

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title on header taken from: /
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
									✓		

PAGE

MISSING

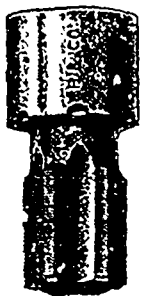
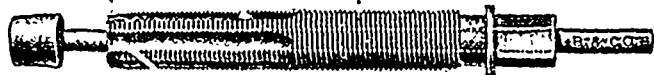
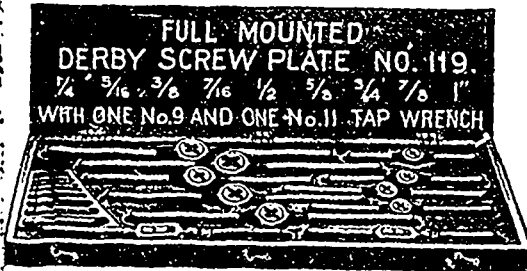
BOILERS

We are now in our new Boiler Works and with new and modern equipment we are in a position to turn out the best products at short notice. In addition to Boilers we can supply Engines, Heaters, Pumps, Condensers, Piping, and all requisites for complete steam plants.

SEND FOR ESTIMATES.

THE GOLDIE & McCULLOCH CO., Limited
GALT, Ontario Canada.

WE MAKE Wheelock Engines, Corliss Engines, Ideal Engines, Gas and Gasoline Engines, Boilers, Water Wheels, Pumps, Flour Mill Machinery, Oat Meal Mill Machinery, Oat Meal Steam Pan Kilns, Wood Working Machinery, Iron Pulleys, Wood Rim Split Pulleys, Shunting, Hangers, Gearing, Friction Clutch Pulleys, Friction Clutch Couplings, etc., Safes, Vaults and Vault Doors.

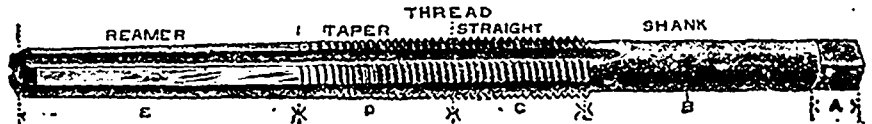


WE MANUFACTURE

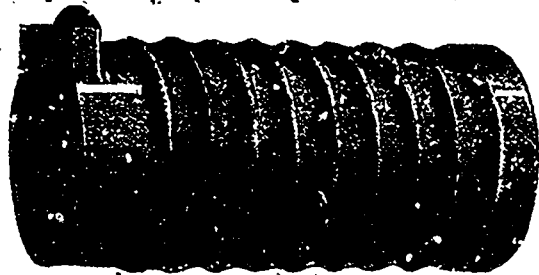
STAY BOLT TAPS, all diameters and lengths up to 94 inches,
SPINDLE STAY BOLT TAPS and TAPS for Screw
Machines, and TAPS for all uses.

Regular and Full Mounted Reeco and Derby Plates, Bicycle
and Machinists' Plates, etc., etc.

BUTTERFIELD & CO.,
Rock Island, Que.



MORISON Suspension Furnaces

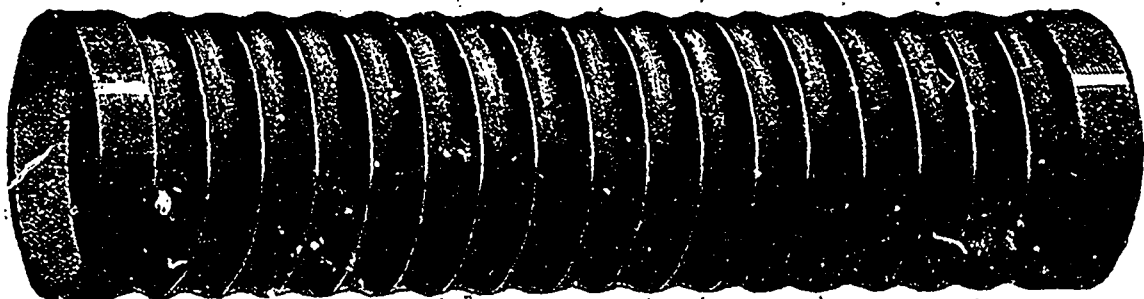


For Land and Marine Boilers

With Plain Ends or Flanged to any required shape.

Uniform Thickness, Easily Cleaned, Unexcelled for
Strength, Unsurpassed for Steaming Capacity.

The universally satisfactory record of "THE MORISON" proclaims it the best furnace made.



MANUFACTURED BY

THE CONTINENTAL IRON WORKS, WEST AND CALYER STS., BOROUGH OF BROOKLYN, New York
Near 10th and 23rd Street Ferries.
Sole Canadian Agent—MR. GEORGE HOLLAND, M. C. Soc. C. E., P. O. Box 529, MONTREAL

STEEL RAILS

We are now offering Highest Quality

BESSEMER STEEL RAILS

made by the

ALGOMA STEEL CO., Limited

OF SAULT STE. MARIE, ONT.

DRUMMOND, McCALL & CO.,

GENERAL SALES AGENTS

OFFICES:

Canada Life Bldg., MONTREAL. 100 King W., TORONTO.

CANADA IRON FURNACE CO., Limited

Montreal, Radnor and Three Rivers

Manufacturers of the well-known

**"C.I.F." Three Rivers
Charcoal
Pig Iron**

Suitable for Car Wheels, Cylinders
and Fine Castings, where the ut-
most strength is required.

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN
OR AMERICAN CHARCOAL IRON.

Offices: Canada Life Insurance Building, MONTREAL.

JUST ADDED:

New sizes of Plates.

$\frac{1}{8}$ and $\frac{3}{8}$ thick, 48" to 72" wide, 120" to 144" long,
for immediate shipment from our stock.

THE
BOURNE-FULLER CO.
IRON, STEEL,
PIG IRON,
COKE.
Cleveland, Ohio.

THE NOVA SCOTIA STEEL & COAL CO.

MANUFACTURERS OF **STEEL RAILS LIMITED**

BRIGHT COMPRESSED STEEL SHAFTING

FROM $\frac{1}{2}$ TO 5 INCHES IN DIAMETER. GUARANTEED STRAIGHT AND TRUE TO WITHIN $\frac{1}{32}$ OF AN INCH.

Spring, Reeled Machinery, Tire, Toe Caulk, Sleigh Shoe, Angles, Special Sections
and all Merchant Bar Steel. Sheet Steel up to 48 inches wide.

RAILWAY AND ELECTRIC RAILWAY CAR AXLES

FISH PLATES, SPIKES AND TRACK BOLTS

Tee Rails, 12, 18, 24 and 28 lbs. per yard

..HEAVY FORGINGS A SPECIALTY..

"FERRONA" PIG IRON, For Foundry Use.

Works—NEW GLASGOW, N.S., and FERRONA, N.S.

Head Office—NEW GLASGOW, NOVA SCOTIA

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

NORTHERN ALUMINUM CO., LIMITED

Shawinigan Falls, P.Q. Business Office Pittsburgh, Pa.

ALUMINUM

INGOTS—SHEETS—TUBING, ETC.

Aluminum Stamped, Cast, Spun Articles of any Description to Order.

ALUMINUM WIRE and CABLES (BARE OR INSULATED) for Electrical Conductors.

NICKEL

THE CANADIAN COPPER COMPANY.

NICKEL FOR NICKEL STEEL

THE ORFORD COPPER COMPANY.

WRITE US FOR PARTICULARS AND PRICES.

General Offices: 43 Exchange Place, NEW YORK.

WIRE PULP MATS

Wire Rope—all kinds.

Perforated Copper, Brass and Steel.

Wire Guards for Mill Windows.

Refuse Burner Cloth, etc.

THE B. GREENING WIRE CO., Limited
HAMILTON, ONT. MONTREAL, QUE.

It is no trouble to us to help you out of your Babbitt Metal difficulties. We have expert metal men in our works who know metals and machinery, and atmosphere conditions, to a nicety; what's more our special method of mixing is what gives

MANGANESE ANTI-FRICTION METAL
Its superior wearing quality.

Syracuse Smelting Works
New York. Montreal. Seattle.

You Should Insure Your Boilers

In The
Canadian Casualty and Boiler Insurance Company

TORONTO.

Because
the utmost care is exercised in making inspections, fullest reports made and highest engineering service is given.

Advertise in THE CANADIAN MANUFACTURER.

PITTSBURGH COAL COMPANY

Miners and Shippers

OF

**YOUGHIOGHENY
GAS and PITTSBURGH
STEAM COAL**

Manufacturers of

HIGH GRADE COKE

Loading and Fueling Docks at all Ports on the
Great Lakes.

GENERAL OFFICES:

PITTSBURGH, PA.

JULES G. HOFFMAN

Miner and Shipper

COAL--COKE

PROMPT SHIPMENT via Buffalo and Detroit.

Youghiogheny Gas and Steam	Pittsburg No. 8
Hocking	Pocahontas
Cambridge	Smithing
Coke	Cannel
Foundry. Furnace. Domestic. Gas House.	

Lake or Rail Shipments.

General Offices: 421-422-423 Hammond Bldg.,

DETROIT, - - MICH., U.S.A.

JOHN BYRNE, Chairman of the Board.
FRANK SULLIVAN SMITH, Acting President.
H. S. HASTINGS, Auditor.
G. H. JONES, Genl. Sales Agent.

THE SHAWMUT COAL & COKE CO.

BITUMINOUS COAL

COKE

General Office, ANGELICA, N.Y.
O. L. LATHROP, Agent.

Pennsylvania Office: **ST. MARVS, PA.**

Sales Office: J. D. FERGUSON,
1110 Prudential Building, Canadian Sales Agent,
BUFFALO, N.Y. HAMILTON, ONT.

**Annual Capacity of Mines
1,500,000 tons.**

**Annual Capacity of Coke Ovens
100,000 tons.**

Operating 2,500 Coal Cars.

Old Colony Coal and Coke Company

Pittsburgh, Pa., U.S.A.

Miners and Shippers

... of ...

Ligonier Steam Coal

Moundsville Gas Coal

Connellsville Coke

Mines { Ligonier, Pa., P. R. R.
Moundsville, W. Va., B. & O. R. R.

H. T. WILSON, Manager.

R. J. SINCLAIR, Sales Agent.

THOS. CHRISTIE, Canadian Sales Agent.

THE H. T. WILSON COAL COMPANY

1321-1322 Majestic Building, - DETROIT, MICH.

"Red Jacket" Coal

MINED IN WEST VIRGINIA.

The Best Bituminous Coal for Steam and Domestic Purposes.

Has a tough and blocky structure.
Smallest percentage of fine coal.
Low in ash and sulphur and no clinkers.
Not subject to spontaneous combustion.
Nothing better for malleable iron works.
One of the strongest steam coals.

RED JACKET

COMPARATIVE HEAT UNITS PER POUND OF COAL.
Anthracite—See "Steam," published by Babcock & Wilcox Co., 13,985.
"RED JACKET"—Determined by 50 weeks' test at Cincinnati Edison Plant, in 1901-2, the daily use of the coal tested being two hundred tons, 13,600.

BOILER TEST OF THE CINCINNATI EDISON CO., OF CINCINNATI.

Water apparently evaporated under actual conditions per pound of coal, 10 1/2 lbs.
Equivalent evaporated from and at 212 degrees per pound of combustible pounds, 12:33.

We also handle Pocohontas Coke. Correspondence solicited.

H. K. WICK, President.

H. K. WICK & CO.

W. D. WARD, Secy. and Treasurer.

(INCORPORATED)

MINERS AND SHIPPERS OF

Bituminous Coals

Pittsburgh;
Youghiogheny,
Brier Hill, Smithing,
Mercer & Butler County Coals.

Rooms 64 and 65
Eric County Savings Bank Bldg.,

400 INDIVIDUAL CARS

BUFFALO,
N.Y.

COAL JAS. H. MILNES & CO. COKE

WHOLESALE DEALERS IN
Best Grades of STEAM COALS.
Best Grades of BLACKSMITHS' COALS.
Best Grades of FOUNDRY COKES.

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

Head Office: 86 KING ST. EAST TORONTO. Docks: Esplanade, Foot of Yonge

COAL Highest Quality EGG, STOVE, CHESTNUT,

Car Load Lots Direct from Mines.
Prompt Shipment. Close Prices for Cash.

Pittsburg Lump, Mine Run, Slack,
Smithing Coal,
American Gas House Coke,
Prepared Coke,

HAMILTON, ONT. THOS. MYLES' SONS EGG, STOVE, CHESTNUT.

E. A. SKAE

Miner and Shipper

COAL AND COKE

Exclusive Canadian Sales Agent

Genuine Thacker Coal

Strongest and Best of West Virginia
Steam and Domestic Coals.

Crawford Hill Best Product Pittsburg Field.

HAMMOND BUILDING
DETROIT, - - MICH.

— THE — O.W. SHIPMAN COMPANY

Thirty years on the "Firing Line"

DETROIT, MICH.

We still lead in the exportation of coal to Canada.
Your order for a trial car of our high-grade **YOUGHIOGHENY COAL** is respectfully solicited.

We can supply you promptly and at the lowest prices with any grade of coal produced—except poor coal.

Write us at DETROIT, MICH., or our

Canadian Representative,
JOHN BROWNLEE, at Galt, Ont.

During the year ending June 30, 1904, Canada imported **2,496,068** tons of Anthracite Coal and Coke, valued at **\$11,226,346**, and **4,661,941** tons of Bituminous Coal, valued at **\$9,552,331**, and Charcoal valued at **\$22,224**, upon which duties were paid to the amount of **\$2,211,864**, there being no duty on Hard Coal or Coke.

EVERY STEAM POWER PLANT IN CANADA USES COAL. EVERY FOUNDRY USES COKE.

The CANADIAN MANUFACTURER Reaches Them.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

COAL**EDWARD T. SAWYER**

MINER & SHIPPER

STEAM & GAS COALS

From Kanawha, Hocking and Fairmont Mines

PURITAN SMITHING COAL

Shipments direct from mines to all points in Canada.

