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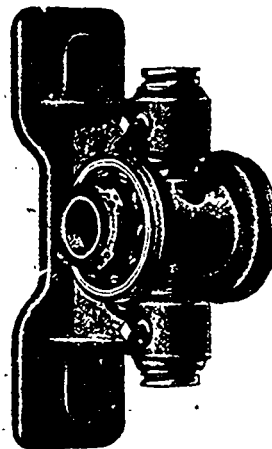
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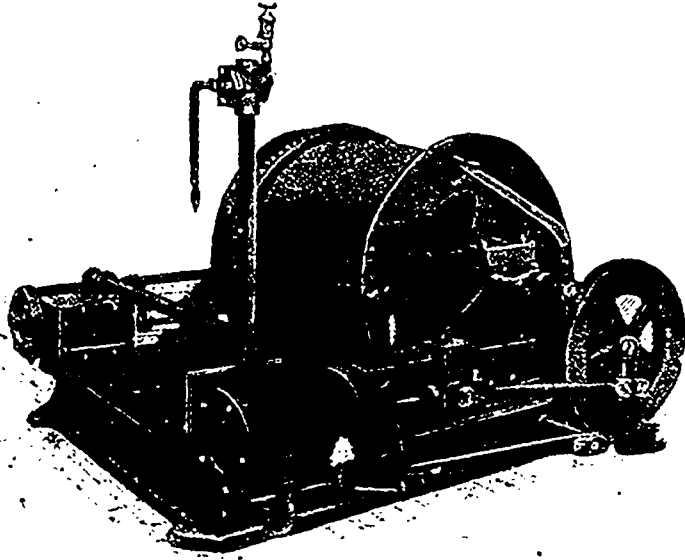
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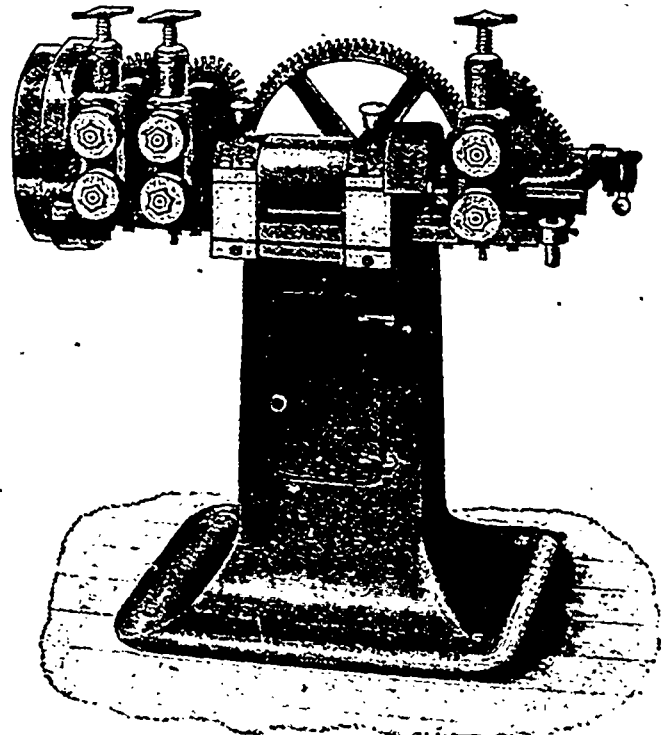
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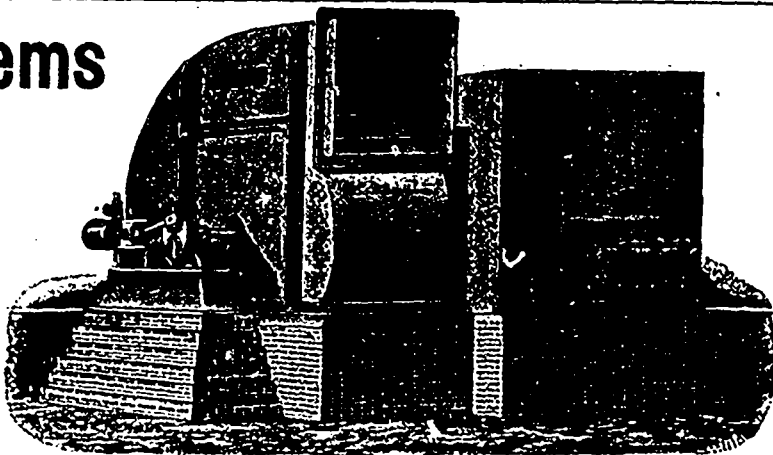
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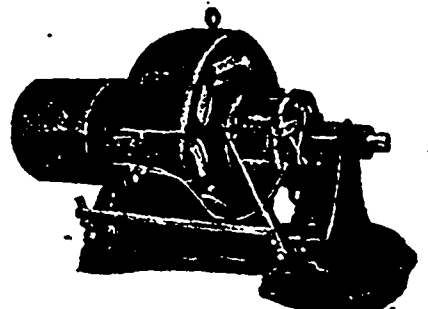
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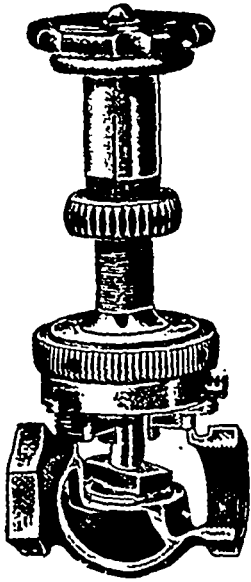
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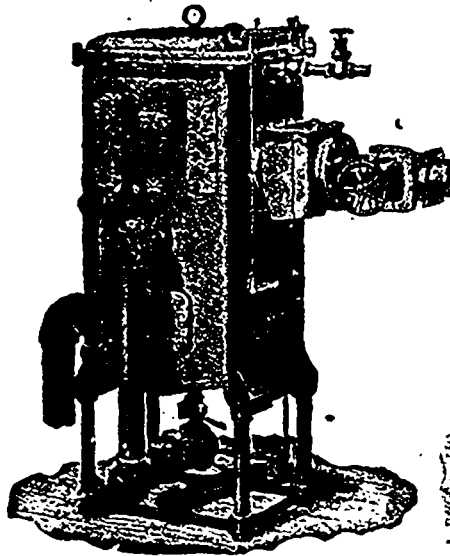
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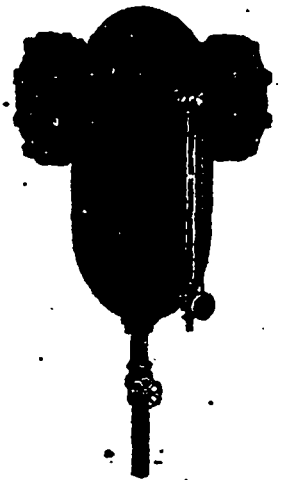
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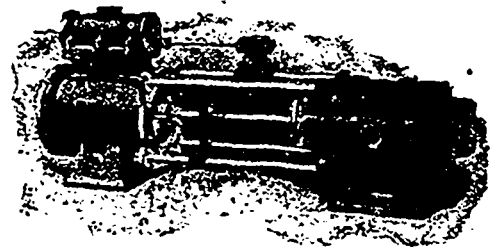
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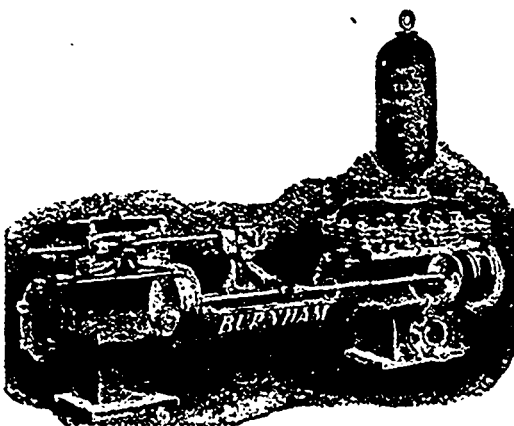
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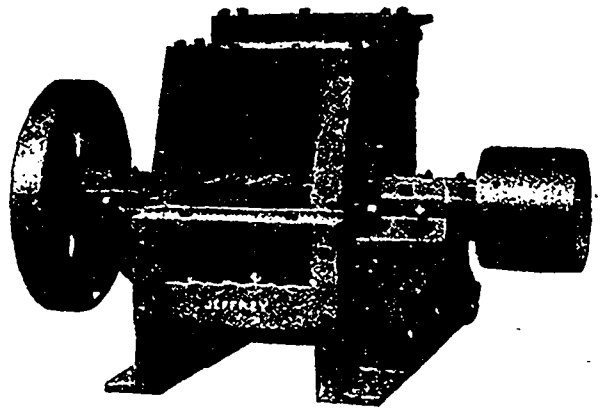
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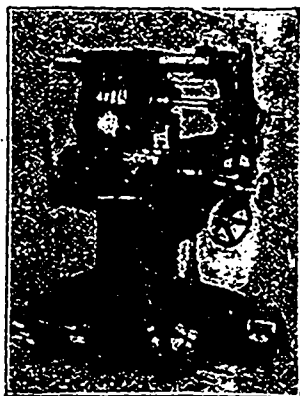
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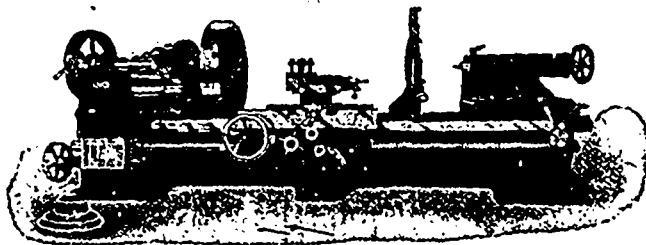
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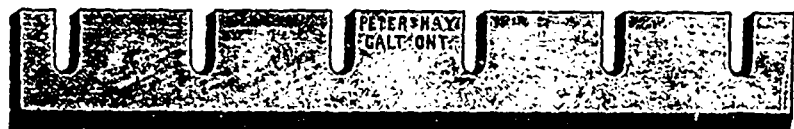
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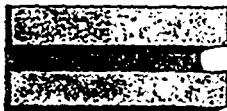
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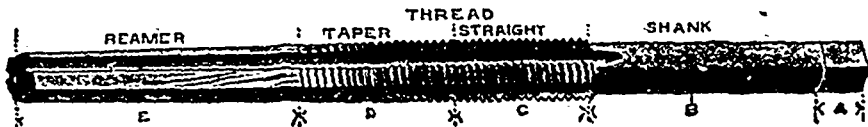


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Canada and United States \$1.50 per year. All other Countries in Postal Union ten shillings sterling, including postage.

J. J. CASSIDEY, Editor and Manager.

Classified IndexPage 42
Index to Advertisers Page 49

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OUR ANNIVERSARY.

The first Friday in January of the year 1880 was the date of the first issue of THE CANADIAN MANUFACTURER. Twenty-five years have elapsed since then, and this present issue marks the beginning of its twenty-sixth year. During this quarter of a century no publication day has ever passed upon which this journal did not make its usual and regular appearance. For twenty-five years it has been a record of the industrial progress of Canada, constantly publishing facts regarding the advancements of manufacturing and similar-enterprises of the Dominion.

As its advertising pages show, during all the years of its existence, it has stood high in the favor of Canadian manufacturers, and there are advertisements now appearing in it that were published in its first issue twenty-five years ago, and that have appeared in every issue since then. It gives us great pleasure to mention this circumstance, proving, as it does, the popularity of it with those who have depended upon it for so many years to keep their business announcements before the attention of the consuming public. And not only Canadian manufacturers and producers have found it to their interest to favor us in the manner indicated, but both British and American advertisers have favored it in the same way.

Within the scope of the field in which this journal finds active employment, it stands unrivalled as an advertising medium. With the regularity of the rising and the setting sun it finds its way, twice a month, to the offices and counting rooms of all of the more important manufacturers, merchants, importers and exporters of Canada—of those who are interested in their own prosperity and that of the country; and there is no important commercial country

in the world, in which Canadian manufacturers and merchants are interested where it does not circulate.

THE CANADIAN MANUFACTURER, therefore, is not a new venture in Canadian trade journalism. It has long been tried, never denied, and always ready to be tried again. It is an "old reliable" which requires no introduction. The publishers thank those who have for a quarter of a century, been its friends and supporters, and to old friends and new, it wishes a prosperous and happy New Year.

EXEMPTED FROM SPECIAL DUTY.

The Department of Customs has issued a list of articles exempt from the special or anti-dumping duty, on which decisions of the department have been requested. It reads as follows:

Boiler plate, flange plate and fire-box plate, for use only in the manufacture of boilers (conditional on the following declaration being subscribed and attested to by the importer on the face of the entry):—"The plates above described are boiler plates, flange plate or fire-box plates, as the case may be, which have been imported in good faith as such, and will be used only in the manufacture of boilers."

Universal milled rolled edge bridge plates, when imported by manufacturers of bridge for use only in the manufacture of bridges (conditional on declaration being subscribed and attested to accordingly by the importer on the face of the entry).

Rolled edge plate not less than 1/2 inch thick and over 15 feet long when imported and to be used only for tires of traction engines—(conditional on declaration being subscribed and attested to accordingly by the importer on the face of the entry).

Flat galvanized sheet iron, guns and rifles, not military, twist drills, cabinet locks, padlocks, steel beams, tees, girders for structural purposes, when not punched, drilled or in any further stage of manufacture than as rolled; pens and pencils, double tape fuses, dictionaries, English;

bicarbonate of soda, rubber brushes, spread plasters, spitting cup and refiller, vapo-cresoline, peroxide of hydrogen, hydrozone, school writing slates.

Customs rulings regarding articles subject to special duty on which decisions of the department have been requested embrace the following:—Air brake equipment, air pumps, boilers, cranes (electric travelling), cranes (hand power), cranes (water), castings (heavy machinery, columns), diggers (beaver posthole), fences, (hammered iron), grilles (door bank, etc.), hydrants (for fire purposes), injectors (easy), locomotives, momentum brake, nuts (cold pressed), pumping machinery, pipe (water, gas and heavy flanged), screws (set cap, etc.), structural work (including bridges), trucks (street railway, Curtis type specials, such as tees, ells, etc.), trucks (railway freight), valves, water towers, insulated wire and cables, incandescent and arc lamp sockets, receptacles, cut outs, plugs, rosettes and wiring accessories, cross arms, switches, porcelain insulators and cleats, lighting arresters, electric meters, transformers, dynamos, and generators, motors, switchboards, wrought iron pipe, 3 inches and under; stationary boilers and steam engines, meat choppers, wire rods, saws, steel billets, hoop iron and steel, 16-gauge and thicker; steel rails, horseshoes, horse shoe nails, steel plate 50 and less in width, $\frac{3}{4}$ and less in thickness, but not thinner than No. 12 gauge; railway fish plates, glazier points, steel angles up to 5x5, writing ink, typewriter ribbons, carbon paper, carpets, cartridges and ammunition, mucilage, dynamite, electric fuse for blasting purposes, pails and tubs, patent medicine, non-alcoholic; photographic dry plates, soap of all kinds, powder detonators, confectionery of all kinds, baking powder, postum cereal, grape-nuts, shredded wheat biscuits and other breakfast foods, almond paste, gun wads, sen-sen, plumbers' earthenware, stove polish, grass mats, linoleum and oilcloth, linseed oil, paper, glass bottles, bon ami scouring soap, card games, (such as playing cards, etc.), games, (such as parchesi, halma, soldier boy, etc., made of straw board and cardboard), antiseptic gauze, hermetically sealed tube dressings, absorbent cotton, absorbent lint, antiseptic jute, antiseptic oakum, antiseptic sponges, antiseptic zinocca sponges, antiseptic abdominal sponges, Ashton's abdominal absorbent pads, Ashton's laparotomy set, antiseptic absorbent cotton mops, ligatures and sutures, surgeon's twisted silk, surgeon's braided silk, pure white braided silk, "cable twist," surgeons' silk, Lawson Taite's silk, raw twisted surgeons' silk, plaster paris bandages, double or tubular stockinette, grey open woven bandages, unbleached roller bandages. Washed and ironed roller bandages, antiseptic gauze absorbing bandages, medicated gauze bandages, heavy crinolin bandages, flannel bandages, rubber bandages, Esmarch's triangular bandages, first aid packets, elastic hosiery, belts and supporters, elastic stockings, trusses, Tom thumb jujubes, Sa Yo mint jujubes, indelible ink, licorice pastilles, iodide of potassium, flat iron and steel bars, all sizes up to and including 10 inches in width, and up to $1\frac{1}{2}$ inches in thickness; round steel, up to 5 inches in diameter; polished shafting, up to 5 inches in diameter; square bars, up to 12 inches square; car axles, steel sections, such as plows,

beams, channel steel, binder bars, tee bars, cutter bars, small channels, rake, teeth, concave and convex sleigh shoe steel, drill hoe points, bevel edge bars, rifle bars, tie plate, special fish plate, angle bars, half rounds, half ovals, toe caulk sections, half round shaft steel, channel sleigh shoe steel, spring steel, sleigh shoe steel, tire steel, machine steel, harrow tooth steel, polished shafting, forging, all kinds of shape work, iron or steel washers, lead pipe wire, all kinds, sizes and gauges, bale ties, wire nails, sash pins, escutcheon pins, spikes, wrought and wire, all kinds and sizes, bolts, all kinds and sizes; coach screws, lag screws, nuts, washers, rivets, all kinds and sizes; picture frame points, felloe plates, tacks, all kinds and sizes, including nails, rivets for shoe-maker's use; staples, all kinds and sizes; tufting buttons, white lead (ground in oil), putty, shot, all kinds and sizes; refined sugar imported after November 23, 1904 (except sugar refined in a British country granted tariff preference by Canada).

A recent decision of the Board of Appraisers points out that it is provided in section 67 of the Customs Act that charges for packing, or for straw, twine, cord, paper, cording, wiring or cutting, or for any expense incurred or said to have been incurred in the preparation and packing of goods for shipment, shall be included as part of the value for duty. In order that duty may be uniformly assessed on the charges for packing and straw on chinaware, crockery, earthenware and glassware imported from Europe, it has been declared that one-fourth of the invoice charge for the "packages and straw" or for the "packages" (when no charge appears for the "straw" and "packing") shall form part of the value for duty of chinaware, crockery earthenware, and glassware, so imported. Officers of Customs are instructed to make their appraisements accordingly.

TRADE OF THE YUKON.

The total trade of the Yukon Territory for the calendar year 1903, as shown by the customs returns at the ports of Dawson and White Horse, amounted to \$12,509,894, the imports being valued at \$1,698,883, and the exports at \$10,811,211. Of the exports, \$10,324,720 represent gold dust, and but \$486,491 merchandise. Exports to the value of \$10,603,551 were invoiced through this consulate for the United States and Alaska, made up as follows: American goods, \$184,684; American gold dust, \$120,656; total American exports, \$305,340; Canadian goods, \$94,147; Canadian gold dust, \$10,204,064; total Canadian exports, \$10,298,211. With the exception of the gold dust which went to the assay offices at Seattle and San Francisco, all the American and Canadian goods were shipped down the river to Eagle, Fairbanks, and other towns in Alaska on the Yukon River.

Of the imports, mostly general merchandise, groceries and machinery, the greater part was from the United States and will find its way into Alaska, to the growing camps in the Tanana district.

A detailed statement of the imports and exports would convey no useful information to the dealers and manufacturers in the United States, nor aid them in extending trade with this section of Canada, as all purchases are made

by importers directly or through the many excellent commercial houses at Dawson, which are mostly American, and in some cases have large capital invested, amounting in one instance to \$7,000,000.

