exhibits will include ladle heaters; Steele-Harvey crucible brass melting furnace; one improved lifting-out crucible type of furnace with a pipe attachment; one regular Steele-Harvey non-tilting furnace; one soft metal pot furnace for melting lead or tin; one rivet heating furnace, and a core oven heated by Monarch oil burners.

Mumford, E. H., Co., Philadelphia.—A French sand mill will be shown in operation, milling sand for foundry use; one R. 3 French molding machine with pump and accumulator will also be shown and demonstrations will be given of making French stripping plate patterns, as well as the Cliche patterns.

McCornick, J. S., Co., Pittsburg.—Exhaust tumbling barrels, Millett portable core oven, Farnham sand blast machine and a full line of foundry supplies. A bicycle consisting of foundry tools used by molders will also be displayed. A folding 3-foot rule will be

mailed to all foundrymen registering at this booth.

Northern Engineering Works, Detroit.—This booth will be decorated with photographs of a variety of Northern cranes, especially the three and four-motor electric travelling cranes, as well as photographs of the Newton cupola and various types of foundry ladles, core oven equipment, foundry elevators, tumbling barrels, electric hoists, etc.

Obermayer, S., Co., Cincinnati.—Foundry supplies and equipment. This booth will also contain the exhibit of the Dominion Foundry Supply Co., Montreal.

Ontario Wind Engine & Pump Co., Toronto.—Exhibit of the gravity molding machine.

Osborn Mfg. Co., Cleveland.—Wire brushes and other foundry supplies. Demonstrations of wire brushes cleaning castings will be made.

Paxson, J. W., Co., Philadelphia.—Samples of foundry supplies, wire and bristle brushes, riddles, bellows, rammers, tongs, wax tapers, clamps, chaplets, core brushes, patternmakers' supplies, etc. A magnetic metal separator that can be operated either by hand or power will be shown in operation, separating iron from brass turnings. Iron, brass and steel castings that have been thoroughly cleaned by the Paxson-Warren system will also be displayed. This exhibit will also contain a No. 3 Paxson fan blower, as well as a new plunger type of core machine in operation. Other features include aluminum pattern plates, knee pads, vibrators, blow valves, tub vibrators, pneumatic suction cleaners and a Paxson rock-over molding machine making stove plate.

Pridmore, Henry E., Chicago.—Molding machines in operation, including one small rock-over drop machine fitted up for molding pulleys; one large rock-over drop machine fitted up for molding tees; one plain rock-over machine fitted up for molding stove plate; one plain rock-over machine fitted up for molding hollow ware, and two square stand machines fitted up for molding gears.

Robeson Process Co., Au Sable Forks, N.Y.—Barrels of glutin will be shown and this binder will be used for making cores to demonstrate its qualities.

Rockwell Engineering Co., New York.—Double-chamber melting and tilting crucible furnaces, which will be operated with a fan blast at 12 ounces pressure.

Roots, P. H. & F. M., Co., Connersville, Ind.—Positive pressure foundry blowers.

Seidel, R. B., Philadelphia.—Brass and steel foundry crucibles.

Smith, J. D., Foundry Supply Co., Cleveland.—Stationary core oven equipped with five rolling drawers and one core car. The core oven will be erected on the grounds and will be shown in operation. Two new types of sand riddling machines will also be shown, as well as a molding and a sand blast machine.

Sly, W. W., Mfg. Co., Cleveland.—New gear cutter for pattern shop use, resin and cleaning mills, dust arrester, cinder mill, friction clutch pulley and other foundry equipment.

Standard Sand & Machine Co., Cleveland.—This exhibit will include one portable automatic mixing plant which can be used for mixing any kind of foundry sand, and is especially adapted for mixing loam. This

machine can also be used for mixing concrete and is built for heavy duty; one No. 4 standard, continuous mixer equipped with an oil heater and an oil meter, as well as a spraying attachment for mixing sand for oil cores; one No. 2 and one No. 0 batch mixers; one direct motor-driven, portable centrifugal mill for cutting over the sand on floors; one upright stationary sand mill; one stationary centrifugal mill, and one small centrifugal mill; one direct motor-driven foundry screen fitted with a lever for adjusting the pitch of the screen; and one section of a belt conveyor and other small parts of machines built by this concern.

Stevens, Frederick B., Detroit.—Complete line of foundry supplies.

Sturtevant, B. F., Co., Hyde Park, Mass.—The new turbine blower set made by this concern will furnish the blast for the French cupola, which will provide the iron for casting the molds made by the molding machine exhibitors. It is the intention of the exhibitors to operate the cupola in the morning, bank it for two hours at the lunch hour and then operate it again for two hours in the afternoon. This will give the visitors an opportunity of seeing the Sturtevant blower set in continuous operation for several hours and demonstrations will be given of starting

and stopping it at will with a minimum of attention. The turbine, as a means of driving the blower, is a new application of this device, and has many advantages, in view of the fact that no belts or gears will be required. The set that will be shown is direct connected. Another interesting feature connected with this exhibit will be the method of heating the air for the blast. The air supplied is drawn through a hollow shell surrounding the cupola just below the charging door. The blower, therefore, must handle air at a temperature far in excess of that ordinarily used. The fan blower will readily handle air at this temperature and the turbine is so constructed that the heat will not detract from its successful operation.

Taber Mfg. Co., Philadelphia.—The molding machine shown in operation will include a power squeezing vibration frame molding machine; power squeezing split pattern vibrating molding machine; hand ramming hinged machines in several sizes, and two new power squeezing hinged molding machines, and a power rolover pattern draft hinged machine.

Whiting Foundry Equipment Co., Harvey, Ill.—Cupolas, tumbling mills, cranes and a full line of other foundry equipment.

turers' Association, the elected representatives of the clay-working industry in the Dominion of Canada, respectfully request that you, the Dominion Board of Railway Commissioners, give your earnest attention to this unjust and unbusinesslike rate discrimination and that you, by investigation, determine an equitable adjustment of rates on our products over every railroad under your jurisdiction."

The secretary was instructed to send a copy of this resolution to the railroads and if no action was taken, to send a copy of it to the Dominion Board of Railway Commissioners.

It was also decided to issue the "Report of the Proceedings of the Sixth Annual Convention" at an early date.

MR. ARTHUR KOPPEL DEAD.

Cable despatches record the death of Arthur Koppel, founder of the Arthur Koppel Co., on May 13, in Berlin, Germany, of heart failure.

Mr. Arthur Koppel was born in Dresden, Germany, in 1851, and started in business at the early age of seventeen years. He was first interested in a concern in the handling of structural iron and established his own firm in 1876, taking up the problem of transporting all kinds of material for narrow gauge railroads. He made the idea of portable industrial track popular and this material is to-day known all over the world, in all industrial, agricultural and mining concerns as the Koppel material. The concern, which in 1905 was made a stock company, owns 52 branch houses, all over the world, eight plants, of which three are in Germany, one in France, one in Austria, one in Russia, one in Spain, and one in the United States. The American business was established ten years ago and in 1906 Mr. Arthur Koppel came to the United States and decided to build a modern American plant. He, therefore, purchased 700 acres of property in Beaver county, thirty miles west of Pittsburgh, Pa., where he founded the township of Koppel and erected the most modern plant in this line, in the United States. With his family, wife, three sons and one daughter, 6,000 men in the different plants and concerns, and 1,500 employees, commercial men and engineers, are mourning the loss of this genius who always had the welfare of his men at heart.

There will be no change in the concern which has a Board of Directors. One of the managers of the New York office, is Mr. Kurt Koppel, a son of the late Mr. Arthur Koppel. He is at present on his way to Germany.

DECISION Re FIRE BRICK.

The Canadian Customs Commissioners have given decision interpreting the duties on fire brick as follows: Fire brick (9 inches by 4½ inches by 2¼ inches) valued at over \$13 per thousand at place of export are to be admitted free under tariff item 281 (fire brick of a class or kind not made in Canada free) until otherwise ordered, but fire brick valued at or less than \$13 per thousand at place of export, are held to be made in Canada and subject to duty under tariff item 282 (manufacturers of clay not otherwise

Executive Meeting of Canadian Clay Product Manufacturers.

MANUFACTURERS OF BRICK AND OTHER CLAY PRODUCTS, SERIOUSLY HANDICAPPED BY INCREASED FREIGHT RATES, MAKE VIGOROUS PROTEST.

On Tuesday, May 19, a meeting of the Executive Committee of the Canadian Clay Products Manufacturers was held in the office of THE CANADIAN MANUFACTURER with President J. S. McCannell of Milton, in the chair.

An invitation from the city of Brantford for the convention this year was presented by the president, and it was decided to thank the city for the offer and to accept same if satisfactory arrangements can be made for the convention.

Serious complaint was made regarding the recent advance in freight rates on brick by the railroads, especially in time of depression, and a contraction of demand. It was also pointed out that serious discrimination was being made in favor of some centres to the disadvantage of others. Finally the following resolution was adopted, on motion of Messrs. Geo. Crain of Beamsville, and C. H. Bechtel of Waterloo, Ont.

"We, the Executive Committee of the Canadian Clay Products Manufacturers Association, hereby resolve:

"That, on behalf of the Association we wish to place on record our earnest protest against the recently issued increase of rates for the transportation of bricks and of the several other clay products manufactured by the various members of this association as being unreasonable as it is unjust at this period of financial depression, especially when the railway companies found it necessary to reduce their own staffs and expenses.

"We also wish to emphatically protest

against discriminations in the freight rates. For instance in the Province of Quebec, the railways have been charging only 2½ cents per 100 pounds for a haul of 47.32 miles, while here in the Province of Ontario they have been charging 3½ cents per 100 pounds for a haul of only 22½ miles, which rate they have recently increased by ½ cent per 100 pounds.

"We submit that the western portions of these great railways have received bonuses fully as great for the building of these roads in Ontario as were given to them for the building of sections running into Montreal. We also submit that the increased freight charge for Niagara Falls and Welland, two progressive and rapidly growing towns, is arbitrary and unjust, while Montreal, which appears to have greater influence in the head offices of the railways situate there, can have its building materials transported from the manufacturers for a distance of 47.32 miles at a lower rate than they have been charging for less than half the distance in Western Ontario, particularly to the places named.

"Whereas, the instances of obviously unjust discrimination above cited are representative of similar conditions existing throughout Canada and

"Whereas, such conditions are retardants to the progress of the clayworking industry and are prohibitive, in many instances, of the legitimate extension of our respective business enterprises.

"Therefore, we, the Executive Committee of the Canadian Clay Products Manufac-

provided, British Preferential tariff, 12½ per cent.; general tariff, 22½ per cent.) in effect from May 1. Locomotive fire brick (arch blocks, fire box blocks, boiler tile) and fire brick for stove linings are made in Canada and importations thereof are rated for duty under tariff item 282. It is further noted (a) That importations of above described fire brick as rated for duty under tariff

item 282, are rendered subject to special or dumping duty in cases where the true selling price (f.o.b. place of shipment) to the purchaser in Canada, is more than 7½ per cent. lower than the value of the same for duty purposes, and (b) that fire clay gas retorts, hollow shapes, and hollow blocks, although made of fire clay, are rated for duty under tariff item 282.

Strickland. "The Oscillograph," illustrated with slides and instrument, by H. W. Price. Naming of Standing Committees. Next Place of Meeting. Unfinished Business.

Afternoon Session.

1.00 p.m. Association luncheon, followed by illustrated lecture, "Large Power Plants of America," by Mr. R. J. Clarke.

3.00 p.m. Boat for Hanlan's Point.
3.30 p.m. Baseball match at Maple Leaf Park, Hanlan's Point. "Manufacturing versus Operating Companies."

Another feature of the convention which will be of interest to many visitors will be the exhibits of electrical supplies and specialties. To facilitate manufacturers and supply houses exhibiting their product the hall on first floor and several laboratory rooms in the basement of the Chemistry and Mining Building have been set apart for exhibits.

There should be an excellent attendance at this convention. Readers of THE CANADIAN MANUFACTURER desiring further information regarding the meetings should apply to Mr. T. S. Young, Confederation Life Building, Toronto.

The city of Montreal have ordered one of the well known Belliss engines of triple expansion type, and of 750 to 800 h.p. for the low level pumping station. The engine will be directly connected to a Worthington centrifugal pump. The contract for the installation being taken by the John McDougall, Caledonian Iron Works Co., Limited, Montreal.

Convention of the Canadian Electrical Association.

To be Held in Toronto, June 17, 18 and 19, 1908.

One of the most progressive technical associations in Canada is that of the Canadian Electrical Association. The annual conventions of this body have, for many years, not only been well attended, but have proven of great educational value to its members.

The convention this year will be held in the Chemistry and Mining Building, University of Toronto, on Wednesday, Thursday and Friday, June 17, 18 and 19, 1908.

It will be seen from the following programme that both the entertainment and the educational features of the convention this year are well up to the usual high standard of interest and value:

Plants by European Designers," fully illustrated with slides, by Mr. C. H. Mitchell.

9.30 p.m. Steamer will leave Yonge Street dock for outing on the lake.

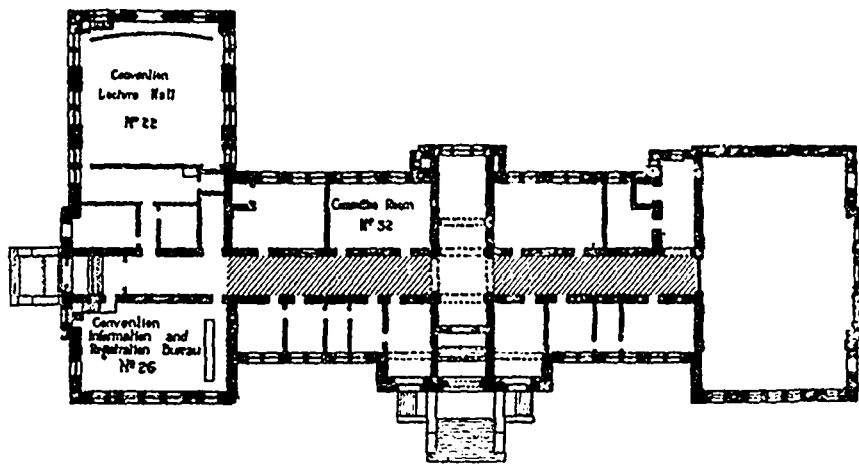
THURSDAY, JUNE 18.

Morning Session.

10.00 a.m. "Modern Arc Lighting," by Mr. A. E. Fleming. "Regulation of Electric Currents or Circuits," by Mr. W. G. Chace. "Various Distributing Systems Adaptable to Cities and Towns," by Mr. R. G. Black.

Afternoon Session.

2.00 p.m. "Electrical Franchises, Their



CONVENTION HALL, CANADIAN ELECTRICAL ASSOCIATION

WEDNESDAY, JUNE 17.

Morning Session.