Write for Prices

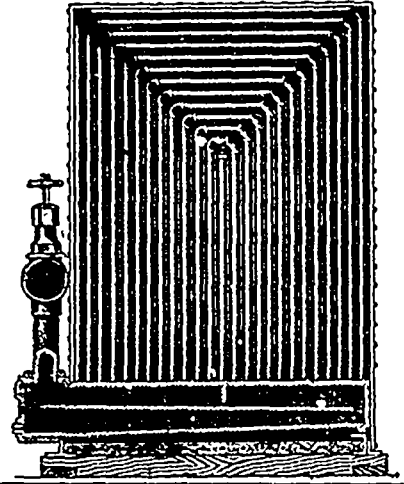
COLUMBUS, OHIO.**COKE****Improved Hot Blast Heating and Ventilating System** (Patented 1904)

FOR DRY ROOMS OF EVERY DESCRIPTION, BUILDINGS OF ALL SIZES AND FOR ALL PURPOSES, but chiefly used at present in **Factories, Hospitals, Churches, Theaters, etc.**

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

—For prices and particulars write—

McEachren Heating & Ventilating Co.,
GALT, ONT., CANADA.

**The Canada Machinery Co.**

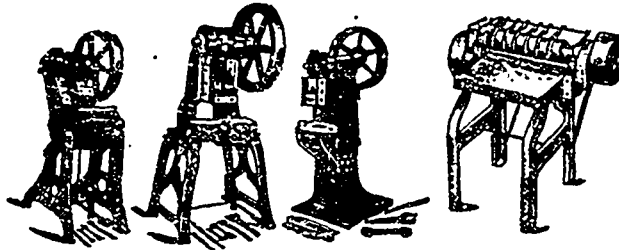
Limited

MANUFACTURERS OF

SARNIA, ONT.

Punches, Shears,
Bulldozers, Power, Foot and
Drop Presses of all sizes
and descriptions.

Also machinery for manu-
facturing Cans, Pieced Tin-
ware and other Sheet
Metal Goods.



Engine Lathes from
16-inch swing up. Beds of
all lengths.

Also Planers, Shapers, Drills,
Slotters, and other Machine
Shop Equipment.

Also Special Machinery
of all kinds.

Branch
Offices
from
Ocean
to
Ocean.

Codes:
LIEBER'S,
ABC,
4TH ED.,
PRIVATE.

THE JENCKES MACHINE CO., LIMITED

... BUILDERS ...

STATIONARY BOILERS

FOR EVERY SERVICE.

HORIZONTAL AND VERTICAL TUBULAR AND LOCOMOTIVE TYPES.

HIGH PRESSURE RETURN TUBULAR BOILERS
FROM 100 TO 250 H.P. A SPECIALTY.

Estimates furnished on complete Steam Plants.

WORKS and
HEAD OFFICE **52 Lansdowne St., SHERBROOKE, QUE.**

Cable
Address:
CHALLENGE.

You Must Buy Well to Sell Well

CONSULT OUR CLASSIFIED
INDEX,
BEGINNING ON PAGE 42.

When writing to Advertisers kindly mention **THE CANADIAN MANUFACTURER.**

PORTLAND CEMENT

Samson Brand. Magnet Brand.

Made at SHALLOW LAKE, ONT.

Our Celebrated **Samson Brand** has been before the public for many years, and has made hosts of friends among Contractors and Municipal Corporations until it has become one of the leading Cements on the market to-day, being excelled by none. This year we have decided to place the **Magnet** on the market, and respectfully ask consumers to give it a trial. It will, we think, do its own advertising.

THE OWEN SOUND PORTLAND CEMENT CO., Limited

Works—SHALLOW LAKE, Ont. Head Office—OWEN SOUND, Ont.

GEO. S. KILBOURN, Sec'y-Treas.

Correspondence Invited.

Albert Manufacturing Co.

MANUFACTURERS OF THE WELL-KNOWN

"Hammer Brand"

Calcined Plaster

AND

PATENT ROCK WALL PLASTER.

HILLSBOROUGH, N.B., CANADA.

DOVER FIRE BRICK COMPANY

MANUFACTURERS OF

"DOVER" **FIRE BRICK** "BUCKEYE"

—Locomotive Tile and Ground Fire Clay—

Unexcelled for Furnaces, Rolling Mills, Brick and Pottery Kilns, Glass Works, Gas Plants, Foundries, and all places where good Fire Brick is required. WRITE US FOR PRICES.

General Office:
CLEVELAND, OHIO.

Canadian Agents:
ONTARIO LIME ASSOCIATION, TORONTO, ONT.

Pittsburgh Office:
805-806 Erie Building.

DUNBAR FIRE BRICK CO.

Manufacturers of High Grade FIRE CLAY and SILICA BRICK for Heating and Malleable Iron Furnaces, Glass Works, Cement Works—also Bee Hive and By-Product Coke Ovens, Brick and shapes of all kinds.

Pittsburgh Office: 1504 Arrott Building.

Office and Works: Dunbar, Pa.

Quality, Price, Delivery—These are the questions considered in the purchase of your supplies of Fire Brick, not only for new construction, but for repairs as well. We are prepared to furnish the very highest grade of silica and fire brick for all furnace practice, coke ovens, lime and cement kilns, boiler settings, and for every other purpose requiring a highly refractory material. We have seven plants operating in four counties of two states on three competing Trunk lines, with a daily capacity of a quarter of a million, and are better prepared to serve your wants than any other manufacturers in the business. Our quality is unsurpassed, our prices reasonable, and we are in position to make prompt shipment over any line at low rates. Your patronage is respectfully solicited.

General Office—BOLIVAR, PA.
Pittsburg Office—312 Park Bldg.

REESE-HAMMOND FIRE BRICK CO.,

Works—Curwensville and Bolivar, Pa.
Fairmont, West Virginia.

"Beech Creek" FIRE BRICK

STRICTLY HIGH GRADE

MADE ONLY BY

PENNSYLVANIA FIRE BRICK CO.,
LOCK HAVEN, PA., U.S.A.

Special Mixtures for use in Rolling Mills, Malleable Iron Works, Steel Works, Blast Furnaces, Glass Tanks, Cement Kilns, Locomotive Blocks, and all High Grade Uses.

Difficult Shapes a Specialty.

Send for Catalogue and Prices.

BRANDS: **BEECH CREEK, BEECH CREEK ROOF, BEECH CREEK BUNG.**

When writing to Advertisers, kindly mention THE CANADIAN MANUFACTURER.

C. H. VOGEL

A. M. Can. Soc. C. E.
OTTAWA, CAN. ENGINEER
 Surveys, Plans, Specifications and Supervision
WATER POWER
 PAPER, PULP and SULPHITE FIBRE MILLS

K. L. AITKEN

Consulting Electrical Engineer.

161 Bay Street, Toronto.

Long Distance Phones {Office, Main 1482.
 {Res., Main 481.

Successor to

THE ELECTRICAL SUPERVISION SOCIETY

T. A. MORRISON & CO.

202 St. James Street, MONTREAL

New and Second Hand Contractor's Plant.
 Stone Crushers, Concrete Mixers, Rock Drills,
 1 Baldwin I. C. R. Standard Gungo Locomotive,
 35 tons, cylinder 14 x 22, 110 S. P.
 30 Dump Cars, Narrow Gungo, 24 yards.
 Boilers, Engines, Steam Shovels, etc.

DR. GEO. ARCHBOLD, M. A.,
TECHNICAL CHEMIST

PRESGOTT, ONT.

Dr. Archbold is technical adviser to three of the
 oldest firms in U.S.A. Terms on application.

E. VON DER OSTEN & CO.

Consulting Engineers

Industrial Plants, Waterworks.
 Lighting and Power Plants.
 Sewerage and Sewage Disposal.
 Garbage Reduction Plants.
 Municipal Improvements.

Roussavelles Ave. and High Park
 Boulevard,

TORONTO, ONT.

RODERICK J. PARKE

A. M. AMER. INST. E. E.
 A. M. CAN. SOC. C. E.

CONSULTING ENGINEER

Janos Building, TORONTO

Long Distance Telephone.

TO MANUFACTURERS:—Advice and specifications covering Industrial Applications of Electricity—Lighting—Power Transmission—Factory Power Distribution—Steam Plants.

TESTS—REPORTS—VALUATIONS.

Savage Mountain Fire Brick Company

FROSTBURG, MARYLAND, U.S.A.

41 Years **HIGH GRADE FIRE BRICK**
 at Making

We are increasing our plant one-third and solicit new accounts.

Elmer E. Melick,
 1420 Chestnut St.,
 Philadelphia, Pa.

The Howe-Baker Co.

CLEVELAND, O.

FIRE BRICK

SILICA FIRE CLAY
 ALUMINITE
 SILICA CEMENT

MACNESITE BURNT MACNESITE

Our factories are the most complete in the country. Located in Pennsylvania, Ohio, and Kentucky—and controlling the largest known bodies of Refractory materials for different work. Operated by experienced managers. We manufacture material for all heat work—second to none.

Capacity over 200,000 Brick and Special Shapes per day. Write for catalogue.

HORACE F. EVANS

EXPLORER and GEOLOGIST

Having made a careful examination of the Thompson, Bonaparte and Nicola divisions of Yale District, British Columbia, is prepared to furnish investors and intending investors with reliable reports on the occurrence of metalliferous ores, also Coals, Lignite Coal and Lignite within the district indicated.

Having made a careful examination of the Cold Water Coal Beds of the Nicola Valley and Hat Creek Country, very dependable reports on the character of these Coals and Lignites will be furnished to investors and others. These examinations have extended over many years and the value as well as extent of the coal measures will be given.

Regular Address, ASHCROFT, B. C.

Cable and Tel. Address, "Callor," Ashcroft, B. C.

ROBERT W. HUNT & CO.

Bureau of Inspection, Tests and Consultation.

66 Broadway, New York; 1121 The Rookery,
 CHICAGO; Monongahela Bank Bldg. PITTSBURGH;
 Norfolk House, Cannon St., E. C. LONDON.
 Inspection of Rails and Fastenings, Cars, Locomotives, Pipe, etc.; Bridges, Buildings and other Structures. Chemical and Physical Laboratories. Reports and estimates on properties and processes.

JOHN J. GARTSHORE

88 Front St. W., Toronto.

Rails and SUPPLIES,

Now and Secondhand,

For RAILWAYS, TRAMWAYS, Etc.

Old material bought and sold.

Do You Use CRAYONS?

Ours are made by Cotton Mill Men, who know what the ingredients should be.
 Ours will wash off the goods in process of manufacture without leaving a stain.

LOWELL CRAYON CO., - LOWELL, MASS.

Original Makers. Samples Sent.

**U. S. A. Eagle**

Brass Miner Lamps

Pat. Mar. 29, '04—No. 756151.

Burns paraffin or oil.

Manufactured by JOHN ANTON & SON, Monongahela, Pa. Price list mailed on application.

The Firstbrook Box Co. Limited

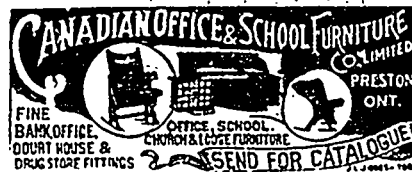
PACKING CASES.

DOVETAIL BOXES.

Bottlers' SHIPPING CASES.

BOX SHOOKS, Etc.

TOP PINS, SIDE-BLOCKS & CROSS-ARMS
 Write for prices. TORONTO, Canada.

**Dewar Detective Agency**

498 Railway Ex. Bldg.

4th & Chestnut St., St. Louis, Mo., U.S.A.

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.

Established 1873. Telephone Main 1889.

THOMAS HEYS & SON

CHARLES H. HEYS, Manager.

CHEMICAL and MINING EXPERTS.

Analyses of all commercial products, etc. Plans and reports on mines and mining locations.

114 Bay Street, TORONTO, ONT.

THE DELANO-OSBORN ENGINEERING CO.

Consulting Engineers LIMITED

Civil, Mechanical and Electrical Engineering, Power Plants, Manufacturing Establishments. Inspections, Tests and Reports.

Manning Chambers, TORONTO, ONT.

HER J. ARMSTRONG

Mechanical Engineer.

Steam Plants, Manufacturing Plants, Power Distribution, Special or General Machinery Designed, Steel Plate and Structural Work.

43 Victoria St., TORONTO.

H. D. PETRIE

Barrister, Solicitor, Notary

Spectator Building,
 HAMILTON, ONT.

Companies Incorporated.

Commercial Law and Collections.

NEFF & POSTLETHWAITE

CHARTERED ACCOUNTANTS

28 Wellington St. East, TORONTO

Phone Main 1880.

Audits and Investigations a Specialty.

PATENTS

TRADE MARKS, Etc.

HANBURY A. BUDDEN

NEW YORK LIFE BUILDING,
 MONTREAL.

S. DILLON - MILLS

MINING EXPERT

Mining Properties examined and developed, reports furnished. Twenty years experience in Furnace and Mining Work.

688 HURON STREET. TORONTO

MACHINERY

FOR

Wire Drawing.

Chain Making.

Core Machines for general foundry practice.

Vitrified Sewer Pipe.

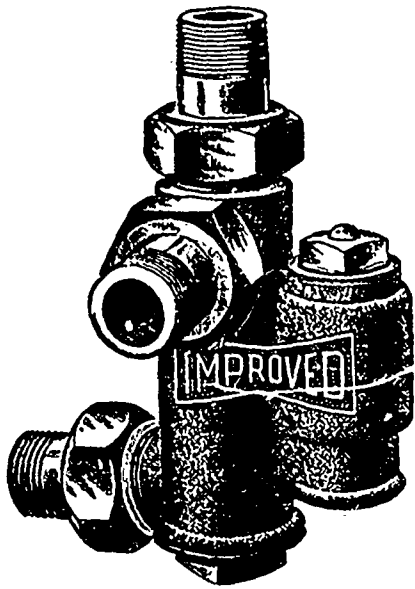
Rubber Washing.

Reclaimed Rubber Water Separators.

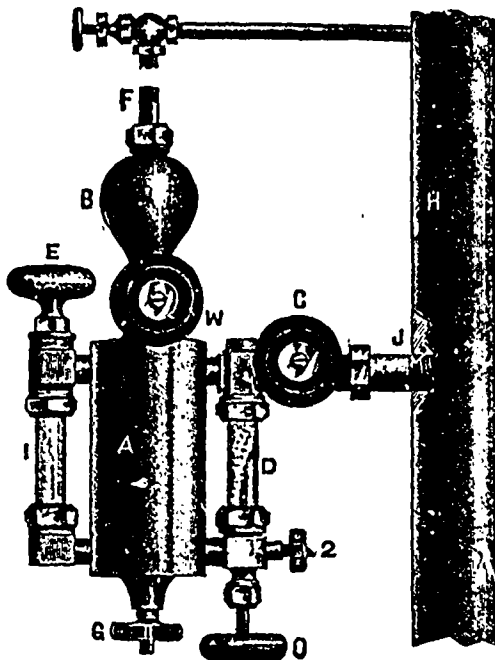
Write us—

The TURNER, VAUGHN & TAYLOR CO.