The Yukon territory, which prior to 1898 formed a part of the North-West Territory, has an area of 196,976 square miles, 196,327 being land and 649 water; the population is estimated at 12,000, of whom 7,200 are Americans. It is purely a mineral country, and has produced since 1885, when the output of gold was first recorded, to the end of 1903, \$97,063,500 in gold. During the same period the gold mined in the Saskatchewan district was valued at \$292,946; in the Province of Ontario, \$2,086,393; in the Province of Quebec, \$103,940; in the Province of British Columbia, \$40,545,398, and in Nova Scotia, \$9,318,984: a total of \$52,347,661. The production of Yukon Territory thus exceeded that of the rest of Canada by \$44,715,839. In the most prosperous years for the Yukon, those from 1898 to the present, the production of gold has been as follows: 1898, \$10,000,000; 1899, \$16,000,000; 1900, \$22,275,000; 1901, \$18,000,000; 1902, \$14,500,000; 1903, \$12,250,000; a total in six years of \$93,025,000. It is interesting to note that \$65,046,178 of this was sent to the assay offices at Seattle and San Francisco.

Dawson, the capital of the Yukon Territory and the residential and commercial centre of what is commonly known as the Klondike, has a population of 3,500 persons of various nationalities, the Americans, with 2,450, greatly predominating and forming 70 per cent. of the total.

The city is easily reached during the season of navigation (from about May 15 to October 10) in six to eight days from Seattle, Wash., or Vancouver, British Columbia, by three lines of steamers to Skagway, Alaska (three to four days), where connection is made by rail to White Horse (one day), the head of navigation on the Yukon River. From White Horse the White Pass Line runs comfortable boats to Dawson in from three to four days. This company operates, between White Horse and Dawson, 12 vessels and five barges with a capacity of 3,500 tons. During the season of 1904 it handled 22,447 tons and carried 4,932 passengers. Passenger rates from Seattle to Dawson are \$80 first class and \$65 second class. Freight rates from Seattle to Dawson by the carload are \$3 to \$4.25 per 100 pounds. Commodity rates from the Pacific coast points during the midsummer are \$2.37 per 100 pounds. From Dawson the rates to Eagle, Chena or Fairbanks and Fort Gibbon, Alaska, are, per ton, \$10, \$70, and \$40, respectively. The White Pass Rail Division between Skaguay and White Horse, 111 miles operates daily passenger and freight service, with a capacity of at least 5,000 tons a day. This company is under the Canadian flag, but American capital is largely invested in it.

There is a second though much longer route, taking 23 days, from Seattle to Dawson by way of St. Michael, Alaska. Two steamboat lines run on the lower Yukon River between St. Michael and Dawson—the Northern Commercial Co. and the North Ameri-

can Transportation & Trading Co. The former operates 27 steamers and barges, with a total net tonnage of 7,851 tons, and the latter nine steamers and barges, with a total gross tonnage of 6,083 tons. The passenger rate by these two lines is \$125 from Seattle to Dawson, and the average rate per ton on freight is \$60. Besides the boats of the above companies, there are 11 independent steamers, American and Canadian, plying between White Horse and Dawson and points in Alaska on the Yukon River. Some of these have comfortable accommodations for passengers.

Postal rates from the Yukon Territory are the same as from other points in the Dominion of Canada. From October to May, however, the closed season of navigation, only first-class matter and single copies of newspapers are brought (by stage) by the postal authorities to Dawson. Other mail matter will, if requested, be forwarded by express on the stage, the charge to be paid by the consignee.

Attention is particularly called to certain new features in the customs regulations and laws of Canada. I can not too strongly urge upon Canadian manufacturers and exporters a careful and strict observance of these regulations. A slight infringement may result in serious delay, which may cause a loss to the importer. Because of the shortness of the season of navigation (from May 15 to October 10) and the irregular departure of steamers, the conditions of transportation here are entirely different from those in the southern and eastern provinces of the Dominion.

EDITORIAL NOTES.

The Dominion Parliament will convene in Ottawa in regular session on Wednesday next, January 11.

The attention of the Post Office Department has been drawn to the fact that large numbers of letters addressed to Great Britain and the British colonies are insufficiently prepaid. The public have apparently forgotten that, although the rate between places in Canada is two cents per ounce, the inter-Imperial rate is two cents per half-ounce. Hence these letters, which weigh between half an ounce and one ounce, are only prepaid two cents. The letters go forward, but there is doubtless some vexation on the part of those receiving them at having to make up double the deficiency in the postage, as required by the postal law. It may be that this notice will serve to call attention to the proper rate for countries within the British Empire, and thus do away with much of the posting with insufficient postage.

The Post Office Department at Ottawa has sent out a circular to postmasters, pointing out that on and from the 1st of January letters, newspapers, samples of merchandise and printed and miscellaneous matter may be mailed to Mexico at the same rates and under the same regulations as matter passing between two Canadian post offices. Unless samples of merchandise, printed and miscellaneous matter is fully prepaid it is not allowed to go forward. Letters not fully prepaid may go forward if having stamps of the value of at least two cents. Articles of merchandise classed as fourth-class matter in Canada will have to be sent to Mexico by parcel post as heretofore.

THE IRON AND STEEL WORKS OF CANADA.

CORRECTED TO DECEMBER 1, 1904, BY THE AMERICAN IRON AND STEEL ASSOCIATION.

The following list embodies a description of all blast furnaces, rolling mills and steel works in the Dominion of Canada that are now active or may possibly be active at some future time. The dimensions of blast furnaces relate to their present size. When the power is not mentioned steam power is to be understood. Unless otherwise stated capacities are given in gross tons of 2,240 pounds and on double turn. Prepared by Mr. James M. Swank, manager of the Association.

NOVA SCOTIA.

BLAST FURNACES—8 COMPLETED COKE STACKS.

Dominion Iron & Steel Co., Sydney, C.B. Four stacks, each 85x20, and each equipped with four Cowper-Kennedy stoves; construction commenced in 1899; No. 1 blown in February 4, 1901; No. 2 May 9, 1901; No. 3 October 21, 1901; and No. 4 January 18, 1902, fuel, coke, obtained from the company's ovens; ores, Wabana red hematite from the company's mines on Belle Island, Newfoundland, and American Lake Superior and foreign; product, basic and foundry pig iron; total annual capacity, 400,000 gross tons. Brands, "Disc" and "Dominion." Equipped with one Heyl & Patterson pig-iron casting machine. A coke plant containing 400 Otto-Hoffman by-product ovens and 50 non-recovery ovens, with a total annual capacity of 450,000 net tons, is connected with the furnaces; also a coal washing plant with a capacity of 200 tons per hour. J. C. Mackley, Furnace Superintendent.—Active in 1904. See rolling mills and steel works in this Province.

Londonderry (The) Iron & Mining Co., Montreal, Works at Londonderry, N.S. Two stacks: Furnace A, 75x17, and Furnace B, 62x18, built in 1875-6 and blown in in 1877; Furnace A rebuilt in 1883, 1891, 1895, and 1903, three Siemens-Cowper fire-brick stoves; fuel, coke made from coal mined in Pictou and Cumberland counties; ores, limonite, carbonate, and red hematite from mines owned by the company in Colchester and Annapolis counties; product, foundry pig iron; annual capacity: Furnace A, 35,000 gross tons, Furnace B, 25,000 tons, total, 60,000 tons. Brand, "Londonderry." Connected with the furnaces is a coal-washing plant with an annual capacity of 60,000 net tons; also a plant containing 97 coke ovens with an annual capacity of 40,000 net tons; also a machine shop; also a cast-iron pipe foundry, which is owned and operated by the Montreal Pipe Foundry Co., Montreal. Thomas J. Drummond, president; Edgar McDougall, vice-president, and F. G. O'Grady, secretary and treasurer, Montreal; George Beatty, superintendent, Londonderry. Selling agents, Drummond, McCall & Co., Montreal. (Formerly owned and operated by the Londonderry Iron Co.; acquired by the present owners on November 6, 1902). Furnace A was blown in on January 4, 1904, after a long idleness; Furnace B is now idle and is likely to remain long inactive.

Nova Scotia Steel & Coal Co., New Glasgow, N.S. Furnaces at Ferrona and at Sydney Mines, C.B. Two stacks: Ferrona Furnace, at Ferrona, one stack, 65x15, built in 1892; first blown in August, 1892; three Massicks & Crooke stoves. Sydney Mines Furnace, at Sydney Mines, one stack, 85x17, commenced building in June 1902; completed and blown in August 30, 1904; four Roberts stoves. Fuel, coke made from coal mined near the furnaces; ores, local brown and red hematite and Wabana from Newfoundland; product, foundry and basic pig-iron; total annual capacity, 90,000 gross tons. Brands, "Ferrona" and "Scotia." The Sydney Mines furnace is equipped with one pig-iron casting machine. David Aikens, superintendent. Both furnaces active in 1904. See rolling mills and steel works in this Province.

Number of coke furnaces in Nova Scotia, 8. No charcoal furnaces.

ROLLING MILLS AND STEEL WORKS—3 COMPLETED, AND 1 BUILDING.

Dartmouth Rolling Mills, Dartmouth, N.S. Built in 1896 and put in operation in that year; 4 heating furnaces, 2 trains of rolls, (one 10-inch and one 18-inch), and two hammers; product, bar iron; annual capacity, single turn, 10,800 gross tons. Fuel, coal. James Simmonds, president; C. H. Lissemore, vice-president; H. E. Hill, secretary and treasurer.

Dominion Iron & Steel Co., Sydney, C.B. Built in 1900-1; 4 pit heating furnaces and ten 50-gross-ton Campbell basic open-hearth steel tilting furnaces; first open-hearth steel made December 31, 1901; one 35-inch direct reversing blooming and billet mill and one Morgan continuous billet mill with six stands of 16-inch rolls; blooming mill first put in operation in February, 1902, and continuous billet mill first put in operation in May, 1902; one Morgan continuous rod mill, with 14 stands of 12-inch roughing and 10-inch finishing rolls, added in 1904; first wire rods rolled in May, 1904; product, open-hearth steel ingots, blooms, billets, slabs and wire rods; annual capacity, 250,000 gross tons of ingots, 225,000 tons of blooms, billets and slabs, and 60,000 tons of wire rods. Fuel, manufactured gas. Adding one 28-inch continuous rail train, to be completed early in 1905, with an estimated capacity of 500 tons per shift. The company has also purchased one 128 inch plate mill, but this mill will not be installed at present. J. H. Plummer, president; Graham Fraser, director of works; Joseph Dix Fraser, assistant to the director of works; W. B. Ross, secretary; C. S. Cameron, acting treasurer and comptroller; F. P. Jones, general sales agent; William Brown, superintendent of Open Hearth Steel Plant; W. D. Jones, superintendent of Rolling Mill Department. See blast furnaces in this Province.

Nova Scotia Steel & Coal Co., New Glasgow, N.S. Two works, one completed and one building. New Glasgow Works, (completed) at New Glasgow; forge built in 1872; steel plant added in 1882 and first steel made in August, 1883; hot trains of rolls added in 1883 and first put in operation in August of that year; 12 forge fires, 12 coal and five gas heating furnaces, six trains of rolls, (two 9-inch, one 12-inch, one 16-inch, one 20-inch, and one 26-inch), five hammers, (from 10 cwt. to five tons), and four basic open-hearth steel furnaces (three 40-gross-ton stationary and one 50-gross-ton tilting), product, railway, marine, and engine forgings, car axles, mine rails, machinery, spring, and agricultural implement steel, steel plates, angles, and iron and steel merchant bars; annual capacity, 60,000 gross tons of open-hearth steel ingots and 50,000 tons of finished iron and steel products; fuel, bituminous coal and producer gas. Sydney Mines Steel Works, (building), at Sydney Mines, C.B.; four 40-gross-ton basic open-hearth steel furnaces (3 stationary Wellman and one tilting); product, ingots; annual capacity, 60,000 tons, fuel, bituminous coal; will probably be completed in the spring of 1905; trains of rolls may be added. Office of president vacant; James D. McGregor, vice-president; Archibald McColl, secretary; Thomas Cantley, general manager. See blast furnaces in this Province.

Number of rolling mills and steel works in Nova Scotia, three completed and one building. Of these two make open-hearth steel and one open-hearth steel plant is being built.

NEW BRUNSWICK.

ROLLING MILLS—1.

Portland Rolling Mills, The Portland Rolling Mills, Strait Shore, St. John, N.B. Works built in 1856 and rolling mill added in 1860; burned and rebuilt in 1889; one single puddling furnace, eight heating furnaces, four trains of rolls, (one 9, one 12, and one 18-inch bar and one 18-inch nail-plate), three railway spike machines, one 5-ton helve hammer, 38 cut-nail machines, and 18

tack and shoe-nail machines; also a complete set of horseshoe machinery; product, bar iron, car axles, nail plate, street and mine rails, fish-plates, ship and railway spikes, knees for ships, shafting, cut nails, shoe nails, tacks, horseshoes, bolts, nuts, etc.; annual capacity, single turn, 10,000 tons of finished rolled products, 150 tons of shoe nails and tacks, 31,000 kegs of cut nails, 2,300 tons of ship and railway spikes, 14,000 kegs of horseshoes and 900 kegs of bolts and nuts. Fuel, coal. Brand, "Monarch." James Manchester, president; D. J. Purdy, vice-president; William Bruckhof, treasurer; A. P. MacIntyre, secretary.

Number of rolling mills in New Brunswick, one. No blast furnaces.

QUEBEC.

BLAST FURNACES—3 COMPLETED CHARCOAL STACKS.

Canada Iron Furnace Co., Montreal. Furnace at Radnor Forges, Champlain County. One stack, 46x8, built and blown in in 1891; steam and water power; one Drummond pipe stove; warm blast; fuel, charcoal; ores, lake and bog from the company's mines in the Three Rivers district and Lac-a-la-Tortue; product, special charcoal pig-iron for car wheels, chilled rolls, etc.; annual capacity, 10,000 gross tons. Brand, "C.I.F." (The present stack takes the place of the old Radnor Furnace). George Gudewill, president, 26 West Fifty-second St., New York City; George E. Drummond, managing director and treasurer, and Thomas J. Drummond, secretary, Montreal; John J. Drummond, general superintendent, Midland, Ont. Selling agents, Drummond, McCall & Co., Montreal. Active in 1904. See Midland Furnace in Ontario.

McDougall (John) & Co., Montreal. Furnaces at Drummondville, Que. Two stacks: Grantham Furnace, 35x10, built and blown in in 1880; St. Francis Furnace, 32x9, built and blown in in 1881, and rebuilt in 1897; warm blast; water-power; fuel, charcoal; ore, local limonite; product, car-wheel pig-iron; total annual capacity, 4,000 tons. George McDougall, manager. Both furnaces active in 1904.

Number of furnaces in Quebec, three charcoal stacks. No coke stacks.

ROLLING MILLS AND STEEL WORKS—5.

Grand Trunk Railway Rolling Mill, Grand Trunk Railway System, Montreal. Works at Point St. Charles, Montreal. Built in 1891-2 and put in operation May 9, 1892; two heating furnaces and one 3-high 12-inch train of rolls; product, bars, angles, and tees; annual capacity, 7,000 gross tons of rolled products. Fuel, bituminous coal. A. A. Maver, superintendent of rolling mill.

Montreal (The) Rolling Mills Co., Montreal. Works at Ste. Cunegonde, Que. Built about 1857; destroyed by fire March 24, 1900, but at once rebuilt; seven coal and three gas heating furnaces and three trains of rolls (one 9-inch, one 12-inch, and one 18-inch); product, bar iron and bar steel, horseshoe iron, railway joints, angle bars, tie plates, nail plate, and skelp; annual capacity, 25,000 gross tons of rolled iron and steel and 12,000 tons of skelp. The works also have an annual capacity of 75,000 kegs of horseshoes, 30,000 boxes of horse nails, 15,000 tons of wire, and 200,000 kegs of wire nails. Connected with the works is a plant for the manufacture of wrought iron and steel pipe; also a galvanizing plant; annual capacity, 15,000 tons. The company also makes tacks, staples, etc. Fuel, producer gas and bituminous coal. Brand, "M.R.M. Co." inclosed in a semi-circle; trade-mark for steel horseshoes, "XL." E. S. Clouston, president; William McMaster, vice-president and general manager; James L. Waldie, secretary; J. R. Kinghorn, general sales agent; Charles J. Hempey, purchasing agent; M. F. Derrick, superintendent of works. Selling agents, W. D. Taylor, Winnipeg, Man.; James Crawford, Vancouver and Victoria, B.C.; G. D. Hatfield, Halifax, N.S. See Pillow & Hersey Mfg. Co. in this Province.

Montreal Steel Works, Point St. Charles, Montreal. Built in 1883; one 3,000-pound modified acid Bessemer converter added in 1897 and first steel made in that year (idle); one 15-gross-ton acid open-hearth steel furnace added in 1901; an additional 15-gross-ton acid furnace built in 1903; product, steel castings for railway, mining and other purposes; annual capacity, 9,000 gross tons of open-hearth steel castings. Fuel, coal and coke. Shop mark, "M.S." in a circle. The works also make springs, switches, and track work for steam and electric roads; also gray iron castings. A machine shop is connected with the plant. K. W. Blackwell, president and managing director; J. R. Wilson, vice-president; C. H. Godfréy, secretary and treasurer; G. D. Smith, superintendent. (Formerly operated by the Canada Switch & Spring Co.; acquired by the present company on January 1, 1903.

Peck (The) Rolling Mills, Montreal. Works on Lachine Canal. Established in 1838; rolling mill destroyed by fire August 3, 1898; rebuilt in 1899; partly burned in 1903 and rebuilt and put in operation in the same year; steam and water power; equipped with heating furnaces, trains of rolls, cut and wire-nail machines, tack machines, horseshoe machines, etc.; product, bar iron and steel, shovel plate, railway spikes, ship spikes, cut nails, wire nails, tacks, horseshoe nails, iron and steel horseshoes, etc. Fuel, bituminous coal. Brand, "P.B." in a circle. Thomas Peck, president; F. C. Skelton, vice-president; E. J. Fry, secretary and treasurer; T. E. Peck, general manager. (Formerly called the Canada Rolling Mills, Nail, Cut Tack, & Spike Works and operated by Peck, Benny & Co.; acquired by the present company on January 1, 1903).

Pillow & Hersey Mfg. Co., Montreal. Controlled and operated by the Montreal Rolling Mills Co. Rolling mills, cut-nail, and spike works, 104 St. Patrick St.; bolt, nut, and rivet works, 105 Mill St. Built in 1859; six heating furnaces, three trains of rolls, (one 9-inch, one 12-inch, and one 18-inch), and 96 cut-nail machines; product, bar iron and bar steel, cut nails, railway and pressed spikes, bolts, nuts, rivets, and washers; annual capacity, 25,000 gross tons of bar iron and steel, 100,000 kegs of cut nails 80,000 kegs of railway and pressed spikes, and 5,000 tons of bolts, nuts, etc. Fuel, coal. Brand, "Blue Hoop." For a list of officers and selling agents see the Montreal Rolling Mills Co. in this Province.

Number of rolling mills and steel works in Quebec, five. Of these one makes open-hearth steel castings; it also has an idle Bessemer converter which was formerly used in the manufacture of castings.

ONTARIO.

BLAST FURNACES—5 COMPLETED AND 3 PROJECTED.

Algoma (The) Steel Co., Sault Ste. Marie, Ont. Two completed stacks and two stacks for which ground was broken in 1901 but upon which work has since been suspended. Completed stacks: Furnace No. 1, (charcoal), 70x13½, built in 1901-3; not blown in down to December 1, 1904; three Foote fire-brick stoves; fuel charcoal; product, Bessemer and foundry charcoal pig iron at first but coke iron may be made later on; estimated annual capacity, 50,000 gross tons. Furnace No. 2, coke, 80x15½, built in 1901-3 and first blown in October 17, 1904; four fire-brick stoves; fuel, Pennsylvania and West Virginia coke; product, Bessemer pig iron; estimated annual capacity, 90,000 tons. Ores, American Lake Superior, but a percentage of hematite from the Michipicoten district may be used. Brand, "Algoma." One Heyl & Patterson pig-iron casting machine is connected with the furnaces. Plants for the manufacture of charcoal, containing 20 retorts with a daily capacity of 160 cords of wood and 56 bee-hive kilns with a daily capacity of 180 cords, are also operated by the company; also plants for the manufacture of wood alcohol and acetate of lime. The two projected furnaces will use coke for fuel and will be known as Nos. 3 and 4. R. H. Sweetser, superintendent of furnaces. Controlled by the Lake Superior Corporation. The company expects to have Furnace No. 1 in operation before January 1, 1905; Furnace No. 2 active in 1904. See rolling mills and steel works in this Province.