9.30 a.m. Meeting of Managing Committee.

10.30 a.m. Opening session. Minutes. President's address. Secretary-treasurer's report. General business.

11.30 a.m. "Power Rates and Factors Which Influence Them," by Mr. W. N. Ryerson.

Afternoon Session.

2.00 p.m. "How to Increase the Station Load," accompanied by lantern slides, by Mr. George Williams. "Lost and Unaccounted for Current," by Mr. C. R. McKay. "Electrical Plant Earnings Per Capita," by Mr. W. A. Bucke.

Evening.

7.30 p.m. "Various Electrical Power

Legal Status and Basis of Valuation," by Jas. Bicknell. "Contracts," by Robert McKay.

4.30 p.m. Executive Session.

3.30 to 6.30 p.m. University Science Buildings open for inspection.

4 to 6 p.m. Demonstration of electro metallurgical apparatus, in the Chemistry and Mining Building, by Mr. Saul Dushman.

5.00 p.m. Tea for the ladies at the Royal Canadian Yacht Club, Island Park.

Evening.

7.30 p.m. Special cars will leave Queen's Hotel at 7.30 sharp for Scarborough Beach Park.

FRIDAY, JUNE 19.

Morning Session.

10.00 a.m. "Grounding of Transformer Secondaries," by W. L. Macfarlane. "The National Electrical Code," by Mr. H. F.

A.S.M.E. to Meet in Detroit.

THE SEMI-ANNUAL MEETING OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

The Semi-Annual Meeting of the American Society of Mechanical Engineers will be held in Detroit, Mich., June 23-26. An entire session will be devoted to papers on the conveying of materials, when hoisting and conveying machinery including belt conveyors, the use of conveying machinery in cement plants, etc., will be discussed.

Among other subjects which will be taken up by professional papers, are, "Clutches," with special reference to automobile clutches, by Henry Souther; "Some Pitot Tube Studies," by Prof. W. B. Gregory, of Tulane University, New Orleans, La., and Prof. E. W. Schroder, of Cornell University; "Thermal Properties of Superheated Steam," by Prof. R. C. H. Heck, of Leigh University; "Horse Power, Friction Losses and Efficiencies of Gas and Oil Engines," by Prof. Lionel S. Marks, of Harvard University; "A Journal Friction Measuring Machine," by Henry Hess, of Philadelphia; "A Simple Method of Cleaning Gas Conduits," by W. D. Mount; "A Rational Method of Checking Conical Pistons for Stress," by Prof. G. H. Shepard, of Syracuse University; and "The By-Product Coke Oven," by W. H. Blauvelt.

A lecture on "Contributions of Photography to our Knowledge of Stellar Evolutions" will be delivered by Prof. John A. Brashear, of Allegheny, Pa. The usual receptions will be held and excursions will be made to manufacturing plants, the ship building yards and various points of interest in and around Detroit. Among the excursions

sions planned is one to the University of Michigan, at Ann Arbor. The Gas Power Section of the society will hold a session, and the Society for the promotion of Engineering Education and the Society of Automobile Engineers will hold a meeting in Detroit at the same time. As far as possible, sessions will be arranged so that members interested in subjects treated by the other societies may attend their sessions without missing papers on related subjects read before their own society.

NEW CANADIAN UPRIGHT DRILL.

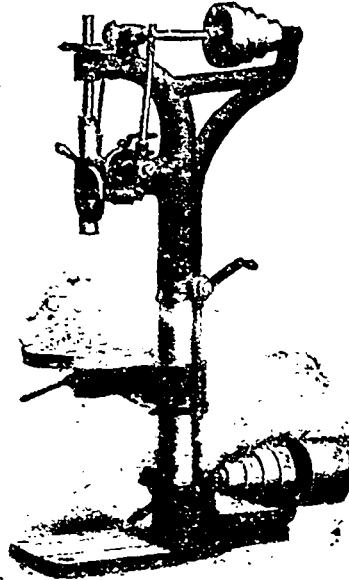
The Canadian Fairbanks Co., Limited, have brought out a new 20 inch plain wheel and lever feed upright drill, an illustration of which we show herewith.

This is a compact and convenient drill, strong and serviceable, and meets all the requirements of a general utility machine. Among the characteristic features we note the following: combined lever and wheel feed, each independent of the other when in use, feed mechanism very strong and adapted for heavy or light drilling, cone pulleys provide four speeds. The spindle is counter-balanced, and has quick return. Provision is made for taking up lost motion. The table has vertical adjustment on the columns by means of a screw and can be swung to one side allowing the use of base plate when necessary. A clamp table is provided, insuring quick action, the drive is controlled by a foot lever giving the operator the free use of his hands.

The dimensions of this drill are as follows: Feed of spindle, 8 inches; spindle to base, 12 inches; diameter of table, 16 inches;

diameter of spindle in bearing 1 5-16 inches; diameter of column, 5 1/4 inches; driving pulleys, 9 1/4 inches by 2 1/4 inches; speed 300 revolutions per minute. Weight, 600 pounds. Floor space, 18x46 inches. Hole in spindle is Morse taper, No. 3.

Drills of this size and standard usually sell at \$90.00, but the Canadian Fairbanks Co.,



Limited, are offering this machine at a special price of \$75.00, complete. Further details may be had by addressing the above company at any of their warehouses, as follows: Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.

THE PEDLAR PEOPLE AT MONTREAL.

The exhibit of the Pedlar People of Oshawa, at the Montreal Builders' Show was in conjunction with that of the Clinton Fireproofing Co.

Probably the most interesting product shown by the Pedlar People was that of their truss fabric, designed as an absolute bedding for rough cast, cement, and other compositions to flat surfaces and studding. It will certainly be a boon to architects and builders, who have, heretofore, been partial to stucco effects and Elizabethan architecture.

Heretofore the profession have approached this style of architecture with timidity on account of the climatic conditions prevalent in Canada, as this stucco invariably was disturbed by frost and had to be continually patched.

This truss fabric, with its millions of keys, makes it an absolute impossibility for plaster to fall from it, and as the contraction and expansion of the fabric is the same as that of plaster, the two elements are not at variance.

Fireproof lockers are a new line with the Pedlar People, but one for which there will be a growing demand as manufacturers appreciate their value in convenience to employees and safety to factories.

This firm also exhibited solid, fire-proof, light weight partitions, metal lathings, corner beams and other up-to-date fireproof materials.

The Central Heat, Light & Power Co. have placed, through Messrs. Laurie & Lamb, consulting engineers, Montreal, their order for a fourth Belliss engine for their power house, St. Peter Street, Montreal. This engine will be of 430 h.p. with 25 per cent. overload capacity.

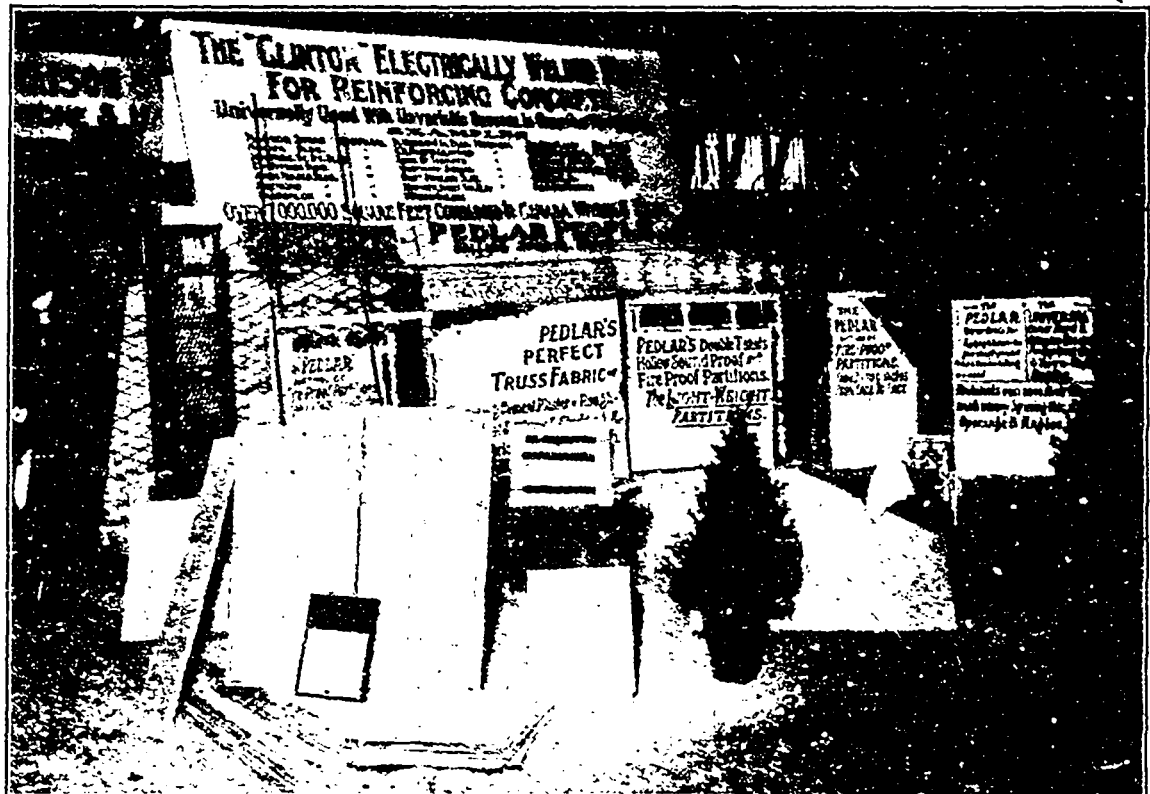


EXHIBIT OF PEDLAR PEOPLE, OSHAWA, AT MONTREAL BUILDERS' SHOW.
When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

... THE ...

CANADIAN MANUFACTURER**and Industrial World**

A Semi-Monthly Newspaper devoted to the Manufacturing Interests of Canada—A Newspaper, Not an Organ.

Established in 1880. Published 1st and 3rd Fridays.

The Canadian Manufacturer Publishing Co., LimitedOffice of Publication: 408 McKinnon Building, Toronto
D. O. MCKINNON—Managing DirectorMontreal Office—204 St. James Street,
ARTHUR B. FARMER—RepresentativeLondon, Eng., Office: 16 Devonshire Square, E.C.
WM. TUCKER & CO., Representatives**SUBSCRIPTIONS:**Canada \$1.00. United States \$1.50 per year. All other Countries
in Postal Union six shillings sterling, including postage.**ADVERTISING RATES:**

Made known on application to 408 McKinnon Bldg., Toronto

A STORY WITH A MORAL.

A coal cart stopped before an office building in Washington and the driver dismounted, removed the cover from a manhole, ran out his chute, and proceeded to empty the load. An old negro strolled over and stood watching him. Suddenly the black man glanced down and immediately burst into a fit of uncontrollable laughter, which continued for several minutes. The cart driver looked at him in amusement. "Say, uncle," he asked, "do you always laugh when you see coal going into a cellar?" The negro sputtered around for a few moments and then, holding his hands to his aching sides, managed to say, "No, sah, but I jest busts when I sees it goin' down a sewer."

The advertiser who displays lack of judgment in selecting the newspapers which carry his copy often confuses the sewer and the cellar.

The above story by Herbert Kaufman in the Toronto World illustrates a point we have been trying to emphasize for sometime.

The advertiser who wishes to influence manufacturers and who places his advertisement in a paper going to the wrong classes of people is wasting his money, or, in other words, is dumping a great deal of his coal down a sewer.

In the first place not more than one out of twenty readers of the papers are likely to be manufacturers, and in the second place the manufacturers who do read the paper do not look to it for information about machinery equipment or material for their plants.

If you want to influence the manufacturers of Canada concentrate your energies on reaching the men in authority—the men who buy. Talk to the owners, managers and superintendents of factories, foundries and mills in all parts of Canada through the papers these men buy for and read for the one purpose of keeping in touch

with industrial and mechanical progress throughout Canada.

We submit that the advertiser who wants to reach the manufacturers of Canada is putting his fuel where he needs it, when he advertises in THE CANADIAN MANUFACTURER, for in it he is talking through every issue of the paper to responsible buyers of his line.

THE INDUSTRIAL CENTRES OF CANADA.

For some time we have been planning a series of special editions of THE CANADIAN MANUFACTURER, devoted to the chief industrial centres of Canada. We had, in fact, decided to make this issue the first of the series, devoting it to Toronto as an industrial centre.

At the suggestion of several firms interested in the matter we have, however, decided to defer the publication of this special edition for a few months and to take it up in a broader way than we had planned or than would be possible in this issue.

Following the issue devoted to Toronto will be special editions devoted to Montreal, Hamilton, Winnipeg and other industrial centres.

FREE TRADE IN GREAT BRITAIN IS DOOMED.

The day of free trade in Great Britain is drawing to its close and the dawn of a brighter, happier day for the manufacturer and mechanics of that country is not far distant. Even the Liberal Government, the avowed friends of free trade, have recognized the desirability of compelling the "establishment of foreign manufacturers in that country." The new Patents Act, passed to accomplish the above-quoted purpose by the Liberal Government, is diametrically opposed to the ideal of the Cobden school of free traders. Instead of permitting a manufacturer to make his product where he can do so to greatest advantage to himself this legislation says to him: "We want more factories in Great Britain. If you want to take advantage of our patent laws you must produce your wares in this country."

On another page we reproduce from Commercial Intelligence an account of the efforts made by the British Chamber of Commerce to secure this legislation, the official conservatism which failed to recognize the importance of the results desired and the final victory when one of the shrewdest members of the British Government, Mr. Lloyd-George, was interested in the agitation by the Chambers of Commerce.

With the Conservative party of Great Britain pledged to tariff reform and with the Liberal Government so anxious to increase industrial activity by compelling manufacturers to establish works in that country an early victory for protection in the one great stronghold of the free-traders, Great Britain, is assured.

CROP PROSPECTS IN CANADA.

It is generally recognized that crop prospects throughout Canada, and particularly throughout the West, will be a great factor in determining business activity during the summer and autumn of this year.

Manufacturers will, therefore, receive with great pleasure the news that the crop reports from the Western Provinces are exceedingly bright. The acreage sown is much larger than last year, some estimates placing the increase of acreage at 25 per cent. Moreover, the wheat has had a splendid start and seems to be growing well in all districts.

According to the recent crop bulletin by the Ontario Department of Agriculture conditions throughout this province are almost as bright. The crops are at present about two weeks ahead of last year and are growing well. Fall wheat came through the winter without much damage and recent rains have done much for pasturage

and the hay crop. So far the make of dairy produce has been very small and although pasturage has much improved it is not likely the output of cheese will be large. Owing to the high price of feed the number of cattle brought through the winter was comparatively small, but these wintered rather better than had been expected. The number offering for export will be light. It is likely, too, that the fall delivery of bacon hogs will be considerably short of previous years.