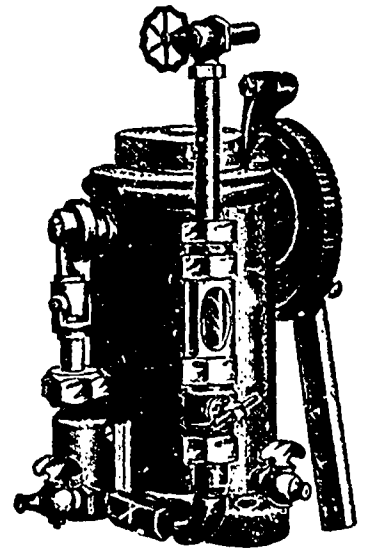
Cuyahoga Falls, O., U.S.A.



IMPROVED T. J. C. INJECTOR
No. 2.



IMPROVED MICHIGAN LUBRICATOR.



THE IMPROVED HAMILTON
OIL PUMP
with and without Dight Feed.

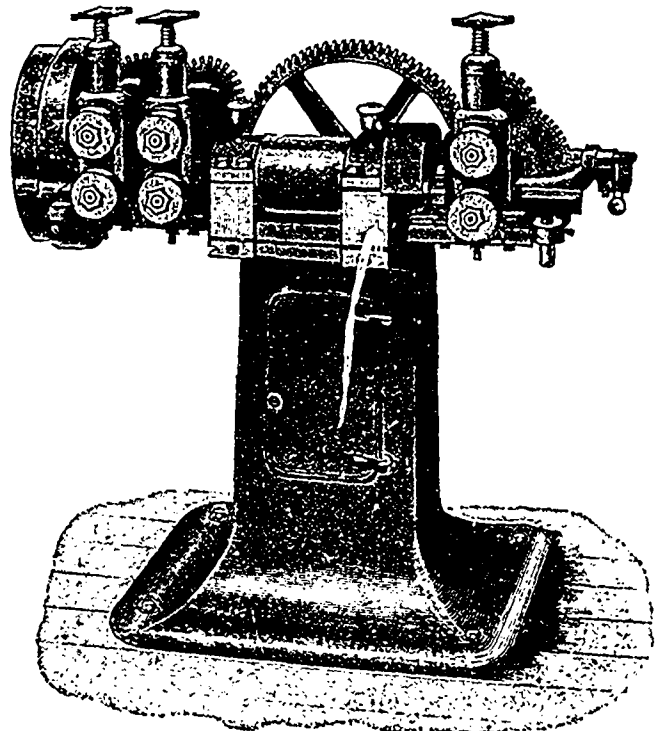
THE HAMILTON BRASS MFG. CO., Limited
HAMILTON, - ONT.

Dowel Machines

Will turn 60
Lineal Feet
per Minute.

Made in Three Sizes

SEND FOR CATALOGUE.



Manufactured by **C. H. COWDREY MACHINE WORKS**
FITCHBURG, MASS.

AGENT
H. W. PETRIE
TORONTO, ONT.

Hot Blast Heating Systems

— FOR —

Factories, Mills, Schools,
Colleges, Hospitals, Etc.

PERFECT VENTILATION AT AN EVEN TEMPERATURE.

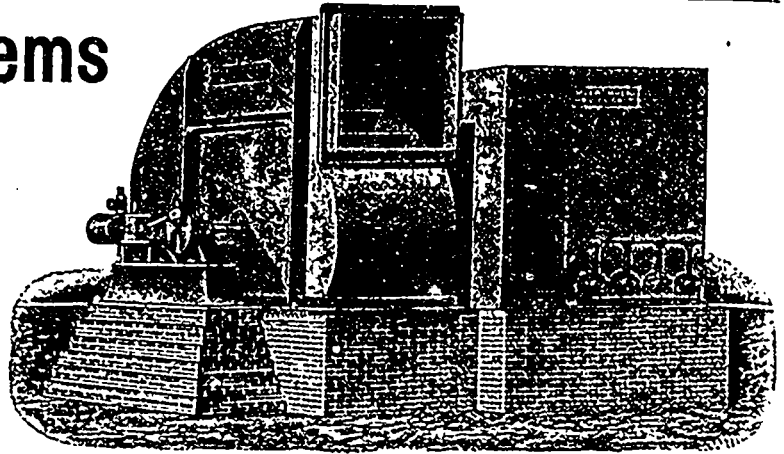
Write for prices and particulars to

SHELDON & SHELDON

GALT, - - ONT.

FORMERLY

McEachren Heating & Ventilating Co.



Petrie's Machinery Depot

ENGINES AND BOILERS

MACHINE TOOLS

WOOD-WORKING MACHINERY

SAW MILLS

ENGINEERS' AND MILL MEN'S

SUPPLIES

UP-
TO-
DATE

NEW STOCK
LIST
Issued
Monthly.
Ask for one.

AGENTS FOR

London Machno Tool Co.
Cincinnati Milling Machine Co.
Cincinnati Planer Co.
Cincinnati Shaper Co.
Cincinnati Upright Drills.
Lodge & Shipley Lathes.
Bickford Radial Drills.
Sebastian Latho Co.
B. F. Barnes & Co.
Automatic Machine Co.
Cattin Keyseater.
Breiner Punch & Shears.
The National Machinery Co.
Schuchart & Schutte.

American Grinding Machines.
Morris Machine Works.
C. H. Dutton Co.
Faber Pump Co.
Sturtevant and Buffalo Blowers
and Fans.
American Machinery Co.
Fox Machine Co.
West Side Band Saw.
Dain Hay Presses.
The Cleveland Automatic Ma-
chine Co., Cleveland, Ohio.
The Laurio Engine Co., Montreal.
Potter & Johnson.

H. W. PETRIE

Adjoining
Union Station.

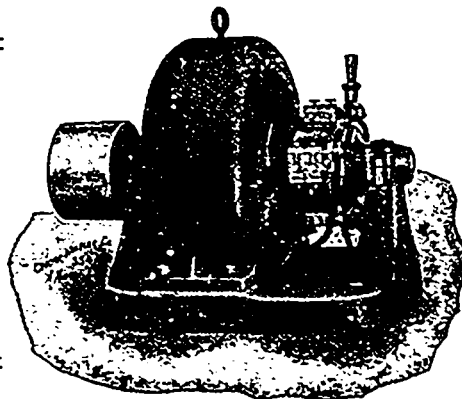
TORONTO

Prices and Descriptions of NEW AND SECOND-HAND
MACHINES on Application.

CROCKER-WHEELER COMPANY

MANUFACTURERS AND ELECTRICAL ENGINEERS.

Direct
and Alternating
Current
Apparatus.



Send Us
Your
Specifications.

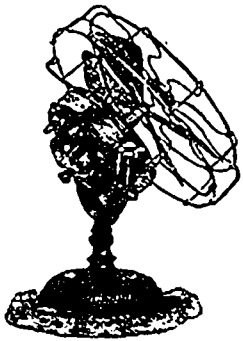
Address all Communications to

THE PACKARD ELECTRIC CO., Limited

MONTREAL.

ST. CATHARINES.

WINNIPEG.



Fan Motors

All Standard Types and Sizes in any finish.

Large Stock, Quick Delivery on Orders placed at once.

Canadian General Electric Company, Limited

Head Office, TORONTO, ONT.

DISTRICT OFFICES— Montreal. Halifax. Ottawa. Winnipeg. Calgary. Vancouver. Rossland.

THE EUGENE F. PHILLIPS ELECTRICAL WORKS

MONTREAL, - CANADA LIMITED

TORONTO STORE, 50 Adelaide Street West

Bare Copper Wire Weatherproof Wire

LONG DISTANCE PHONE 1108.

The Electrical Construction Company of London, Limited

32-40 Dundas St., London, Can.

Perfection TYPE DYNAMOS and MOTORS

Multipolar or Bipolar, Direct-Connected or Belted.

OVER 1500 OF OUR MACHINES IN USE

We contract for complete installations, including wiring of factories.

We repair machines of any make.

Descriptive matter and estimates furnished on application.

Branches at Vancouver, Winnipeg, Toronto, Montreal, Halifax

WE can supply you with Metals of all kinds.

We also buy Metals of all classes.

Consult us before buying or selling.

SYRACUSE SMELTING WORKS

MONTREAL.

NEW YORK.

SEATTLE.

KERR'S "WEBER" Valves

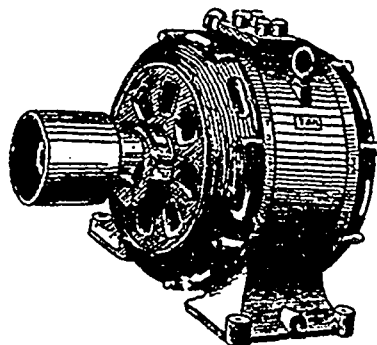
ARE THE GENUINE VALVES OF THAT NAME.

ALL OTHERS ARE IMITATIONS.

BE SURE AND GET THOSE MADE BY

The Kerr Engine Co. Limited

WALKERVILLE, - ONT.



Induction Motors

of one, two and three phases.

HIGH POWER FACTOR and EFFICIENCY

— ALSO —

A. C. Generators

IN ALL SIZES.

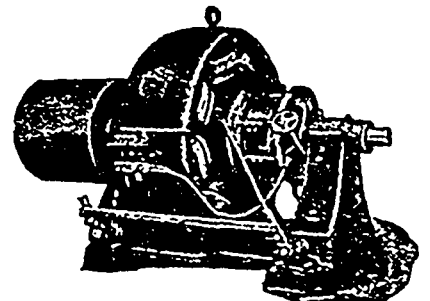
TORONTO & HAMILTON ELECTRIC CO.

99-103 McNab North. HAMILTON, ONT.

The Jones & Moore

ELECTRIC CO., Limited

ELECTRICAL CONTRACTORS



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

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

196 ADELAIDE WEST, TORONTO.

**ENGINES AND BOILERS
HOISTING ENGINES
LOCOMOTIVE TENDERS
SHIPS, YACHTS AND TUGS**

THE BERTRAM ENGINE WORKS CO., LTD.
Bathurst and Niagara Sts.,
.. TORONTO ..

Engineers' Supplies Textile Supplies,
CHESTERTON'S. Banding, Belting,
Laundry and Oils, Grease and
Finishers' Sizings,
Starches and Stationers' and Shoe
Pastes, Gums and Cements.
Transmission and Textile Machinery
for Cotton and Wool.

ALFRED HAWKSWORTH
MILL ENGINEER—GENERAL FURNISHER
551 St. James Street, - MONTREAL.

EXPANDED

The highest type of modern fireproof construction is
Concrete reinforced with EXPANDED METAL.

FLOORS - - ROOFS - - WALLS

Write for Catalogue and Prices.

**EXPANDED METAL AND
FIREPROOFING CO., LIMITED**

100 King Street West, TORONTO.

METAL

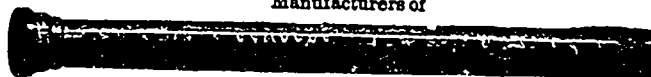
**MONTREAL PIPE FOUNDRY CO.,
LIMITED**

SUCCESSORS TO

DRUMMOND-McCALL PIPE FOUNDRY CO.

(Limited)

Manufacturers of



"Specials," Hydrants, Valves, Etc.

Offices: - - - **Canada Life Building,
MONTREAL**

The NATIONAL SUPPLY CO. Ltd.
LEAMINGTON, ONT.

**CARRIES A COMPLETE STOCK OF
OIL AND GASWELL SUPPLIES : BOILERS AND ENGINES
DRIVE PIPE, CASING, TUBING AND LINE PIPE
PIPE LINE SUPPLIES, ETC.**

COAL SCREENS

FOUNDRY RIDDLES

SIEVES of all kinds

WE MAKE THEM!

THE
GEO. B. MEADOWS

Wire, Iron & Brass Works Co., Limited
117 King St. West, TORONTO, Canada

A 260 Foot JEFFREY SAWDUST CONVEYOR



Many more Specialties in
SAW MILL AND CHAIN—Catalogues Mailed Free.

WIRE ROPE, CABLE AND CHAIN CONVEYORS FOR
LOGS, LUMBER, REFUSE.

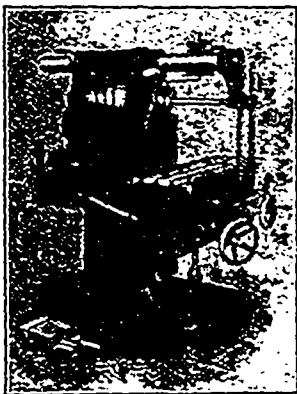
COIL, CABLE, DRAG AND TRANSFER CHAINS.

The JEFFREY MFG. CO., - Columbus, Ohio, U.S.A.

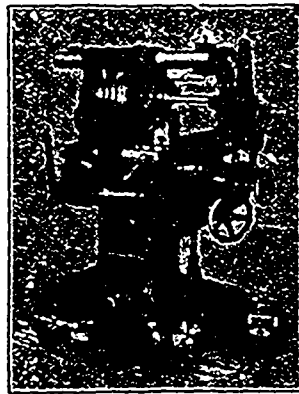
Toronto Agents—A. R. WILLIAMS MACHINERY CO.
Montreal Agents—WILLIAMS & WILSON.

BECKER-BRAINARD MILLING MACHINES

FOR RAPID PRODUCTION.



No. 3 Plain Gear Feed
Milling Machine.



No. 2 Universal Gear Feed
Milling Machine.

Complete line of Horizontal and Vertical
Millers to meet every requirement.

WRITE FOR CATALOGUE.

BECKER-BRAINARD MILLING MACHINE CO.,
HYDE PARK, MASS., U.S.A.

Branch Office: THE BOURSE, - - PHILADELPHIA, PA. 251

—The—
**McNaull Economic
Water Tube Boiler**

Is adapted to every purpose requiring
a boiler.