Deseronto Furnace, Deseronto Iron Co., Deseronto, Ont. One stack, 61x9½, built in 1898 and blown in January 25, 1899; two iron pipe stoves; warm blast; fuel, charcoal; ores, American, from the Lake Superior region, and small quantities of local; product, malleable and car-wheel pig iron; annual capacity, 11,000 gross tons. Brand, "Deseronto." William Gerhauser, president; F. A. Goodrich, vice-president; F. B. Gaylord, secretary, treasurer and manager. Selling agents, F. A. Goodrich & Co., Detroit, Mich. Active in 1904.

Hamilton Furnace, The Hamilton Steel & Iron Co., Hamilton, Ont. One stack, 75x16, built in 1894-5; blown in December 30, 1895; one Roberts and three Gordon-Whitwell stoves; fuel, Connellsville coke; ores, Lake Superior hematite and Ontario hematite and magnetic; product, foundry and basic pig iron; annual capacity, 70,000 tons. Brand, "Hamilton." One pig iron casting machine added in 1903. Active in 1904. See rolling mills and steel works in this Province.

Midland Furnace No. 1, Canada Iron Furnace Co., Montreal. Furnace at Midland, Ont. One stack, 64x13, built in 1900 and blown in December 4, 1900; three two-pass fire-brick stoves; fuel, Connellsville coke; ores, Michipicoten and American Lake Superior; product, foundry, malleable Bessemer, and Bessemer pig iron;

annual capacity, 45,000 gross tons. Brand, "Midland." John J. Drummond, general superintendent, Midland. Active in 1904. See Canada Iron Furnace Co. in Quebec for a list of officers and selling agents.

PROJECTED.

Northern (The) Iron & Steel Co., Toronto. Excavations made in 1902 at Collingwood, Ont., by the Cramp Steel Co. for one 250-gross-ton coke furnace; work indefinitely suspended in 1903; property acquired by the Northern Iron & Steel Co. in September, 1904; work on the furnace is not likely to be resumed in the near future. See rolling mills and steel works in this Province.

Number of coke and charcoal furnaces in Ontario: five completed and three projected. Of the completed furnaces three use coke for fuel and two charcoal. The three projected furnaces will use coke.

ROLLING MILLS AND STEEL WORKS—9 COMPLETED, 1 BUILDING, AND 2 PROJECTED.

Algoma (The) Steel Co., Sault Ste. Marie, Ont. Built in 1901-2 and first put in operation in February, 1902; two 6-gross-ton Bessemer steel converters, three Siemens regenerative gas heating furnaces, four iron and three spiegel cupolas, and one 23-inch combined rail and structural train; first Bessemer steel made February 18, 1902, and first steel rail rolled May, 5 1902; product, steel ingots, rails, and splice and angle bars; annual capacity, 200,000 gross tons of ingots and 180,000 tons of rails and other finished rolled products. Steam and electric transmission from water power. Fuel, bituminous coal for boilers and gas producers and coke for cupolas. C. D. Warren, president and receiver, Trader's Bank Building, Toronto. C. E. Orvis, 100 Broadway, New York City, and J. J. Drummond, Canada Life Building, Montreal, vice-presidents. W. F. Hobbie, secretary, and John T. Terry, Jr., treasurer, 100 Broadway, New York City. Willard N. Sawyer, general manager. J. S. Wynn, General auditor, and D. D. Lewis, general superintendent, Sault Ste. Marie, Ont. Sole selling agents, Drummond, McCall & Co., Canada Life Building, Montreal. Controlled by the Lake Superior Corporation. See blast furnaces in this province.

Hamilton (The) Steel & Iron Co., Hamilton. Three mills in Wentworth county, two at Hamilton and one at East Hamilton: Hamilton Mills, (two works), built in 1861; two busheling furnaces, (one single and one double), four double puddling furnaces, nine coal heating furnaces, five trains of rolls, (one 14-inch muck, one 9-inch and one 10-inch guide, one 20-inch bar, and one 20-inch plate), three hammers, (one 5-ton and one 2-ton upright and one helve), and 45 cut-nail machines; product, bar and band iron and steel, fish-plates, nail plate, forgings, cut nails, rivets, and washers; annual capacity, 27,000 gross tons of finished products and 180,000 kegs of cut nails. East Hamilton Mill, built in 1900; one continuous coal heating furnace and two trains of rolls (one 10-inch and one 14-inch); product, steel bars, annual capacity, 18,000 tons. Open-hearth steel plant added to the East Hamilton Mill in 1900. now contains three basic furnaces (one 30-gross-ton and two 15-gross-ton); first steel made May 15, 1900; product, ingots and castings; annual capacity, 36,000 tons. The East Hamilton Mill is operated by steam-power and by electricity. Fuel used in the three works, Pennsylvania bituminous coal, Brand, "Hamilton." Machine shops for the use of the company are connected with the works. C. S. Wilcox, president; Charles E. Doolittle and A. E. Carpenter, vice-presidents; Robert Hobson, general manager; W. A. Child, treasurer; H. H. Champ, secretary. See Hamilton Furnace in this Province.

Iron (The) & Steel Co. of Canada, Belleville, Ont. Built in 1899 and first put in operation in January, 1900; equipped with machinery from the dismantled plants of the Thames Iron Works, Norwich, Conn.; the Nashua Iron & Steel Co., Nashua, N.H., and the Metropolitan Rolling Mills, Montreal; seven heating furnaces, three annealing furnaces, three trains of rolls, (one 9-inch, one 12-inch, and one 18-inch), 36 cut-nail machines, and two hand-fed Copeland spike machines; product, bar iron, bar steel, cut nails, horseshoes, ship and railway spikes, track bolts, washers, etc.; annual capacity, 12,000 gross tons of rolled products and about 50,000 kegs of spikes. Fuel, coal. A machine shop is connected with the works. M. Wright, president; D. Jackson, vice-president; J. F. Wills, managing director, secretary and treasurer; E. Renshaw, superintendent. (Formerly operated by the Abbott-Mitchell Iron & Steel Co. of Ontario, acquired by the present company in August, 1903, and put in operation on July 19, 1904.

Kennedy (The Wm.) & Sons, Owen Sound, Ont. Built in 1899-1900 and first put in operation in May, 1900; one 2-gross-ton Tropenas steel converter; product, machinery and other steel castings from one pound to 6,000 pounds; annual capacity, single turn, 400 gross tons. Fuel, coke. A gray iron foundry with an annual capacity of from 300 to 400 tons is connected with the works; the company also operates a machine shop. M. Kennedy, Sr., president and manager; William Kennedy, Jr., vice-president; Ewing Cameron, secretary and treasurer.

London Rolling Mill Co., London, Ont. Built in 1902-3, utilizing a part of the machinery formerly in the plant of the Guelph Iron & Steel Co., Guelph, Ont.; first put in operation at London in March, 1903; one scrap furnace, two busheling furnaces, two heating furnaces, three trains of rolls, (one 18-inch muck, one 14-inch roughing, and one 10-inch finishing), and one squeezer; product, merchant bar iron and steel, bolts, nuts, hinges, etc.; annual capacity, 15,000 gross tons of rolled products and 6,000 tons of bolts, nuts, hinges, etc. Fuel, bituminous coal. John White, president; J. Frank White, vice-president; Charles H. White, manager.

Northern (The) Iron & Steel Co., Toronto. Works at Collingwood, Ont. Built in 1901-3 by the Cramp Steel Co.; not operated down to December 1, 1904; two 20-gross-ton basic open-hearth steel furnaces with an annual capacity of 36,000 gross tons of ingots, two reverberatory ingot heating furnaces, and two trains of rolls (one 10-inch semi-continuous Belgian mill with five stands of rolls and one 18-inch three-high merchant bar mill with three stands of rolls); product, billets, round, square, and flat bars, wire rods, angles, plow beams, wagon tires, shafting, girders, street rails, mine rails, bolts, rods, hoops, etc.; annual capacity, 30,000 gross tons. Fuel, coal. A machine shop is connected with the works. J. A. Currie, president and general superintendent, Duncan Donald, secretary and treasurer. (Formerly owned by the Cramp Steel Co., acquired by the present company in September, 1904) Company expects to have the works running early in 1905. See projected furnaces in this Province.

Ottawa (The) Steel Casting Co., Ottawa, Commenced building works at Ottawa in the fall of 1904, to be equipped with two furnaces for the manufacture of steel by the Hunter process; product, steel castings; estimated annual capacity, 1,500 gross tons. Gray iron castings will also be made; a machine shop will also be connected with the works. Fuel, coal. J. B. MacLaren, president and managing director; Arley Quackenbush, vice-president; G. M. MacLaren, secretary and treasurer; George G. Roe, manager. The company expects to have the works completed and in operation early in 1905.

Toronto Bolt & Forging Co., Toronto. Works at Sunnyside, Ont. Built in 1893 and put in operation in the same year; three coal heating furnaces, two double busheling furnaces, and three trains of rolls, (one 12-inch roughing and one 9-inch and one 22-inch finishing), product, merchant bar iron, agricultural implement and carriage iron, channels, angles, beveled-edged flats, etc., annual capacity, single turn, 6,000 gross tons. Fuel, bituminous coal from the United States. The company also operates works at Swansea and Gananoque, in the Province of Ontario, for the manufacture of bolts, nuts, spikes, rivets, carriage hardware, and drop forgings. George Gillies, president; T. H. Watson, secretary and treasurer; John Stephens, general superintendent; C. O. Jolley assistant superintendent. (Formerly operated by the McDonnell Rolling Mills Co., Toronto; acquired by the present company on March 19, 1903).

PROJECTED ROLLING MILLS—2.

Imperial Steel & Wire Co., Collingwood, Ont. Works for the manufacture of iron and steel wire and wire nails built at Collingwood in 1904; first put in operation November 28, 1904; number of wire-drawing blocks, 12; number of wire-nail machines, 20; annual capacity, 15,000 gross tons of wire and 120,000 kegs of wire nails. Fuel, coal. A galvanizing plant, a plant for making kegs, and a plant for the manufacture of woven wire fencing are being built. Trains of rolls for the manufacture of wire rods will probably be added in 1905. J. A. Currie, president and general manager, Collingwood; B. S. Wood, vice-president, London; W. J. Lindsay, vice-president and Duncan Donald, secretary and treasurer, Toronto.

Page-Hersey Iron & Tube Co., Guelph, Ont. Wrought-iron pipe plant built in 1902-3 and first put in operation May 4, 1903; equipped with two forge fires and one butt-welding furnace; sizes of pipe made, from $\frac{1}{4}$ of an inch to 3 inches. Annual capacity, about 15,000 gross tons of pipe. A galvanizing plant is connected with

the works. Fuel, bituminous coal. Contemplates adding a rolling mill, to be equipped with six double puddling furnaces, one regenerative scrap heating furnace, two busheling furnaces, and two trains of rolls (one 12-inch and one 16-inch); product, to be skelp and bar iron; estimated annual capacity, 17,000 gross tons. W. W. Near, president and managing director; D. H. Friedman, vice-president; R. E. Mills, secretary; H. Westoby, treasurer; A. M. Mosley, superintendent; J. Mosley, assistant superintendent. Sales offices: London, England; New York City; Halifax, N.S.; Montreal; Toronto; Winnipeg, Man.; Vancouver and Victoria, B.C.; and St. John, N.B.

Number of rolling mills and steel works in Ontario, nine completed, one building, and two projected. Of these one makes Bessemer steel, one makes Tropenas steel, two make open-hearth steel, and one plant for the manufacture of steel by the Hunter process is being built.

MANITOBA.

BUILDING ROLLING MILLS—1.

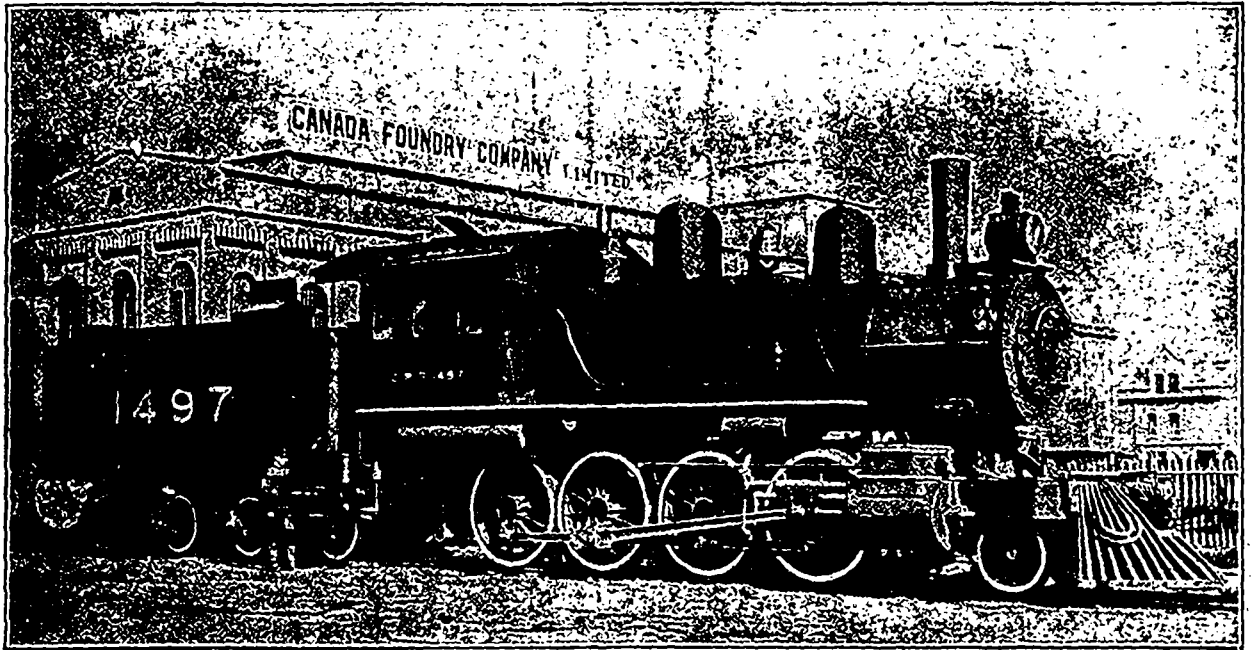
Kirkwood Iron & Steel Rolling Mills, T. M. Kirkwood, owner, Winnipeg, Man. Commenced building a rolling mill in the fall of 1904, to be equipped with two heating furnaces, four and perhaps six spike machines, four or more bolt machines, and two trains

of rolls (one 9-inch and one 16-inch); product, bar iron, railway spikes, bolts, etc.; estimated annual capacity, 10,000 gross tons of bars and 5,000 tons of spikes. Fuel, bituminous coal. May erect two additional heating furnaces. Mr. Kirkwood expects to have the works completed and in operation early in 1905.

Number of rolling mills in Manitoba, one building. No blast furnaces.

Number of blast furnaces in Canada: 16 completed and three projected. Of the completed furnaces 11 use coke and five use charcoal for fuel. The projected furnaces will use coke. Annual capacity of the completed furnaces, 755,000 gross tons of coke pig iron and 75,000 tons of charcoal pig iron; total, 830,000 tons.

Number of rolling mills and steel works in Canada: 18 completed, three building, and two projected. Of these one makes Bessemer steel, one has an idle modified Bessemer converter, one makes Tropenas steel, five make open-hearth steel, and one open-hearth steel plant and one plant for the manufacture of steel by the Hunter process are being built. Annual capacity of built and building plants on double turn: Standard Bessemer and Tropenas ingots and castings, not including the idle modified Bessemer converter, 200,800 gross tons; open-hearth ingots and castings, 451,000 tons; Hunter steel castings, 1,500 tons; total ingots and castings, 653,300 tons; total finished rolled and forged products, 839,600 tons.



TEN-WHEEL CONSOLIDATED LOCOMOTIVE, BUILT BY THE CANADA FOUNDRY CO., TORONTO.

The Canadian Pacific Railway Co.'s ten compound consolidation locomotives, for which an order has been placed with the Canada Foundry Co., Toronto, have the following general dimensions.—Diameter of drivers, 57 inches; weight, in working order, total, 164,000 pounds; on drivers, 144,800 pounds; cylinders, size, h.p., 22 inches diameter; h.p. 35 inches diameter by 26 inches stroke, boiler type, radial stayed; working pressure, 200 pounds; diameter at smallest ring, 5 feet 0½ inch; firebox, length 9 feet 1¼ inches; width, 3 feet 6½ inches at mud ring; depth, front, 5 feet 6¼ inches; back, 5 feet 1¼ inches; tubes, number, 254; diameter, 2 inches o.d.; length, 12 feet 10-9-16 inches; heating surface, in square feet, tubes, 1,710; firebox, 166; total, 1,876; grate service, square feet, 32; tender, style Canadian Pacific standard freight; water capacity, 5,000 imp. gallons; coal 10 tons; tires, Krupp; headlights, Canadian Pacific Railway standard; brakes, Westinghouse; tender brake beams, Simplex, break shoes, Canadian Pacific Railway standard; driving wheel centres, cast steel 51 inches diameter.

In the illustrated portion of the December issue of this journal were two articles one relating to a new compound steam pump manufactured by the American Steam Pump Co., Battle Creek, Mich., the other to an automatic electric pump and receiver, manufactured by the International Steam Pump Co., New York. The printer, who is to be blamed for all such blunders, placed the cut of the Battle Creek new compound pump in the matter relating to the automatic electric pump in page 22, the description being in page 23; and the cut relating

to the automatic electric pump of the International Steam Pump Co. was located in page 23 when it should have been in page 22 with the matter relating to it. The delinquent printer has been consigned to a much warmer place than Toronto now is.

The Cleveland Twist Drill Co., Cleveland, Ohio, have been incorporated by J. D. Fox, F. F. Prentiss, W. C. Cochran, E. C. Peck, Witt. Kast. Capital \$1,000,000. The incorporation does not in any way change the control or policy of the concern, which has long been

owned by Messrs. Cox and Prentiss and operated as a firm, though with a company name.

The Belt Line Coal Co., Chicago, Ill., have contracted with Borden & Selleck Co., Chicago Ill., for a modern hard coal pocket equipped with continuous elevator conveyor, electric motors, car unloaders, screens, etc.

The Wilberforce Lumber Co., Wilberforce, Ont., will rebuild their mills which were destroyed by fire. The lumber, shingle and lath departments will be in operation in February.

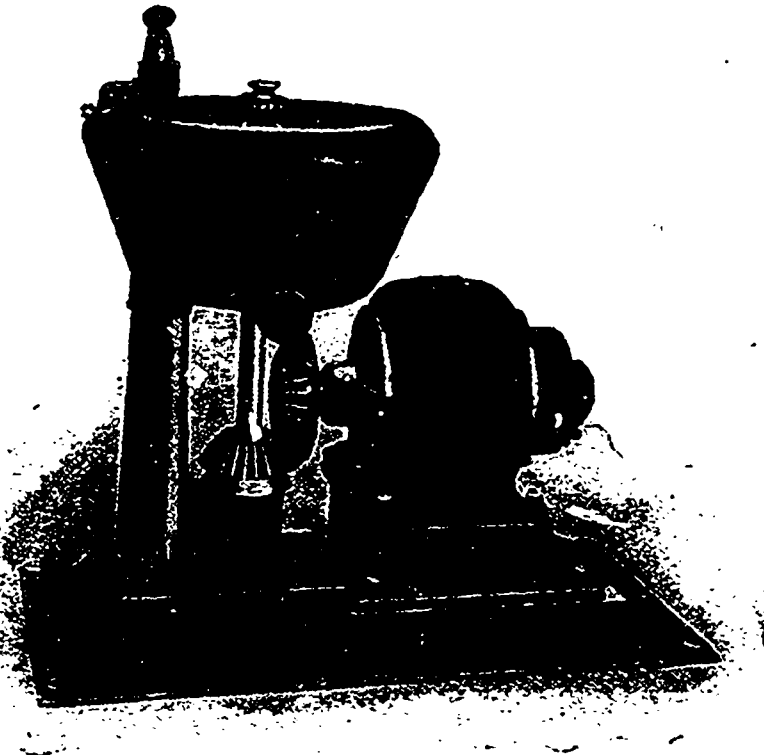
When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ELECTRICALLY DRIVEN CENTRIFUGAL OIL SEPARATOR.