Reports from the Eastern provinces are less definite but those to hand would indicate that conditions are fully up to the average.

Centrifugal Pumping Machinery.

WRITTEN BY ARTHUR ALLEBONE, OF R. H. BUCHANAN & CO., MONTREAL.

Centrifugal pumps are so rapidly coming into general use that they are to-day a serious rival to reciprocating pumps and have in recent years reached a high degree of perfection, surpassing in many cases reciprocating pumps.

The earliest history of centrifugal pumps is not known although it is a known fact that centrifugal machines for lifting liquids were in use in the seventeenth century. About the year 1703 Henri Papin the famous French engineer designed his "Hessian Suck" a form of centrifugal pump embodying nearly all of the essential features of the present day machine.

Very little is known of this pump prior

which has resulted in the efficient type of pump as built to-day.

The commercial history of the centrifugal pump dates from the year 1849 when Appold exhibited a model at the meeting of the British Association at Birmingham. During the next two years he so improved on this first model that his pump became one of the chief features at the exhibition in London in 1851.

THE PRINCIPLE OF CENTRIFUGAL FORCE.

The mechanical principle, or law, of centrifugal force is simple: a body revolving around a centre tends to recede from it, with a force proportional to its velocity. For instance

fugal pump partially fill a glass with water and stir with a spoon. There is a tendency on the part of the water to fly off at a tangent but the sides of the glass retard it. The pressure upon the sides, however, is increased and the pressure at the centre of the water lessened, hence the difference in the water level.

APPLICATION OF THE LAW.

This mechanical law is recognized in the centrifugal pump by the use of a rapidly revolving fan, disc or runner which corresponds to the spoon in the glass. This fan has two or more blades, straight or curved, being designed differently for various heads. The disc, or fan, is fitted closely into the pump shell, or volute, to which there is an old centre connection for pipe called the inlet or suction pipe, which is at the position of least pressure while on the top or side of the shell and at a tangent to the circle described by the disc or fan, is an outlet. As this is the point of highest pressure it is the discharge from the pump.

The construction of a centrifugal pump is conversely to the turbine water wheel.

CONSTRUCTION.

It will be easier to understand the construction of the centrifugal if the accompanying plate (Fig. 1) is examined closely. Its parts comprise (1) the base, (2) suction companion flange, (3) shell or volute, with shell (4) discharge companion flange, (5) runner, (6) cover, (7) gland, (8) shaft, (9) pulley, (10) box cap, (11) bracket box, (12) oil cup, (13) gland, (14) gland, (15) bearings. In addition to the vertical pump shown in Fig. 1, they are made vertical for operation by belt or for direct connection to electric motor, gas engine or other power. Vertical pumps are made to be placed above water and use suction pumps or submerged pumps or in water at a depth of 150 feet or more, less as conditions require.

Centrifugal pumps for high pressure known as high pressure pumps are built in series, that is a number of runners or discs are mounted on the same shaft each running in its own volute or shell and connected that the discharge of the first runner

to 1818, when the first practical centrifugal pump was brought out in Massachusetts. Certain principles of construction in the design of this particular pump have been the basis of further development simultaneously by European and American engineers when the first practical centrifugal pump is thrown from carriage wheels when they move rapidly over wet roads. A bucket of water may be whirled like a stone in a sling and the contents retained even when the motion is upwards. To get a clearer illustration of this force as applied in a centri-

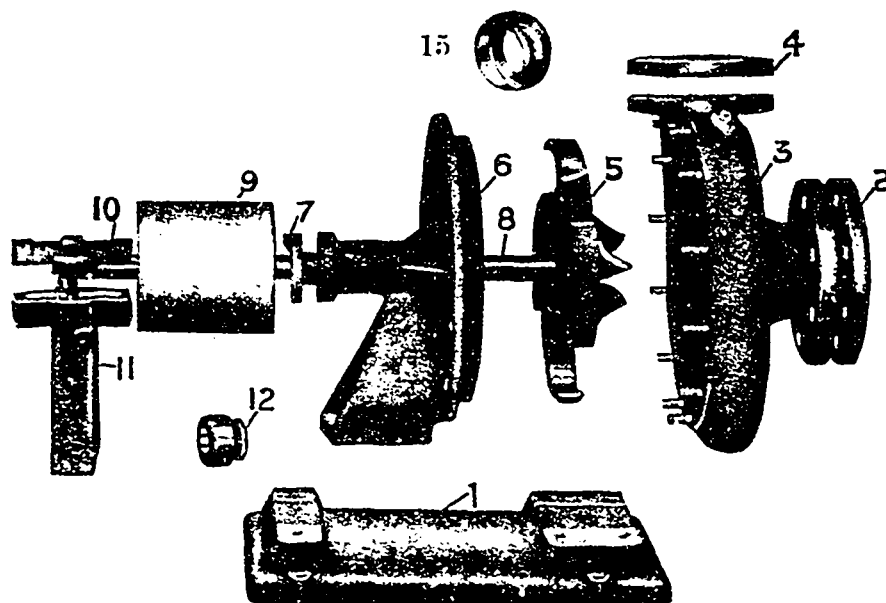


FIG. 1. PARTS OF A CENTRIFUGAL PUMP.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

er disc, will be received by the suction of the second runner or disc and so on throughout any number of series.

EFFICIENCY.

Attempts were made for years to obtain high pressure pumps before success was attained. Only a few years ago 50 foot head

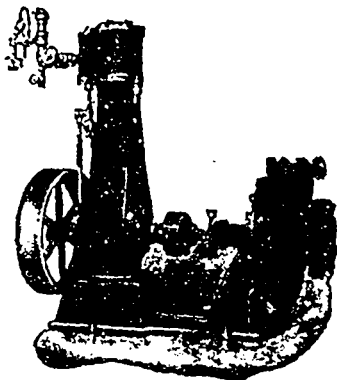


FIG. 2. CENTRIFUGAL PUMP, DIRECT CONNECTION.

is considered the maximum for any efficiency, owing to excessive speeds being necessary to accomplish the desired results. Today 2,000 foot head is practical with reasonable speeds and with equal efficiency as a displacement pump. It was a discovery of importance that by coupling two or more pumps together run by same shaft, as noted above, that heads up to 2,000 foot can be easily obtained at reasonable speeds with satisfactory efficiency. In some cases they have an efficiency of from 80 to 90 per cent.

To secure the minimum waste of power a certain fixed capacity for each size of pump must be recognized and for that capacity a speed for each elevation. Any departure from the rated speed will decrease the efficiency of the pump. To increase the speed above the rated speed more water will be pumped and more power will be used than would be the case with a larger pump giving the same quantity of water. If the speed is increased less water is pumped and less power is used but a smaller pump working at its rated capacity would pump an equal quantity of water at less cost. Therefore to get the best results from centrifugal pumps run at the proper speed for each size and for each elevation the pump is selected for these economical speeds and efficiencies have all been determined by tests.

As the pump is not positive acting as in the case of a duplex steam pump and the lift is obtained by centrifugal force alone the head is a most important consideration. A characteristic of a centrifugal pump is an increase when compared with any reciprocating pumps, viz.; that with constant speed of operation a reduction of head pumped against will increase the efficiency of the pump.

It is due to the fact that the volume of water increases inversely as some function of the square of the head so that the work done by the weight of water multiplied by the head will necessarily increase under constant head provided speed remains constant. Hence we will see that if it is desired to decrease the load on a centrifugal pump it can be accomplished by increasing the head or of course decreasing the

speed. If this is borne in mind many seeming difficulties may be readily understood and overcome.

There is no condition of service to which a centrifugal pump cannot be used. They will create as great a vacuum and will draw water by suction as far as will the reciprocating pump. They can be used as boiler feed pump and will elevate hot water equal to any reciprocating pump. To pump hot water the water must run to the pump, which is also true of any pump for the reason that the vapor rising from the water in a vacuum destroys the vacuum and prevents the water flowing to the pump. Other details explaining this cannot be entered into in this article. Suffice it to say that while the boiling point of water under atmosphere pressure is 212 degrees Fahrenheit, water will boil in a vacuum at a much lower degree hence the excessive amount of vapor that would rise from water even at 180 if attempts were made to raise it by suction to a pump.

Centrifugal pumps are to-day accepted by the underwriters for fire service.

Where large quantities are to be moved quickly and more especially when water is dirty and contains other foreign matter such as mud, wood chips, sand and coal as in wreckage, the centrifugal pump has its peculiar advantages, making it supreme for such work.

They can be and are used for water works, hydraulic dredging, sewage, pulp, dry docks, in fact for any service and capacity, and they can be used for purposes for which recipro-

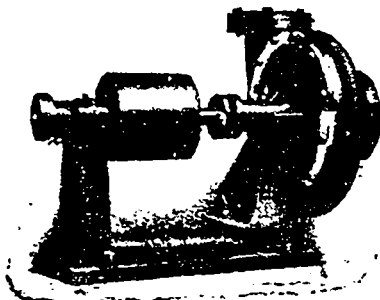


FIG. 3. CENTRIFUGAL PUMP, HORIZONTAL, BELT DRIVEN.

ating pumps would be out of the question, such as pumping coal, etc., from wreckage.

WHEN PRIMING IS NECESSARY.

Unlike other pumps it is absolutely necessary to prime centrifugal pumps if water is to be raised any height by suction, and for this purpose various methods are used.

The oldest and most used method is to place a foot valve on lower end of suction pipe and fill pump and pipes are full; when once filled it does not require to be filled at each operation of the pump so long as the foot valve remains tight.

Other methods are to prime by hand pump, ejector or small displacement pump run by connections from shaft on main pump or by other power. The suction pipe of hand pump, ejector, etc., is connected to highest part of centrifugal pump and a flap valve check or gate valve is used on discharge pipe to prevent air from entering pump; after a few minutes use of either of the above to exhaust all the air from pipe and pump the pump will be full of water and can be started. If gate valve is used on discharge pipe same is not opened

until after pump is in operation. The foot valve may be used with this method or it may be left off and a strainer only used on suction pipe. For pumping sand or coal from sunken vessels it is better not to use the

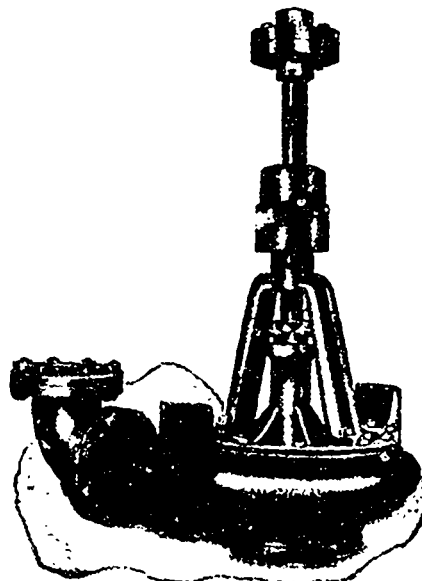


FIG. 4. CENTRIFUGAL PUMP, VERTICAL, LIFT DEVICES.

foot valves as they only clog and give trouble.

There are other methods of priming which after all are only different positions of placing the primers and valves, but the principle is to fill the pump and pipes before operating pump.

A centrifugal pump is almost essential, because of its special efficiency for certain work and is of great value to contractors, particularly if they have to do foundation work near any water.

R. H. Buchanan & Co., Montreal, are agents for the American Well Works, Aurora, Ill., who kindly loaned the illustrations for this article.

The Eastern Electrical Engineering Co., Montreal, have installed six 3-phase Westinghouse motors and a complete electric lighting system for 350 lights in the A. H. Sims & Co. factory, Montreal. The same firm are also installing electric lighting systems in the Sisters of Providence Convent, St. Hubert Street, and in the Church of St. James the Apostle.

It is reported that the American Can Co. have bought out the Acme Can Works, Montreal, and will make extensive alterations.

The Elliott Fisher Co., Limited, have opened Canadian offices at 129 Bay Street, Toronto, and corner of St. Nicholas and St. Sacramento Streets, Montreal, to handle the Elliott typewriter and Elliott Fisher billing and adding machines.

The Bonner Leather Co., Montreal, have removed their offices from No. 16 to No. 6 Lemoine Street.

The Tombyll Upholstering & Frame Mfg. Co., Limited, Montreal, will commence to rebuild their factory at 1665 St. James Street, which was destroyed by fire last winter. They are now occupying temporary premises at 16 Lemoine Street.

Power Transmission in Textile Works

ARTICLE I. EXTRACTS FROM PAPER READ BY MR. J. SHAW BEFORE THE NOTTINGHAM GUILD OF MECHANICAL AND ELECTRICAL ENGINEERS.

The methods of driving now generally in use in textile works have been known and utilized for so long a period that they have become accepted as a necessary part of the mill equipment. Since first the power loom and spinning jenny were invented mills have, of necessity, used shafting, belting, gears, and ropes for transmitting power from the main engine to the driven machines. The choice of the driving scheme to be adopted has been limited to two main systems, viz., transmission by gear wheels or by ropes or belts. Improvements in these systems have been limited to details of construction, such as improved bearings, gear wheels, pulleys, belts, and ropes. Although textile machines and the prime movers have been, and are still being, considerably improved in their essential features, the transmission devices between the two are, broadly speaking, in the same state as they were when first adopted.

The first and earliest method of transmission adopted was that involving the use of slow moving and large diameter shafts, coupled by means of spur and bevel wheels to the main engine; other subsidiary shafts, for distributing the power, being similarly driven from these. As engine building progressed, and knowledge and experience in mill-wrighting was gained, improvements in design of gear wheels and teeth, shafting, and bearings followed, with the result that higher speeds were found practicable, and were adopted. Engineers successively developed and perfected different forms of teeth, and better design of gears, resulting in economy of material and weight, until the efficiency of transmission by this means eventually became all that could be desired. Duplicate gears for all important drives were kept in stock, available for immediate service in case of emergency, these being generally recognized as a necessary and normal precaution against stoppage. In the event of a breakdown these stock gears were immediately installed, and the loss of time and production due to the stoppage reduced to the lowest limits. Mill owners and engineers became so accustomed to this method that they could not conceive it possible any other arrangement could be so satisfactory or so economical. Improvements were, of course, sought for, but were limited to the development of gears providing the smoothest possible running with the smallest amount of loss in transmission. After these had been developed, and the mill machinery adjusted to give the best production available under this drive, the only other source of economy, apart from better methods of manufacture and improvements in the textile machines driven, was the efficiency of the main engine. Thus the amount of coal per indicated h.p. developed at the engine received the closest attention, and became of the greatest importance in the economy of running the mill. When considering either the building of a new mill or alteration to an old one, the choice lay between one type of engine and another, taking into consideration mainly the coal economy of each. Engine speeds were increased to the limit of practical application to the gear

drive in the endeavor to improve the coal consumption. Gradually engines and boilers were improved, until the practical limit in coal economy per indicated h.p. was reached, and the economy of gear-driven mills brought to the highest position.