It is very economical in fuel, and will
save its cost in a very few years, in this
one particular.

The floor space occupied is small com-
pared to other boilers.

It possesses absolute safety, is simple
of construction, and the cost for repairs
is practically nothing.

Write Dept. M. for catalogue.

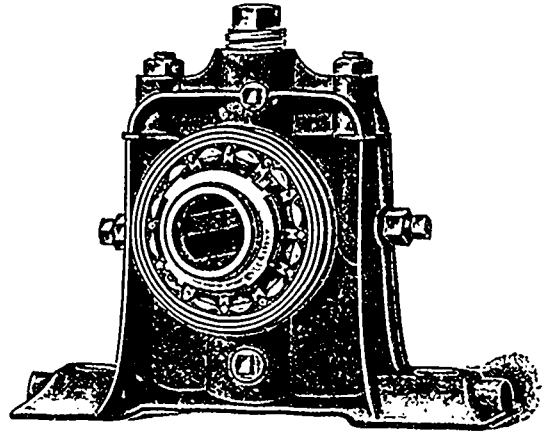
THE WM. HAMILTON MFG. CO., Limited
Peterborough, Ont.

"The shafting runs clean without using oil, consequently saving oil, and no drippings, and as near as we can figure we are making a saving of 23% on fuel by using those bearings."

THE SYLVESTER MFG. CO.,
Per R. SYLVESTER, President,
Lindsay, Ont.

THE CHAPMAN Double Ball Bearing

A BEARING THAT SAVES POWER



How much power are you wasting on your line shafting?
Are you using the old-fashioned journal bearings?
Then from 15% to 50% of your entire power is wasted in friction on your shafting.
The average cost of steam power is \$50 per h.p. per year.
A 20% loss on a 100 h.p. plant means a loss of \$1,000 per year.
We have shown an average saving of 20% of the entire power.
Over 100 Canadian factories are now equipped with CHAPMAN DOUBLE BALL BEARINGS.

Catalogues and Full Information Furnished on Request.

THE CHAPMAN DOUBLE BALL BEARING CO. OF CANADA, LIMITED

Office—89 Scott St., Factory—89 Pearl St., TORONTO.

IRON

Bars in Flats, Rounds, Squares,
Ovals, Half-Ovals, Half-Rounds
and Bands.

Also Wrought Washers.
Good Quality—Prompt Shipment.

LONDON ROLLING MILL CO.
LIMITED
LONDON, CANADA.

STEEL

When you are wanting any Electrical Supplies

Such as **TELEPHONES,**

ARC LAMPS,

WRITE

DYNAMOS, Etc.

JOHN FORMAN, - 708-710 Craig Street, Montreal



ESTABLISHED IN 1893.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

The Canadian Manufacturer Publishing Co., Limited.

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.

Cable address: "CANAMAN." Western Union Telegraphic Code used.

SUBSCRIPTIONS:

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

J. J. CASSIDY, Editor and Manager.

Classified IndexPage 42

Index to AdvertisersPage 49

TARIFF DECISIONS.

The following decisions by the Board of Customs relating to the Customs tariff are promulgated as follows:—Chilian mills for grinding clay or other substances, whether for use in connection with steel converters or otherwise, 25 per cent.

Zinc, in form of rods, 25 per cent.

Kremoline (as per sample) used in the manufacture of confectionery, 25 per cent.

Tram silk, "boiled off," and not in the gum, 20 per cent.

Mimeographs (rotary and oscillating,) 25 per cent.

Pictorial cut-outs, being lithographed pictures on cardboards, embossed or not, and cut out by stamp or die or not, 20 per cent.

Refined coconut oil, not further manufactured than bleached or refined, 20 per cent.

Blotting-paper pad with celluloid cover, having advertisement thereon, but not illustrated, 35 per cent.

Stereotyping outfits, such as casting mould, cutting-off cylinder, and imposing press, imported along with printing press, valued at over \$1,500, 10 per cent.

Electric motor and rheostat for use in connection with a printing press, 25 per cent.

Keystone rig and equipment for drilling wells, 25 per cent.

Powers' combined boring and drilling machine for drilling wells, 25 per cent.

Microscopes, valued at not less than \$100, adapted for, and to be used in good faith for purposes of surgery, free as surgical instruments.

Soldering flux, in a fluid state (made from an acid and zinc.) 20 per cent.

Lithographic presses, 10 per cent.

MACHINERY FOR MARKETING MACHINERY.

An address on "The Machinery for Marketing Machinery" was presented at the recent first annual dinner of the Technical Publicity Association in New York, by Mr. E. P. Harris, who is said to be a "broker in trade and technical journals," which term probably means that Mr. Harris is an advertising solicitor, whose clientele include a "selected list" of technical publications on the one hand, and such manufacturers as he can induce to believe that these publications are the only ones in which manufacturers would find it to their advantage to advertise.

A WORD TO OUR READERS!

The line at the bottom of our advertising pages requests you when writing to Advertisers, to mention The Canadian Manufacturer. Compliance with the request costs nothing, but would mean a great deal to us. As the manufacturer usually grades the salary of his salesman according to the value of the orders he turns in, so the advertiser values space according to inquiries received. The only way for this journal to receive full credit for sales influenced is for our readers, when writing to advertisers, to kindly mention The Canadian Manufacturer.

"Hitherto," Mr. Harris informed the association, "business ability and inventive genius have focused upon the making of good things—the enquiry is now turning to the marketing of the product, and the longer the problem is looked at, the larger it appears. In bringing forth the crude treasures of the earth to the services of man, three words typify three great departments of effort—mining—manufacturing—marketing. The magnitude of the problem of distribution which is just dawning upon the minds of manufacturers can scarcely be overestimated. Not until the manufacturer can impress the superior merits of his products upon the greatest possible number of buyers at the lowest cost, and every consumer, on the other hand, discovers the best thing for him by reasonable effort, will the great problem of distribution be solved. The consumer spends much time in enquiring what to buy and more in regretting that he did not buy something else. The question of economical and efficient distribution concerns the consumer even more than it does the manufacturer. The question is, how to make known the merits of the commodity. The work of marketing also falls under the head of three m's—the merchandise—the message—and the medium."

There is nothing abstruse or incomprehensible about Mr. Harris' alliterative reasonings, and manufacturers will no doubt be delighted to know that while, heretofore, their minds were engrossed upon the making of goods, it is their duty now to turn their attention to the marketing of their products. It is somewhat strange that this part of the business should have been overlooked for so long a time.

"It is my privilege," says Mr. Harris, "to enjoy confidential relations with many of the publishers of the great technical papers, and to know not only their methods and achievements, but their plans and aspirations." What is a "technical paper?" Mr. Harris tells us "the key note of the ideal technical or trade paper is helpfulness to its readers. This helpfulness depends upon knowledge of the wants of the reader and sympathy with him on the part of the editor on the one hand, and, on the reader's part, confidence in the accuracy, reliability and truthfulness of the contents of the paper. A paper may be very profound, and also very useless. The reader wants what he wants, and has not time for the transcendental wisdom which the editor may think he ought to want," which idea seems to bear rather hard upon the technical papers with which Mr. Harris enjoys such confidential relations.

Mr. Harris in his address discussed the merits of eight New York technical papers—the extent of their advertising patronage, and the extent and value of their circulation. These, we suppose, are the ones with which he is connected as solicitor for advertisements, and towards which the attention of the members of the Technical Publicity Association is directed. It is stated that the organization represents over thirty important American manufacturers, whose names are given; and it is to be noticed that while Mr. Harris held their courteous attention at the banquet, they do not confine their advertising patronage to the eight New York technical papers which he alluded to. In fact the advertisements of a considerable portion of them are to be seen regularly in the pages of this journal.

It is quite evident that Mr. Harris is not as closely in touch with the interests of the manufacturers whom he was addressing as with the eight New York technical papers which he was representing. He told his hearers that they should endeavor to sell their products after they had been produced, which they understood beforehand, of course; and that as a means to that end they should be advertised in the technical papers, which, also of course, does not necessarily follow. Manufacturers do not confine their announcements to any particular class of papers, but place them where they think they will achieve favorable results. If they have steam engines, or mining machinery, or iron or wood working machinery, or electric apparatus to sell, the goods are advertised in papers that reach such people as are most likely to be possible purchasers of such. The paper that gives the particulars of the organization of an industrial concern proposing to go into business, where a varied line of manufactures are to be used, possesses more interest to the manufacturers of such lines than papers whose merits depend upon any technical descriptions they may publish regarding such products. A five-line announcement that a factory of any sort, or a church or school house, or a theatre or public hall had been destroyed by fire or tornado has much practical value to substantially all classes of manufacturers, for they can see at a glance that there was a possible chance for them to furnish some of the machinery and supplies that would be required in reconstruction work. It is not to be expected that any paper would or could contain technical description of all the kinds of machinery and supplies requisite in the construction of any industrial enterprise, not even the eight New York papers which Mr. Harris canvasses for; and the builder of such an establishment, in want of machinery and supplies, would not be as apt to find the names and addresses of all the manufacturers with whom he would like to do business in a purely technical journal as in those not quite so technical in their character.

AUSTRALIAN PATENT OFFICE.

Australia has now a Federal patent law and applications for patents hereafter will have to be filed and dealt with at the Central Patent Office, Rialto Buildings, Melbourne. The law is to a great extent based upon the existing British system, with the notable addition that the official staff, before issuing a patent must make an examination to ascertain whether the invention described has been previously patented or a patent applied for in any of the States composing the Federation. The most important feature is that an invention can now be protected throughout the whole of the Commonwealth for fourteen years by one patent at approximately one-third the cost which was formerly involved when six State patents had to be obtained (New South Wales, Victoria,

South Australia, Western Australia, Tasmania, and Queensland). The State patent offices are continued as offices of record and information where specifications of applications filed will, after their acceptance, be exhibited for public information. The act insures that patents previously obtained in the several States shall remain in full force with all the rights granted.

Commonwealth patents will be granted for fourteen years and will be subject mainly to the usual conditions of British and Australian patents, with the exception that if one claim is found by a court to be invalid it shall not affect the validity of any other claim or of the patent so far as it relates to any valid claim. Patents have effect against the Crown, but the Government of the Commonwealth may use any invention upon such terms as are agreed upon with the patentee, or in default of agreement, on terms settled by arbitration, or the Commonwealth or a State may, if thereto authorized by an act of Parliament, direct the patentee of the invention to assign his rights, the amount of compensation being decided by agreement or arbitration. An invention may be assigned before patenting, and the act provides that the communication of an invention to the minister for defense, and proceedings thereunder, shall not be deemed publication, or prejudice the validity of any patent thereafter granted. In the bill as originally introduced there was a provision requiring the invention to be worked as a condition of its maintenance, but the clause was eliminated in passing through Parliament. The nearest approach to such a provision is a power conferred upon the commissioner or the court to order a license to be granted on fair terms to a person wishing to use a patented invention in respect of which "the reasonable requirements of the public may not have been satisfied." The ordinary powers of amendment and extension are provided for, and the act contains provisions under which the Commonwealth is enabled to become a party to the international convention, and it will probably do so. The procedure of application for patents by petition, accompanied by provisional or complete specification, is very similar to that which has been in vogue, with the addition of examination as to novelty and a special power of the commissioner to note likely over-lapping patents.

It is expected that a great stimulus will be given by the Commonwealth Patents Act to the inventions and industries of the Australian people, and that an increased number of inventions, both of local and foreign origin, will be patented.

CANADIAN MAIL SUBSIDIES.

The Department of Trade and Commerce has furnished the following list of mail subsidies and steamship subventions paid by the Dominion Government during the fiscal year ending with June 30, 1904:

Canada and Great Britain.....	\$175,000 00
Canada and South Africa.....	146,000 00
Canada and Australia.....	116,800 00
Canada, China and Japan.....	73,000 00
Montreal, Quebec and Manchester.....	35,000 00
Quebec and Gaspe.....	5,000 00
Quebec and Blanc Sablon.....	8,000 00
Quebec to Murray Bay and River Ouelle— Murray Bay and River Ouelle (summer)	6,000 00
Paspebiac and Gaspe—St. Catharines Bay and Tadousac (winter).....	2,000 00
Magdalen Islands and Mainland.....	15,000 00
Prince Edward Island and Mainland...	12,500 00
Prince Edward Island and Great Britain	2,500 00

Prince Edward Island, Cape Breton and Newfoundland.....	\$1,500 00
St. John and Digby.....	12,500 00
St. John, Halifax, N.S., via Yarmouth, N.S.	3,846 16
St. John, Halifax, N.S., and Demerara (S.A.).....	65,700 00
St. John, Halifax and London.....	38,500 00
St. John and Glasgow.....	15,000 00
St. John and Dublin and Belfast.....	2,250 00
St. John and Minas Basin ports.....	3,000 00
Halifax and Jamaica.....	13,800 00
Halifax and Newfoundland.....	1,714 29
Halifax and Canso.....	3,500 00
Halifax and Liverpool via Newfoundland Grand Manan and Mainland.....	20,000 00
Pictou, Murray Harbor and Montague Bridge.....	5,000 00
Pictou and Cheticamp.....	1,200 00
Baddeck, Grand Narrows and East Bay.....	2,000 00
Sydney and Whyecomah.....	4,061 72
Sydney and Bay St. Lawrence.....	1,000 00
Port Mulgrave, St. Peter's, etc., and Marble Mountain.....	1,500 00
Port Mulgrave and Canso, Port Mulgrave and Guysboro, Port Mulgrave and Margaree and Cheticamp.....	5,000 00
Petit de Grat, Arichat and I.C.R. Terminal at Mulgrave.....	7,849 10
St. Stephen, St. Croix, etc., and Back Bay Dalhousie and Gaspe.....	1,596 15
Victoria and San Francisco.....	3,000 00
Victoria, Vancouver and Skagway.....	11,500 00
Victoria and West Coast Vancouver Island.....	5,000 00
Wrecking Plant on St. Lawrence.....	12,500 00
	2,430 55
	10,000 00
Total.....	\$851,747 97

The American mail ocean lines, now operating under contracts provided by the law of 1891, and the compensation received in the fiscal year, 1904, are stated by the superintendent of foreign mail as follows :

American Line, New York to Southampton.....	\$690,483 20
Oceanic Line, San Francisco to Australasia.....	283,203 20
New York Cuba Mail, New York, Cuba and Mexico.....	206,082 00
Red D Line, New York, Venezuela and Dutch West Indies.....	103,325 00
American Mail, Boston and Philadelphia to Jamaica.....	92,748 00
Total.....	\$1,375,841 20

Thus the United States, with a population of 80,000,000 against 5,000,000 in Canada, only pays \$524,093.23 more for her steamship services.