A machine invaluable to the modern machine shop is the centrifugal oil separator shown in the accompanying illustration. This machine was designed, by the American Tool & Machine Co. Boston, Mass., especially for use in shops, where oil is used on the machinery as a lubricating or cooling agent in such a manner that it finally reaches the same drip pan as the chips and turnings. A screw cutter which runs virtually submerged in oil, is a good example of such a machine.

The purpose of this outfit is to separate, by centrifugal force, from chips, turnings, etc., oil which ordinarily goes to waste as it cannot be recovered by draining.

The material from which oil is to be extracted is placed in a moveable metal pan, having sloping sides and a bronze sleeve which surrounds the spindle to prevent the oil from leaking out around it. This pan



ELECTRICALLY DRIVEN CENTRIFUGAL OIL SEPARATOR.

is fitted into a similarly shaped casting and securely fastened to the spindle. A circular top is screwed down over the pan containing the oil soaked scrap to within about 1-16 of an inch of its brim. When the machine is started up the inner pan revolves with the spindle and the centrifugal force drives the oil up the sloping sides of the pan and out through the opening between the pan brim and lid. It then falls upon the inside of the outer casting and drains off through an outlet, which is shown in the illustration.

It ordinarily takes from five to eight minutes to separate the oil from 750 cubic inches of material, which is the capacity of this size machine. Oil thus recovered can be used over and over, almost indefinitely. There is, of course, some waste but small in comparison to the amount lost where no separator is used.

In the equipment shown in the cut a size 1 Form "L" motor manufactured by the Crocker-Wheeler Co. Ampere, N.J., is used to furnish the required power. It is rated at 1 h.p. and runs at a speed of 1,250 revolutions per minute and drives the spindle of the separator, through a bevel gear at 1,800 revolutions per minute.

This outfit, sturdy, compact and durable, in the average machine shop, will pay for itself in less than a year.

A NEW NIAGARA POWER SCHEME.

The contract made between the Ontario Power Co. and the Niagara, Lockport & Ontario Power Co. supports the opinion that has been formed that the north end of Niagara Falls, N.Y., and the south end of the town of Lewiston are on the verge of a new and big development. All the contract between these two power companies calls for the delivery of the power at the International boundary

indicates that there is to be no power development at Lockport. If called upon by Canadian consumers, the Ontario Power Co. must, in accordance with their agreement with the commissioners of Victoria Park, supply power to the extent of one-half of their development on the Canadian side outside of Victoria Park.

As each of the big steel flumes is expected to supply water sufficient for the development of 60,000 electrical h.p. it would appear that the 60,000 that is to go to the Lockport company is to be but one-third of the prospective development.

The people of Niagara Falls, N.Y., view the Canadian development with great interest realizing that if another tunnel or canal is not soon started the development on the Canadian side will far outdistance that on the American side, but the possibility of transmitting at least half of the Canadian power product to the United States makes it clear that Niagara Falls, N.Y., will profit materially from the Canadian development.

A MERGER OF CANADIAN COTTON COMPANIES.

Plans for what will comprise one of the largest industrial combinations in Canada, embracing a merger of four leading cotton companies, have been announced. The concerns involved are the Dominion Cotton Co., the Merchants' Cotton Co., the Montmorency Cotton Co., and the Colonial Cotton Co. Their present capitalization is as follows:

Dominion.....	\$3,033,600
Merchants'.....	1,500,000
Montmorency.....	1,000,000
Colonial.....	300,000

Total..... \$5,833,600

In addition they have also large bond issues outstanding, that of the Merchants totalling \$650,000, and the Dominion \$1,500,000. The Merchants' Co. have a reserve of \$300,000.

According to the plans of the promoters, the new company will have a capital of \$10,000,000, and they have deposited as a guarantee of good faith \$1,000,000 with the Royal Trust Co. The Bank of Montreal will finance the new undertaking.

Present shareholders of the new company will receive in payment for their holdings new preference stock bearing 7 per cent. interest, bonds bearing 6½ per cent. interest, and common stock. The ratio of allotment has not yet been definitely decided upon.

It is likely that Senator L. J. Forçet, president of the Dominion Cotton Co., will be elected president of the new company, with the presidents of the other three companies, Messrs. James Crathern, F. C. Henshaw, and H. S. Holt, on the Board of Directors. Mr. A. B. Mole, manager of the Dominion Cotton Co., and W. T. Whitehead, manager of the Merchants' Cotton Co., will become joint managers. The only cotton companies outside of the amalgamation are the Canada Colored Cotton Co. and the Montreal Cotton Co.

The Old Dominion Copper Mining & Smelting Co., Globe, Ariz., have placed orders with Borden & Sellenck Co., Chicago, Ill., for 46-Hopper Style Howe Suspension Scales with weigh baskets for each and 2 rubber belt conveyors. Borden & Sellenck Co., are engineers and manufacturers of conveyors for handling every kind of material.

line near the whirlpool, where the gorge is narrow, it does not follow that the development and application of the uses of the power will be made there, for it is generally believed that a transmission line will carry the power to be used locally to the town of Lewiston near the Devil's Hole.

In the fact that the Ontario Power Co. have contracted to deliver 60,000 h.p. to the Niagara, Lockport & Ontario Power Co. by January 1, 1907, there is evidence that the Ontario Power Co. are to go ahead and put in their two additional steel flumes, each of which is 18 feet in diameter and more than a mile long. So far only one of these flumes has been laid, and it will take a year or more to put in another, for the work calls for a vast amount of excavation through the rocky bed of Victoria Park.

The contract with the Lockport company

CAPTAINS OF INDUSTRY.

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

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

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

The Nerlich Co., Toronto, will erect a six story warehouse, 150x50 feet, in that place at a cost of about \$70,000.

The Canadian Glove & Mitten Co., Ingersoll, Ont., will install new machinery.

Mayell & Co., Toronto, have applied for permission to erect a two story brick and stone building for the manufacture of spices and flavoring extracts.

Forbes' basket factory, Trenton, Ont., was destroyed by fire recently.

The smelting company at the head of which is J. C. Hunter, will locate at West Fort William, Ont., and the plant installed at a cost of \$1,000,000.

The electors of Walkerville, Ont., will have a proposal submitted to them to expend \$50,000 for a new school.

The Ontario Cereal Co., Singhampton, Ont., have been incorporated with a capital of \$15,000, to manufacture cereal foods, etc. The provisional directors include Charles Russell, Toronto, J. R. Hamilton and A. J. Sprott, both of Singhampton.

The Canadian Fishing & Sporting Association, Toronto, have been incorporated with a capital of \$20,000. The incorporators include R. H. Harman, W. H. Douglas and Edward Hopkins, Toronto.

The Meyers Milling & Elevator Co., Listowel, Ont., have been incorporated to take over the business of the Meyers Milling Co. The incorporators include J. W. Meyers, J. S. Meyers and B. A. Meyers, all of Listowel.

The Fort William, Ont., elevator of the Ogilvie Flour Mills Co., was put in operation a few days ago. The elevator has every modern device for efficiency. The tanks have a capacity of between 500,000 and 600,000 bushels and are built on concrete foundations. The two legs of the elevator will take in about 80,000 bushels a day.

The Kemptville Milling Co., Kemptville, Ont., have increased their capital from \$30,000 to \$80,000.

It is stated that the Canadian Pacific Railway Co. will erect a 2,000,000 bushel elevator at Fort William, Ont.

The Great Northern Railway station at Hawkesbury, Ont., was destroyed by fire December 28.

W. Bennett's cheese factory, Hamilton, Ont., was destroyed by fire December 30.

The Grand Trunk Railway Co. will install electric motors in the Sarnia tunnel, at an outlay of about \$400,000. There will be re-

quired a power plant, storage system, third rail and four electric motors.

The flour mill at Wingham, Ont., has been purchased by Duff & Stuart.

The Bank of Nova Scotia will erect another bank building in Toronto.

The Algoma Steel Co., Sault Ste. Marie, Ont., have received a contract for the Canadian Pacific Railway Co. for 25,000 tons of steel rails.

The Ottawa & New York Railway, which was offered for sale recently at St. Regis Falls, N.Y., was bought in by the bondholders for \$1,000,000. The line runs at present from Ottawa to Tupper Lake, but it is believed that the New York Central Railroad will ultimately gain possession of it and extend it to Nyando and Messina Springs, thus forming a connection with the Rome, Watertown & Ogdensburg line.

The Wm. Buck Stove Works Co., Brantford, Ont., will enlarge their moulding, mounting and nickle-plating shops, and erect a new and separate building to be used as a pattern vault.

The Consumers' Box & Lumber Co., Toronto, have been incorporated with a capital of \$100,000. The provisional directors include J. B. Miller, John McClelland and F. Sully, Toronto.

The Western Salt Co., Mooretown, Ont., have been incorporated with a capital of \$100,000, to conduct salt works and mining. The provisional directors include D. A. Gordon, Wallaceburg, Ont., S. C. McLouth, Marine City, Mich., and R. C. Vaughan, Toronto.

The Toronto Gas & Gasoline Engine Co., Toronto, have been incorporated to manufacture engines, motors and machinery with a capital of \$300,000. The provisional directors include L. C. Lashley and R. B. Dargavel, Toronto, and R. Hunter, Toronto Junction.

The Commercial Oil Co., Hamilton, Ont., have been incorporated with a capital of \$100,000. The incorporators include Chester Goring, Homer, Ont., J. C. Person and W. J. Morrison, both of Hamilton, Ont.

The Nipissing Mining Co., Toronto, have been incorporated with a capital of \$250,000, to carry on mining, milling and reduction works. The provisional directors include E. P. Earle, New York City, D. Fasken and A. T. Struthers, both of Toronto.

The Temiskaming & Meckiskan Dam Co.,

Ottawa, have been incorporated with a capital of \$100,000, to construct and operate a dam across the southern outlet of Lake Temiskaming, near the terminus of the Canadian Pacific Railway; to erect a plant for the generation and distribution of electric power and light; to develop timber and mining lands; to erect docks and elevators, and to operate freight and ferry steamers. The incorporators include Sir A. P. Caron, Ottawa, E. B. Eddy and W. H. Rowley, Hull, Que.

The contract has been let for the construction of a Roman Catholic church in Stratford, Ont., to cost \$20,000.

The Canadian Pacific Railway Co. have called for tenders for the rock work incident to the creation of a second track between Fort William, Ont., and Winnipeg, Man. Operations for the rock filling will be commenced immediately after the contracts have been awarded. Several important bridges will have to be enlarged to make room for the second track.

Borden & Selleck Co., Chicago, Ill., have recently supplied coal handling machinery to Elias Rogers & Co., Toronto, Ont., Thos. Myles Sons, Hamilton, Ont., and others.

Maitland, Rixon & Co., Owen Sound, Ont., will erect a saw mill on Manitoulin Island.

The Taylor-Forbes Co., Guelph, Ont., will manufacture radiators and hot water and steam-heating boilers.

George Howes and George Booty will commence a cement brick factory at Galt, Ont.

The Town Council, Cornwall, Ont., will be asked for \$3,000 by the High School Board to enlarge a school building there.

The Roman Catholic Church, Belleville, Ont., was destroyed by fire a few days ago. Loss about \$75,000.

The ratepayers of Chatham, Ont., will vote on a by-law to grant a loan of \$20,000 to the Desjance Iron Works, to establish works there.

The Ross-Taylor Co., Exeter, Ont., have been incorporated with a capital of \$30,000, to carry on a lumbering business, etc. The provisional directors include D. A. Ross, John Taylor and J. R. Hind, Exeter.

The Canadian Barcalo Mfg. Co., Welland, Ont., have been incorporated with a capital of \$40,000, to manufacture metal beds, bed springs, mattresses, etc. The provisional directors include E. J. Barcalo, and W. L. Candell, both of Buffalo, N.Y., and W. I. Crombie, Toronto.

The Canadian Bank of Commerce will erect a bank building at Port Arthur, Ont.

The Standard Ideal Sanitary Co., Port Hope, Ont., will erect an iron building for their smelting and enamelling furnaces.

The Boiler Insurance & Inspection Co. of Canada, whose head offices are in Canada Life Building, Toronto, are displaying in their advertisements in this journal extracts from letters from different prominent manufacturing concerns in Canada having reference to the benefits and advantages derived from the services rendered by the Boiler Insurance & Inspection Co. These extracts, as displayed in their advertisements, are constantly changed, and are of a serial character.

The 20,000 tons of steel rails of the 50-lb. class made at the works of the Consolidated Lake Superior Co., at Sault Ste. Marie, Ont.,

for the Canadian Government to be laid on the Intercolonial, have been inspected and reported to be up to all requirements.

A number of Toronto and other capitalists have formed a syndicate for the development of the Atikokan iron range in North-western Ontario. James Hunter, mining promoter, and D. Mann, vice-president of the Canadian Northern Railway, have gone to Winnipeg, Man., to complete negotiations. A blast furnace is under consideration, to be built on the Neebing River between Port Arthur and Fort William, and a spur line is projected to run from the Canadian Northern to the iron range.

J. Walshaw & Son, Bolton, Ont., have re-built their mill. The plant will be equipped with three sets 60 inch cards and 15 looms.

It is stated that the American Horseshoe Co., Easton, Pa., have acquired seven acres of ground at Hamilton, Ont., where they will erect a branch factory.

The Department of Public Works, Ottawa, is inviting tenders for the Toronto Island breakwater extension.

The soda water works of J. W. Sutherland, Hamilton, Ont., were damaged by fire to the extent of about \$1,200.

A. E. Long, box manufacturer, Toronto, has purchased the old Medical College for \$11,000, and will use the building for the manufacture of boxes.

The flour mill, oatmeal mill and sawmill of the Farmers' Milling Co., Feversham, Ont., were destroyed by fire December 21.

The contract for the removal of the central pier in the Welland Canal at Allanburg and Marlatt, has been awarded to Magann & Phin, Toronto.

Blonde Bros, Chatham, Ont., have been awarded the contract for the Roman Catholic Church, Stratford, Ont., at a cost of about \$20,000. The building is to be 112x52 feet.

The Campbell House Hotel, Cayuga, Ont., was destroyed by fire. Loss about \$12,000.

The Public Works Department of the Dominion Government, Ottawa, is sending an expert to Great Britain to study the designs of dredges built there, with a view to placing an order for a dredge for work in Ontario and an order for a dredge for work in Quebec and Ontario.

The Chipman-Holton Knitting Co., Hamilton, Ont., will erect a large addition to their mill.

The Hamilton, Ancaster & Brantford Electric Railway Co., Hamilton, Ont., have awarded the contract for building the road to Haines Bros., New York City.

The Canada Brass Rolling Mills, Toronto, have completed the equipment of their new plant, and are now ready to roll copper, brass and silver sheets. Later the manufacture of rod, wire and tubing will be taken up. The rolling mill machinery was built by the Waterbury Farrel Foundry & Machine Co., Waterbury, Conn. John R. Barber is president, R. E. Menzie, managing director and Ferdinand Deming is superintendent.

The Canadian Corundum Wheel Co., Hamilton, Ont., are going into an entirely new industry in Canada early next year, and for that purpose are now doubling the size of their buildings and plant. The new industry is the vitrifying of emery wheels. Goods of this

sort to the value of \$25,000 were imported into Canada last year.

F. Ritchie & Co., Brockville, Ont., have purchased the opera house for \$3,000 and will expend \$10,000 in fitting it up.

The blacksmith shop and carriage factory of Alexander Barr, Pembroke, Ont., was destroyed by fire. Loss about \$4,000.

The Globe Mfg. Co., Walkerville, Ont., will invite tenders for the erection of a factory in East Toronto, Ont.

The Minister of Public Works, Ottawa, has decided to add a wing to the West Block, which will join the Customs offices and those of the Railway Department. This structure will cost about \$100,000.

The premises of the Cosgrave Brewing Co., Toronto, were destroyed by fire December 28. Loss about \$50,000.

The foundry of the Canadian Copper Co., Copper Cliff, Ont., was destroyed by fire December 19.

The boiler house of the McCormick Mfg. Co.'s factory, London, Ont., was damaged by fire to the extent of \$700.

Manufacturers who contemplate making any changes in the interior of their places of business should write the Metallic Roofing Co., Toronto, for particulars of their embossed steel for interior decoration, which makes a durable, economical and artistic finish.

The National Museum to be erected in Ottawa will consist of a main curtain 219x53 feet, with a wing at each end 54x143 feet 6 inches, a tower midway of the front 58 feet square, and an amphitheatre midway of the rear 81x76 feet from front to rear, all of which will give a total length of 392 feet frontage by a total depth of 187 feet.

E. C. Whitney, Ottawa, has given \$15,000 for a university residence in Toronto. It has been suggested that the sum of \$200,000 be obtained and four or five residence halls, each accommodating 50 or 60 men be erected in proximity to the university building.

The Peterborough Canoe Co., Peterborough, Ont., have just built and shipped by rail a fine steam launch to Edmonton, N.W.T., the dimensions of which are, length, 66 feet, beam 9 feet 6 inches; depth, 5 feet. The keel is 7x9 inches 60 feet long, in two pieces, outside planking, 2 inches thick, every part of the craft being of seasoned white oak. The boat was built entire in the company's yard at Peterborough, being held together by temporary bolts and screws, after which, all the parts and pieces having been properly marked and numbered, they were taken apart and packed in a freight car of the Canadian Pacific Railway Co., together with engines, boiler, fittings, etc., and shipped by rail to Edmonton, from whence the outfit will be drawn nearly a hundred miles over land on sleighs to the river, thence a much greater distance by water, to destination in the far North, where the parts will be assembled and the yacht rebuilt and made ready for service.

The Toronto Glove & Tanning Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a general tanning business, and to manufacture gloves, mitts, etc. The provisional directors include J. B. Sararus, W. J. K. Langdon and C. E. Holland, Toronto.

The American Coffee & Spice Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture spices, teas, cocoas, etc. The provisional directors include M. M. Clancy, J. McKee and L. W. S. Easton, Toronto.

The Joseph Valiquette Co., Ottawa, have been incorporated with a capital of \$20,000, to manufacture perfumes, chemicals, surgical instruments, etc. The provisional directors include R. Chevrier, J. L. Chabot and J. Valiquette, Ottawa.

The Thomson Monument Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture granite, marble, artificial stone, etc. The provisional directors include P. Thomson, W. Thomson and J. Hawken, Toronto.

The Berlin Felt Boot Co., Berlin, Ont., have been incorporated with a capital of \$200,000, to manufacture felt, wool, knitted goods, etc. The provisional directors include Geo. Rumpel, O. Rumpel and H. D. McKellar, Berlin.

The Unique Umbrella Co., of Canada, Toronto, have been incorporated with a capital of \$40,000 to manufacture umbrellas, etc. The provisional directors include C. A. Slater, W. F. Mulholland and A. Ogden, Toronto.

The Glengarran Printing & Publishing Co., Alexandria, Ont., have been incorporated with a capital of \$5,500, to carry on a printing business, etc. The provisional directors include W. A. Remmer, J. A. Macdonell and D. R. McDonald, Alexandria.

The Farmers' Mfg. & Supply Co., Durham, Ont., have been incorporated with a capital of \$100,000, to manufacture small-wares, etc. The provisional directors include G. Binnie, W. D. Mills and N. McIntosh, Durham.