IN USE FOR TWENTY-FIVE YEARS.

About twenty-five years ago rope transmission was brought generally into notice in England. Its advocates put forward this drive with the view of improving the smoothness of running, reducing the liability to, and cost of breakdowns, and increasing the amount of production. Engines for rope driving could be improved in economy, mill shafts could be run at higher speeds, fixings, shafts, and pulleys made lighter, and conditions of working improved by the absence of noise and jar produced by gears. Its adoption was retarded by strenuous and persistent opposition. The technical press of that period contains a vast amount of correspondence discussing the pros and cons of rope-driving as compared with gear. Engineers and mill owners considered that the efficiency of transmission could not be improved by its adoption; that whatever increased economy could be gained at the engines would be more than counterbalanced by the greater loss in transmission. It was proved that, considered as a means of transmitting power, rope driving was less efficient than gear. The friction load was greater in the rope-driven mill than in the gear-driven. Despite this fact and the opposition experienced, rope driving established itself, and has for years now been considered the better means of driving textile mills. Practically every mill owner contemplating alteration to present plant or establishing a new mill has adopted rope driving. Although less efficient as a means of transmitting power, rope driving has gradually replaced gear driving. It possesses compensating advantages for its lower efficiency of transmission in the improved turning, higher shafting speeds, and lighter fixings, all tending towards better running of the driven machines, thus providing means for securing superior quality and quantity of production in a given time. To put the matter concisely, it has been found in practice that rope driving, although mechanically less efficient, is commercially more efficient than gear driving. Mill owners and engineers have long considered the merits of rope and belt driving only, in connection with new schemes or alterations, and the original gear drive is no longer in favor.

STEAM ENGINE ECONOMY.

In addition to providing advantages in the mill, rope driving enabled engineers to continue the development of steam engine economy. Thus followed increased engine speeds, higher boiler pressures, greater range of expansion, and adoption of superheated steam, with the result that the modern steam engine consumes an amount of steam per indicated h.p. which would have been thought impossible even a few years ago. Steam engine and boiler efficiency, being now at a very high level, it is improbable that

considerable further economy may be expected in this direction.

ONLY MODERN MACHINERY IS GOOD FOR A MILL. Textile manufacturers must look in other directions for further economy of working. New methods of manufacture and improved machines are constantly being developed. Competition demands that only the best machines be used, and that the production from these machines be kept at the highest limit consistent with maintenance of the quality of the product. Machinery which yesterday filled all requirements is today discarded in favor of improved types. The best and most modern machinery only is good enough, and new standards of excellence are daily being established.

IS MAXIMUM PRODUCTION OBTAINED?

Granted, therefore, that the mill machinery is the best of its kind, the mill engine also the best, does the present rope or belt drive afford the mill owners the means of obtaining the best results from the machines from the standpoint of quantity and quality? If so, it would appear that the limit is reached; the effect of power transmission on the commercial economy of the mill. Textile machines have certain limits as regards speed which cannot be exceeded for practical reasons. Provided, therefore, the machines are run at this speed during the whole of the working period, the maximum amount of production must be obtained. The author's experience convinces him that it is highly improbable rope driving does effect the desirable result. He questions whether it is a single rope-driven mill in existence which is obtaining the maximum amount of production, calculated from the actual observed running speed and hours of work. One of the best results he has obtained is a production of 92 per cent. worked out on this basis. In this case the line shaft was driven by a rope drive directly from the main engine fly-wheel. Is it possible to so transmit power from the main engine to the driven machine as to provide means whereby the result can be improved? If so, what is the rope or belt drive fail, and how do better means of transmission succeed?

It is a well known fact regarding rope drives that pulleys must be properly fitted so as to allow for a certain amount of slip. Both belts and ropes slip. The state of the room atmosphere, as regards temperature and humidity, affects the amount of slip. Slip means not merely loss in power, but heating and polishing of pulleys, but variations in speed due to slipping moment and gripping the next. Tachometer records taken from shafting driven in this way prove conclusively uneven turning to this cause. These variations in speed moment are, of course, transmitted from the line shaft to the driven machines, and therefore affect both the amount of production and its quality.

It is an axiom that textile machines give the best results if they are driven perfectly steady and uniform turning. The more nearly this condition is

approached the better the result from all points of view. Not only would the production be uniform in quantity and quality, but also the machines themselves would run more sweetly, with less wear and tear, requiring the minimum amount of attention and repair.

POLYPHASE INDUCTION MOTORS.

By the use of polyphase induction motors, directly connected to the line shafts or machines, electric transmission fulfils this condition as closely as possible. The speed and turning moment of the polyphase induction motor is dependent solely upon, and must vary exactly with that of, the prime mover. The prime mover, of whatever type, has a perfectly even turning moment, the driven motors will have the same. The characteristics of the motor are such that, even under a very variable load, its regularity of speed is affected in only a very insignificant degree. Changes in room temperature and humidity have no effect whatever on the regularity of turning. The line shaft or machine, driven by an induction motor directly connected to it, is driven with exactly the same turning as is the generator driven by the engine. No modifications in this connection are introduced, either by variations in speed—which in gear or rope drives cause respectively backlash in gears and slippage in belts or ropes—or other extraneous causes. In other words, by electric driving, the percentage speed of the main engine as shown on the stop record, is taken nearer to the driven machines, consequently nearer the source of production, than by any other method of transmission at present in use. The mill

machines are driven more steadily and uniformly. They are, therefore, capable of turning off an increased amount, and, in most cases, improved quality of production. The effect of this on the commercial economy of the concern is obvious to textile manufacturers, the value of an increased output from the same total standing charges and expenses being self evident. The users of this method of transmission are unanimous in expressing the opinion that their experience proves they are obtaining a greater amount of production by this means. That they are satisfied with the results is evident from the fact that one large contracting firm, who were pioneers of this drive in this country, and who are responsible for upwards of one half the total number of installations in the United Kingdom, have made extensions to every installation they have equipped up to the present.

ADVANTAGES OF ELECTRIC DRIVE.

Electrical driving provides many advantages which are peculiar to itself. They cannot be claimed by any other method of transmission. They all bear, directly or indirectly, on the same point indicated above, viz., increase in quantity and improvement in quality of production. Many of these advantages are extremely well known. They need only be briefly enumerating to be recognized as having been demonstrated in the installations now working. The main items are as follows:—

- (a) Maximum steadiness and uniformity of speed.
- (b) Reduction of power transmitting devices to a minimum by elimination of rope race, shafting, belts, ropes, and gears.
- (c) Reduction of weight of shafting and pulleys due to higher speeds.
- (d) Minimum repairs to machinery owing to steadier speed.
- (e) Flexibility and facilities for extension and independent operation.
- (f) Allocation of correct proportion of power costs to each department.
- (g) Facility for tracing and eliminating sources of undue absorption of power.
- (h) Automatic supervision of each department.
- (i) Centralization of power generating plant at most convenient point.

All the above points are peculiar to electric driving, and all have their bearing on the commercial economy of the concern. When analysed each item will be found to conduce towards the turning off of increased production.

The Ontario Wind Engine & Pump Co. are shipping to Beira, East Africa, four complete Canadian airmotors, with tanks, pumps, grinders, etc., also a shipment to Pretoria, South Africa, which indicates that trade is picking up in that part of the world and that Canada is securing some of it. This firm are also erecting a 100-foot galvanized flagstaff for the "Daughters of the Empire" at the Old Fort, Toronto.

The Dominion Hat & Cap Mfg. Co., Montreal, have removed to 507 St. Paul Street.

The Dominion Cord & Tassel Co., Montreal, manufacturers and importers of dress trimmings, buttons and novelties, furriers' trimmings and supplies, have moved into larger premises at 505 St. Paul Street.

THE BAILLOT CUPOLA COMPANY

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Capital paid up, 1,500,000 Fres.

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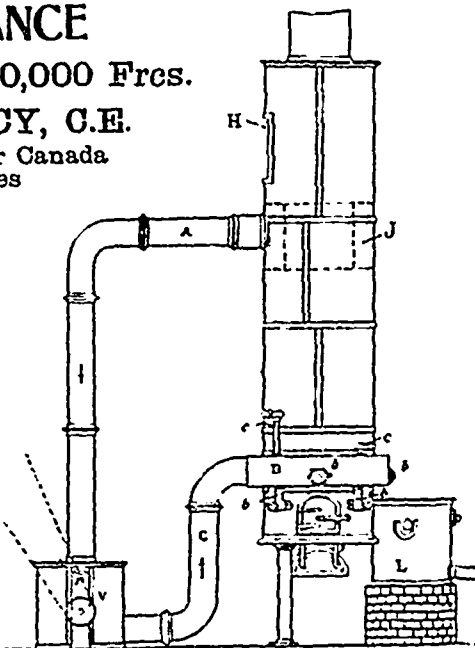
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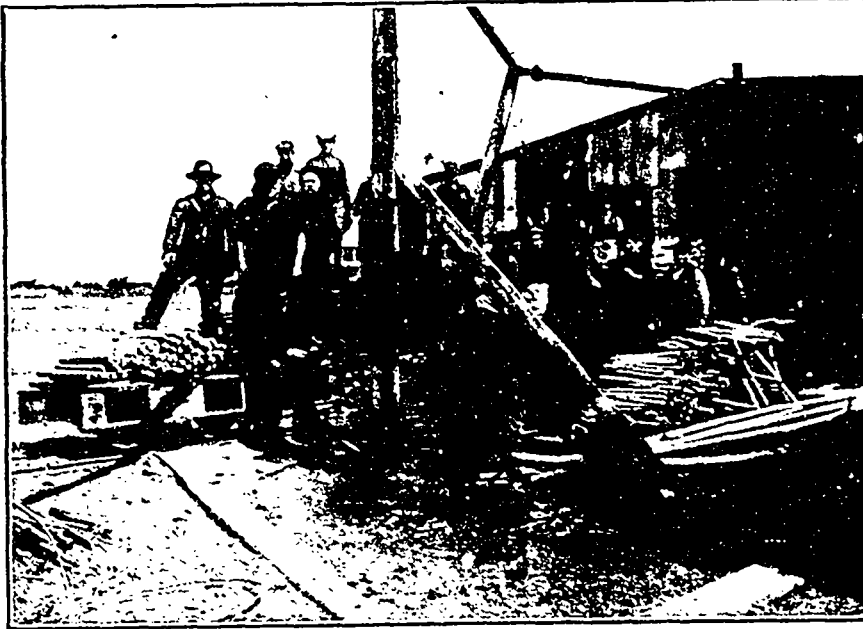
62 Ontario Street West, MONTREAL, Canada

Iron Rolling Mills at Winnipeg.

WESTERN CANADA NOW SUCCESSFULLY MANUFACTURING BAR AND ROD IRON.

Following the industrial development in the west there is now in operation the Manitoba Rolling Mills located at Winnipeg, in close proximity to the great new shops of the Canadian Pacific Railway. This marks the

a capacity of 750 kegs of horse shoes per day, the plant there covering an area of ten acres of land. Associated with Mr. McElroy in the Manitoba Rolling Mills Co. are a number of other United States capitalists of Erie,



TRANSPORTING MATERIALS AT THE MANITOBA ROLLING MILLS.

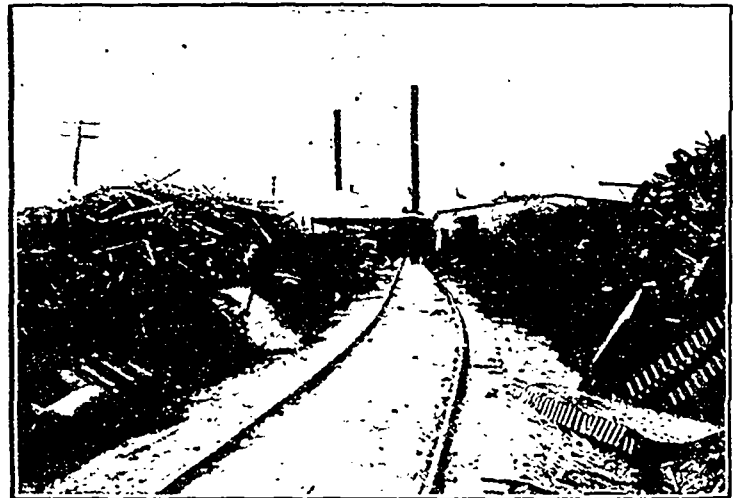
first operation of a rolling mill in Canada west of the cities of Toronto and Hamilton. The plant is now turning out about 25 tons of finished material, sizes ranging from 3-8 1/2 inches in round and squares and 1-8 to 1 inch thickness by 1 to 5 inches wide in flats, and is running to its limit with day and



CORNER IN SHIPPING ROOM OF THE MANITOBA ROLLING MILLS.

night shifts. The president of the company is L. A. McElroy, of Erie, Pennsylvania, who is also president of the American Horse Shoe Co of that city where their works have

Pa., who have for years been connected with similar enterprises in the United States. The field for the establishment at Winnipeg, Man., of a manufacturing plant of this kind



SCRAP YARD OF MANITOBA ROLLING MILLS CO., SHOWING 2500 TONS OF RAW MATERIAL.

was observed a few years ago by T. M. Kirkwood, of Toronto, who began the erection of the buildings now owned by the Manitoba Rolling Mills Co. and controlled by the Erie, Pa., capitalists. The main scrap spur illustration shows an immense quantity of scrap iron that has been secured in the past few months, which demonstrates the practicability of such an industry where once this

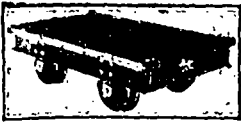
raw material was shipped to Montreal, Toronto and Hamilton under a very heavy and almost prohibitive freight rate. The source of supply at present comes chiefly from the Canadian Pacific and Canadian Northern Railways. Mr. Ziegahn an experienced and practical "iron mill" man is general manager of the new mills at Winnipeg and the men employed in the works are among the best paid workmen in the west classified in technical form, as rollers, heaters, roughers, stranders, hookers, straighteners, builders, roll-turners, machinists, engineers and firemen. In the mill proper is installed one 16 inch train, one 9 inch train, two furnaces, two boilers, one 300 hp engine, two pair shears, one large roll lathe besides facilities to do all their own repairing. In the sorting and shearing building are three pair shears for shearing scrap ready for the furnaces. Narrow gauge railway tracks run from the sorting and shearing building to each train and return, there is a switch running directly into the shipping rooms as shown by the accompanying illustration.

With the operation of the Manitoba Rolling Mills, Winnipeg makes another step forward in her industrial development which has been a remarkable one in the past six years. In 1901 the value of her factory output according to the census return was \$8,616,248.00, in 1906 the figures had jumped to \$18,983,290.00. The following eighteen new industries started manufacturing in Winnipeg in 1907.