WHAT IS THE METRIC SYSTEM ?

Some time ago in answering the question as to what constitutes the metric system, we quoted the opinion of Prof. I. J. Chapman, of Pittsburg, Pa., as expressed by him in The Gazette, of that city. We now have a similar enquiry from an esteemed correspondent in Queensland, and we again repeat what Prof. Chapman said about it.

The proposition now before Congress to change our present system of weights and measures for what is called the metric system is certainly not well understood by the people or a protest would go up that would call a halt to such a proceeding. This proposition contemplates the abolition of our entire system of weights and measures and the substitution of another of which the very terms are so long and difficult as to be startling. The old familiar inch, foot, mile, etc., are to disappear, and in their places we are to have the meter, millimeter, centimeter, dekameter, kilometer ; instead of the old-time bushel, peck, quart, etc., we shall buy and sell by the liter, centiliter, dekaliter, etc., and instead of ton, pound, ounce, etc., we shall deal in grams, milligrams, kilograms, quintals, tonneaus, etc.

To most reflecting minds this invasion of our English language by a host of foreign words and the displacement of the terms familiar from our childhood by a string of difficult words of Latin, Greek, and French origin is very distasteful. Apart from mere sentiment, however, there are very grave objections of a practical character. For one thing, to all succeeding generations all our present literature and science would be largely unmeaning, or at least difficult to be understood. Every line of poetry in which any term of distance, weight, or measure occurs would have to be reconstructed. To every present book a glossary of obsolete terms would have to be added. Just as the ancient terms, homer, hin, and cubit, used occasionally in our translation of the Bible, are indefinite or unmeaning to the average reader, so, only on an infinitely greater scale, would be all the terms now used in millions of instances in our present literature.

Another objection is that all our appliances for determining weights and measurements would be rendered useless. All our scales, yardsticks, quart measures, and so on, would have to go to the junk heap. Millions of dollars would be required to replace them with standards of the new system. These are considerations that one would think ought to give our legislators reason to pause. Yet men of whom one would have expected wiser counsel have been using their influence to have this enormity imposed upon the people, and the Congressional committee having this matter in charge has gone so far as to sanction a bill to this end.

The inconvenience of this system for practical purposes is appalling. An inch is 2.54 centimeters ; an acre is .4047 of a hektare. A peck of beans is .0381 of a hecktoliter. Shylock's "pound of flesh" becomes a demand for .4536 of a kilo. The area of Pennsylvania expands into a territory of 119,140 square kilometers. Does all this add any clearness to our ideas of size and distance ? Milton's fallen angel drops plumb down not "10,000 fathoms deep" but a distance of 1 myriameter 8 kilometers 2 hektometers 8 dekameters and 8 meters. Only think of it ! These are only a few specimen beauties of the proposed scheme.

RAILROAD BUILDING BY MACHINERY.

Formerly, if a railroad embankment was to be made, a small army of laborers would be sent to a gravel bank and the material would be shoveled on cars and then shoveled off again at the point where the fill was to be made. To-day high steam shovels and a half dozen men will load a train of cars in a few moments, and then scrapers operated by machinery, controlled by one or two men, will scrape the material from the cars and dump it in piles along the sides of the track at the point where the new fill is to be made, in even less time than was consumed in loading it. Mechanical spreaders, running on the railroad tracks, then come along

and spread the material evenly and to any desired depth over the top and sides of the new embankment. Drainage ditches along the sides of the track are dug and kept in proper condition by ditching machines, which not only remove the material, but load it on cars ready to be hauled away.

Railroad bridges of modern span are built and riveted up complete at the shops, and then unloaded from the cars by derrick cranes mounted on flat cars which land the new bridge along the side of the tracks adjacent to its final location, or often place it directly in its permanent and final position on the masonry abutments.

These are some of the modern methods of railway construction which will be followed in the building of the Grand Trunk Pacific. Work which required months at the building of the Canadian Pacific Railway will be done by the new method in as many days. Modern machinery will do the work which formerly required hundreds of workmen, and enable the new road to be completed in the least possible time.

A NEW USE FOR ACETYLENE.

German papers state that acetylene gas, generated from calcium carbide by the simple addition of water, has not met expectations, which, however, were very great. On account of the ease with which a gas for lighting purposes could be obtained, it was believed that it would be used very extensively, but the boom in the acetylene industry did not last long. New uses for the gas have been looked for for some time. The latest invention is its use as an explosive.

By means of an air mixture explosive force is obtained, which can compete with that of powder and dynamite. The explosion takes place in an air chamber and is caused by an electric spark. For this purpose carbide of calcium is reduced to small particles and put into a cartridge, consisting of a tin box. In this the carbide lies at the bottom and above it is a partition filled with water. Above this is a vacant space with the electric percussion device. On the side of the cartridge is an iron pin by means of which the partition between the carbide and the water can be perforated. After the drill hole has been completed the cartridge is placed into it and the hole is closed with a wooden stopper. Then the protruding iron pin is dealt a blow, by which the partition is perforated and the water is caused to come in contact with the carbide, whereby acetylene gas is generated. This mixes with the air of the drill hole. After five minutes the gas is ignited by an electric spark.

By this method of blasting the rock is said to be not thrown out but rent with innumerable cracks, so that it can be easily removed afterwards. About 1.7 ounces of carbide, which produce about 16 quarts of acetylene gas, are used for each cartridge.

EDITORIAL NOTES.

The surveys of the eastern division of the National Transcontinental Railway have made it clear that a route has been located with a maximum grade of four-tenths of one per cent. for the whole distance from Moncton, N.B., to Winnipeg, Man. This is substantially equivalent to a dead level road, and is a thing which does not exist elsewhere on the continent for the same distance. It was announced some time ago that a route of this character had been located through the Province of New Brunswick. The reports of explorers had indicated that a similar level route could be found between the New Brunswick boundary and the city of Winnipeg. The exact reports of the surveyors have confirmed

the indications of the explorations. While the precise route will not be given out for a few days, when it is it will be announced to the House of Commons. It is understood that the greater portion of it is over country which does not involve cutting operations, which would bring up the cost of constructing a level road to a prohibitive figure. The curves are reported to be easy, and the greater portion of the country through which the line will be built is adapted to settlement, insuring local traffic throughout the length of the line. There is plenty of timber and an abundance of mineral indications. The greater portion of the surveys will be completed this summer, and contracts for construction work will be let in the autumn. This will enable the contractors to get their supplies and materials in during the winter over the snow, when hauling can be most easily and cheaply accomplished. They will have all their men and materials on the ground ready for grading as soon as the frost leaves the ground in the spring of 1906. It is probable that construction will begin before that time, as any rock cutting that has to be done can be accomplished as well in the winter as in the summer. For practical railroading purposes a road with maximum grades of four-tenths of one per cent. is regarded as a level line, for a locomotive can haul up a four-tenths grade any load that it can start from a standstill.

The protracted litigation over the sale of the Canadian Woolen Mills has been brought to an end by the acceptance of the tender of the Dominion Bank for the assets. The first bid for the assets of the company, which include several mills, was received from J. L. Long, of Hamilton. Although strongly objected to by the other creditors, the offer was accepted by the referee, but on appeal the sale was upset by the court. The matter has been before the courts ever since, until there seemed great probability that any money which might otherwise go to the creditors would be eaten up in law costs. It was decided that the assets should be sold over again, with the result that the offer of the Dominion Bank, the largest creditor, has been accepted.

The Department of Commerce and Labor of the United States has been officially notified that the Dominion Government of Canada will recognize as valid the steamboat inspection certificates issued by the authorities of the United States to American steamers, and, in the case of vessels of the United States having unexpired certificates of inspection issued by officers of the United States Government, will dispense with any further inspection as regards hull, boilers, machinery and equipments, including life-saving appliances, except such as is necessary to satisfy the inspectors that the condition of the vessel, her boilers and life-saving equipments are as stated in the said current United States certificate of inspection. It is therefore ordered that hereafter, and until otherwise directed, the merchant passenger steamers of Canada, sailing from ports in the United States, and holding unexpired certificates of inspection, issued by the duly constituted officers of Canada, shall be subject to no other inspection than necessary to satisfy the local inspectors, that the condition of the vessel, her boilers and life-saving equipments are as stated in the said current Canadian certificate of inspection. The masters, owners or agents of Canadian merchant passenger steamers, other than steamers holding certificates of inspection issued by the authorities of the United States, shall, immediately upon arriving at port in the United States, file in the office of the local inspectors of steamboats having jurisdiction in such ports a copy of their current Canadian certificates of inspection. Masters,

owners or agents of the Canadian merchant passenger steamers holding an unexpired United States certificate of inspection, shall also furnish the local inspectors with a copy of their current Canadian certificates of inspection upon arrival at a United States port on their last voyage preceding the date of expiration of the current United States certificate held by such steamer, and it shall thereafter be examined and certificated in the manner provided therein.

Trade may "follow the flag," but there are traders who make no pretense of keeping trade under its folds. There are British mine owners who just as willingly furnish Russian warships with coal to enable them to contest with Japan the supremacy of the China sea as though Russian triumph meant nothing to Great Britain. The ship builders of Great Britain and of America eagerly build war ships for any country that can pay for them, regardless of the possibility that these same ships may be used against their own country. So that the proposition of Charles M. Schwab to build Russia a fleet of American materials, and the workmanship of American mechanics, more powerful than any now afloat may be regarded as a simple business proposition. And yet, his offer accepted would impel the expenditure of enormous sums by his own country against the possibility of having to reckon some day with the great fleet that American brains and American ingenuity had constructed for those soon to become her enemies. Such "business" as this should be forbidden by the laws of the country. Of what avail is it that America has the best workmen and the best marine engineers in the world if the very talents of which we boast are to be turned to the advantage of those who may be opposed to us on some great international question. Let other nations build their own fighting machinery as best they can, and then America will have nothing to fear.—Chicago Fuel.

Eleven Cleveland, Ohio, coal dealers have been indicted. The only assignable reason to an outsider would seem to be that none of these eleven sold coal any cheaper than other dealers. And of course the man who charges as much for his coal as other people has made a conspiracy against buyers. No doubt about it. Every coal dealer ought to sell coal cheaper than every other coal dealer, and thus prove that no conspiracy existed.

Mr. Charles M. Hays of the Grand Trunk was made a member of the Permanent Commission of the International Railway Congress.

It is the general conviction of experienced advertisers that to send out one or two catalogues a year, without a proper system to supplement them, results in a loss of more than 75 per cent. of the effectiveness of the money thus expended. The object of all advertising is to impress the advertiser's name firmly on the mind of the prospective customer. This can be most effectively accomplished by constant repetition; "continual dropping wears away the stone."

Advertising alone cannot sell goods nor keep a customer after he is once secured; the goods must be right and the price correct after the advertising has secured the buyer's attention. While this is true, it is also a fact that the best goods offered at the lowest price will not sell themselves. The question as to which is the best and most effective method of advertising is under constant discussion in every business house. It is an undisputed fact, however, that all shrewd advertisers recognize THE CANADIAN MANUFACTURER as one of the very best advertising mediums. We have seen catalogues

costing thousands of dollars which fail in a large degree to accomplish desired results because a proper and systematic effort was not made to keep the catalogue, and the house sending the catalogue, constantly in the mind of the firm receiving it. It isn't how loud you shout, but how many hear it. You might have a sign a thousand feet square on the north pole, but so far no one would have seen it.

Canadian trade returns for the ten months ending April 30 have been issued. They show the grand total of imports for consumption to have been \$209,551,315, while exports of domestic products were \$153,951,403. For the same period of the previous year imports of all kinds for consumption totalled \$199,272,504 and exports of domestic products \$163,559,408, giving an increase in imports of \$10,279,311 and a decrease in exports of \$9,608,005. The duty collected amounted to \$34,037,280, as against \$33,186,221 for the same period last year. Following are the totals of exports by classes for ten months.

Department.	1904.	1905.
Mine.....	\$27,392,072	\$24,622,986
Fisheries.....	8,646,376	8,882,788
Forest.....	25,791,206	24,802,682
Animals and their produce	55,027,400	53,092,323
Agriculture.....	30,859,328	25,709,620
Manufactures.....	15,766,682	16,811,351
Miscellaneous.....	76,344	29,653
Total.....	\$163,559,408	\$153,951,403

That a trade paper can be of great worth to the line of business it represents goes without comment and its worth can be measured in proportion to its use. By this is not meant the total issue printed and circulated altogether, but the total number of its interested readers. This information cannot be easily obtained, but it is a well known fact that a trade paper has vastly more readers than subscribers. There are several reasons for this. One reason is that a tradesman who thinks that he cannot afford to subscribe for one of his trade papers will borrow of his neighbors. He is like the man without a watch. He wants to know the time, and to learn it he must consult the watch of another man. Another method by which extra readers are gained is through the proprietors or managers of establishments. They realize the worth of a paper akin to their business, and will often pass their trade papers around among their employes. Some firms go further and will subscribe for a dozen or more of these papers and distribute them among their employes. They do this because they want keen, bright, well read men behind their line of business, and the trade reviews sharpen these virtues. The public libraries also realize their value and are among the great patronizers of the trade press issues, and supply their shelves liberally with them. There they are read and re-read by a large number of trade people. Many expert tradesmen who have risen from the ranks will admit that they owe their success, in a large measure, to the keen interest with which for years they have followed the progress and policy outlined by the leading papers of the trade of which they were a part.—Trade Press List.

**MEETING OF THE SHAREHOLDERS
OF THE
CANADIAN MANUFACTURER PUBLISHING CO., Limited.**

The Shareholders of the Canadian Manufacturer Publishing Co., Limited, are hereby notified that a General Meeting of the Company will be held on Monday, the 5th day of June, 1905, at the hour of 11 o'clock in the forenoon, at the Head Office of the Company, Room 408 McKinnon Building, corner Jordan and Melinda Streets, Toronto, for the purpose of receiving and considering a report from the Directors upon the affairs of the Company, to elect a Board of Directors for the ensuing year, and to consider, generally, such business of the Company as may be presented.