The Steel Radiator Co., Toronto, have been incorporated with a capital of \$500,000, to manufacture radiators, heaters, steam fixtures, etc. The provisional directors include C. E. Safford, Buffalo, N.Y., J. G. Smith and N. Sinclair, Toronto.

The Intercolonial Deep Well Boring & Mfg. Co., Petrolia, Ont., have changed their name to the Intercolonial Boring Co., Limited.

The Lowndes Co., Toronto, will increase their capital from \$50,000, to \$100,000.

The Muskoka Lakes Milling & Supply Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture lumber, etc. The provisional directors include A. E. Henderson, R. I. Henderson and A. Ogden, Toronto.

The Accountancy Book Publishing Co., Toronto, have been incorporated with a capital of \$40,000, to carry on a printing and publishing business, etc. The provisional directors include D. Hoskins, W. B. Tindall and W. C. Eddis, Toronto.

James B. Dolan and Martin Jamieson, St. Catharines, Ont., propose the establishment of a new woolen factory at that place. They have asked the city for a bonus of \$5,000, and promise to employ at least 70 hands the first year. They will manufacture knitted woolen underwear.

The property-holders of St. Catharines, Ont., last summer carried a by-law to raise \$50,000 for sewer extension. The amount has proven insufficient for the work projected and the City Council have decided to ask the property-holders to vote \$30,000 more.

The Eureka Mineral Wool & Asbestos Co., Toronto, are erecting a new three-story factory in Adelaide Street West, for the manufacture of their line of packings and engine supplies.

The Canada Foundry Co., Toronto, have increased the lines of their output to include steam shovels, dipper dredges, elevator dredges, hydraulic dredges, railway wrecking cranes, placer mining machines, etc. It is quite evident that this large and important concern are prepared to undertake the supply of a large portion of the machinery growing out of the demand arising from the construction of the railways and other important works throughout the country. These machines are identical in character with those made by the Bucyrus Co., of South Milwaukee, Wis.

The Canada Saw Co., Ottawa, have been incorporated with a capital of \$125,000, to manufacture saws, saw mill machinery, tools, etc. The provisional directors include F. Bacon, Montreal, G. H. Bindon and P. M. Feeny, Ottawa.

The Adams Brothers Harness Mfg Co., Toronto, have been incorporated with a capital of \$375,000, to acquire the business of Adams Bros., and to manufacture harness, saddlery, leather goods, etc. The provisional directors include J. H. Adams, C. Adams, Toronto and C. W. Adams, Winnipeg, Man.

The Pattee & Lett Co., Ottawa, have been incorporated with a capital of \$100,000 to carry on a packing and canning business, etc. The provisional directors include G. B. Pattee, H. G. Pattee, Ottawa, and W. P. Lett, Riverside, Cal.

At the Williams iron mine, on the Algoma Central Railway, north of Sault Ste Marie, Ont., new bodies or bands of hematite ore have been struck. These show a total of 23 feet of clean ore with an additional 10 feet of so of second grade ore, in a total width of 50 feet. This is an entirely new field and if the bodies prove to be continuous may develop importance. North of Temagami are two promising prospects, one for iron pyrites (sulphur ore) and the other for arsenical pyrites. There are also a number of other iron pyrites and arsenical properties in the district which will no doubt receive the attention of mining concerns next year.

The Huronian Co., a subsidiary concern of the Canadian Copper Co., Copper Cliff, is rapidly completing water power works at the high falls on the Spanish River, four miles north of the Canadian Pacific Railroad at the new station Turbine. The operations are on a extensive scale, the dams being of concrete, and at present the development of 1,000 hp is aimed at, but this may be doubled later. It is expected that the copper companies' mines and smelters will be operated by this power next year at a much lower cost than in any previous period.

The managers of the Pere Marquette railway system will spend two and a half million dollars for betterments on their Ontario lines. The management found the equipment in a condition that called for immediate and extensive repairs and renewals. Larger yards at Sarnia, St. Thomas, Blenheim and Walkerville are to be made. About forty new siding tracks will be put in, and heavier rails are to be laid. A new slip and dock to be built at Walkerville as soon as an adjustment of crossing arrangements with

the Grand Trunk can be made. Twenty-five thousand dollars is being put in repairs to the ferry-boat International, on the Sarnia-Port Huron route. The new shops at St. Thomas are to be run day and night. The company has bought seventy new locomotives for delivery early in the year.

A large addition will be built to the factory of the Norton Mfg. Co., Hamilton, Ont.

The James Smart Mfg. Co., Brockville, Ont., will extend their factory.

The Peterborough Radiator & Boiler Co., Peterborough, Ont., will establish a factory in that place for the manufacture of the Sturgeon heater.

The North American Saw Co., Philadelphia, Pa., will erect a factory in Toronto.

A three story addition will be erected to the hardware factory of Penfold Bros., Guelph, Ont.

J. E. Middleditch, Ridgetown, Ont., will erect a two story machine shop, 60x30 feet.

The Kingston Locomotive Works, Kingston, Ont., have received an order from the Canadian Pacific Railway Co. for ten locomotives of the Mogul type.

The Giant Mfg. Co., Toronto, have been incorporated with a capital of \$25,000, to manufacture goods, wares and merchandise. The provisional directors include R. H. Cuthbert, C. A. Stone and W. W. Dunlop, Toronto.

The Canada Cycle & Motor Co., New Zealand, Toronto, have been incorporated with a capital of \$50,000, to acquire the business of the Canada Cycle & Motor Co., of manufacturing bicycles, automobiles, engines, motors, etc. The provisional directors include T. A. Russell, E. B. Ryckman and C. S. McInnes, Toronto.

The Universal Spring Motor Co., Toronto, have been incorporated with a capital of \$250,000, to manufacture motors. The provisional directors include G. H. Campbell, Toronto; W. J. Johnson, Springfield, Ohio, and W. G. Morton, Montreal.

The Davies Packing Co., Toronto, have been incorporated with a capital of \$100,000, to carry on a general meat packing business, etc. The provisional directors include Wm. Davies, F. J. Smale and J. W. Flavelle, Toronto.

The Condensed Peat Fuel Co., Peterborough, Ont., have been incorporated with a capital of \$40,000, to manufacture peat, peat coke, etc. The provisional directors include E. V. Moore, A. L. Davis and D. H. Moore, Peterborough.

Messrs Henry Disston & Sons, Toronto, have been incorporated with a capital of \$100,000, to manufacture saws, files, mechanical tools, etc. The provisional directors include H. Disston, W. Disston and J. S. Disston, Philadelphia, Pa.

The Cook-Fitzgerald Co., London, Ont., have been incorporated with a capital of \$50,000, to manufacture boots, shoes, etc. The provisional directors include J. P. Cook, P. Cook, Jr., London, and C. J. Fitzgerald, Brooklyn, N.Y.

The Dorion Lead & Zinc Co., Port Arthur, Ont., have been incorporated with a capital of \$50,000, to carry on a mining, milling and reduction business. The provisional directors include M. Jacoby, H. J. Achenbach and W. H. Salter, Duluth, Minn.

The Brooks-Smith Hardware, Limited, Toronto, have been incorporated with a capital of \$75,000, to manufacture hardware, mantles, grates, etc. The provisional directors include E. J. Creeper, J. Brooks and W. M. Smith, Toronto.

The Reading Mining Co., Toronto, have been incorporated with a capital of \$250,000, to carry on a mining, milling and reduction business. The provisional directors include I. Hollenbach, T. C. Seiale and H. Kramer, Reading, Pa.

The Erie Iron Works, St. Thomas, Ont., have been incorporated with a capital of \$40,000, to manufacture iron, wood, etc. The provisional directors include M. Risdon, W. G. Rogers and Wm. Risdon, St. Thomas.

The Wahnapiat Power Co., Sudbury, Ont., have been incorporated with a capital of \$250,000, to manufacture electricity for light, heat and power purposes. The provisional directors include F. Cochran, W. McVittie, Sudbury, and C. A. Masten, Toronto.

The B. & T. Roller Bearing Window Co., Toronto, have been incorporated with a capital of \$30,000, to manufacture roller bearings, window sashes and frames, etc. The provisional directors include A. J. Jackson, E. A. Badenach, and A. B. Lee, Toronto.

The Pure Color Co., Hamilton, Ont., have been incorporated with a capital of \$100,000, to manufacture dry and paste colors for paints, oils, greases, etc. The provisional directors include E. R. Clarkson, J. P. Campbell and H. E. Ralston, Hamilton.

The Stratford Carriage Co., Stratford, Ont., will change their name to The Borland Carriage Co., Limited.

The Canada Lithographing & Embossing Co., Toronto, have been incorporated with a capital of \$40,000, to acquire the business of the Canada Lithographing Co., and to carry on a printing, lithographing and embossing business. The provisional directors include A. E. Poole, G. H. Morris and W. J. McWhinney, Toronto.

The main building of the Canada Carriage Co.'s factory, Brockville, Ont., was destroyed by fire January 4. Loss about \$250,000.

Vice-president Drummond, sales agent for the Algoma Steel Co., says that now that the Canadian railways have come into the market for steel rails there will be a market for 100,000 tons in 1905, and then, owing to the construction of the Grand Trunk Pacific, this would be increased to between 200,000 and 300,000 in 1906 and would remain at these figures for about five years at least. The Soo mill is expected to secure almost all the business for 1905.

The Bertram Engine Works Co., Toronto, are building a Government dredge, the spuds for which were supplied by John B. Smith & Sons, Toronto. The spuds are 24x24 and 50 feet in length, each stick weighing about 9,000 pounds, the timber being of very superior quality.

The Canadian Pacific Railway Co., will build extensive yards and elevators at West Fort William, Ont. The company also contemplate building a bridge across the river.

The Dominion Bridge Co., Montreal, have been awarded the contract for the erection of the new lift lock at Kirkfield, Ont., on the Trent Canal.

Messrs. Church & Dwight, Limited, Montreal, have been incorporated with a capital of \$50,000, to manufacture chemicals, etc. The provisional directors include E. D. Church, R. E. Dwight and W. I. Walker, New York City.

The National Construction Co., Montreal, have been incorporated with a capital of \$250,000, to manufacture building materials, and to construct buildings, elevators, wharves, etc. The provisional directors include J. Hobson, R. S. Logan and H. W. Walker, Montreal.

The amalgamation of four Canadian cotton companies, the Dominion, Merchants', Montmorency and Colonial Bleaching & Finishing Co. naturally excites considerable speculation as to its probable effects on domestic cotton prices. In most quarters the move is considered a satisfactory one. Economies will be easily effected. The mills, instead of turning out the same materials, overlapping in their production, will now each be assigned particular lines. There will be other economies in the cost of production, with economies in the business department, which will offer hopes to the patient shareholders, who have, generally speaking been without dividends for some years. Cheaper purchases of raw material in the larger quantities will also be a profitable result. The Canadian consumer, it is pointed out, need have little fear of unjust increases in prices, for, although the combination will control a very large percentage of the business in greys and sheetings and practically all the domestic prints, the mills have already found tariff conditions require them to keep prices at the lowest possible figures. But, on the other hand, the combination is evidently mainly in the interests of shareholders, and no special reductions in prices can be expected, although, by specialization of the mills, it may be possible to produce a superior article, while the increased capital will permit the introduction of up-to-date machinery as it may be required, an important factor in maintaining the domestic market.

The Canada Car Co. are about to erect an extensive plant at Cote St. Paul, Que., for the manufacture of railway cars of all classes. Contractors are now working on the foundations of the buildings, which will cover a large area. Contracts have been placed with Canadian firms for supplying the structural steel, and the DeLano Osborn Engineering Co., Montreal, are engaged to inspect and report upon it. The company have large contracts with the Grand Trunk Pacific Co., for the supply of cars for the new trans continental line.

The James Richardson Co., St. Jerome de Matane, Que., have been incorporated with a capital of \$200,000, to manufacture lumber, etc. The provisional directors include Jas Russell, Wm. Russell, St. Jerome de Matane, and W. C. McLeish, Montreal.

The Hood Rubber Co., Montreal, have been incorporated with a capital of \$5,000, to manufacture rubber boots, shoes, etc. The provisional directors include R. D. McGibbon, D. Armour and S. J. Le Huray, Montreal.

The Automatic Railway Signal Co., Montreal, have been incorporated with a capital of \$500,000, to manufacture a railway signaling system, appliances, etc. The provisional directors include J. Lemire, Drummondville, Que., M. Langlois and O. Herburt, Montreal.

The Alza Co., Montreal, have been incorpor-

ated with a capital of \$100,000 to manufacture dies, tools, implements, window sashes, etc. The provisional directors include J. C. Moore, J. S. Teasdale and L. J. A. Surveyer, Montreal.

The Railway Specialty Co., of Canada, Montreal, have been incorporated with a capital of \$20,000, to manufacture railway appliances, machinery, tools, etc. The provisional directors include N. J. Holden, Montreal, J. N. Rattey, Ottawa, and E. M. Smith, New York City.

La Compagnie M. Pauze & Fils, Montreal, have been incorporated with a capital of \$95,000, to manufacture lumber, produce electricity and to acquire the business of M. Pauze & Fils. The charter members include Urgel Pauze and J. A. Beaudoin, Montreal, and W. H. Pauze, St. Henri, Que.

The Royal Shoe Co., Montreal, have been incorporated with a capital of \$40,000, to manufacture boots, shoes, etc. The incorporators include Thomas Dufresne, Maissonneuve, Que., Ralph Locke, Westmount, Que., and Onesime Vinet, Montreal.

The Wm. Davies Co., Toronto, packers and provision merchants, will establish an extensive branch of their business in Montreal.

The Montreal Bridge Co., Montreal, are asking for authority to purchase the franchise of the Montreal & Longueuil Bridge Co., or to amalgamate. The company also desire authority to increase their bonding powers to change the proposed site of the bridge and the date of completion.

The Hull, Que., registry office was damaged by fire to the extent of about \$3,000.

President Pitkin, of the American Locomotive Co., New York City, who recently inspected the Canadian plant, states that the results so far obtained at that plant are entirely satisfactory. The company have built a number of large type locomotives at the Canadian plant for both the Canadian Pacific and the Grand Trunk, and they have been accepted. The company are enlarging different parts of their Montreal works and expects to turn out 150 locomotives a year.

The A. D. Gall Petroleum & Chemical Co., Montreal, are considering the erection of a large oil refinery in Toronto.

A few months ago Mr. George Bernier, of Tingwick, Que., on visiting a neighboring parish, discovered a copper mine in St. Helene of Chester. He immediately bought the mining rights of such land, and took steps to have its ore analyzed. The analysis of this ore has proved it to be of a very valuable character. This leads to the belief that the Eastern townships will have a good copper mine in full operation inside of two years.

A New Brunswick paper states that a new pulp and paper mill is to be erected on the St. Croix River near Sprague's Falls. It is understood that the paper mill is to be in operation by January 1, 1906.

Fire destroyed the building of C. A. Steeves, Moncton, N.B., causing a loss of about \$4,000.

The McAdamite Metal Co., Staten Island, N.Y., will erect a factory at St. John, N.B.

During the last two months the Canadian Pacific Railway Co. laid 60,000 tons of steel rails. The hurry was prompted by the duty of \$7 a ton imposed on foreign rails entering Canada, and in order to avoid as much of it as possible the company had to

engage extra gangs of men and keep them working against the coming of Jack Frost. The rails were ordered in the United States for prompt delivery. Delivery began late in October, and at once 100 gangs of men were placed at work at different parts of the system. The work was distributed over the entire line. By getting the rails at the low figure at which United States mills were supplying foreign markets and getting them laid in time there was a saving of \$7 a ton to the company.

The Schooner Invictus Co., Wolfville, N.S., have been incorporated with a capital of \$18,752, to build vessels and to carry on a general shipping business. The provisional directors include N. D. Munro, Bridgetown, N.S., R. Lee, Weston, N.S., and C. R. Burgess, Wolfville, N.S.

The Cape Breton Coal, Iron & Railway Co. are reported to have purchased two valuable water-front properties at Sydney, N.S., to \$20,000 for the erection of terminal shipping facilities. A short line of railway will be built from the company's mines at Cochrane Lake to the proposed pier.

An explosion took place at the mills of the Acadia Powder Co., Waverley, N.S., December 26, causing damage to the amount of \$20,000.

The Dominion Iron & Steel Co., Sydney, N.S., will install a new system of conveyor apparatus in their coal washing plant. The contract has been awarded to Heyl & Patte-son. Two conveyors, each with a carrying capacity of 125 tons per hour will be installed.

The Hotel Cabot, Sydney, N.S., was destroyed by fire, January 1. Loss about \$7,000.

The Sydney Hotel, Sydney, N.S., was destroyed by fire December 31. Loss about \$5,000.

The Robb Engineering Co., Amherst, N.S., have about completed the erection of an addition to their machine shop. Among the recent contracts received by this company is, one from San Francisco for a 150 lb. Robb-Mumford boiler, one from a paper mill in New York State for two large boilers, one from a tannery at Salem, Mass., and another order for a boiler from Springfield, Mass.

The Commercial Trust Co., Halifax, N.S., have been incorporated with a capital of \$100,000. The incorporators include W. E. Ross, W. M. Aitken and R. H. Murray, Halifax.

W. B. Ives, Pictou, N.S., is asking for tenders for the erection of a cottage hospital building there.

Tenders for the Wm. Fitzsimmons bridge will be received until January 16 by the Department of Public Works, Fredericton, N.B.

Tenders for the St. Augustine bridge will be received by the Department of Public Works, Fredericton, N.B., until January 10. G. W. Aphon, Woodstok, N.B., will rebuild his saw mill, which was recently destroyed by fire.

The Sherbrooke Lumber Co., Sherbrooke, Que., will erect a sawmill at Barachois, N.B.

The woodworking factory of Wm. Campbell & Co., Campbellton, N.B., was destroyed by fire December 27. Loss about \$60,000.

D. E. Edwards, Fort Fairfield, Me., has completed his new water power mill at Fort Falls, N.B. It has a capacity of fifty barrels of flour a day.

The contract for the Winnipeg, Man., post office has been awarded to Thomas Kelly

of that place, the contract price being \$529,000.

The building of Fleming & McDonald, hardware merchants, Winnipeg, Man., was destroyed by fire recently. Loss about \$25,000.

The Standard Brick & Tile Co., Winnipeg, Man., have been incorporated with a capital of \$40,000 to manufacture brick, tile, etc. The provisional directors include G. F. Carruthers, R. W. Gardiner and E. A. Delius, Winnipeg.

The Manitoba Pressed Brick Co., Winnipeg, Man., has been incorporated with a capital of \$60,000, to manufacture brick, etc. The incorporators include T. H. Johnson, I. E. Fairchild and A. G. Akin, Winnipeg.

It is stated that the Canadian Northern Railway and the Grand Trunk Pacific Railway will erect a union depot and joint freight traffic yards in Winnipeg, Man.

The Ames-Holden Co., Winnipeg, Man., will erect a two-story addition to their warehouse.

The town of Boissevain, Man., has passed a by-law to raise \$6,000 for increased fire protection.

The Icelandic Lutheran Church, Winnipeg, Man., was destroyed by fire December 23. Loss about \$40,000.

The German Lutheran Church, Winnipeg, Man., was destroyed by fire, December 27. Loss about \$6,000.

The Ogilvie Flour Mills Co., Winnipeg, Man., will erect an elevator at Cartwright, Man.

W. Huff and C. J. Carter, Edmonton, Alberta, N.W.T., have been awarded the contract to supply the Grand Trunk Pacific Railway Co. with 100,000 railway ties for use in the construction of the western section of the line.

M. Mayor & Co., Winnipeg, Man., will manufacture a factory at Calgary, N.W.T., for the manufacture of school furniture.

The Canadian Rubber Co., Montreal, will establish a branch of their business in Calgary, N.W.T.

Tenders for the erection of a six-story building are invited by T. J. S. Skinner, Calgary, N.W.T.