FIRM MONTH OPERATION BEGAN

Bemis Bro. Bag Co., January.
 Ajax Mfg. Co., Limited, January
 Red Cross Sanitary Appliance Co., January
 Hutchings Paper Box Co., January
 Sheppard-McDougal (sheeplined clothing Co.)
 February.
 D. N. Stevens & Co., Cooperage, February.
 Manitoba Frost Wire Fence Co., February.

Northern Shirt Co., March
 Cornelius Bedspring factory, April
 Great West Pipe Covering Co., May
 Manitoba Rolling Mills Co., June
 Northwestern Brass Co., Limited, July
 Dominion Bridge Co., Limited, July
 Perfection Concrete Co., August
 Winnipeg Oil Co., cooperage, September
 Drewrys Bottling Works, November.



FOUNDRY MACHINERY

FOUNDRY LADLES

From 15 pounds to 30,000 pounds capacity.

TAYLOR-FORBES COMPANY, LIMITED

Guelph, Ont., May 4th, 1908.

Messrs. Byram & Company,
Detroit, Mich.

Dear Sirs:—

Answering your letter dated April 28th, would say that we have two (2) of your Cupolas in use; in our No. 1 Foundry a 36" Colliau and in our No. 2 Foundry a 56" Colliau. One has been in service seven years and the other three years, both giving excellent satisfaction in every way.

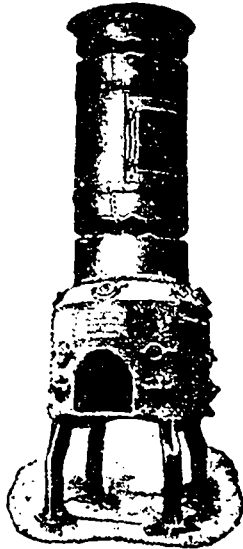
From our own personal experience in connection with Foundry practice during the last twenty-seven years, we have never seen a better Furnace than the "Colliau."

Yours very truly,

Jno. M. Taylor,

President and Gen. Manager.

THE COLLIAU CUPOLA FURNACE



THE STANDARD OF CUPOLAS

CROWE'S IRON WORKS

Guelph, Ont., April 29, 1908.

Messrs. Byram & Co.

Detroit.

Gentlemen:—

The 70 inch Colliau Cupola which we obtained from you has been in use over a year, and we are pleased to say that it has been one of the very best investments our firm ever made. We can thoroughly recommend this Cupola to anyone desiring the most UP-TO-DATE thing in Furnaces.

Yours very truly,

Crowe's Iron Works,

G.

C.

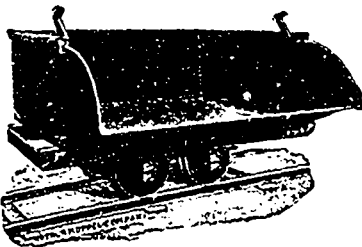
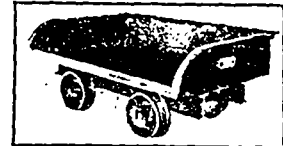
The Colliau Cupola
Is The Only Cupola
"IMITATED"

BYRAM & COMPANY

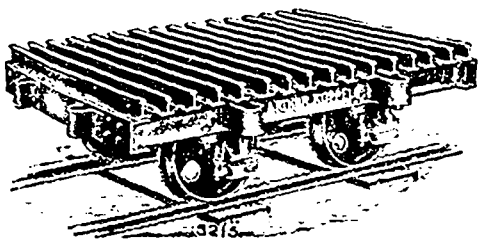
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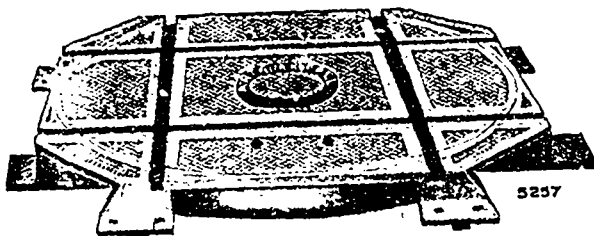
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When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

Definition of Electrical Terms.

EXTRACTS FROM THE REVISED STANDARDIZATION RULES OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS IN TECHNICAL LITERATURE.

The following definitions and classifications are intended to be practically descriptive and not scientifically rigid.

CURRENTS.

A direct current is a unidirectional current.

A continuous current is a steady or non-pulsating direct current.

A pulsating current is a current equivalent to the super-position of an alternating current upon a continuous current.

An alternating current is a current which when plotted, consists of half waves of equal area in successively opposite directions from the zero line.

An oscillating current is a current alternating in direction and of decreasing amplitude.

ROTATING MACHINES.

A generator transforms mechanical power into electrical power.

A direct-current generator produces a direct current that may or may not be continuous.

An alternator or alternating current generator produces alternating current either single-phase or polyphase.

A polyphase generator produces currents differing symmetrically in phase; such as two-phase currents, in which the terminal voltages on the two circuits differ in phase by 90 degrees; or three-phase currents, in which the terminal voltages on the three circuits differ in phase by 120 degrees.

A double-current generator produces both direct and alternating currents.

A motor transforms electrical into mechanical power.

A booster is a machine inserted in series in a circuit to change its voltage. It may be driven by an electric motor (in which case it is termed a motor booster) or otherwise.

A motor generator is a transforming device consisting of a motor mechanically connected to one or more generators.

A dynamotor is a transforming device combining both motor and generator action in one magnetic field, with two armatures, or with an armature having two separate windings and independent commutators.

A converter is a machine employing mechanical rotation in changing electrical energy from one form into another. A converter may belong to either of several types as follows:

a. A direct-current converter converts from a direct current to a direct current.

b. A synchronous converter (commonly called a rotary converter) converts from an alternating to a direct current, or vice versa.

c. A motor converter is a combination of an induction motor with a synchronous converter, the secondary of the former feeding the armature of the latter with current at some frequency other than the impressed frequency, i. e., it is a synchronous converter concatenated with an induction motor.

d. A frequency converter converts from an alternating current system of one frequency to an alternating-current system of another frequency, with or without a change in the number of phases or in voltages.

e. A rotary phase converter converts from an alternating current system of one or more phases to an alternating current system of a different number of phases, but of the same frequency.

STATIONARY INDUCTION APPARATUS.

Stationary induction apparatus change electric energy to electric energy through the medium of magnetic energy. They comprise several forms, distinguished as follows:

a. In transformers the primary and secondary windings are insulated from one another.

b. In auto-transformers, also called compensators, a part of the primary winding is used as a secondary winding or conversely.

c. In potential regulators a coil is in shunt and a coil is in series with the circuit, so arranged that the ratio of transformation between them is variable at will. They are of the following three classes:

(a) Compensator potential regulators in which a number of turns of one of the coils are adjustable.

(b) Induction potential regulators in which the relative positions of the primary and secondary coils are adjustable.

(c) Magneto potential regulators in which the direction of the magnetic flux with respect to the coils is adjustable.

(d) Reactors, or reactance coils, formerly called choking coils, are a form of stationary induction apparatus used to produce reactance or phase displacement.

MOTORS—SPEED, CLASSIFICATION.

Motors may for convenience be classified with reference to their speed characteristics as follows:

a. Constant-speed motors, in which the speed is either constant or does not materially vary, such as synchronous motors, induction motors with small slip and ordinary direct-current shunt motors.

b. Multispeed motors (two-speed, three-speed, etc.), which can be operated at any one of several distinct speeds, these speeds being practically independent of the load, such as motors with two armature windings.

c. Adjustable-speed motors, in which the speed can be varied gradually over a considerable range, but when once adjusted remains practically unaffected by the load, such as shunt motors designed for a considerable range of field variation.

d. Varying speed motors, or motors in which the speed varies with the load, decreasing when the load increases, such as series motors.

LOADS, POWER AND LOAD FACTORS.

Load Factor.—The load factor of a machine plant or system is the ratio of the average power to the maximum power during a certain period of time. The average power is taken over a certain interval of time, such as a day or a year, and the maximum is taken over a short interval of the maximum load within that interval.

In each case the interval of maximum load should be definitely specified. The proper interval is usually dependent upon local conditions and upon the purpose for which load factor is to be determined.

Non-inductive Load and Inductive Load.—A non-inductive load is a load in which the current is in phase with the voltage across the load.

An inductive load is a load in which the current lags behind the voltage across the load. A load in which the current leads the voltage across the load is sometimes called an anti-inductive load.

Power Factor and Reactive Factor.—The power factor in alternating current circuits or apparatus is the ratio of the electric power in watts to the apparent power in volt-amperes. It may be expressed as follows:

$$\frac{\text{true power}}{\text{apparent power}} = \frac{\text{watts}}{\text{volt amperes}}$$

$$\frac{\text{energy current}}{\text{total current}} = \frac{\text{energy voltage}}{\text{total voltage}}$$

The reactive factor is the ratio of the wattless volt-amperes (i. e., the product of the wattless component of current by voltage, or wattless component of voltage by current) to the total amperes. It may be expressed as follows:

$$\frac{\text{wattless volt-amperes}}{\text{total volt-amperes}} = \frac{\text{wattless current}}{\text{total current}}$$

$$\frac{\text{wattless voltage}}{\text{total voltage}}$$

Power factor and reactive factor are related as follows:

If p = power factor, q = reactive factor then with sine waves of voltage and current,

$$p^2 + q^2 = 1.$$

With distorted waves of voltage and current,

$$p^2 + q^2 = \text{or} < 1.$$

ENGINE WORKS EXTENDING.

The Robert Bell Engine & Thresher Co., Seaforth, Ont., manufacturers of the "Imperial" line of threshing machinery, also saw mill machinery, have just concluded the purchase of the Coleman Works property adjoining their premises, including the buildings thereon, and some 13 acres of land. This will give the Robert Bell company over 900 feet of spur siding, ensuring the best shipping facilities.

The present buildings, comprising the Coleman works, will be immediately removed to make room for extensions to the company's factories, the first extension under contemplation being the erection of a large and modern moulding shop, covering an area of about 100x350 feet; a large warehouse for finished machinery, and a number of buildings for the storage of raw materials, etc. The building at present in use as a moulding shop will be used for the storage of finished castings.

These extensions will make this plant one of the largest of its kind in the country, which speaks well for the popularity of the "Imperial" line of threshing machinery manufactured by the company. This is only a beginning of the enlargement of the factories, the idea being to add units from time to time, to provide for their growing business, and the large acreage just purchased will be fully required to carry out the company's plans for additions to their processes in the near future.

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Foreign Industry and the New Patents Act.

FROM COMMERCIAL INTELLIGENCE, LONDON, ENG

The archives of the Board of Trade, we imagine, could not reveal many such annals of official obstruction as the story of the movement which led to the passing of the new Patents Act. Mr. Levinstein, of Manchester, whose own part in that movement was probably second to none, has shown in his account to the Liverpool Chamber of Commerce, a charitable leniency towards those whose stupidity so long delayed the realization of that reform, but the facts of the matter ought, for several reasons, to be reviewed from a more critical standpoint. It may be said at once that Mr. Lloyd-George has well deserved all the popularity he has gained from the passage of this measure, though not because he is more deserving of credit than the pioneers who perceived the opportunity and long and strenuously insisted on the need of reform; it is the extraordinary independence which he showed when the matter was brought under his consideration that deserves recognition. Many authorities were against him in the course he took, but he had the courage to question the decision of his predecessors, and he has now the pleasure of seeing their opposition fully condemned by the success of this new Act.

As far back as 1881 Mr. Levinstein called attention to the great injury inflicted upon British trade by foreign inventions patented in this country which were worked exclusively abroad, and in 1883 an act was passed, when Mr. Chamberlain was at the Board of Trade, with the intention of providing an adequate safeguard of British interests, but it was framed in such ambiguous language that it was found to be practically useless for the end it was devised to serve. Mr. Levinstein and others again took up the cause, and in 1897 Mr. Ritchie, then President of the Board of Trade, was pressed to consider the matter, but even at that date he did not consider that the Act of 1883 had failed, and refused to take any action in the matter. The Manchester Chamber of Commerce then began its active support of the movement, of which it has been the foremost champion ever since, and Mr. Ritchie was appealed to again, with some success. To satisfy him of the uselessness of Section 22 of the 1883 Act, by which it had been sought to ensure the working of patents in the United Kingdom, Mr. Levinstein's firm arranged for a test case, by lodging a petition with the Board of Trade for the grant of a certain licence. The hearing of this petition took the form of a trial in the Law Court: it extended over 11 days, and although the compulsory licence was finally granted, the utter uselessness of the Section for all practical purposes was abundantly proved. The total expenditure of the parties concerned amounted to about \$20,000, the expenditure of the Board of Trade being probably not less than \$3,500. As the result of these proceedings, Mr. Ritchie was induced to appoint a Departmental Committee to enquire inter alia "Whether any and if so, what, amendments are necessary in the provisions of Section 22 of the Patents Act of 1883." That Committee, however, was chiefly composed of officials, lawyers, and a patent agent, while manufacturers and inventors were conspicuously absent, a

deficiency which the Manchester Chamber's appeals could not induce Mr. Ritchie to make good. The economic side of the question was deliberately ignored by this Committee, who met the suggestion that some plan for the defeasance of a patent in the event of its not being worked in this country would be preferable to the compulsory granting of licenses by the curt remark in their report that "We are not able to accede to this suggestion," and Mr. Levinstein has shown that the Committee really misunderstood the object for which the enquiry was sought. To a witness by whom reference was made to the desirability of having as many manufacturers as possible worked in this country, the Master of the Rolls, a member of the Committee, replied, "That it is not very material to our present enquiry." Not satisfied with this Departmental Committee's report, the Chambers of Commerce and other bodies approached Mr. Gerald Balfour, but again to no purpose, for his bill of 1902, as far as compulsory working was concerned, was quite valueless. The Associated Chambers, however, did not lose heart, and in 1906 they passed a resolution which was submitted to Mr. Lloyd-George, and is now embodied in the Patents Act of 1907. It is the provision based on this resolution that has already resulted in the establishment of many foreign manufacturers in this country for the purpose of working their patents, and it is an act by which the Chambers of Commerce have greatly redeemed their vanishing reputation for efficient public service.

Since the passing of the act, Mr. Lloyd-George has raised high expectations of it by his own enthusiastic way of estimating its probable results. The number of British patents owned by foreigners and not worked in this country was generally understood to be very large, but Mr. Levinstein has given in his address to the Liverpool Chamber of

Commerce a more definite basis for such conjectures, which he states as follows:

"Section 27 is retrospective in its application. It includes all patents which were taken out from 1894 to 1904. Putting aside the years 1894 and 1895, as patents taken out in these two years will shortly lapse, there are still remaining the patents granted between 1896 and 1904. The average number of patents granted annually to residents outside the United Kingdom is about 8,000, which would give a total for these eight years (1896-1904) of 64,000. Allowing that, say 75 per cent. of these have lapsed, or are not worked, there still remain about 16,000 patents to be dealt with. If half of these are already worked in this country, which is a liberal allowance, there are finally left about 8,000 patents to which Section 27 applies. I know these figures are rather speculative, and that speculations are somewhat risky, but still they show at least that a very large number of foreign patents, granted in England, must at once come within the province of the new Act."