ARTA CASSIDY,
Secretary.

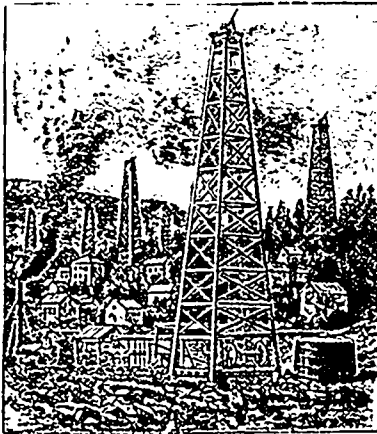
Dated at Toronto, this 5th day of May, A. D., 1905.

MACHINERY AND ENGINEERING.

OIL AND GAS WELL DRILLING.

The process of obtaining water, gas and oil, and of testing for minerals by sinking wells of small diameter has been practised for many hundred years. In Europe it was first employed in the province of Artois, in the north of France, whence the name "Artesian" is derived. Within the gardens of a former Dominican convent at Lillers, in Artois, there is a deep well which has flowed continuously since the year 1126, and unmistakable traces of much more ancient ones are found in various countries. Formerly it was a very difficult, tedious and expensive operation to drill a deep well, but now one can be sunk 2,000 feet at a moderate cost, and in a comparatively short time.

The modern method is an adaptation of steam power to the method practiced for ages in China. Free falling tools, suspended by a cable and worked by steam power, are used, the weight of the tools



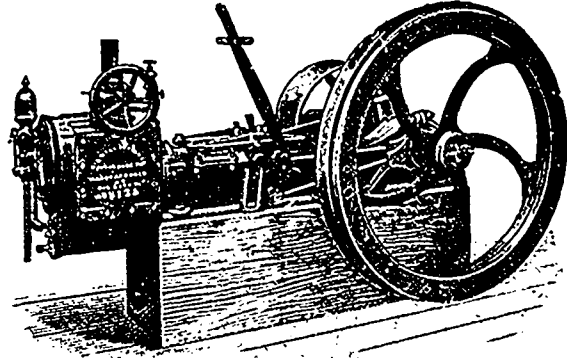
No. 1—SCENE IN OIL FIELD OF WESTERN ONTARIO.

being so great as to give blows of sufficient force to pierce the hardest rock. In the Oil Regions of the United States there have been sunk many more Artesian wells than in all other parts of the world together, and great industries have been created for manufacturing the apparatus and tools to sink wells to great depths. The first well drilled for the express purpose of obtaining oil was sunk near Titusville, in the State of Pennsylvania, by Col. E. L. Drake in 1859, since which time more than 150,000 wells have been drilled in Pennsylvania and adjoining States. There is no publication dealing with the subject or science of drilling deep wells. It is impracticable to place such work in the hands of other than experienced men. The so-called "oil country outfit" is a variable term. It is a safe assertion that two could not be found alike in all details. While the general characteristics vary but little, it is the detail which must be considered by the manufacturer, and which involves great change in selection and variation in price. It must be borne in mind that very little of this is due to fancy or other cause than that of necessity. Each outfit must be made up of parts all of which

harmonize and work well together and are adapted to the particular conditions under which the outfit is to be used. From this may easily be conceived the inability of naming prices on an "ordinary outfit."

They are all ordinary to the manufacturer, but one perfectly adapted to one

The drilling tools consist of all essentials for making the bore and cleaning out the detritus, also all special appliances for removing tools which may be broken or otherwise fastened in the bore; also cable and sand line, and tools for handling casing and pipe used in the construction of the well. This is the portion



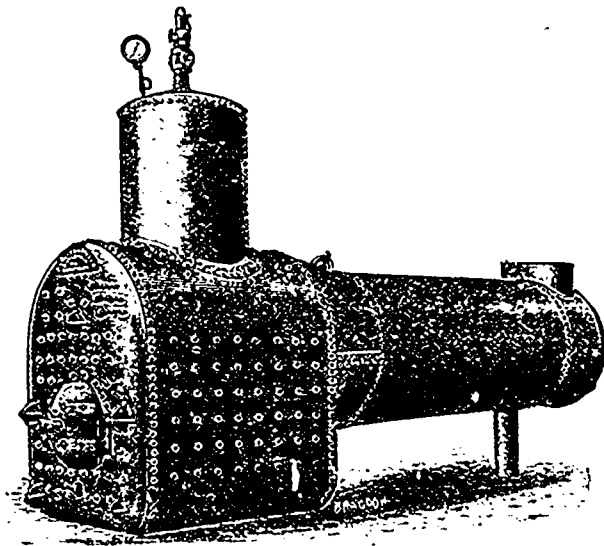
No. 2—FLY WHEEL SIDE OF NEW LINK DRILLING ENGINE.

section of country might be almost useless in another. In attempting to assume that any particular combination might meet the requirements of a prospective customer we would depart from the proper province of the manufacturer, except in such cases as will be referred to later on. A few general rules and observations may be given which will be of interest and value.

The drilling rig consists of the derrick, with its foundations of heavy timbers, and the wheels and reels on which are

of the outfit which must be selected with the greatest care, and with an eye to its efficiency in meeting the peculiar conditions for which it is intended.

Every well requires some casing or piping in its construction. In some wells a single column of casing to shut off the water is sufficient, in others several such are needed, each column being of a size to pass through the preceding column with the least possible lost space between the two. Frequently it is necessary to drive the columns of pipe instead of

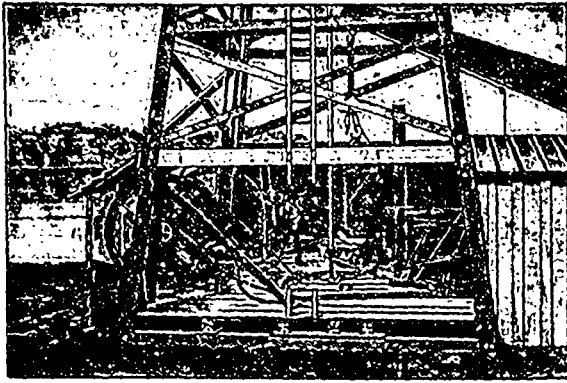


No. 3—OIL WELL COUNTRY BOILER.

carried the lines or cables to which are attached the drilling tools proper.

The machinery includes the boiler and engine. The former ranges from 15 to 40 h. p., the latter from 12 to 30 h. p. Both are specially adapted to the work, and the engine in particular is an essential. In fact, it is not practicable to use an ordinary engine for this purpose.

inserting them after the bore is prepared to receive them. In that case heavy pipe called drive pipe must be used. In drilling a well in a district where the geological formation is not well known it is much safer to use drive pipe. The ordinary sizes are 10, 8, 6 and 4½ inches inside diameter. No one can tell how much of each size might be



NO. 4—INTERIOR VIEW OF WELL DRILLING DERRICK.

required until the initial well is completed.

In the different districts of the oil regions the correct amounts can be quite accurately determined, as well as the sizes and kinds which can be most economically used. The foregoing observations apply to all operations conducted where the formations are composed largely of rock of varying degrees of hardness. The recent developments in Texas disclose a formation nearly devoid of rock, the formation from surface to oil-bearing stratum being a series of strata of clay and quicksand. To successfully cope with this unusual condition a quite different system is necessary, known as the hydraulic rotary outfit. This includes boiler and engine for power, heavy steam pump for the hydraulic pressure, special hoisting gear, rotary table for turning and lowering the pipe, and special appliances for connecting and operating the outfit. The rig used is a simple derrick, which can be built by any ordinary carpenter. The same rules pertaining to the regular outfit for casing and pipe will apply in the use of the rotary hydraulic.

The combination rig, as its name implies, embodies the principles of both the standard cable rig and the hydraulic rotary rig. This involves a higher cost and greater weight.

It has been shown that great power and strength are required in performing the ordinary functions of a drilling rig. This implies a corresponding weight, or the very antithesis of mobility. The obvious advantages of a rig which may be freely moved about are such that many attempts have been made to produce one of sufficient power to compete with the standard rig.

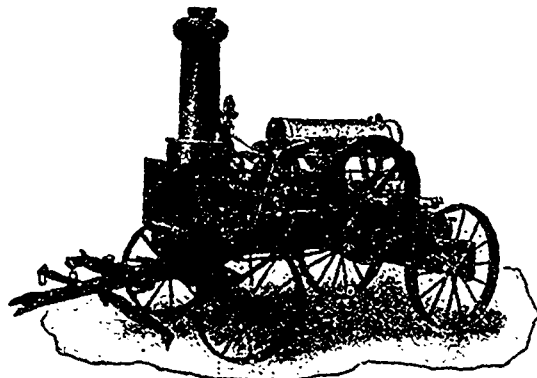
The Oil Well Supply Co., Pittsburg, Pa., have installed drilling plants in all habitable parts of the globe, and have kept careful records of the geological formations and physical conditions. Such records and data are of inestimable value when used in connection with the specific information which ordinarily can be given by the intending operator. This company has been supplying machinery and equipments to the Canadian oil and gas fields for the past 20 years.

They have furnished us with the material for this article and will supply further information to parties interested in this line of work.

THE McLACHLAN GASOLINE ENGINE CO.

The accompanying illustration is of a portable gasoline engine manufactured by the McLachlan Gasoline Engine Co. Limited, Toronto, manufacturers of stationary, portable, traction and marine gasoline engines, and stationary gas engines of from 2 to 40 h.p.

Some years ago this company began operations in a small building on Adelaide Street, Toronto, where its success was such as to require a removal to much larger premises in Bay Street, where the stay was comparatively brief, owing to rapid increase of business, when still larger accommodations were had in Queen Street East; and now the company are



McLACHLAN PORTABLE GASOLINE ENGINE.

erecting a new factory building on their own premises on the Lake Shore road near the Humber river near Toronto. This building is 125x40 feet, which will be fully equipped with all modern and up-to-date machinery and appliances and ready for occupancy on June 1.

The full energies of this company are now being exerted in the manufacture of gasoline threshing engines, which will find ample occupation in the grain fields of Manitoba and the great Canadian North-West this coming harvest season. Last February the company received orders through their Winnipeg agents, for gasoline threshing engines to the value of some \$55,000, and still the orders come. Without greatly enlarged premises it would be impossible for the company to fill these and other orders, hence the building of the new works here alluded to.

The gasoline engine, the company say, is rapidly displacing the steam engine for threshing and other farm purposes, and for a great many other purposes where a motor power is needed. Its safety and economy guarantees this result. Frequently barns are set on fire by sparks from a steam engine, but never from the use of gasoline engines.

Under date of March 22, 1905, in writing to this company's Western agents, Mr. Chas. B. Phillips, of Rattle Lake Ranch, Saskatchewan, N. W.T., refers to the McLachlan gasoline engine as follows:—"Possibly it may interest you to know the result of our last season's threshing. Apart from the economical feature, the convenience of being able to thresh at our own time as well as having so few hands about is to ourselves a great consideration. We were 60 hours threshing 4,460 bushels of oats and barley, averaging about 75 bushels per hour. The consumption and cost of gasoline was 45 gallons at 44 cents—\$19.80, or $\frac{1}{3}$ gallon per hour, costing 33 cents. The extra labor employed above that regularly on the ranch was two men for a fortnight. We were not threshing continually and we debited the account under this item with \$15.00, engine oil \$2.00, total \$36.80, or 82½ cents per 100 bushels. The previous year 1903, the steam threshing account for about the same quantity, including extra labor, amounted to \$169, or \$3.75 per hundred bushels, an excess over this season's cost with our own

machinery of \$2.93 per 100 bushels, wear, tear and renewals not taken into account."

To meet the growing needs of the farmers throughout the Dominion, this company are now building the most improved gasoline traction engines.

A number of Canadian business men, headed by D. W. Robb, president of the Robb-Mumford Boiler Co., and managing director of the Robb Engineering Co., Amherst, N.S., have acquired the boiler concern of Edward Kendall & Sons, of Cambridgeport, Mass., and are building a large plant at South Framingham, Mass. Hereafter the name of the business will be the Robb-Mumford Boiler Co. G. W. Robb, president; G. W. Cole, Amherst, N.S., secretary and treasurer; F. H. Keyes, Newtonville, general manager; J. W. Wilde, Brighton, superintendent.

IMPROVED IRON FRAME STONE PAINT AND COLOR MILLS.

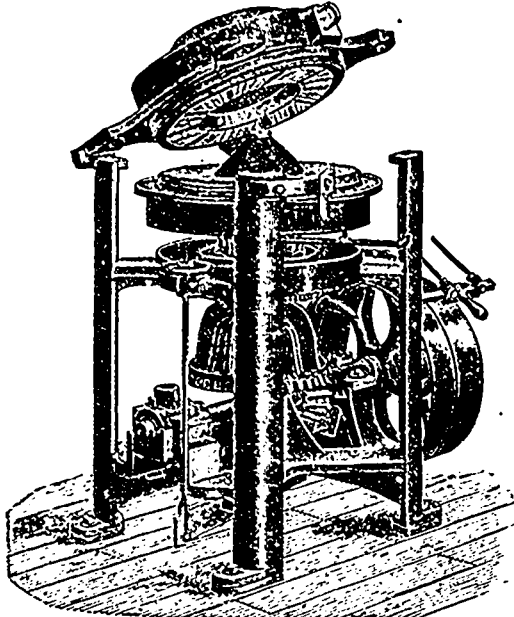
The machines here illustrated are intended for very fine grinding of colors in oil, varnish or japan, enamel or bicycle colors, coach colors, white lead, paste colors, liquid and drop black. They are

way. The stream of water entering the lower stone is in view all the time, thus enabling the operator to ensure its running and have it under perfect control.