The Mundy Lumber Co., Bradford, Pa., will establish a mill at Lhee Valley Lake, B.C., at an expenditure of about \$60,000, with a capacity of 15,000,000 feet annually.

The Canadian Pacific Railway Co. will erect a hotel at Victoria, B.C., which will be eight stories high and will cost about \$500,000.

The Columbia Flouring Mills Co., Enderby, B.C., will erect two additional grain elevators in the North-West Territories. The company recently completed a 30,000 bushel elevator at Lethbridge, N.W.T.

The Union Brewery Co., Nanaimo, B.C., will establish a malting plant, at a cost of about \$10,000.

The Crow's Nest Pass Railway Co. have taken over from operation, the Canadian Pacific branch from Fernie to the mines at Crow's Nest Creek, B.C. This move is in connection with the Great Northern Railway construction which is progressing so rapidly in the district.

The American line will thus have direct access to the fuel fields which are to so largely supply Montana and other American points hereafter. Great Northern have just bridged the Elk

River, and contracts for the depot, section-house and other buildings at Fernie have been let. The output of the Coal Creek mines of the Crow's Nest Pass Coal Co. last month was 44,867 tons, the largest on record. The production at Michel, B.C., was 22,253 tons, and that at Carbonado 74,449 tons. The 390 coke ovens at Fernie made 11,950 tons of coke, and the 345 ovens at Michel, 9,157 tons. Owing to a shortage of cars the ovens were not charged to their full capacity.

The zinc smelter for the Crow's Nest Pass Coal Co. will be located at Frank, B.C.

The Bannockburn Mines, Limited, have been incorporated at Victoria, B.C., with a capital of \$500,000, to carry on a mining, smelting and refining business.

The Violin Lake Lumber Co., have been incorporated at Victoria, B.C., with a capital of \$50,000, to manufacture lumber, pulp, paper, etc.

The Fraser River Saw-Mills, Limited, New Westminster, B.C., have been incorporated with a capital of \$500,000, to manufacture lumber, saw-mill machinery, etc. The provisional directors include E. J. Dodge, Alameda, Cal., and L. W. David, New Westminster, B.C.

The Forty-Nine Creek Mining Co., have been incorporated at Victoria, B.C., with a capital of \$600,000 to carry on a mining, milling and refining business.

The Canadian Oil Co., Toronto, incorporated with a capital of \$1,000,000, have been licensed to do business in British Columbia, with office at Vancouver, B.C.

The Belt Line Coal Co., Chicago, Ill., have just installed two large Howe twin wagon scales purchased from Borden & Selleck Co., Chicago, Ill.

ELECTRICITY.

Electrical machinery and appliances of all kinds, electrical power plants and other progress in the electrical industry will be noted here.

W. R. Davis, editor of the Mitchell, Ont., Advertiser, narrowly escaped death by electrocution last week. Returning from his office in the evening, he found everything of a metallic nature in the house charged with electricity, an iron pump in the kitchen especially so. Mr. Davis went to pump water, but had no sooner touched the handle than he was twisted almost out of human shape. Fortunately, his son was at hand and extricated his father from his unpleasant predicament. Mr. Davis immediately collapsed, and his sons, assisted by Dr. Smith, worked over him for hours, before he was restored to his normal condition. We are pleased to say that the electricity pervading the editor's pump did not have its origin in the neighboring power house of the Mitchell electric light company, but from his versatile and vigorous pen. We understand that Editor Davis is not an advocate of prohibition, and hereafter we presume he will avoid the pump.

In their advertisement in back cover of this issue, the United Electric Co., Toronto make a "Statement of Fact" to the effect that "the only true measure of the normal capacity of a properly designed generator is the current it will develop safely under short circuit with normal (fully excited) field within a stated

temperature for a given period of time, the maximum capacity being the current at safe temperature under fully saturated field, short circuit to be applied when the generator is giving out its standard voltage, and the same test should be made on all direct current motors and synchronous alternating motors, by operating them as generators. Purchasers of electrical machines should insist on these requirements if they want an absolute test." The United Electric Co., inform us that they are ready to tender to above requirements, as their "Johnson" generators and motors are tested at full load current under these conditions. If any engineer takes exception to this statement, we will be glad to print his reply.

The California Gas & Electric Corporation, San Francisco, Cal., have just placed an order with Crocker-Wheeler Co., Ampere, N.J., for three 4,000 k.w. capacity, 3 phase, 13,200 volt, 25 cycle, 88 p.p.m., revolving field alternating current generators to be driven by 5,400 h.p. gas engines. These generators are the largest in capacity in the world driven by gas engines, and will furnish power for operating all the street railways in San Francisco and vicinity. This important sale by a company which has been building alternating current machinery for so short a time, is a cause for congratulation. It is due in part to the fact as announced several months ago, that the Crocker-Wheeler Co. are the American licensees of Brown, Boveri & Cie, the celebrated Swiss electrical engineers. But the reputation for excellence which the Crocker-Wheeler Co. have built up during the past sixteen years of manufacture of direct current apparatus, has had much to do with the result. Canadian representatives, The Packard Electric Co., St. Catharines, Ont.

The Bell Telephone Co., Winnipeg, Man., will construct about 200 miles of line in that city.

An electric lighting plant will be installed by the Kamloops Lumber Co., Kamloops, B.C.

The Toronto Electric Light Co., Toronto, are installing two new steam turbines engines of a combined capacity of 600 h.p. With this additional equipment the steam power plant of the company will be able to operate the works independently of power from Niagara. The company are now installing switch boards and other electrical appliances at the power house in preparation to utilizing power from Niagara, which, it is expected, will be ready next fall. The construction of the power line from Niagara to Toronto is now being rushed through as rapidly as possible, and gangs of men are at work on it night and day.

The Toronto & Scarborough Electric Railway Co., Toronto, have secured a perpetual franchise for the Kingston Road. The company agrees to extend the road six miles.

James Finley & F. J. Weeks, Marysville, B.C., have applied for incorporation to construct a tramway from Sullivan Hill, Southeast Kootenay, to North Star branch of the Crow's Nest Pass Railway, and to maintain and operate telegraph and telephone systems.

C. Navarro Mora of Guadalajara, Jalisco, Mexico, will establish an electric-light plant and a corn mill to be operated by electricity.

The Bellingham Bay & British Columbia Electric Railway Co., Vancouver, B.C., will extend their lines from Maple Falls across the divide in Coast Range near Mount Baker and to Spokane, Wash.

A quarter of a million dollars will be spent for improvements on the Welland Canal this winter. Several bridges are to be re-built, and the canal lighted by electricity, lights being placed every two hundred feet.

FUEL.

For names of fuel dealers see "Coal and Coke" in Classified Index.

The fuel supply question is a most important one to Canadian manufacturers. The information published in this department will keep the readers posted on sources of production.

Messrs. F. M. Boynton, Inc., Pittsburg, Pa., whose Buffalo offices are in the Mutual Life Building in charge of E. M. Sands, treasurer of the company have for a number of years been shipping large quantities of their well-known Youghiogheny steam and gas coal into Canada, their trade being particularly heavy during the past year. In analysis this coal shows 57.837 per cent. of fixed carbon, 35.273 per cent. volatile matter; 1.242 per cent. water; 4.753 per cent. ash; and .897 per cent. sulphur. It is free from impurities, low in ash and sulphur and Canadian malleable iron works, steel companies, gas plants, brick works, cement plants each have found it a very desirable fuel. It is also in wide use for general steam purposes. The company are in a position to make prompt shipments to the Canadian trade to which they are giving particular attention.

J. H. Hammill & Co., Toronto, have removed their offices to the corner of King Street and Spadina Ave.

The Canadian consumer appears to be hearing from Buffalo right along. A salesman lately called on a possible Canadian customer and was asked how large the Prudential Building in Buffalo was. He replied that it was a 13-story affair and the other seemed to be much astonished. "Why," said he "from the number of coal men who come in here from that building I had an idea it was at least thirty stories high."

The soft-coal jobbing firm of Brady & Ewell have opened offices in the Ellicott Square Building, Buffalo, N.Y. John Brady has been a long time with the Buffalo office of H. K. Wick & Co., and Clayton Ewell comes from the coal office of J. E. Gavin & Co., so both are well equipped for the business.

The shipments of soft coal into Canada for the month of September amounted to 1,847,001 tons and of hard coal 520,900.

The total output of crude petroleum in the United States, since it was first discovered in quantity, in 1859, by Colonel Drake, on the waters of Oil Creek, near Titusville, Pa., to the end of 1902, amounted to 1,165,290,248 barrels. Allowing 56 cubic feet to each barrel, this quantity of oil would fill a tank whose base is one mile square to a height of 234 feet. It would likewise fill 38,843 tanks containing 30,000 barrels each. Allowing 90 feet for the diameter of tanks of this size, if they were placed so that their sides would touch, they would reach 662 miles; and if the barrels (estimated at 30 inches high)

required to hold this oil were laid so that their heads would touch, they would encircle the earth 2.28 times. Considered as fuel, this oil is equivalent to about 330,000,000 tons of average coal.

A decision of much importance to the coal trade of Nova Scotia was reached at Glace Bay last week, when representatives of the Dominion Coal Co., and the P.W.A. Lodges signed a three years' wage contract. According to the agreement, the miners have bound themselves to a certain scale of wages for three years. The final clause binds the men to allow the company to dispose of their coal whenever and wherever they wish. Such a clause is looked on by the mainland miners as prejudicial to their interests, as it practically cuts off any possibility of the Cape Breton colliers making a sympathetic strike in favor of the mainland lodges. As no such situation has arisen in the past and may not arise in the future, the objections are perhaps more sentimental than otherwise. Next season's coal trade will, it is expected, exceed that of any previous year. Plans are maturing to capture the Ontario market, hitherto held by American companies. Special boats will be put on. The signing of the contract will dispel all fear of labor troubles for three years at least, and a great boom is anticipated.

PUBLICATIONS.

The publishers of The Canadian Manufacturer solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.

The Westinghouse Machine Co., East Pittsburg, Pa., have sent us an exceedingly handsome publication entitled "A few words about Mechanical Stokers," particular reference being made to the Roney mechanical stoker made by them. The modern dictionary definition of the term mechanical stoker is a machine that does the work of a skilled fireman, never gets tired, and never strikes. The simplicity of construction of this apparatus is explained also its simplicity of operation accessibility for all purposes, and its durability. Further reference is made to the economy in fuel by its use, saving of labor, increased steaming capacity, uniformity of steaming pressure, smokeless combustion of bituminous coals, and the ability to burn all kinds of coal. There are a large number of illustrations of industrial and other buildings in which Roney stokers are in use, of plants showing such stokers, and their adaptability to any and every kind of boiler in general use.

Mr. Charles G. Shepard, 401 Ellicott Square, Buffalo, N.Y., has issued an attractive card in which mention is made of the "Globe" brand of pig iron for which he is Canadian sales agent. This brand is described as a high silicon iron made of ore mined in Jackson county, Ohio, and possesses many advantages for mixing purposes, large shipments of which have recently been made to Montreal. Some of the merits described in a folder recently issued by Mr. Shepard alludes to the "Globe" iron as an absolute softener and fluidizer, used as an auxiliary to the extent of from 5 to 10 per cent. of the

entire melt. The cost of production of the metal is increased not only because of the very lean character of the ore from which it is made, but the ore is roasted before smelting which, of course, eliminates much more of the sulphur than in the usual practice, and the furnace has to be run at a much higher temperature to produce this high silicon iron, about twice the amount of fuel being required in smelting. This "Globe" iron is used very extensively both in the United States and Canada, notwithstanding the high cost of transportation. Mr. Shepard is the only agent for the sale of this iron in Canada.

The American Steam Pump Co., Battle Creek, Mich., have issued an illustrated descriptive price list having reference to geared power pumps and air compressors, made by them. The descriptions include size of cylinder, stroke, gallons per revolution, size of suction pipe, size of delivery pipe, diameter and face of driving pulley, ratio of gears, floor space, etc. The company are prepared to furnish other designs, including direct connected electrically operated types, and they also make direct acting steam pumps for every service.

Messrs. F. M. Boynton, Inc., Buffalo, N.Y., have issued a very handsome letter of introduction to their many Canadian buyers of their standard and coke during the past year, and solicited by a continuance of their patronage.

Messrs. F. E. Myers & Bro., Ashland, Ohio, have sent us their 1905 poster and calendar, abundantly illustrated with representative of a great many of the specialities which they manufacture, including force and lift pumps, hay tools, etc.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us a brochure relating to Baldwin-Westinghouse electric locomotives. The Union of the Baldwin Locomotive Works of Philadelphia, Pa., and the Westinghouse Electric & Mfg. Co. for the production of electric locomotives concentrates the experience and knowledge gained by these companies, and makes it certain that the detail, mechanical and electrical, will be the result of skillful design and careful construction. The book abounds in illustrations and descriptions relating to electrical locomotives.

The Joseph Dixon Crucible Co., Jersey City, N.J., begin the new year with a special issue of their monthly publication "Graphite Lubrication." This number has been sent to thousands who are interested in lubrication in the hope of leading to a better understanding of the principles underlying the most effective use of Dixon's Ticonderoga Flake Graphite. Graphite lubrication is not a mere theory upon which modern engineering and growing in importance every day as its advantages become better known, Lubrication methods must keep pace with machine and engine construction and steadily, surely, the use of lubrication with graphite increases because it aids to the lubrication. Copies of January "Graphite Lubrication" will be freely sent to all who may be interested in attaining better results in lubrication.

We are in receipt of a circular from the Laurie Engine Co., Montreal, in which they state they have added to their list of manufactures a line of Triplex power pumps which have been carefully designed by engineers who have had many years' experience in the

of work. They are building a full line of power and electric pumps for general water supply, municipal water works, hydraulic elevators, and boiler feeding also special power pumps for paper and pulp mills. They state that the ordinary duplex steam pump is a very extravagant machine both in regard to steam consumption and repairs, and the Triplex Glob power pump is superseding it at a rapid pace. Messrs. Munderloh & Co., wholesale dealers in electrical supplies, etc., Montreal, have favored us with a number of circulars having reference to some of their specialties, included which are their telephones for office, warehouse, and factory use, rosettes and cut-outs and sockets for electrical purposes, "Radium" incandescent lamps, "Simplex" time repressor, etc.

The B. Greening Wire Co., Hamilton, Ont., have sent us their new illustrated catalogue of wire rope. It is very full. There is every kind of wire rope mentioned that is likely to be called for from the Swedish Charcoal rope manufactured from a rod specially imported by the company from Sweden, and cut away into wire in their own mill. This is used for passenger elevators, or where the rope is not so great a consideration as the amount of work the rope has to do. The standard crucible cast steel rope so largely solicited by contractors for derrick use, different qualities of plough steel rope up to the one inch brand lately put on the market by the company, is said to have a tensile strength equal to 120 tons to the square inch of metal. There are also different constructions of these ropes although we understand the most generally in use are 19 wires to the strand for hoisting or working ropes and 7 wires to the strand for standing ropes. Breaking strains and proper working loads in all cases are given. There are tables of rope sizes of sheaves or wheels to be used to obtain best results, tables showing relative effect of various size sheaves on the life of the rope, etc. All kinds of fittings, splicings, etc. are shown and altogether we would say that it is a valuable catalogue for any one interested in wire rope, and should be in the office of every user or prospective user of wire rope.

One of the most unique and seasonable offerings of the holiday season comes to us in Mr. Guernsey Camp, wholesale dealer in land and coke, White Building, Buffalo, N.Y., the shape of a sight draft on the National Life of Fortune, State of Happiness, for one hundred and sixty-five happy days of leading the year 1905.

Care and Use of Pneumatic Tools, is the subject of a booklet from the Philadelphia Pneumatic Tool Co., Philadelphia, Pa. As the name indicates, it is one which should be read for the useful information which it affords. Instructions given in this booklet are general and apply equally well to any of the various makes of pneumatic tools. The matter is divided under subheadings, beginning with pneumatic tools generally, and going on to hammers, rammers, yoke riveters and drills in particular.

C. McQuiston, superintendent of the Publishing House Companies Publishing Department, Pittsburgh, Pa., has sent us a copy of the Westinghouse Diary which has been prepared for distribution to their friends. In addition to the information usually published in books of this character, it contains forty pages of valuable engineering

information which cannot fail to prove of great assistance to any reader engaged in any of the various lines of engineering.

The London Machine Tool Co., London, Ont., have sent us their calendar for 1905. It shows an excellent view of one of their large planers at both sides of which is a list of the tools that this company manufacture.

The Kerr Engine Co., manufacturers of pumping machinery, hydrants and valves, Walkerville, Ont., have sent us a most artistic calendar for 1905. It is a picture of a mother and child in deep thought entitled the "Twilight Hour."

Messrs. Sheldon & Sheldon, Galt, Ont., have sent us a copy of their handsome catalogue No. 17, relating to Natural Draft Moist Air Lumber Dry Kilns. It contains a number of illustrations of lumber trucks, steam specialties, automatic steam pumps and receiver, etc. A partial list of recent installations of the Sheldon Natural Draft Kiln is also given.

The "Akron Chihan Mill" is the title of a brochure sent us by the Wellman-Seaver-Morgan Co., Cleveland, Ohio. Some of the distinguishing features of this machine are: The possibility of adjusting the rollers while in operation; arrangement of the principal bearings so that they can be readily examined and repaired; efficient system of lubrication and disposal of waste oil; high efficiency as regards output, water consumption, wear and tear; even distribution of feed and large screen capacity, and substantial construction.

At a meeting of the Insurance Institute of New Zealand, held in Wellington in August last, Mr. C. E. Galwey, A.I.A., Government Life Insurance Department, read a paper on "Weights and Measures," a copy of which has been sent us by Mr. Galwey. As the name implies, the paper has reference to that most important question now interesting the entire commercial world as to the adoption of the decimal or metric system of weights and measures. With Canada, Great Britain, United States, and some other countries strongly averse to such adoption, it is possible that at some time in the sweet by and by the system may become in universal use. In the near future it is not probable.

The W. C. Clark Coal Co., Detroit, Mich., have sent us a circular entitled "See a pin and pick it up, all the year you'll have good luck." Attached to the circular is a clothes pin with the company's name burnt on same.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us Circular No. 1090, relating to Westinghouse Railway Controllers.

The W. E. Caldwell Co., Louisville, Ky., have sent us their catalogue relating to towers, tanks, tubs, etc.

The Wellman-Seaver-Morgan Co., Cleveland, Ohio, have sent us their Bulletin No. 3 having reference to the "Hulett" patent excavating bucket, which is specially adapted for use in unloading material from limited spaces, such as boats, bins and cars, also for handling materials, such as ore, coal, limestone or any other loose materials to and from stock piles. Other references are made to the "Dole" drag bucket, and the orange peel bucket made by them, all of which are fully illustrated and described.

The Cassella Color Co., New York City, have issued Bulletin No. 105 relating to "Stripping of Dyed goods with Hydralite A, Patented"

and Bulletin No. 106 to "White and red effects on a brown ground."

The McCullough-Dalzell Crucible Co., Pittsburgh, Pa., have sent us their handsome calendar for 1905, which shows an illustration of their extensive works. This company manufacture crucibles, stoppers, and all articles containing plumbago.

The Home Publishing Co., Winnipeg, Man., have sent us the Christmas number of the Western Home Monthly published by them. It is a bright, interesting and admirably illustrated monthly magazine for the home.

The Cassella Color Co., New York City, have issued a folder containing samples showing the dye of anthracene chrome blue on piece goods.

PERSONALS.

Mr. William Hutchison, Commissioner of Exhibitions, has received an appreciative letter from President Francis of the St. Louis Exposition. Mr. Francis says:—"It is a source of gratification to the Exposition management to know that you and your colleagues are satisfied with its conduct of affairs, and we earnestly hope that the fruits of your labors here will prove all that could be desired. I wish particularly to congratulate you upon the magnificent showing made by Canada under your supervision, and I am confident that the Dominion will profit by its handsome representation at St. Louis this year. The comprehensive nature and splendid character of your exhibits have attracted widespread attention and unvarying admiration, and the very attractive pavilion used as your headquarters has been a favorite gathering place not only for Canadians, but for the people of all nationalities."