In addition to the foreign concerns, which we have reported to be erecting works in England, viz., two by German syndicates engaged in the chemical industry and the American Shoe Co., of Boston, and the firm making the Gillette razors, Mr. Levinstein learns that a large foreign electrical engineering company proposes to erect works on the Thames; and a number of other foreign manufacturers are negotiating for the acquisition of suitable sites. Before long Mr. Levinstein expects we shall also see the artificial silk industry fully developed in this country. This is a very profitable business—one German concern paying last year 40 per cent. in dividends. There are, however, a large number of other industries which come within the Act, among which Mr. Levinstein names the motor industry, electrical engineering, labor saving appliances and machinery, chemicals, etc., all largely depending on patented inventions which will have to be worked in this country.

Suggestions for Wood-Working Plant Managers.

By Arches in The Wood-Worker.

"No smoking allowed." A very good notice to have in any wood-working plant, for the public in general, but I think you will all agree that there are other notices that ought to be posted about the mill, expressly for the benefit of the workmen. In most all the mills I have been in I find this fault—everything out of place. The notice I think should be in every mill is this:

A PLACE FOR EVERYTHING AND EVERYTHING IN PLACE.

It is one that should be rigidly enforced. There are always certain tools, such as wrenches, cutterheads, wabble saws, cabinet clamps, straightedges, trammels, etc., used in a general way by different workmen in the shop. What an endless task it is, when you want one of these articles, to go scouring around the mill to find it! There could just as well be a place to keep such things, and

then when they are needed you know exactly where to get them. If they aren't there you know they are in use, provided every workman adheres strictly to the rule to return every tool soon as he is through with it.

Some workmen will borrow a wrench from your machine, and when they get through with it, instead of returning it immediately, will lay it to one side and go on with their work; then when you want it, you must go after it; they make no pretense whatever of returning anything they borrow. It is certainly a pleasure to work in a shop where there is "a place for everything and everything in place," and any of you who have been a little slack in this respect should wake up to the fact that the opportunity for doing what has been expected of you is slipping by.

There are always opportunities to better conditions if one will but keep his eyes open. No matter how small, they should be looked

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DEAR SIR,

You will remember the trouble you had in selling us Youghiogheny Coal, owing to the price being somewhat higher than we were paying for the best grades of Steam coal. It is due you now that we should give you the result of a fair and careful test of your coal in comparison with coal which, barring yours, is the best coal we have ever used. In proof of the latter, I will say, just here, that our record for twenty hours run in the past has been from seven to seven and one-half tons. The present test was made on a run of twenty hours as follows:—

M. R. C. C. & C. Co. "Youghiogheny,"	7600 pounds.
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If large consumers would give your coal a fair test I am sure you would have no difficulty in selling on the result.

The above should be of interest to every coal consumer, and we would like to hear from you. The name of the party will be given on application.

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after. About the first work I did in a mill was feeding an automatic lathe, the stock being piled on the floor beside the machine. Of course, while the pile was high it was very easy to reach over and get a piece and place it in the lathe, but when it got a little lower it was a continual stoop, stoop, for every piece. It was when the pile was in this condition and I was stooping for every piece, that a friend, much older than myself, came in to see me. He stood watching me several minutes, then said: "My young friend, don't you know life is too short to be stooping that way when you could just as well have a truck or pair of trestles to lay your stock on?" I was young and vigorous then, and told him I didn't mind it any, but he said, "In a few years you will think differently." and I do.

MORE WORKING BOARDS NEEDED.

Go into any of the mills of to-day that are alive and up-to-date, and you will not see any work being done on the floor. No foreman should allow his men to construct work on the floor, where they must be on their knees all the time, getting up and down, working almost on their own level. They can do only about half as much for their employers, and, therefore, should never be allowed to do it, not only because of the decreased amount of work turned out, but on account of the undue strain brought to bear upon the workmen. There should always be a variety of working boards about a mill, ranging in size from 2x3 feet up to 8x12 feet. There should be at least five or six of them. Then when a workman has a fame, sash, grille or some similar work to perform, he can always find a suitable board to do it on at a decent height (being laid on trestles) so he can work like a man. Working bent over is certainly one of the most unbusiness-like methods that can be employed in a mill. To get best results these boards should be constructed of kiln-dried white pine flooring, with battens screwed on. The larger ones should have a brace on to keep them from racking. When not in use they should be stood on edge. Whatever you do, don't work on the floor.

"BE A MOLDER MAN OR DON'T"

To be or not to be. Well, it all depends upon circumstances. "Either be a molder man or don't be one," is what an old mill man told me. "This thing of setting up stickers," said he, "for some one else to run the stock through, is a failure, not only to the man who knows how to set up the machine, but also to the one that is going to run the stock through, but doesn't know how to set up the machine. Is it any wonder there is so much poorly milled work on the market, when, after the machine is set up right, it is turned over to one that doesn't understand the workings of that machine, to run the stock through. All's well that ends well, but if some of that stock is spoiled, who gets the blame? Possibly a nick may appear in some of the knives and show on the finished article, but the man keeps feeding it in. It may be the guides need a little readjusting—are perhaps too loose and allow the work to give sideways. And, after all, if that work isn't up to the standard when completed, the man that set up the machine is going to get the blame, when if he could have been right there he could have made the necessary adjustments to have secured perfect work in

every detail; and if he didn't have perfect work, there would be one consolation in knowing that there was no one to blame but himself. "I would never ask a man to set up a molder for any kind of work, with the expectation of having some one else run the stock through, and I don't think any foreman would." Any man capable of setting a molder up, on whatever pattern it may be, should be the man to run that pattern out.

WHERE THE SHAPER SHOULD BE USED

But I have wandered way off. What I should have said was this: If there is any machine where two knives or bits should cut, it certainly should be on the shaper, not only because of the better quality of work produced, but for the safety of the operator. It is a very poor policy to do much work on the shaper with just one bit to do the cutting; there seems to be a constant push against you, where if you have two bits cutting, it just seems to glide across the table without any effort whatever. It cuts more freely and easily, with less liability to disastrous results. So if you want to do good work on the shaper, both in regard to quality and quantity, have the bits cut as nearly alike as possible to make them. I have been very careful to not say make your bits cut all alike, for fear some of those non-believers in four bits cutting all the time might take offense.

KEEP THE MILL CLEAN.

And last, but not least, the accumulation of trash. If I were some of the mill owners that have electric drives I think I would clean up the floor a little before I allowed a picture to be taken of some machine to advertise a certain make of dynamo. In one of the back numbers of *The Wood-Worker* there appeared a cut of a direct-driven machine in a planing mill, it being an advertisement for an electrical company. In the write-up it spoke about what a success their dynamo had been, running under such unfavorable conditions (with emphasis on the "unfavorable"). From the illustration it was certainly unfavorable, almost impossible to see either the machine or dynamo on account of the "allowed" accumulation of shavings and trash. I haven't any doubt in the least but what the dynamo worked successfully, but why those conditions? According to the language used, "running under unfavorable conditions" would, of course, mean that it was running under those conditions at all times, year in and year out.

Don't allow trash and shavings to pile up around your machines. If you are going to be progressive, be progressive every inch of the way, but don't step over some uncompleted part. This reminds me of when I was a young man, taking lessons in penmanship. We were learning muscular movement then, and, of course, were always practising on speed, even before we hardly knew the movement. Our instructor said we were progressing too fast; that we must first learn the movement, then the correct formation of letters, and then, when we had acquired these things, go for speed. And so it is in the planing mill. Be progressive, but take it step by step. Don't allow trash to pile up around your machines; there is something wrong when you do; a chapter has been missed; better go back and learn formation. Nothing is greater hindrance to workmen than all kinds of trash and scraps lying around on the floor knee deep.

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It has a rough surface of real mineral matter on the weather side. It is evident to any one that it is no more necessary to paint such a surface than it is necessary to paint a stone wall. One needs no paint; neither does Amatite. It is strong enough in itself to bear the brunt of rain and wind and sun without a protective coat of paint.

To paint Amatite would be a waste of time and trouble. Amatite will last for many years without any care whatever. It is made to be trouble proof as well as weather proof.

A roofing that consists of smooth materials, made to receive a heavy coating of paint, is not a roofing at all: the paint is the real roof.

If you are told that certain roofings don't need painting when first laid, don't be deceived into thinking that they are like Amatite. The first coat of paint has been applied at the factory—that's all, and it will wear off in a little while and require renewal.

No paint is good enough to make a durable roof: a thick layer of pitch, faced with a real mineral surface, is far better—and that means Amatite.

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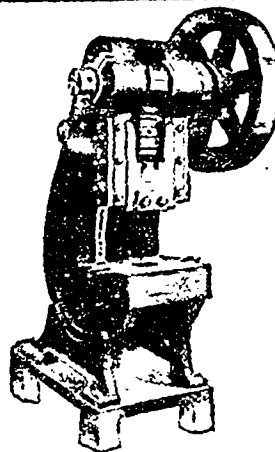
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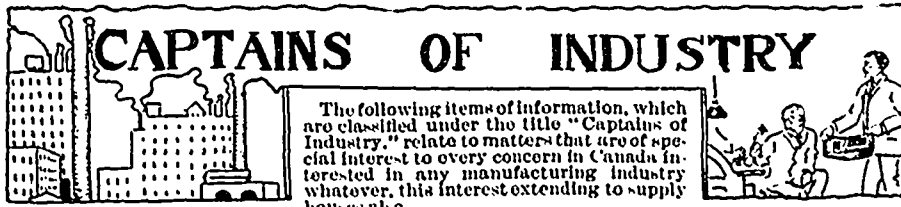
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TORONTO, - - - CANADA



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

Dr. Bellman Medical Co., Collingwood, Ont., have been incorporated with a capital of \$100,000, to manufacture drugs, medicines, etc. The provisional directors include E. J. Bellman, G. P. Pearsall and J. M. O'Brien, Collingwood, Ont.

Muskoka, Ont., is the new Canadian Pacific Railway division point on their Toronto-Sudbury line, and with the opening of this new line it will become an important centre. The round house is a concrete structure consisting of eight stalls, which may be increased to twenty-two, fitted up with modern machine shop and central lighting and heating plant. The yards are laid with 72 and 80-pound steel and contain some six miles of track. Oil house, sand house, coal chute, and station have already been erected.

The Windsor Pearl Button Co., Windsor, Ont., have been incorporated with a capital of \$40,000 to manufacture pearl buttons. The provisional directors include A. Moir, J. Moir, Burlington, Iowa, and J. L. Schram, New Boston, Ill.

The Holton Lumber Co., Belleville, Ont., have been incorporated with a capital of \$40,000, to manufacture lumber, timber, boxes, laths, doors, sashes, etc. The provisional directors include G. H. Holton, C. J. Howell, and M. Howell, Belleville, Ont.

The Tedd Shoe Co., Owen Sound, Ont., will erect a new factory.

The Friction Heat-Light Co., Toronto, have been incorporated with a capital of \$60,000, to manufacture boilers, heaters, ranges, furnaces, stoves, lamps, etc. The provisional directors include G. Paton, J. Linton and A. Laidlaw, Toronto.

The Willson-Carbide Co., Merritton, Ont., are erecting a new storehouse.

The ratepayers of Alliston, Ont., will vote on a by-law to grant a loan of \$25,000 to the Consolidated Crossin Piano Co.

The Vessot Flax Pulling Machine Co., St. Marys, Ont., have been incorporated with a capital of \$40,000 to manufacture flax pulling machines, etc. The provisional directors include C. H. Vessot, Ottawa, P. Pigeon, Stratford, Ont., and W. Weir, St. Marys, Ont.

The Ontario Wind Engine & Pump Co., Toronto, are shipping to Beira, East Africa, four complete Canadian air-motors, with tanks, pumps, grinders, etc., also a shipment to Pretoria, South Africa.

The Bell Telephone Co. purpose erecting a new building in Toronto at a cost of about \$250,000.

The R. A. Sabiston Co., Toronto, have been incorporated with a capital of \$60,000, to manufacture horse blankets, collar pads, etc. The provisional directors include R. Sabiston, G. R. Robinson, and G. S. Hodgson, Toronto.

Thos. Crooks, Hamilton, Ont., will erect a large office building in that city.

The Lakeside Pleasure Co., St. Thomas, Ont., purpose erecting a large boathouse.

A new school will be erected in Woodstock, Ont., to replace the Delatre St. school, at a cost of about \$20,000.

The W. T. Glover Mfg. Co., Burlington, Ont., have been incorporated with a capital of \$20,000, to manufacture barrels, boxes, baskets, crates, etc. The provisional directors include E. W. Lewis, Burlington, Ont., W. T. Glover and W. F. W. Fisher, Nelson Township, Ont.

The authorities of the Toronto Y.M.C.A. are considering the erection of a new building.

Waterworks and sewerage systems will be installed at Cobalt, Ont.

The Electric Distributing Co., Toronto, have been incorporated with a capital of \$100,000 to carry on the business of an electric light company. The provisional directors include A. G. Ross, M. L. Gordon and G. C. Loveys, Toronto.

Messrs. Clark & Monds, Toronto, have been awarded the contract for a 60 foot reinforced concrete arch over the Don River, east of Landsing, Ont.

The mills of the Canada Tin Plate & Sheet Steel Co., Morrisburg, Ont., after being closed since January 27 last, because of the serious fire which occurred on that date, have resumed manufacturing operations.

The Rice Knight Mfg. Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture lamps, lighting machinery, etc. The provisional directors include H. A. Rice, W. F. Saunders and E. H. Scammell, Toronto.

A new Y.M.C.A. building will be erected at Brantford, Ont.

J. H. Hall & Co., Brantford, Ont., will erect a new plant and are negotiating with the council with a view to obtaining a fixed assessment of \$2,000 for ten years.

A. E. Petty, of Hamilton, Ont., will establish an emery wheel factory in Brantford, Ont.

Ajax Plastic, Limited, Hamilton, Ont., have been incorporated with a capital of \$25,000 to manufacture lumber, stone, cement, abrasive and grinding materials, etc. The provisional directors include P. Bartholomew, Toronto, C. N. Clendenning, Niagara Falls, Ont., and W. M. Clendenning, Hamilton, Ont.

W. T. Crocker, Detroit, Mich., is negotiating with the council, Galt, Ont., with a view to the erection of a large automobile factory there.

90,000 square feet of permanent walks will be constructed at Gananoque, Ont., at a cost of about \$18,000.

A skating and curling rink will be built at Teeswater, Ont., at a cost of about \$2,000.

The Toronto Electric Light Co., Toronto, will erect a sub-station at the corner of Tecumseh and Defoe Streets.