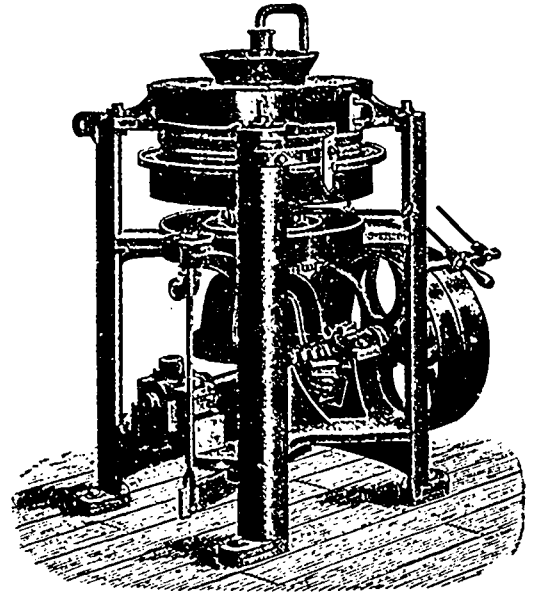
The feeder pot with automatic feed and improved paddle for mixing can be removed without taking out any bolts. It has a revolving sweep or stirrer, scraping

We are prepared to furnish either plain or water cooled stones, with flat or conical stones, and with or without the detachable automatic mixer and feeder.

All machines are set up and run before leaving the shop, and all stones are turned perfectly true and are also dressed for grinding the finest colors.



STYLE 1—PLAIN MILL, SHOWING TOP BEING LIFTED BACK FOR DRESSING.



STYLE 2—WATER COOLED MILL.

specially designed for grinding cool, no matter how close stones may be set for. Accessibility in all parts; ease of adjustment; durability and light running qualities; strong mechanical construction.

The frames are cast with journal bearings in one solid piece, rendering it impossible for any of the running parts to get out of alignment. The journal bearings are of the finest quality anti-friction metal and have ample reservoirs for lubrication.

The spindles are of best quality steel with hardened cock head and toe, supported at the bottom by two hardened steel buttons and a steel bush, all running in an ample reservoir of grease or oil, and at the top by adjustable brass followers.

The hinged top stone is a great convenience, as the top stone may be quickly laid back for cleaning and dressing without disturbing the adjustment of the stones.

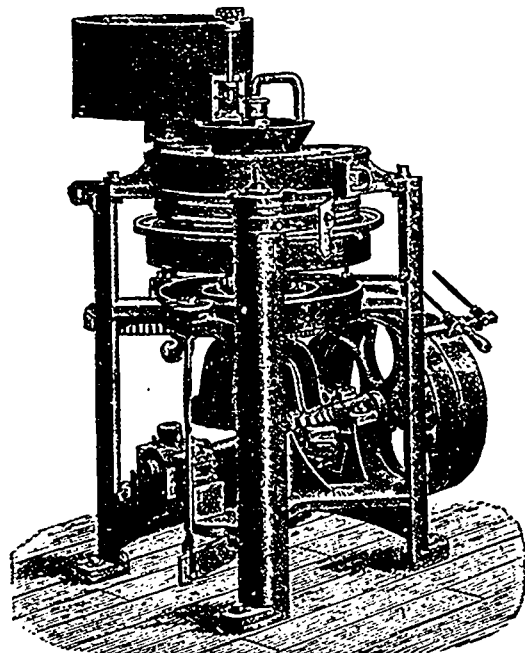
The runner stone is securely fastened in lower ring with flange. Both the ring and flange are turned, and the scraper, which is of steel, is nicely fitted to flange and is adjustable.

The water cooling attachment is so constructed that a constant stream of cold water circulates in, around and upon both the upper and the under stones, ensuring their being kept perfectly cool, yet the water never comes in contact with the material being ground, both stones being perfectly water tight; nor does it spill upon the floor, means being provided for every drop of water being retained in the channels provided for it. The upper or stationary stone is set in an iron casing and has water ways cored in it. The under or runner stone is also set in the same

the bottom and side of pot constantly, keeping the colors in constant agitation and preventing separation and precipitation, and keeping a uniform feed. Spur gears, running smooth and noiseless, are used for driving these feeders; the slide gate is accurately planed and carefully fitted.

All parts are made to standards and are duplicate. These mills are built in the following sizes: 16 in. stone, floor space 37 in. x 31 in.; 20 in. stone, floor space 45 in. x 38 in.; 26 in. stone, floor space 50 in. x 44 in.; 30 in. stone, floor space 57 in. x 45 in.

They are manufactured by Wm. & J. G.



STYLE 3—WATER COOLED MILL WITH AUTOMATIC FEEDER AND MIXER ATTACHED.

The machines are fitted with either Esopus or French burr stones. Esopus are generally furnished as they are less porous than burr and have fine grinding qualities.

Greer, Toronto, who also manufacture complete lines of flour, oatmeal, cereal, paint and ink grinding and mixing machinery, power transmission and elevating apparatus.

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 in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

Nearly all the brick manufacturers in Hamilton, Ont., have doubled their plants, and while there are only some 250,000 bricks on hand now, they say that the output for the year will amount to about 16,000,000 bricks, or some 5,000,000 more than were made there last year. They expect to be able not only to supply Hamilton, but also outside points.

Messrs. Bechtel Bros., Waterloo, Ont., have been appointed Canadian agents for the Scott Mfg. Co., St. Louis, Mo., manufacturers of the Andrus brick press.

The Ontario Wind Engine & Pump Co., Toronto, have just received a rush order for two Canadian airmotor outfits from Paris, France. In speaking of previous shipments the agent states as follows:—"Have just finished erection of the 12 foot airmotor sent me last fall. This outfit is a remarkable one. It is on the shore of the Mediterranean Sea, at Monte Carlo. It pumps water from a river and elevates it 180 feet to a distance of 1,275 feet. The result is magnificent and it is a complete success." The two present outfits go to Marseilles.

The New Ontario Transportation Co., Fort William, Ont., have been incorporated with a capital of \$40,000, to carry on a general contracting business, etc. The provisional directors include J. S. Smith, Port Arthur, Ont., E. H. Lane, and J. S. Steele, Fort William.

The Hamburg Felt Boot Co., Ltd., New Hamburg, Ont., have been incorporated with a capital of \$100,000, to acquire the business of the Hamburg Felt Boot Co., and to manufacture felt, leather, boots, shoes, clothing, etc. The provisional directors include Daniel Becker, W. H. Umbach, New Hamburg, and Emanuel Merner, Sebringville, Ont.

The Beaver Soap Co., Toronto, have been incorporated with a capital of \$50,000, to manufacture chemicals, soap, oils, etc. The provisional directors include R. E. Kemerer, W. D. Scott, and W. R. P. Parker, Toronto.

The St. Lawrence Engine Co., Brockville, Ont., have been incorporated with a capital of \$40,000, to manufacture motors, engines, tools, machinery, etc. The provisional directors include H. W. Going, R. H. Smart and W. H. Comstock, Brockville.

Messrs. Chandler, Ingram & Bell, Toronto, have been incorporated with a capital of \$75,000, to manufacture physicians' supplies, surgical instruments, etc. The provisional directors include W. J. Ingram, F. J. Bell and A. D. Watson, Toronto.

The W. A. Rose Co., Napanee, Ont., have been incorporated with a capital of \$20,000, to import Japanese and other oriental goods, etc. The provisional

directors include W. A. Rose, Alfred Kent and J. A. Fraser, Napanee.

Johnstons, Ltd., Toronto, have been incorporated with a capital of \$200,000, to manufacture talking machines, musical instruments, etc., and to acquire the business of Johnston & Co. The provisional directors include F. W. Johnston, A. H. Johnston and W. S. Jury, Toronto.

The Carriage Mountings Co., Ltd., Toronto, have been incorporated with a capital of \$40,000, to acquire the business of the Carriage Mountings Co., and to manufacture vehicle and saddlery mountings, hardware specialties, etc. The provisional directors include W. P. Kinzinger, Arthur Kinzinger and R. A. Kinzinger, Toronto.

The Knight Bros. Co., Ltd., Burk's Falls, Ont., have been incorporated with a capital of \$150,000, to acquire the business of Knight Bros. Co., and to manufacture lumber, furniture, etc. The provisional directors include Henry Knight, Walter Knight and C. W. Sharpe, Burk's Falls.

The James Langmuir Co., Toronto, have been incorporated with a capital of \$25,000, to manufacture paints, oils, varnishes, etc. The provisional directors include James Langmuir, Walter Read and S. E. Townsend, Toronto.

The Orien's Chemical Co., Carleton Place, Ont., have been incorporated with a capital of \$100,000, to manufacture drugs, medicines, etc. The provisional directors include G. S. Howard, Carleton Place, Wm. Bullock, R. J. Goudy and Fairlie Sinclair, Toronto.

The Trenton & Atlantic Storages, Ltd., Toronto, have been incorporated with a capital of \$40,000, to construct vessels, barges, boats, etc., and to acquire the business of the Apple & Produce Cold Storage & Forwarding Co., Trenton, Ont. The provisional directors include Eben James, Toronto, Henry Pedwell, Thornbury, Ont., and Harry Dempsey, Trenton.

The Ontario Compressed Air Dustless House Cleaning Co., Toronto, have changed their name to The Dustless Method Co.

The Metal Shingle & Siding Co., Preston, Ont., have increased their capital from \$50,000, to \$200,000.

The T. Eaton Co., Toronto, will increase their capital from \$500,000, to \$1,000,000.

The Stratford Elastic Webbing Co., Stratford, Ont., have been incorporated with a capital of \$10,000, to manufacture elastic webbing, shoe laces, etc. The provisional directors include Fletcher Johnston, J. D. Monteith and F. B. Deacon, Stratford.

The town council of Renfrew, Ont.,

have decided to install a duplicate filtering plant.

The Fort William Dredging & Harbour Improvement Co., Limited, Fort William, Ont., have been incorporated with a capital of \$150,000, to erect dry docks, do a general dredging business, etc. The provisional directors include E. R. Wayland, L. L. Peltier and T. E. Dean, Fort William.

The R. J. Devlin Co., Limited, Ottawa, have been incorporated with a capital of \$100,000, to carry on a business of furriers, hatters, clothiers, etc. The provisional directors include R. J. Devlin, Samuel Lawson and W. F. Mills, Ottawa.

The Selkirk Gas & Oil Co., Limited, Selkirk, Ont., have been incorporated with a capital of \$10,000, to produce natural gas for light, heat and power purposes. The provisional directors include R. J. Winyard, J. W. Holmes and W. H. Smelser, Selkirk.

The Cain Brick Co., Limited, Ottawa, have been incorporated with a capital of \$15,000, to manufacture bricks, etc. The provisional directors include J. P. Cain, Ottawa, and W. E. Cain, Quebec City.

The A. A. Langford Co., Limited, London, Ont., have been incorporated with a capital of \$40,000, to manufacture books, stationery, etc., and to carry on the business of lithographers, embossers, etc. The provisional directors include A. A. Langford, A. G. Langford, London, and H. J. Stephenson, Toronto.

The Standard Inspection Bureau, Limited, Toronto, have been incorporated with a capital of \$40,000, to carry on a business of civil, mechanical and electrical engineers. The provisional directors include John Galt, A. L. Reading and T. C. Irving, Jr., Toronto.

The Duplex Hauger Co., Limited, manufacturers of joist hangers, hardware, building materials, etc., have received a license to carry on business in Canada. J. H. McGregor, Toronto, has been appointed attorney.

The Aberdeen Elevator Co., Limited, Hamilton, Ont., have been incorporated with a capital of \$50,000, to carry on a business of warehousemen. The provisional directors include Anderson Fowler, New York City, E. R. Bacon, Chicago, Ill., and John Jackson, Hamilton.

The Calumet & Algoma Mining Co., Limited, Sault Ste. Marie, Ont., have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include Joseph Hermann, H. E. Lean and Frederick Rohen, Calumet, Mich.

The Maple Leaf Milling Co. will at once commence the erection of their mills and elevator at Rat Portage, Ont.

The Hamilton Silicate Brick Co., Hamilton, Ont., have awarded the contract for their crushing plant to the Climax Road Machine Co., at Hamilton.

The Breitung Iron Co., Limited, a company incorporated in the United States, have been granted a charter to carry on business in Canada. Uriah

McFadden, Sault Ste. Marie, Ont., has been appointed attorney.

The John Kay & Son Co., Limited, Toronto, have increased their capital stock from \$300,000 to \$500,000.

The Guelph Windmill & Mfg. Co., Limited, Guelph, Ont., have been incorporated with a capital of \$50,000, to manufacture windmills and farm implements. The provisional directors include G. A. Black and F. X. Frank, Guelph, and F. C. Cockerton, Plattsville, Ont.

The Canadian Fire Protection Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture fire extinguishing apparatus, etc. The provisional directors include H. F. White, A. D. Crooks and G. N. Marsh.

Messrs. Simmons Bros., Wassey, Ont., who are installing new machinery in their lumber mill, are considering the installation of an electric light plant to light the mill and town.

The Burgessville Telephone Co. of Ontario, Limited, Burgessville, Ont., have been incorporated with a capital stock of \$40,000, to carry on the business of a telephone company. The provisional directors include H. E. Service and Henry Sneath, Burgessville.

The Fidelity Oil & Gas Co., Limited, Leamington, Ont., have been incorporated with a capital of \$100,000, to carry on a mining, milling and reduction business. The provisional directors include J. N. Rosendale, Buffalo, N.Y., W. J. Coffey, Bradford, Pa., and A. S. Holmes, Leamington.

The Thornbury Planing Mill Co., Limited, Thornbury, Ont., have been incorporated with a capital of \$20,000, to manufacture lumber, etc. The provisional directors include J. H. McLean and A. C. Beattie, Thornbury, and T. B. White, Collingwood, Ont.

City Engineer Rust reports that the cost of a civic electric plant for Toronto would be \$638,000, made up as follows: buildings, \$75,000; generating plant, \$168,740; overhead circuits, \$86,450; underground circuits, \$224,590; with 15 per cent. added for engineering and contingencies. The annual cost of operation per lamp is estimated at \$30.30.

The United States Steel Corporation will erect a \$10,000,000 steel plant in Canada. A site of five hundred acres on the river bank has been provided by Sarnia, Ont., and it is possible the company will locate at that place.

The Bertram Engine Works Co., Toronto, are putting a new engine and boilers in the steamer City of Montreal, which has been purchased by the Merchants' Line.

An Order-in-Council has been passed changing the name of Rat Portage to Kenora, which is a combination of the names of the three towns—Keewatin, Norman and Rat Portage—which are expected soon to amalgamate.

The Toronto School Board will expend \$164,300 on improvements and enlargements on some of the school buildings in the city.

J. W. Gray, Toronto, is preparing plans for the new church building of the Knox congregation. The edifice will be constructed of stone, with a seating capacity of 1,500.

The Bertram Engine Works Co., Toronto, are constructing a new tug for a syndicate composed of Port Arthur and Fort William, Ont., men.