King Edward has conferred knighthood on Joseph Wilson Swan, M.A., president of the Faraday Society, inventor of the incandescent electric lamp bearing his name, and a Royal Commissioner to the St. Louis Exposition.

Fraser & Chalmers, Limited, the well-known English makers of mining machinery have appointed Mr. W. S. Lecky, Montreal, their Canadian representative, and under the favorable tariff arrangements of the British preference, the company anticipates being able to transact considerable business in the Dominion.

Mr. Thomas P. Jones, president of the Pittsburgh & Buffalo Co., miners and shippers of bituminous coals, coke, etc., whose general offices are in Prudential Building, Buffalo, N.Y., has assumed charge of that office. Mr. M. H. McDonald, formerly in charge is now with the Monongahela River Consolidated Coal & Coke Co., at Pittsburgh, Pa.

Mr. F. J. Clark, Canadian travelling representative of the Pittsburgh & Ohio Mining Co., has been calling on Canadian manufacturers in the interest of his company.

Messrs. Read & Kilmer, Canadian agents for the General Electric Co., of Sweden, and the Fuller Wenstrom Electrical Mfg. Co., London, England, inform us that they have removed their offices from 39 James Street S, Hamilton, Ont., to 406 Board of Trade Building, Toronto.

The following statement is given out by the Toronto Roller Bearing Co.:—"The Toronto Roller Bearing Co. is the proprietor of all the patents, of which there are a large number

issued in the United States, Great Britain, different European countries and throughout the world, protecting the Henderson Roller Bearing inventions. It is not a manufacturing company, the manufacture of the bearings themselves being carried on in Canada by a local company. The parent company, as the Toronto Roller Bearing Co. may be properly called, has engaged Hon. A. G. Blair, K.C., as its counsel to take up the work of organization of kindred companies in the United States, Great Britain and in foreign lands, and he will also take a seat on the board of directors and become managing director in connection with the organization work.

The Department of Trade and Commerce have appointed Mr. A. W. Donly, as Canadian Commercial Agent for the Republic of Mexico, with headquarters at the City of Mexico.

Mr. E. H. Keating has severed his connection with the Toronto Street Railway Co., and has been appointed consulting engineer for several very important and extensive works in Mexico.

Mr. R. J. Fleming has been appointed general manager of the Toronto Railway Co. It is stated that J. H. Ashdown Winnipeg, Man., will be appointed to succeed the late John Bertram on the Transportation Commission.

The B. F. Barnes Co., manufacturers of machine tools, upright drills, lathes, etc., Rockford, Ill., have established a European branch with office at 149 Queen Victoria Street, London, E.C., England, with Mr. Theodore Butler in charge.

The Nichols Chemical Co. of Canada, of which Mr. E. S. Pincott is manager, have just moved into their new offices in the Bank of Ottawa Building, Montreal.

The Canadian Street Railway Association, whose head office this year will be in Toronto, elected officers as follows:— President, W. G. Ross, managing director Montreal Street Railway; vice-president, W. H. Moore, assistant to the president of the Toronto Railway; secretary-treasurer, Allan Royce, vice-president of the Toronto Suburban Railway; executive committee, C. E. A. Carr, general manager London Railway; E. A. Evans, manager Quebec Railway; D. McDonald, manager Montreal Street Railway; attorney, Col. H. H. McLean, K.C., director St. John Railway, St. John, N.B.

Mr. J. S. Maclean, late on the reportorial staff of the Toronto Globe, has resigned that position and accepted that of head of the Publicity Department of the Allis-Chalmers-Bullock Co., with headquarters at Montreal.

CALIFORNIA.

The Chicago & North Western Railway has issued a new publication entitled "California." It contains a beautiful colored map of the state, a list of hotels at California tourist resorts with their capacity and rates; and a most interesting series of pictures showing California's resources and attractions. The prospective visitor and settler should be in possession of a copy of this profusely illustrated folder. Sent to any address on receipt of two cents in stamps. Low rates from all points. B. H. Bennett, 2 East King St., Toronto, Ont

THE AMERICAN INVASION.

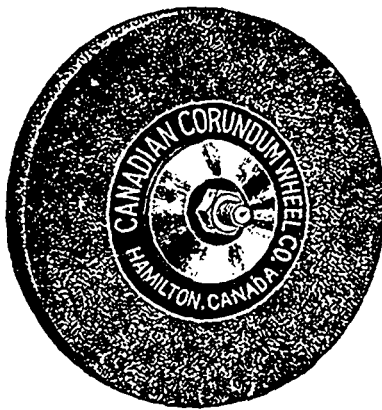
The Buffalo Courier publishes a dispatch dated at Niagara Falls as follows:

On completion of the Canadian Niagara Power Co.'s plant at Niagara Falls, Ont., work will at once be commenced upon the construction of several large manufacturing plants, which are to be built with capital supplied by United States corporations, and served as Canadian branches of these houses.

Although the Canadian Power Co. is scheduled to generate power by January 1905, the plant will not be entirely finished until April. The electricity produced from January to April, and during the time constructing the plants, will be used by local power houses. But little work will be done toward building the American factories before spring.

The new industries are brought to the Canadian side by the Laurier "Retaliatory Act." This legislation imposes an additional and very heavy duty, upon articles imported into Canada and sold cheaper than in the country of their manufacture. Many of the industries are intimately associated with Premier Laurier say that the act is aimed directly at United States concerns. The measure was adopted by the Canadian government to offset the high protection tariff imposed on imported goods from the United States. As the new tariff law goes into effect here next October the American factories will have to be turned out products by that time, or else the exporting manufacturers will lose an enormous amount of money in customs fees.

As a scale of taxation has been arranged by the Canadian government, it will be



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DRILLS AND LATHES

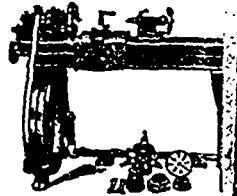


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All sizes furnished in
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Our **Screw Cutting
Lathes** are built in both
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12" FOOT POWER LATHE

We also build a very practical **Wet Tool Grinder**
for general-shop use.

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METAL

possible to sell goods here under the price they are listed in the American market. In most cases the duty will raise the price here above the quotations in the United States. Many millions of dollars are involved in the scheme of building the factories. According to reports they are to be conducted as Canadian institutions, and among the directors and principal officers will be Canadians and Englishmen.

The articles of incorporation will, of course, be taken out under the laws of Canada. Besides supplying trade in this country, the new factories are to manufacture goods for English use.

Much satisfaction is felt among the merchants and people of this section at the prospect of the American invasion of the manufacturing field. The plants will bring with them a wave of business that will shower dollars throughout Canada.

One of the articles prominently mentioned in the "Retaliation Act" is steel rails and it is supposed by Canadian business men that the new factories will include a steel plant.

Word was received in Toronto recently by several manufacturers that should the new plants be operated successfully that the manufacturers of the Middle West and East would erect factories in Canada.

Both American and Canadian power rights are secured by the charter of the Niagara Power Co. The plant is one of the best equipped on the continent.

It is reported that E. Williams of Parilla, Durango, Mexico, will build a 100-ton lixiviating plant at his mines.

PLAN TO DIVERT THE CHIPPAWA RIVER.

The latest scheme for power development along the Niagara frontier has for its foundation the turning of the waters of the Chippawa River, making the present source the mouth and the outlet Lake Ontario, instead of the Niagara River. The scheme embodies the compelling of the river to flow backward. The Chippawa River is a stream of considerable size and importance. The proposition is to have it empty into Lake Ontario, a short distance from Jordan station, near St. Catharines, Ont. At the present time it runs the other way and empties into the Niagara River.

Between the present headwaters of the Chippawa River, but which under the contemplated transformation would be its mouth, and the headwaters of the stream which would carry their combined volume to Lake Ontario, is a stretch of several miles. This would have to be excavated, which those pushing the project hold would not be a task either difficult or expensive. They say, in fact, that their whole undertaking will be a comparatively easy one from an engineering standpoint.

With the Chippawa river turned around advantage can be taken for power purposes of the three hundred foot drop between the level of the Niagara river above Niagara Falls and the level of Lake Ontario. The available opportunities above the falls for harnessing the mighty forces of the combined lakes are practically exhausted, at this time, while at the same time only a small fraction of the estimated h.p. of the cataract has been taken

up. The question of to-day is, How to provide further opportunities for harnessing the power? The present scheme with reference to the Chippawa River is one answer, and the projectors claim that no other suggestion is as feasible and so promising of results.

PROSPEROUS IRON INDUSTRIES.

Mr. George E. Drummond, president of the Canada Iron Furnace Co., who is also interested in many of the other iron works in Canada on the conclusion of his recent visit to different plants, makes the following announcement:

As a direct effect of advancing prices of iron and steel products in the United States and the temporary lessening of competition from that quarter, the conditions in iron trade circles in Canada have improved very considerably, particularly within the past 30 days. The demand for pig iron is quite active, and the same applies to most forms of heavy steel and iron. Prices are advancing steadily from the unprofitable basis that they have been on since the commencement of the present year. Iron ore and coke costs are considerably higher than they have been, and the whole outlook is in the direction of still higher figures for raw material and finished products in the coming year.

An important factor in the improvement in Canada has been the better conditions prevailing at Sault Ste. Marie and Sydney, where, through the partial readjustment of the tariff, the works are enabled to produce steel rails, wire rods, and other products of finished material on a reasonably profitable basis. There is one important feature that

TO THE VARNISH BUYER

the most serious considerations are quality, reliability and uniformity, and these qualifications are of special importance to the dealer who is trying to build up a permanent varnish trade.

Berry Brothers' label or brand may be safely relied upon as ensuring the above conditions.

Our Varnishes are the safest goods to handle and the surest and most reliable goods to use.

BERRY BROTHERS, Limited

VARNISH MANUFACTURERS

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Write for our 100 page illustrated catalogue. Every dealer should have a copy for reference.

will have its effect upon the course of prices during the coming year in the Canadian trade, and it is that the stock of pig iron and finished material in consumers' yards and warehouses is about as low as it can possibly be. With the improvement in trade which is bound to come, by reason of the great public works, which are about to proceed in Canada, including the Grand Trunk Pacific, there seems to be no doubt as to the bright outlook in store for the Canadian iron and steel industry.

An interesting feature of the recently announced developments in the Baltimore Electric Power Enterprise is the exclusive adoption of steam turbines as the prime mover. A contract recently closed with the Westinghouse Machine Co. provides an initial equipment of 4,000 k.w. in two generating units of 2,000 k.w. each. A Westinghouse electrical equipment has also been contracted for. The construction work is already under way and will be pushed as rapidly as possible in order that the plant may be complete in all respects and running smoothly by July next.

The Mabou & Gulf Railway Co., composed of Boston and Nova Scotia capitalists, are

making preparations to commence the construction of a railway line from their collieries at Mabou to Orangedale, on the Intercolonial Railway, a distance of forty miles. The purpose of this is to secure an outlet for the supply of the local markets throughout the province during the close season.

Borden & Selleck Co., Chicago, Ill., have just installed for the Wilmington Star Mining Co., Bloomington, Ill., 2 large Howe track scales.

FACTORY LOCATIONS.

The following Canadian municipalities are offering inducements to secure manufacturing establishments. Inquiries should be addressed to the Mayor, Town Clerk or Board of Trade of the respective cities:

- Brantford, Ont.
- Fort William, Ont.
- Hamilton, Ont.
- Lindsay, Ont.
- Orillia, Ont.
- Peterborough, Ont.
- Sherbrooke, Que.
- Toronto, Ont.

An extension of the Cape to Cairo Railway Cape Town, South Africa, to a point 350 miles north of the Zambesi has been decided upon.

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CANADA LIFE BUILDING TORONTO

Thirty Years' Experience as Consulting Engineers

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Had we had an accident of any kind the damage of course would have been paid by you. But the principal benefit to us has been your able professional assistance in solving the various engineering difficulties, which from time to time have presented themselves.

Yours very truly,

CANADA FURNITURE MANUFACTURERS LIMITED.
Wm. Schrage, General Factory Manager.

Your workmen's safety is closely bound with your economical interests. Poor crucibles are dangerous and wasteful. Life and profits are safe with the McCullough-Dalzell makes. Write for prices.
MCCULLOUGH-DALZELL CRUCIBLE CO., Pittsburg, Pa.

The Name
Cross Oil Filter



is held by true economists to mean all that is true economy in the operation of a plant.

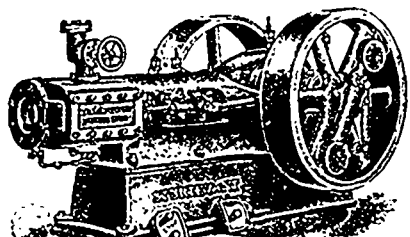
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LARGEST MFRS. OF OIL FILTERS IN THE WORLD,
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A complete stock carried by the
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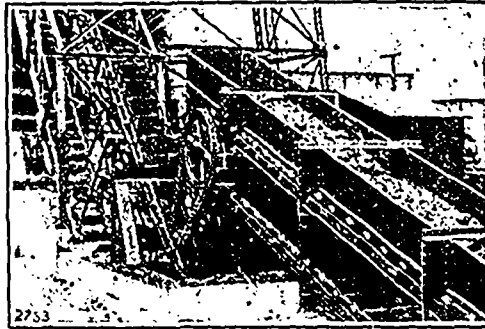
We are in the strike breaking business and can furnish non-union skilled labor of all kinds to break strikes in any quantity needed. Special Watchmen, with or without uniform, furnished to guard property.



NOTICE.

The following are the factory inspectors for the Province of Ontario:

- JAS. T. BURKE, Parliament Buildings, Toronto.
 - ARTHUR W. HOLMES, Parliament Buildings, Toronto.
 - MARGARET CARLYLE, Parliament Buildings, Toronto.
 - MRS. JAS. R. BROWN, Parliament Buildings, Toronto.
 - O. A. ROCQUE, Orleans, Ont.
- Persons having business with any of the Inspectors will find them at the above address.
- JOHN DRYDEN,
Minister of Agriculture.



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Installed 1903 for Empire Coko Co., Geneva, N.Y.

The machinery consists of steel track hopper, 35' centres overlapping pan apron feeder, 3-roll coal crusher, and 112' centres continuous bucket inclined elevator. The machinery handles run-of-mine Bituminous coal at the rate of 45 tons per hour.

Link Belt methods are applied successfully to all coal-handling work, from the mine to the final consumption in factory or power plant.

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Improved Hot Blast Heating and Ventilating System (Patented 1904)

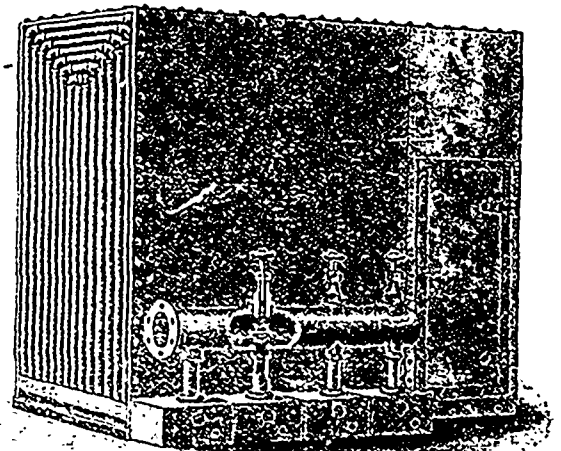
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This Heater will give 50% more heat with a given heating surface than any other on the market.

—For prices and particulars write—

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GEIGY ANILINE & EXTRACT CO.

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Lifting that carriage to inspect the writing.
Actual tests made show the daily average
to be 200 times. Think of it! Why not
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Sole Canadian Dealers

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MODEL "A"

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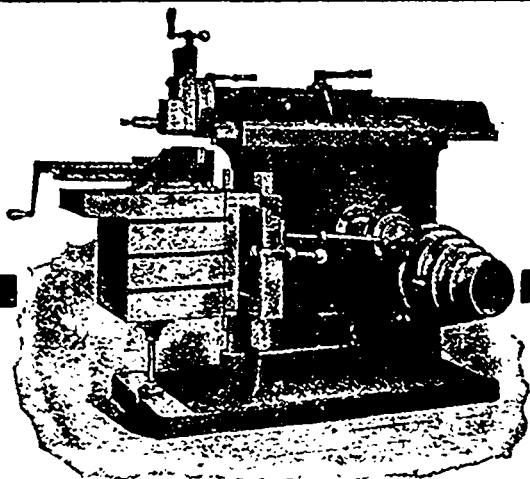
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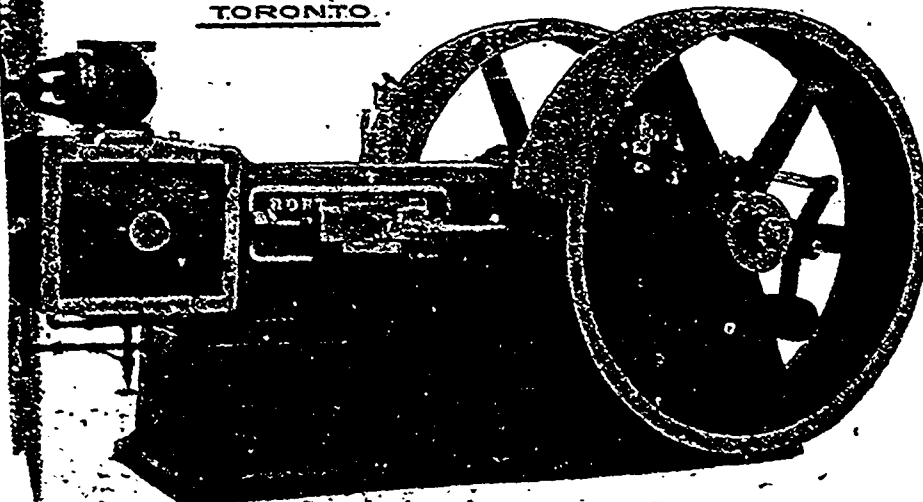
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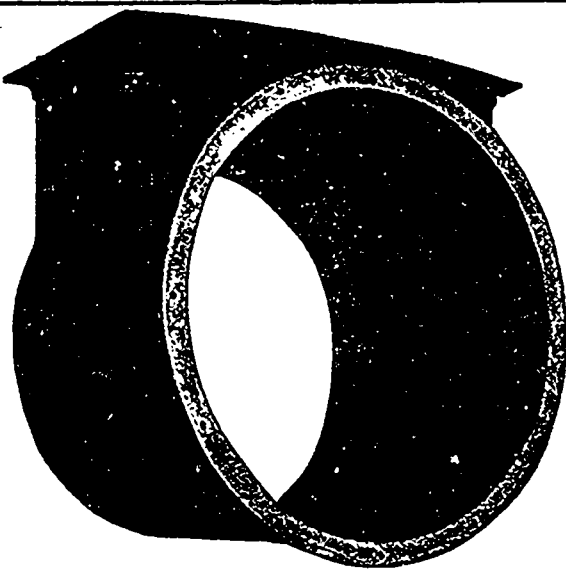
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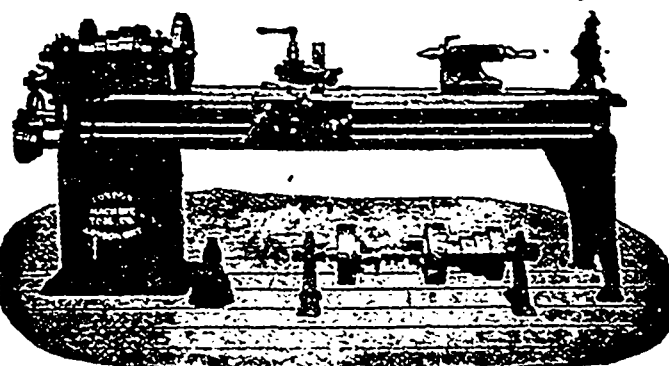
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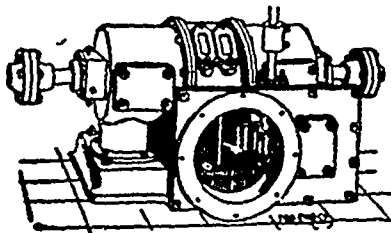
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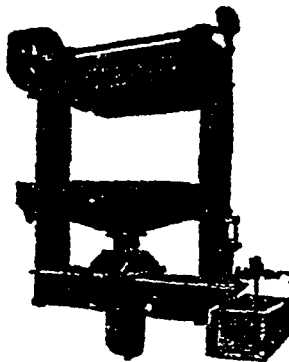
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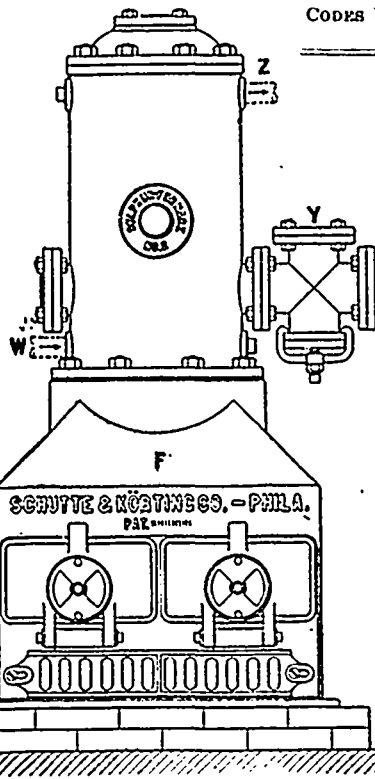
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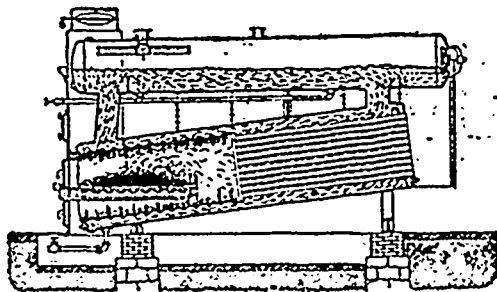
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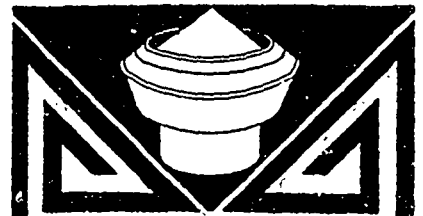
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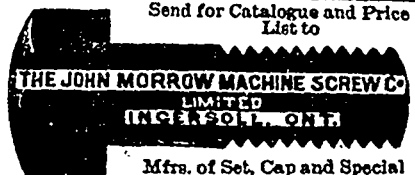
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CLASSIFIED INDEX.