The Roswell Silver Mining Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include A. W. Holmstead, A. R. Fickerstaff and T. A. Silverthorn, Toronto.

Geo. White & Sons, London, Ont., will erect a machine shop at a cost of about \$15,000.

The ratepayers of St. Mary's, Ont., voted favorably on a by-law authorizing a loan of \$20,000 to the St. Mary's Smallware Mfg. Co.

The Beaver Mfg. Co., Galt, Ont., have been incorporated with a capital of \$100,000, to manufacture drugs, medicines, spices, cereals, etc. The provisional directors include H. M. Griffin, Waterloo, Ont., J. P. MacGregor, Latchford, Ont., and W. Griffin, Toronto.

A filtration plant will be installed at Kettle Creek, St. Thomas, Ont., for the sum of \$30,000.

Thamesville, Ont., invite tenders up to June 10 for the remodelling of the Camden school.

The Scotland Box & Mfg. Co., Oakland Township, Ont., have been incorporated with a capital of \$40,000, to manufacture boxes, caskets, racks, washing machines, wheel barrows, builders' supplies, etc. The provisional directors include E. H. Corbin, A. C. Eddy and J. T. Turnbull, Oakland Township, Ont.

The Industrial Publishing Co., Toronto, have been incorporated with a capital of \$10,000, to carry on a general printing and publishing business. The provisional directors include W. J. Hamby, A. W. Wright and J. H. Kennedy, Toronto.

The Massey-Harris Co. will erect a four story warehouse at the corner of Strachan Avenue and King Street, Toronto.

A. Hill & Co., Mitchell, Ont., have been awarded the contract for the construction of five steel bridges in Stanley Township, Ont.

The ratepayers of Preston, Ont., will vote on a by-law to raise \$16,800 to construct sewerage and waterworks systems.

A new Presbyterian Church will be erected in Stroud, Ont.

H. Prast, Hanover, Ont., has been awarded the contract for the erection of the addition to the South Grey Registry office, the contract price being \$2,000.

L'Orignal, Ont., invite tenders up to June 9 for the construction of about 30,000 superficial feet of concrete sidewalk.

A fire hall will be erected in North Toronto, Ont., at a cost of about \$5,000.

An addition will be erected to the Bays Home, Toronto, at a cost of about \$20,000.

A sewerage system will be installed in Bridgeburg, Ont.

The American Cynaid Co. will erect a large plant at Niagara Falls, Ont., at a cost of about \$25,000. F. A. Washburn, of New York City is president of the company.

A new building will be erected in connection with the General Hospital, Guelph, Ont., at a cost of about \$5,500.

The plant of the Imperial Wire & Steel Co., Collingwood, Ont., will be extended.

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 HAMILTON CANADA

A Sunday School building will be erected in connection with St. Andrew's Church, Chatham, Ont.

The congregation of the Presbyterian Church, Hespler, Ont., will erect a new church this summer at a cost of about \$20,000.

The Mail Job Printing Co., Toronto, will erect a new printing plant.

The Pittsburg Perfect Wire Fence Co. have leased part of the old Hoepfner works, Hamilton, Ont., for a Canadian branch factory.

The H. W. Johns-Manville Co., New York City, electrical supplies, have leased the Crucible Steel Co. building, Toronto, for a branch factory.

The Percy & McPerson Brass Works, will erect a factory in Forest, Ont., on condition that the town will exempt them from taxation for ten years.

The Napanee gas house, Napanee, Ont., was damaged by fire recently to the extent of about \$5,000.

L. Christie, Fort Frances, Ont., is erecting a tie mill.

The Pease Furnace Co., Toronto, are considering the establishment of a branch at Port Arthur, Ont.

Finch & Miller, Ridgeway, Ont. will erect carriage works at Port Colborne, Ont.

The printing office of the "Mirror," Merlin, Ont., and several adjoining buildings were destroyed by fire May 11. Loss about \$25,000.

The ratepayers of Welland, Ont., voted favorably on a by-law to assist the Dunnville, Wellandport and Beamsville Railway by the purchase of \$30,000 of the company's bonds.

The ratepayers of Oakville, Ont., voted favorably on a by-law to raise \$26,000 to erect a High School building.

A. A. Allan & Co., Toronto, have been incorporated with a capital of \$500,000 to manufacture woollen goods, leather goods, furs, etc. The provisional directors include A. A. Allan, F. S. Allan and C. H. Francis, Toronto.

The Canadian Pacific Railway Co. have decided to erect a large hotel at Caledonia Springs, Ont., at a cost of about \$2,000,000.

A large building in connection with the Industrial School, Mimico, Toronto, was destroyed by fire May 15.

Huntsville Hardware, Limited, Huntsville, Ont., have been incorporated with a capital of \$40,000 to manufacture hardware, iron, etc. The provisional directors include R. B. Hern, W. J. Lytle and J. W. White, Huntsville, Ont.

The plant of the Port Hope Electric Light & Power Co., Port Hope, Ont., was destroyed by fire recently. Loss about \$50,000.

The main building of the Imperial Stove Works, Morrisburg, Ont., was destroyed by fire May 26. Loss about \$25,000.

The coal sheds and derrick of G. Shields & Co., and the barge Mary Lyon, owned by the Hall Coal & Towing Co., Brockville, Ont., were destroyed by fire May 26. Loss about \$15,000.

The North Port Canning Co., North Port, Ont., have been incorporated with a capital

of \$40,000, to carry on a general canning business. The provisional directors include A. N. Sprague, Trenton, Ont., F. E. N. Boulter and E. M. Young, Pieton, Ont.

Application has been made by the town council, North Bay, Ont., to the Hydro-Electric Commission to develop Smoky Falls, on the Sturgeon River, and supply North Bay with electric power.

The large stables of the Larney Lumber Co., Owen Sound, Ont., were destroyed by fire recently. Loss about \$5,000.

The Luxfer Prism Co., Toronto, have been incorporated with a capital of \$30,000, to manufacture luxfer prism, glass, etc. The provisional directors include R. W. Eyre, E. E. Wallace and H. C. Macdonald, Toronto.

The town council, Welland, Ont., have decided to spend \$50,000 on the sewerage system this summer.

The Kingston Milling Co., Kingston, Ont., have secured the right of developing power at Kingston Mills, six miles from the town, and will transmit power to their mill, which will be enlarged.

An order winding up the Weir Wardrobe Co., of Canada, Limited, Mount Forest, Ont., has been granted, and F. Shaw has been appointed interim liquidator.

The Canadian Brass Mfg. Co., Limited, Galt, Ont., have assigned to the London & Western Trusts Co., Limited, London, Ont.

The electric light plant of the Tagona Water & Light Co., and pulp mill No. 2 and the Lake Superior Power Co., Sault Ste. Marie, Ont., were recently burned. Both plants were insured.

Win. & J. G. Greey, manufacturers of mill machinery, etc., Toronto, have suffered loss by fire; fully insured.

Among the firms who have bought pumping equipment from the Smart-Turner Machine Co., Limited, Hamilton, during the last few days are Sanderson, Soule & Casselman, Chesterville, Ont., Arthur Johnston, Sarma, Ont.; the Hamilton Cotton Co., the F. W. Fearman Co., Hamilton, Graves, Bigwood & Co., Midland, Gilles Bros., Braeside, Ont., J. D. Irving, Buctouche, N.S.; the Dresden Canning Co.; Wagstaff, Limited, Hamilton; the Robb Engineering Works, Amherst, N.S.; the Magnetawan Tanning & Electric Co., Burks Falls, Ont.; the Robt. Davies Co., Toronto; the London Soap Co., London, Ont.

The Starkey Mfg. Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture brass, iron, steel, etc. The provisional directors include A. N. Starkey, G. V. Jay and A. P. Shields, Toronto.

The Commercial Publishing Co., Toronto, have been incorporated with a capital of \$40,000 to carry on a general printing and publishing business. The provisional directors include G. H. Kilmer, J. A. McAndrew and E. V. Burwell, Toronto.

Blackwell Varnishes, Limited, Toronto, have been incorporated with a capital of \$50,000, to manufacture varnishes, paints, japans, oils, chemicals, etc. The provisional directors include B. D. Blackwell, W. P. Hirst and A. A. Rutledge, Toronto.

The Canadian H. W. Johns-Manville Co., Toronto, have been incorporated with a capital of \$50,000 to manufacture asbestos,

roofing materials, pipe and boiler coverings, cements, railway supplies, etc. The provisional directors include G. W. Macdonald, M. Barclay and A. Swindlehurst, Montreal.

The Bank of Nova Scotia are erecting a four-story building on Melinda St., Toronto.

The Metropolitan Bank are erecting a new building at Kew Beach, Toronto.

A waterworks system will be installed in Clinton, Ont.

A bonus of \$5,000 with exemption from taxes for ten years has been granted by Sherbrooke, Que., to the Improved Paper Machinery Co., of Nashua, N.H., who will establish a plant there.

The Waterman Pen Co. will erect a factory at St. Lambert, Que., this summer at a cost of about \$50,000.

Louis Trudel, Limited, Montreal, have been incorporated with a capital of \$49,000 to manufacture dynamite, gunpowder, chemicals, compounds, etc. The charter members include L. Trudel, J. A. Chagnon and M. Larose, Montreal.

The British-Canadian Asbestos Co., Black Lake, Que., have been incorporated with a capital of \$1,000,000, to manufacture asbestos, minerals, etc. The charter members include J. W. Cook, A. R. McMaster and A. W. G. Macalister, Montreal.

Messrs. Trudel & Graham, Montreal, have been incorporated with a capital of \$20,000, to manufacture hats, caps, furs, etc. The charter members include C. E. Simpson, A. Trudel and A. Giguere, Montreal.

Guardian Shoe Co., Montreal, have been incorporated with a capital of \$40,000, to manufacture boots, shoes, rubbers, etc. The charter members include B. Gale, W. Patterson, Montreal, and H. Gale, Quebec, Que.

The Quebec Contracting Co., Quebec, Que., have been incorporated with a capital of \$100,000, to carry on a general contracting and constructing business. The charter members include K. A. Morrison, W. Sharpe and A. H. Hall, Quebec.

A hotel will be erected at Ville Marie, Pontiac County, Que., at a cost of about \$20,000.

Ville Marie, Que., will spend about \$27,000 on waterworks and sewerage systems.

A market and town hall will be erected at Longueuil, Que., to replace the buildings recently destroyed by fire.

New armouries will be erected on Rachel Street, Montreal, at a cost of about \$90,000.

The Canadian Bank of Commerce, Montreal, have recently ordered a 67-inch by 18 feet return tubular boiler from the Robb Engineering Co., Amherst, N.S.

The premises of the Dannville Lumber Co., Montreal, were destroyed by fire May 22. Loss about \$12,000.

The brewery of H. A. Ekers, Montreal, was damaged by fire May 9.

A new school will be erected at Richmond, Que., at a cost of about \$6,000.

John W. Hall and Geo. Haysey have registered the Household Specialty Mfg. Co., manufacturers of polishes, etc., Montreal.

James C. Weir has registered as president of J. & R. Weir, Limited, machine works, Montreal.

The Hall Engineering Works, Montreal,

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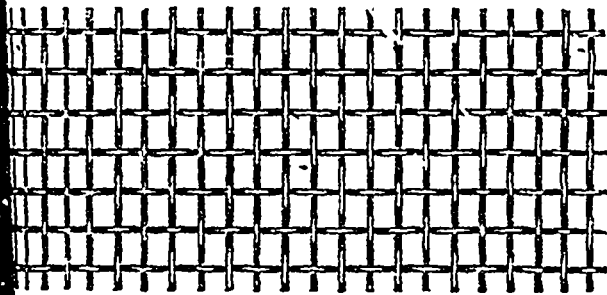
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have removed to larger premises at 14 Jurots Street.

Edwin Crabtree & Sons have removed their Montreal warehouse from Youville Sq to S Lamoine St.

Plews & Larin, consulting engineers and experts, have opened electro-mechanical manufacturing and testing laboratories in the Herald Building, Montreal, and will undertake plans, specifications, supervision tests, investigations, and reports, and will also design and manufacture electrical and mechanical appliances.

The International Machine Co., 220 Bleury St., Montreal, are equipping a machine shop to make gears of all kinds and to do special machine and repair work.

The Western Canada Milling Co. will erect a new warehouse at St. Louise de Mile End, Montreal. J. H. Tromenhauser, Toronto, is the architect.

J. A. Christin, 21 St. Julie St., Montreal, will erect an amusement rink on St. Catherine street west at a cost of about \$20,000.

The Hart & Adair Coal Co., Montreal, will erect a solid concrete addition 135x170 feet to their coal bins at St. Louis de Mile End. Byers & Anglin, Montreal, are the contractors.

E. N. Henry & Co., Montreal, will build a new carriage factory at a cost of about \$80,000. The Laurin Construction Co., Montreal, are the contractors.

A new technical school will be erected in Montreal at a cost of about \$350,000, on property recently purchased on Sherbrooke St.

The offices of the Quebec & Lake St. John Railway Co. will be considerably enlarged.

Taylor & Jamieson, Scotstown, Que., will rebuild their sawmill which was recently destroyed by fire.

The machine shop of John Abrams & Sons, Moncton, N.B., was destroyed by fire May 22.

The lumber factory of J & D. Harquail, Campbellton, N.B., and several adjoining buildings, were destroyed by fire May 9. Loss about \$31,000.

The freight and coal sheds of the Intercolonial Railway Co. at Bathurst, N.B., were destroyed by fire May 25. Loss about \$15,000.

The Bank of New Brunswick are erecting a new branch at Carleton, N.B.

The Westmoreland Power Co., Moncton, N.B., are seeking incorporation to construct a street railway and to carry on a light and power business.

The J. B. Snowball Co., Bathurst, N.B., have recently ordered one 72-inch by 20 feet return tubular boiler from the Robb Engineering Co., Amherst, N.S.

A fire station will be erected at Glace Bay, N.S., at a cost of about \$5,000.

The Dominion Coal Co., Glace Bay, N.S., will rebuild their washing plant recently destroyed by fire.

The National Rolling Mills will erect a plant at Sydney, C.B.

The city council, Sydney, N.S., purpose extending the present tramway of the town.

The sewerage and waterworks systems, Dartmouth, N.S., will be extended.

The waterworks and sewerage systems,

Lunenburg, N.S., will be improved at a cost of about \$25,000.

Love Bros., Charlottetown, P.E.I., have been awarded the contract for the erection of the new building for the Bank of Montreal, in that city.

C. V. Wetmore and F. A. Crowell have secured sufficient money to construct the proposed National Rolling Mills at Sydney, C.B.

Rhodes, Curry & Co., Amherst, N.S., are enlarging the old roundhouse of the Intercolonial Railway Co. at New Castle, N.B.

The large Broderick summer hotel at Parrsboro, N.S., was destroyed by fire May 13. Loss about \$10,000.

A large pavilion will be erected at Assiniboine Port, Winnipeg, Man., at a cost of about \$17,300.

The Superior Portland Cement Co., Orangeville, Ont., have been awarded the contract for the supply of 25,000 barrels of cement for the city of Winnipeg, Man. The contract price is \$10,000.

Dunn Bros., Winnipeg, have been awarded the contract for the supply of 4-inch tile pipe by the Board of Control, Winnipeg, Man.

The Brandon Generator & Carbide Co., Brandon, Man., have been incorporated with a capital of \$50,000, to manufacture, gas, oil, gas and electric fixtures, carbide, coke, oil, etc. The provisional directors include H. J. McNeJ, G. Bewell and J. H. Ingram Brandon, Man.

The Brandon Gas & Power Co., Brandon, Man., have been incorporated with a capital of \$150,000, to furnish gas and electricity and to manufacture gas and electric fixtures, etc. The provisional directors include A. C. Fraser, A. Maybee and J. Hanbury, Brandon, Man.

White & Manahan, Winnipeg, Man., have been incorporated with a capital of \$100,000, to manufacture woolen, linen, silk and cotton goods, furs, leather, etc. The provisional directors include W. G. White, E. Manahan and C. H. Manahan, Winnipeg, Man.

An addition will be erected to the Carnegie Library, Winnipeg, Man., at a cost of about \$30,000.

The Department of Public Works, Ottawa, invite tenders up to July 8 for the construction of a dam and bridge at St. Andrew's Rapids, Red River, Man.

A new public school will be erected in Kildonan, Man.

A municipal telephone system will be constructed at Macdonald, Man.

A new school house will be erected at Minto, Man.

John Saul, Winnipeg, Man., has been awarded the contract for the erection of the addition to the Mulvey School, at a cost of about \$50,000.

The new \$ 00,000 Catholic cathedral being erected in St. Boniface, Man., is nearing completion.

St. Joseph's Catholic church, Winnipeg, Man., recently damaged by fire, will be repaired at a cost of about \$12,000.

The Devon Court Apartment Co., Winnipeg, Man., will erect an apartment block at a cost of about \$110,000.

The United Telephone Co., Russell, Man.,

will erect a rural telephone system throughout Silver Creek municipality.

John Reid, Virden, Man., has been awarded the contract for the construction of the municipal telephone lines in Wallace municipality, Man.

A large part of the business district of the town of Russell, Man., was destroyed by fire May 19. Loss about \$100,000.

Peter Lyall & Sons, Montreal, have been awarded the contract for the erection of the new union station for Winnipeg, Man. The contract price was \$886,000.

A branch of the Northern Bank will be opened at Foam Lake, Sask.

C. O. Davidson, Prince Albert, Sask., will receive tenders up to June 13 for \$500,000 5½ per cent. thirty year debentures issued by the city as part of an issue of \$900,000 authorized for the erection of a High School.

An hotel will be erected at Alameda, Sask., at a cost of about \$20,000.

A new hotel will be erected at Langford, Sask., at a cost of about \$25,000.

The Canadian Northern Railway will erect a new depot at Saskatoon, Sask.

The Alberta Public Works Department have decided to erect the provincial asylum at Ponoka, Alta. When completed the building will cost about \$200,000.

Work will be commenced about the middle of this month on the erection of the new court house in Edmonton, Alta.

A large addition will be erected to the Canadian Pacific Railway hotel at Red Deer, Alta.

S. Brown has been awarded the contract for the erection of the new school at Vermilion, Man., the contract price being \$28,000.

The Department of the Interior, Edmonton, Alta., invite tenders up to June 8 for the furnishing of 46,300 iron posts for use on a survey of Dominion Lands.

McLean & Craig have been awarded the contract for the extension to the waterworks system at Prince Albert, Sask. The contract price is \$31,761.

The Camrose Canadian Club, Camrose, Alta., are considering the erection of a new club building.

The Western Box & Tub Works, Edmonton, Alta., will commence operations at the middle of this month.

Soldan & McLaughlin, implement dealers, Saskatoon, Sask., are erecting a new warehouse.

The Hudson Bay Co. are considering the erection of a building in Prince Albert, Sask., at a cost of about \$25,000.

The congregation of the Presbyterian church, Banff, Alta., are considering the erection of a new church.

The Eastview Telephone Co., Estevan, Sask., are considering the erection of a number of rural telephone lines.

The ratepayers of Estevan, Sask., were asked to vote on a by-law to raise \$50,000 for improvements and extensions to electric light and waterworks plants.

The Hudson Bay Co. will erect a building in Goschen, Sask.

A new public school will be erected at Nokomis, Sask.



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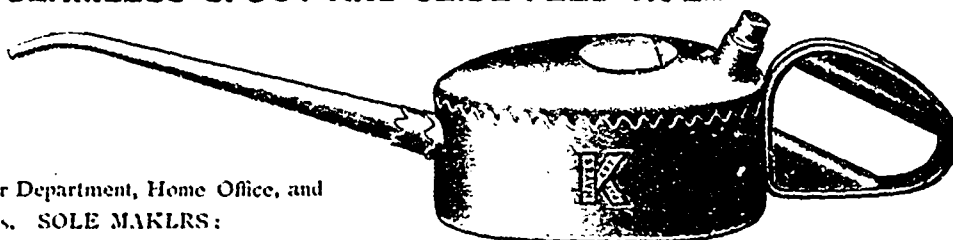
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The Dominion Government have voted \$50,000 for the penitentiary building and site, at Prince Albert, Sask.

The Canadian Pacific Railway have granted a tract of land to the town of Swift Current, Sask., on which to erect a hospital.

A waterworks system will be installed in Taber, Alta.

A. R. Fleming, Regina, Sask., is considering the establishment of a brick plant in Tantallon, Sask., at a cost of about \$10,000.

A new public school will be erected in Whitewood, Sask.

A company is being organized at Humboldt, Sask., to erect a public hall there.

Deputy Commissioner of Public Works, Regina, Sask., invites tenders up to June 22, for the erection of Legislative and Executive buildings for the province of Saskatchewan.

The elevator of the Smith Grain Co., Stockholm, Sask., was destroyed by fire May 17. Loss about \$5,000.

The Northern Electric Co., Montreal, have been awarded the contract for the supply of 700 miles of long distance telephone material for the province of Alberta.

The Dominion Bridge Co., Lachine, Que., have been awarded the contract for the construction of the two bridges over False Creek, Vancouver, B.C. The weight of the bridges will be about 2,800 tons and the total cost some \$750,000.

The Canada Zinc Co., Nelson, B.C., will commence operations shortly. About twenty tons of ore will be handled daily.

The Schaak Machine Works Co., New Westminster, B.C., have been awarded the contract for the building of all the machinery required for the new mill of the Moresby Island Lumber Co. at Queen Charlotte. The contract price was \$70,000.

The Union Club building, Victoria, B.C., will be improved at a cost of about \$40,000.

McPherson & Sinclair, Vancouver, B.C., have been awarded the contract for the erection of the new clubhouse for the Royal Yacht Club.

A new public school will be erected in Vancouver, B.C.

Field Bros., Victoria, B.C., are considering the erection of a large sawmill at Belle Coola, B.C.

An electric light system will be installed in Ladysmith, B.C., at a cost of about \$25,000.

A new school building will be erected in Nelson, B.C.

A machinery hall will be erected at the fair grounds of the British Columbia Agricultural Association, Victoria, B.C.

TRADE OPPORTUNITY.

Messrs. G. North & Son, of Haritzburg, Natal, South Africa, an old and prominent firm of importers of agricultural implements, desires to receive catalogues and prices from exporters of dairy implements, and particularly cream separators. Catalogues and quotations should be f.o.b. seaport or c.i.f. Durban, and all discounts allowed should be forwarded at time of sending catalogues.

Belts and Belt Transmission*

In view of the many changes tending toward economy and better operation which are continually taking place in other mechanical lines, why has the subject of belts and belt transmission been given so little attention?

Is it because the belting bills are now so small there is no desire for further reduction?

Is it because it is not known that friction costs money and that to permanently reduce it is like discovering a mine from which will flow a steady stream of the most coveted "coin of realm" so long as the wheels of the mill turn?

There may be and doubtless are many reasons. Those which occur to us are because:

1. Because experiments along such lines are left to the mechanical experts or professors of technical institutions who have the time and taste for such investigations.

2. As a rule those trained for superintendents and agents of cotton mills pass through all the departments of the mill except at the engine room and the machine shop.

3. The transmission department (engine, belting, etc.) is in charge of one who has all he can do to keep the wheels turning, and who has no time nor inclination for anything that involves extra work.

4. Of the deep rooted trait in human nature to "let well enough alone," and

5. This subject has not been brought to the attention of those vitally interested in the dividends of a plant with sufficient force to induce them to believe it "worth while."

So far as our observation goes, except where the method about which we are to speak presently is followed, belts to-day are run as they were when their use began.

The money losses due to the ordinary management of belts may be classed under two headings: 1, tight belts; 2, belt slippage.

Taking the cost of a horse power at 35 pounds coal per day, per horse power, and allowing 15 per cent. of the whole load as a reasonable loss from friction, one can see that the cost of running tight belts is no inconsiderable one, to say nothing about the loss resulting from the shortened life of the entire equipment.

We are told that a mill with 1,000 looms running on print cloth will turn out about 5,000 pieces per week. If there is an average belt slippage throughout the plant of 29 per cent (Do you take the speed of your various line of shafting at full load and again at no load to ascertain what the slippage is?) there will be a loss of 100 pieces per week. Figuring the value of each piece at \$2, it will amount to \$200 per week or \$10,000 per year. It will pay to go to a good deal of trouble to prevent such a loss.

We believe in regularly feeding a belt with that which will make and keep it healthy, just as you believe in regularly oiling a bearing.

Each belt is a law unto itself and must be treated accordingly. "Sick" belts must be diagnosed with care, their present condition and previous treatment considered before the feeding begins.

As no two things in nature even of the same

*Address by G. F. Chase before the National Association of Cotton Manufacturers at Boston.

kind are exactly alike so no two belts are exactly alike nor are any two laps in the same belt exactly alike. Therefore it is manifestly impossible to accurately form a judgment until not one but a number of belts (of which some should be new) have been fed for some time according to the best knowledge on the subject.

The bad effects of previous treatments are not always manifest until some time after the proper treatment has been in progress.

As it is the legitimate function of such belts to slip it may not always be wise to subject such belts to a treatment one of whose most valuable features is to stop all slippage.

To-day more than ever before it is necessary to the highest success in any business that "leaks" both big and little shall be stopped. The attainment of this desirable end is not always easy.

In the proper care of belting good judgment is the great essential. This quality is the possession of each member of this Association or he would not be in the position he now holds. A technical education is not necessary. It must be borne in mind, however, that nothing in this life worthy of attainment is accomplished without effort. Perseverance will bring success.

ROBB ENGINEERING CO., BUSY.

Despite the reports of industrial contraction in many parts of the Dominion, the Robb Engineering Co., of Amherst, N.S., is finding a satisfactory demand for their products. They have recently shipped a large sawmill outfit, including 100 h.p. tubular boiler, a 100 h.p. Robb-Armstrong engine, a No. 4 rotary mill, gang edger and lathe and to R. B. Smith, Oromocto, N.B. Other items included a 60 inch by 10 foot locomotive type boiler for steam shovel to the G. Bett-Floesch Co., Moncton, N.B.; two 60 h.p. Robb-Armstrong vertical engines for the Dominion Arsenal, Quebec City. Orders now in hand for a 600 h.p. 42x24 inch type 1 Robb-Armstrong Corliss engine, for the Western Fuel Co., Nanaimo, B.C.; this being the third engine they have sold that complete during the past year; for a 14 inch table compound Robb-Armstrong engine for the connection to an electrical generator for the Hamilton Powder Co., Nanaimo, B.C.; an engine being duplicate of one sold that year ago; for a 72 inch by 20 foot tubular boiler for the J. B. Snowball Bathurst, N.B., and for a 67 inch by 18 return tubular boiler for the Canadian Bank of Commerce's new building at Montreal.

In fifty-one towns having a population over 8,000, the value of buildings erected in 1907 was \$58,587,957. Toronto had list with \$14,325,500. Montreal is second with \$8,406,136; Winnipeg is third, \$6,455,350, and Vancouver fourth, \$5,596,594. The remaining cities in the value of building during 1907 were: \$500,000 were: Hamilton, \$1,030,249; Tawa, \$2,364,950; Edmonton, \$2,275,000; Calgary, \$2,109,249; Victoria, \$1,700,000; Regina, \$1,177,840; Medicine Hat, \$1,000,000; London, \$875,000; Halifax, \$626,000; Lin, \$770,000; Stratford, \$667,038; Brantford, \$557,150; Quebec, \$529,520; St. John's, \$520,100; New Westminster, \$333,000; Brantford, \$510,020, and Guelph, \$507,000.

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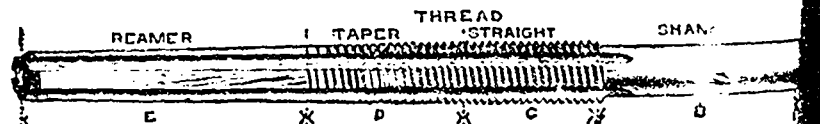
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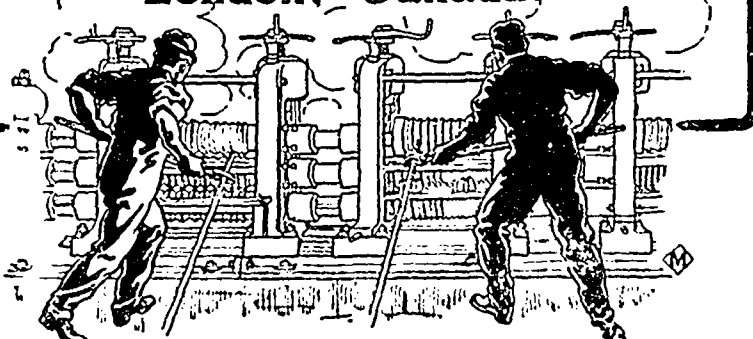
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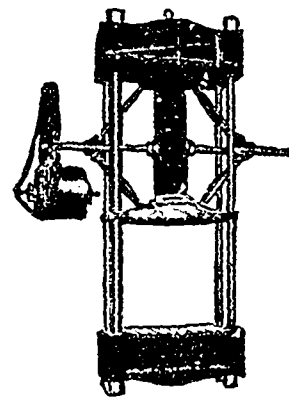
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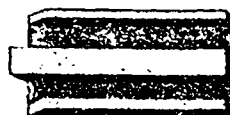
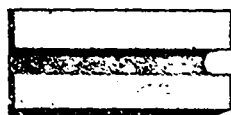


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