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Covers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crayons

Lowell Crayon Co., Lowell, Mass.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.Y.
McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Crucible Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crucible Covers

McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Decalcomania

Meyercoed Co., Chicago, Ill.

Detective Agency

Dewar Detective Agency, St. Louis, Mo.

Dies (Socket, Sewer Pipe and Tile)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Kelly's Directories, Limited, Toronto.

Draw Benches (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
Barnes, B. F. Co., Rockford, Ill.
Canada Machinery Co., Garsin, Ont.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.

Drills (Pneumatic and Rock)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Drills (Twist)

Cleveland Twist Drill Co., Cleveland, Ohio
Pittsburgh Shafting Co., Detroit, Mich.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dust and Shavings Separators

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dye Stuffs and Chemicals

Bellhouse, Dillon & Co., Montreal.
Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Cassala Color Co., New York City.
Geigy Aniline & Extract Co., New York City.
McArthur Cornells & Co., Montreal.
Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamos)

Electric Meters and Transformers

Allis-Chalmers-Bullock, Limited, Montreal.
Packard Electric Co., St. Catharines, Ont.

Electric Mine Locomotives

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.

Electrical Repairs

Volta Electric Repair Works, Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Bristol Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Buhl Malleable Co., Detroit, Mich.
Canadian Otis Elevator Co., Toronto.
Darling Bros., Montreal.
Greay, Wm. & J. G., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
Forman, John, Montreal.
Petrie, H. W., Toronto.

Engineers (Chemical)

Heys, Thomas & Son, Toronto.
Hunt Robert W. & Co., Chicago, Ill.

Engineers (Civil)

Delano-Osborn Engineering Co., Toronto.
Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Engineers (Consulting)

Delano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Electrical Supervision Society, Toronto.
Hunt, Robert W. & Co., Chicago, Ill.
Marion & Marion, Montreal.
Parke, R. J., Toronto.
Ferrin, William R. & Co., Limited, Toronto.
Simpson, T. T., Deschenes, Que.
Vogel, C. H., Ottawa.
Volta Electric Repair Works, Toronto.
Von der Osten, E. & Co., Toronto.

Engineers (Contracting)

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Engineers (Electrical)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Crocker-Wheeler Co., St. Catharines, Ont.
Delano-Osborn Engineering Co., Toronto.
Electric Engineering & Supply Co., Montreal.
Electrical Construction Co., London, Ont.
Electrical Supervision Society, Toronto.
Jones & Moore Electric Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto.
Worth & Martin, Toronto.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Borden & Sellock Co., Chicago, Ill.
Buhl Malleable Co., Detroit, Mich.
Darling Bros., Montreal.
Delano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Greay, Wm. & J. G., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Hunt, Robert W. & Co., Chicago, Ill.
Kerr Engine Co., Warkerville, Ont.
Marion & Marion, Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Engineers (Mill and Hydraulic)

Buhl Malleable Co., Detroit, Mich.
Delano-Osborn Engineering Co., Toronto.
Hawksworth, Alfred, Montreal.
Vogel, C. H., Ottawa.

Engineers (Mining)

Buhl Malleable Co., Detroit, Mich.
Heys, Thomas & Son, Toronto.
Mills, S. D., Toronto.

Engineers (Municipal)

Von der Osten, E. & Co., Toronto.

Engineers and Contractors

Buhl Malleable Co., Detroit, Mich.
Jeffrey Mfg. Co., Columbus, Ohio.

Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Bertram Engine Works Co., Toronto.
Canada Foundry Co., Toronto.
Canadian Heine Safety Boiler Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

McEachren Heating & Ventilating Co., Galt, Ont.
Petrie, H. W., Toronto.
Petroleum Iron Works Co., Washington, Pa.
Pittsburgh Shafting Co., Detroit, Mich.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R. Machinery Co., Toronto.

Engravers

Canadian Manufacturer, Toronto.
Jones, J. L. Engraving Co., Toronto.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CLASSIFIED INDEX.

(CONTINUED).

Exhaust Fans

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Exhaust Hoods

Wm. Mfg. Co., Akron, Ohio.
Waring Bros., Montreal.

Explorer and Geologist

Wm. Horace F., Ashcroft, B.C.

Factory Sites

Central Ontario Power Co., Peterboro, Ont.

Feed Water Heaters

Wheeler & Wilcox, Limited, Montreal.
Waring Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petroleum Iron Works Co., Washington, Pa.

Files

Wm. R. & Co., Hamilton, Ont.

Financial

Bradstreet's, New York City.
Wm. R. G. & Co., Toronto.
Wm. & Postlethwaite, Toronto.
Wm. H. D., Hamilton, Ont.

Filters (Oil)

Wheeler & Wilcox, Limited, Montreal.
Wm. Mfg. Co., Akron, Ohio.
Waring Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Wm. R. & Co., Limited, Toronto.

Filters and Filtering Systems (Water)

Wheeler & Wilcox, Limited, Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Fire Brick and Clay

Wm. Fire Brick Co., Cleveland, Ohio.
Wm. Fire Brick Co., Pittsburgh, Pa.
Wm. Facing Mill Co., Hamilton, Ont.
Wm. Walker Refractories Co., Pittsburgh, Pa.
Wm. Fire Brick Co., Lock Haven, Pa.
Wm. Buffalo Co., Buffalo, N.Y.
Wm. Hammond Fire Brick Co., Boliver, Pa.
Wm. Fuller Co., Cleveland, Ohio.
Wm. H. & Co., West Decatur Pa.

Fire Escapes

Waring Bros., Montreal.
Wm. Geo. B., Wire, Iron & Brass Works, Toronto.

Flour Mill Machinery

Wm. McCulloch Co., Galt, Ont.
Wm. Wm. & J. G., Toronto.

Forges and Blowers

Canada Foundry Co., Toronto.
Wm. Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Founders

Canada Foundry Co., Toronto.
Wm. Co., Galt, Ont.
Wm. Thomson Pipe & Foundry Co., Hamilton, Ont.
Wm. McCulloch Co., Galt, Ont.
Wm. Wm. & J. G., Toronto.
Wm. Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Foundry Facings and Supplies

Wm. Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Wheeler & Wilcox, Limited, Montreal.
Sturtevant, B. F. Co., Hyde Park, Mass.

Furniture (Lodge, Opera and School)

Wm. Office & School Furniture Co., Preston, Ont.

Galvanizing

Wm. Wind Engine & Pump Co., Toronto.

Grinding and Tinning Machinery and Furnaces (Wire)

Wm. Wm. & Taylor Co., Cayahoga Falls, Ohio.

Gas and Gasoline Engines

Wm. McCulloch Co., Galt, Ont.
Wm. T. A. & Co., Montreal.

Gauges (Recording Pressure)

Wm. Co., Waterbury, Conn.

Gauges (Steam)

Wm. Steam Pump Co., Battle Creek, Mich.
Wm. Injector Co., Windsor, Ont.

Gauges (Water)

Wheeler & Wilcox, Limited, Montreal.
Wm. Injector Co., Windsor, Ont.

Generators

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co. Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
Volta Electric Repair Works, Toronto.

Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

Glue Heaters

Advance Machinery Co., Toledo, Ohio.
Greer, Wm. & J. G., Toronto.

Glue Room Equipment

Advance Machinery Co., Toledo, Ohio.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos., Crucible Co., Jersey City, N.J.
McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Grease Cups

Penberthy Injector Co., Windsor, Ont.

Grinding Machinery

Canadian Corundum Wheel Co., Hamilton, Ont.
Greer, Wm. & J. G., Toronto.

Grinding Fans

Carlin's, Thomas Sons Co., Allegheny, Pa.

Hardware

Butterfield & Co., Rock Island, Que.
Cleveland Twist Drill Co., Cleveland, Ohio.
Gartshore, John J., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Rice Lewis & Son, Toronto.
Ryall Machine Screw Co., Montreal.

Heating and Ventilating Apparatus

Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Bertram Engine Works Co., Toronto.

Hoists (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.

Hydrants

Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Machinery

Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Wilson, J. C. & Co., Glenora, Ont.

Industrial Plants

Von der Osten, E. & Co., Toronto.

Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.
Wire & Cable Co., Montreal.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bailey-Underwood Co., New Glasgow, N. S.
Bourne-Fuller Co., Cleveland, Ohio.
Brown & Co., Paris, Ont.
Buhl Malleable Co., Detroit, Mich.
Canada Foundry Co., Toronto.
Cleveland Twist Drill Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Montreal.
Meadows, Geo. B., Wire, Iron & Brass Works Co., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Petroleum Iron Works Co., Washington, Pa.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Rochester & Pittsburg Coal & Iron Co., Buffalo, N.Y.
Ryall Machine Screw Co., Montreal.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Penberthy Injector Co., Windsor, Ont.
Williams, A. R. Machinery Co., Toronto.

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Deposit, N.Y.

CLASSIFIED INDEX.

(CONTINUED).

Lamps—Electric

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.
Sunbeam Incandescent Lamp Co., Toronto and St.
Catharines, Ont.

Lathes

Barnes, B. F. Co., Rockford, Ill.
Canada Machinery Co., Sarnia, Ont.
Cowdroy, C. H. Machine Works, Fitchburg, Mass.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Williams, A. R. & Co., Toronto.

Lathes (Wood-working)

Cowan & Son, Galt, Ont.
Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Lubricators

Penberthy Injector Co., Windsor, Ont.

Machinists

Bertram Engine Works Co., Toronto.
Buhl Malleable Co., Detroit, Mich.
Goldie & McCulloch Co., Galt, Ont.
Greedy, Wm. & J. G., Toronto.
London Machine Tool Co., London, Ont.
Worth & Martin, Toronto.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Buhl Malleable Co., Detroit, Mich.
Butterfield & Co., Rock Island, Que.
Canada Machinery Co., Sarnia, Ont.
Cleveland Twist Drill Co., Cleveland, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Ryall Machine Screw Co., Montreal.
Worth & Martin, Toronto.

Machine Tools

Barnes, B. F. Co., Rockford, Ill.
Canada Machinery Co., Sarnia, Ont.
Cleveland Twist Drill Co., Cleveland, Ohio.
Cowdroy, C. H. Machine Works, Fitchburg, Mass.
Darling Bros., Montreal.
London Machine Tool Co., London, Ont.
Petrie H. W., Toronto.

Machinery Repairs

Bertram Engine Works Co., Toronto
Greedy, Wm. & J. G., Toronto.

Malleable Iron Castings

Buhl Malleable Co., Detroit, Mich.
McKinnon Dash & Metal Works, Co., St. Catharines,
Ont.
Smith's Falls Malleable Castings Co., Smith's Falls,
Ont.

**Marine and Stationary Engines and
Boilers**

Allis-Chalmers-Bullock, Limited, Montreal.
Bertram Engine Works Co., Toronto.

Mechanical Draft

Babecock & Wilcox, Limited, Montreal.
McEachern Heating & Ventilating Co., Galt, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.

Metallurgists

Mills, S. D., Toronto.

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Becker-Brainard Milling Machine Co., Hyde Park,
Mass.

Buhl Malleable Co., Detroit, Mich.
Cleveland Twist Drill Co., Cleveland, Ohio.
Darling Bros., Montreal.
Fleming, W. A. & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Greedy, Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm., Mfg. Co., Peterborough, Ont.
Hawthornthwaite, Alfred, Montreal.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
London Machine Tool Co., London, Ont.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Mont-
real.

McLaren, D. K., Montreal and Toronto.
Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Pittsburgh Shafting Co., Detroit, Mich.
Rice Lewis & Son, Toronto.
Robb Engineering Co., Amherst, N.S.
Ryall Machine Screw Co., Montreal.
Spence, H. & Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Miners' Lamps

Allis-Chalmers-Bullock, Limited Montreal.
Anton, John & Son, Monongahela, Pa.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Buhl Malleable Co., Detroit, Mich.
Canadian Rand Drill Co., Sherbrooke, Que.
Cleveland Twist Drill Co., Cleveland, Ohio.
Corbett, R. B., Brooklyn, N.Y.
Gartshore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton.
Corbett, R. B., Brooklyn, N.Y.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Petrie, H. W., Toronto.
Toronto & Hamilton Electric Co., Hamilton.
United Electric Co., Toronto.
Volta Electric Repair Works, Toronto.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Novelty Manufacturers

Worth & Martin, Toronto.

Nozzles

McCullough-Dalzell Crucible Co., Pittsburg,
Pittsburg Crucible Works, Pittsburg, Pa.

Office and Bank Fittings

Canadian Office & School Furniture Co., Peter-
borough, Ont.
Meadows, Geo. B., Wire, Iron & Brass Works,
Toronto.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
Fleming, W. A. & Co., Montreal.
Imperial Oil Co., Petrolia, Ont.
Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

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J. J. CASSIDEX, Manager.

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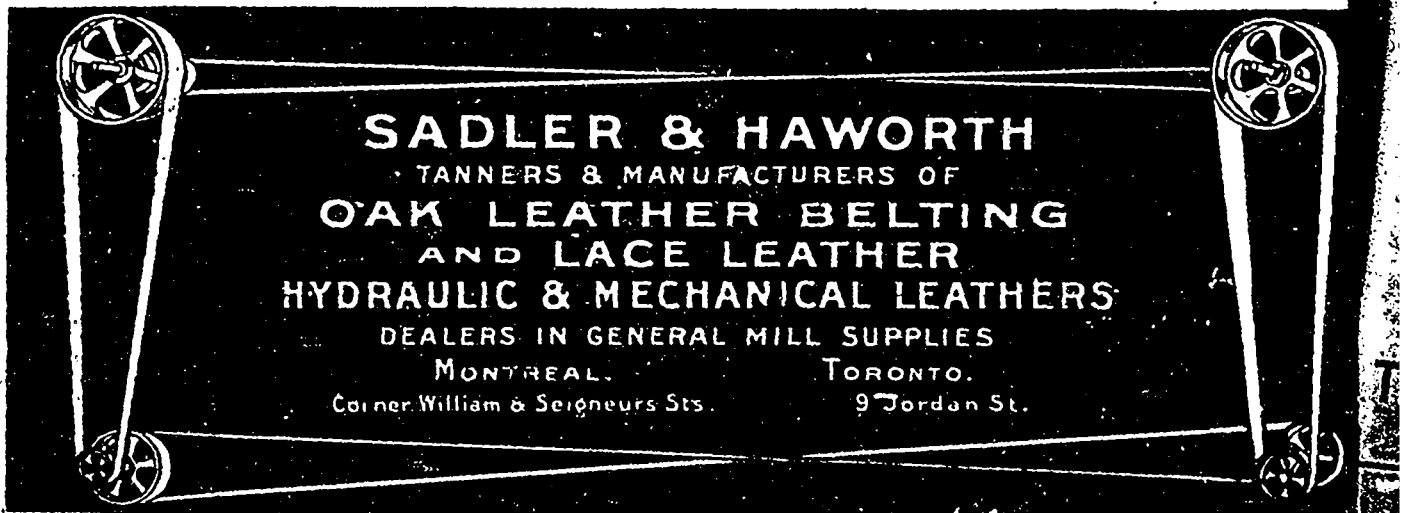
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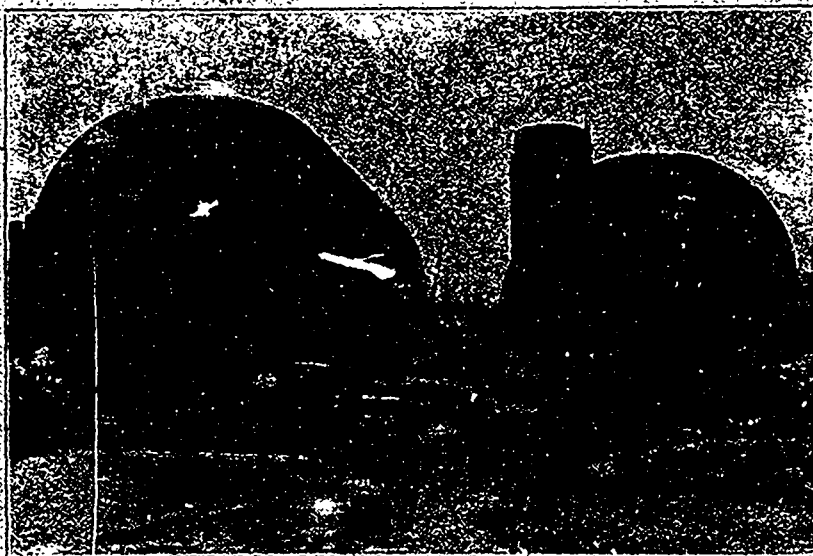
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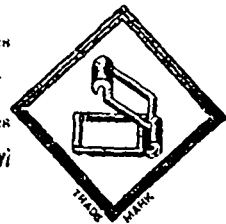
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December 8th, 1905.

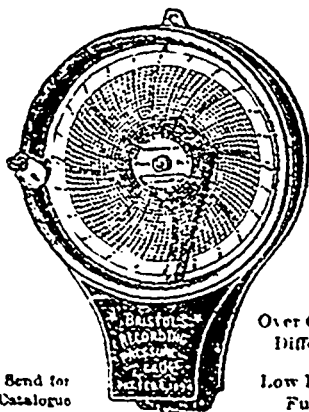
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