The ratepayers of Fort William, Ont., have voted favorably on a by-law granting a bonus of \$300,000 to the Grand Trunk Pacific Railway Co. for the purchase of the mission property.

The National Club, Toronto, will erect new premises on Bay Street, at a cost of about \$75,000.

It is reported that the Dominion Bank, Toronto, paid \$130,000 for the Canada Woolen Mills properties.

A company has been formed to manufacture the Tree rotary engine, with head office at Brantford, Ont., having a capital stock of \$600,000.

The large summer hotel at Burleigh Falls, Ont., conducted by Thomas D'Arcy, was destroyed by fire May 7. Loss about \$9,000.

The premises of the Canadian Feather & Mattress Co., Toronto, were destroyed by fire May 9. Loss about \$14,000.

The Metabina Hotel, Haileybury, Ont., was destroyed by fire recently.

The Massey-Harris Co., Toronto, have been granted a permit for a new factory, to be four stories and a basement, and to be 404 x 123 feet, to cost about \$125,000.

The Galt Knitting Co., Galt, Ont., are erecting a four story factory, 135 x 120 feet, which will be put into operation in the fall.

Clare Bros. & Co., Preston, Ont., are installing the equipment in the plant of the Berlin Electric Co., Berlin, Ont.

The William Hamilton Mfg. Co., Peterboro, Ont., have secured the contract for equipping the new dredge Emerson, to be used on construction work on the Trent Canal.

The Northern Varnish Co. is to establish a varnish factory at Owen Sound, Ont. Contracts for the building have been let.

The Smith Stacker & Feeder Co., Hamilton, Ont., have been incorporated with a capital of \$40,000, to manufacture agricultural implements and carry on a general foundry business.

The Toronto Gasoline Engine Co., Toronto, will erect a factory at a cost of about \$15,000.

The Pease Furnace Co., Toronto, have applied for a permit to build a foundry to cost about \$25,000.

The store and post-office of J. E. Woods, Hartington, Ont., was destroyed by fire recently. Loss about \$3,000.

The Canada Glue Co., Guelph, Ont., will erect their plant in that city.

The Bell Telephone Co., Brantford, Ont., will erect a new building in that city to cost about \$40,000.

The Guelph Spring & Axle Co., Guelph, Ont., have increased their capital to \$100,000.

The Fairbanks & Morse Co., Chicago, Ill., manufacturers of gas engines, pumps, etc., will erect a large factory in Toronto.

The Canadian Fairbanks Co., scale manufacturers, Montreal, will establish a factory in Toronto.

An international railway tunnel will be constructed under the Detroit river, between Detroit, Mich., and Windsor, Ont., at a cost of about \$20,000,000.

The sewer and drainage system of the town of Galt, Ont., will cost about \$218,542.

Ottawa is to have a new hotel to cost about \$1,000,000. J. K. Paisley and A. F. McLaren, Ottawa, are among those interested.

A. E. Millington, Sault Ste. Marie, Ont., has erected a plant for the manufacture of tarred building paper. The mill has a capacity of twenty tons daily.

For ten months, ending April 30, the sum of \$941,007 was paid out in bounties on iron and steel; on lead, \$407,165; on crude petroleum, \$243,148, and on binder twine, \$9,167. For the same period of 1904 the iron and steel bounties amounted to \$679,322, so that the payments for the present year show an increase of \$271,685.

The Board of Control, Toronto, have awarded the Canada Foundry Co. the contract for three water-tube boilers for the high level pumping station, the price to be \$13,690.

The Peterborough Lock Co., Peterborough, Ont., have purchased a site for the erection of their factory, which will cost about \$30,000.

The Dominion government steamer Aberdeen, lighthouse supply boat in the Gulf of St. Lawrence, is being equipped with new boilers at the Polson Iron Works, Toronto.

The Canadian Pacific Railway Co. will rebuild its elevator, "B," at Fort William, Ont., which was destroyed by fire. It will have a capacity of handling 750,000 bushels in twenty hours.

The Industrial Securities Co., Hamilton, Ont., have been incorporated with a capital of \$400,000, to assist in the promotion and development of industrial, manufacturing or mercantile companies. The provisional directors include W. D. Long, C. T. Grantham and P. D. Crerar, Hamilton.

The Union Drawn Steel Co., Beaver Falls, Pa., will erect a large factory in Hamilton, Ont., to be ready by July 1.

Major Woolridge's saw and planing mill was destroyed by fire, May 13. Loss about \$10,000.

The McKie Buggy Co., Plattsville, Ont., will erect a factory in Hamilton, Ont., to cost about \$10,000.

The Canada Foundry Co., Toronto, will erect a foundry for the manufacture of cast iron gas and water pipe.

The American Radiator Co., Chicago, Ill., have purchased the plant of the Cockshutt Plow Co., Brantford, Ont.,

which they will enlarge and use for the manufacture of hot water radiators and boilers.

The Abner Doble Co., of San Francisco, announce that arrangements have been made with the John McDougall Caledonian Iron Works Co., Montreal, whereby the latter become sole licensees for the manufacture of the Doble system of water wheels in the Dominion of Canada. The tangential water wheels and needle regulating nozzles manufactured by the Abner Doble Co., are well known for their excellence of design and workmanship, and considerable engineering interest has recently been shown in relation to the four 8,000 h.p. wheels which that company have built for operation in California power plants. The McDougall Co. have an extensive machine works, their plant including machine shops, pattern shop, foundry, forging works and structural material shop. Their plant is therefore well equipped for the manufacture of water wheels and other hydraulic machinery. They already have in hand the building of a 100 h.p. wheel to operate under 170 feet head taking water through a 3½ inch jet, and having a speed of 130 revolutions per minute. They are prepared to furnish the steel pipe, structural work and all machinery necessary for complete power plant, and the Doble Co requests that all engineers or parties interested in water power developments in Canada, address the McDougall Co. direct. They have retained the Abner Doble Co., as their consulting engineers.

The city council, Hull, Que., are considering the extension of the intake pipe about 500 feet, which will cost about \$8,000. They will probably purchase a water filter for the pumping station at a cost of \$8,000.

Messrs. J. Rattray & Co., Ltd., Montreal, have been incorporated with a capital of \$100,000, to manufacture cigars, tobacco, etc., and to acquire the business of J. Rattray & Co. The provisional directors include Thos. Badenach, Westmount, Que., C. N. Marshall and J. M. W. Seers, Montreal.

The Walter M. Lowney Co. of Canada, Montreal, have been incorporated with a capital of \$250,000, to manufacture cocoa, chocolate, etc. The provisional directors include G. W. Macdougall, W. J. Henderson and Albert Swindlehurst, Montreal.

The Colonial Construction Co., Ltd., Montreal, have been incorporated with a capital of \$2,000,000, to carry on the business of a general construction company and contractor. The provisional directors include F. S. MacLennan, Westmount, Que., F. Robertson and J. C. Macdiarmid, Montreal.

The Franco-American Automobile Co., Montreal, have been incorporated with a capital of \$20,000, to manufacture motor vehicles, etc. The charter members are T. Craig, H. B. Rainville and G. Husson, Montreal.

The Explosives Co. of Canada, Ltd., Montreal, have been incorporated with a capital of \$500,000, to manufacture

explosives, powder, and ammunition of all kinds. The provisional directors include E. B. Pritchard, W. J. Lewis, Montreal, and J. M. Lynch, Lachine, Que.

The General Specialty Co., Ltd., Montreal, have been incorporated with a capital of \$20,000, to carry on the business of manufacturers' agents. The provisional directors include J. N. Warrington, J. S. Smith, Montreal, J. M. Reid, Outremont, Que.

The Trenton Potteries Co., are operating a plant at St. John's, Que., for the manufacture of sanitary pottery.

The Desjardins Co., will rebuild their factory and shops recently destroyed by fire at St. Andre, Que.

The carriage factory of F. Brosseau, Montreal, was destroyed by fire May 17. Loss about \$25,000.

The Sisters of the Notre Dame congregation, Montreal, have filed plans for a convent, to be 578x50 feet, five stories high, and will cost about \$1,500,000.

A patrol boat for service in Hudson Bay will be built in the Dominion yard at Sorel, Que. The vessel is intended to enable the Mounted Police to cover the shores of the bay. The boat will be 120 feet long, twin screw, and have a speed of twelve knots.

The Dominion Exhibition of 1906 will be held in Halifax, N.S., for which the Federal Government will grant \$50,000.

The Cape Breton Coal, Iron & Railway Co., have awarded contracts aggregating \$30,000, for the erection of buildings at their collieries at Broughton, N.S. The buildings include a hotel, private residence and general offices. The company will spend \$250,000 this summer.

The Standard Coal & Railway Co., have struck a seam of coal near Half Way river, at a depth of 2,360 feet. When work stopped, the drill had penetrated eighty feet two inches and had not got up through the seam. The coal brought by the drill is of excellent quality. The place where the strike was made is about twenty miles from Parrsboro, N.S.

George Shand's lobster factory at Abbott's Harbor, N.S., was destroyed by fire May 6. Loss about \$5,000.

The Intercolonial Railway Co.'s station at McIntyre's Lake, N.S., was destroyed by fire recently. Loss about \$2,000.

A. S. Fillmore will remove his carriage factory from Southampton to Ashurst, N.S., where he will erect a large building.

The O. F. Stacy Co., Bathurst, N.B. have been incorporated with a capital of \$50,000, to manufacture lumber, shingles, railway ties, etc. The provisional directors include O. F. Stacy, Geo. Gilbert and W. G. White, Bathurst.

The city of St. John, N.B., will build a new wharf for winter business at an expenditure of \$300,000.

The Intercolonial Railway Co., will invite tenders for two new structures to be erected in Moncton, N.B. The new workshops will be 648x150 feet in size, and will contain a boiler shop, erecting shop and brass moulding shop. The

erecting shop will contain twenty-four pits and will be equipped with up-to-date machinery, including a 130-ton electric crane, capable of lifting a locomotive complete. The building for stores and offices will be three stories.

The Provincial Telephone Co., Ltd., Fredericton, N.B., have been incorporated with a capital of \$9,000, to carry on the business of a telephone company. The provisional directors include D. Fraser, Fredericton, J. Burgess, Grand Falls, N.B., and A. Straton, Andover, N.B.

John E. Wilson, Ltd., St. John, N.B., have been incorporated with a capital of \$40,000, to acquire the business of the St. John Foundry Co., Ltd. The provisional directors include J. E. Wilson, C. Cobham, and E. McLaughlin, St. John.

The grist mills of J. E. Porter, Andover, N.B., were destroyed by fire May 8. Loss about \$10,000.

The Dow-Wadge Implement Co., Winnipeg, Man., have been incorporated with a capital of \$100,000, to manufacture machinery, farm implements, engines, etc. The provisional directors include Daniel Dow, Grand Forks, B. C. Thos. Wadge and F. B. Blanchard, Winnipeg.

The Haverhill Eclipse Fire Extinguisher Co., Winnipeg, Man., have been incorporated with a capital of \$5,000, to acquire the business of the Winnipeg Commission Co., and carry on a general warehousing business, etc. The provisional directors include J. A. Miller, C. M. Abbott and H. F. Blake, Winnipeg.

The Kaleida Farmers' Elevator Co., Kaleida, Man., have been incorporated with a capital of \$5,000, to erect grain elevators, chopping mills, etc. The provisional directors include Wm. Maloney, Robert Seward and John Hodgson, Kaleida.

The Pease-Waldon Co., Winnipeg, Man., have been incorporated with a capital of \$15,000, to manufacture iron, metal goods, machinery, etc. The provisional directors include J. T. Sheridan, W. G. Jones and L. Ross, Winnipeg.

The Melita Lumber & Mfg. Co., Melita, Man., have been incorporated with a capital of \$50,000, to manufacture lumber, brick, cement, etc. The provisional directors include J. G. Cheyne, W. W. Moorly and Alonzo Badgley, Melita.

The Alsip Brick, Tile & Lumber Co., Winnipeg, Man., have been appointed the representatives in Manitoba, and the Northwest Territories, for the Twin City Pressed Brick Co.

The Keewatin Flour Mills Co. have had plans prepared by the Allis-Chalmers Co., for a mill with a daily capacity of 5,000 barrels, with elevator adjoining.

The Emerson-Roseau Power Co., have been organized at Emerson, Man., with A. H. Logan as secretary, capital \$200,000. It is proposed to develop electric power.

The ratepayers of Dauphin, Man., have voted in favor of raising \$25,000, to

install an electric light plant and \$10,000 to complete the fire and town hall.

At Portage la Prairie, the contractors for waterworks construction, pipe laying and excavating, are Heinault & Hefferman, Montreal, \$94,525; standpipe, Manitoba Iron Works, Winnipeg, \$8,665; water tower foundation, William Carr and Joseph Woodnor, \$2,400. The tenders for machinery and boilers have been submitted to the chief engineer, Willis Chipman, of Toronto, for a report.

The Western Electric Light & Power Co. will develop extensive water power on the Assiniboine at Brandon, Man.

The city engineer, Brandon, Man., is preparing plans for a municipal lighting plant.

D. Clark, Powassan, Ont., will establish a brick plant in Winnipeg.

The Dominion Pressed Brick Co., Ltd., have received letters patent of incorporation. The capital stock is fixed at \$60,000. The objects of the company are carrying on a wholesale and retail iron, stone, brick, mortar, cement and lumber business, and to carry on the business of general dealers in all kinds of contractors' and builders' supplies. The incorporators include R. P. Roblin, J. H. Agnew, Geo. Leary, W. L. Roblin, Winnipeg, Man., and G. H. Clark, Carman, Man. The principal operations of the company are to be carried on at Leary, Boyne Valley, Man.

The packing plant of the J. Y. Griffin Co., Ltd., Winnipeg, will be 600x300 feet three stories, brick, and cost upwards of \$100,000.

The Northern Elevator Co. will erect a new flour mill in Winnipeg, Man., capacity 3,000 barrels per day, cost \$250,000.

The Winnipeg, Man., city council have cided upon the erection of a new civic building, to include public hall, civic offices and police station. Plans for the same have been prepared by Hooper & Walker; estimated cost, \$200,000.

H. B. Rugh, architect, Winnipeg, Man., has prepared plans for a cement apartment block, to cost about \$45,000.

The Winnipeg Street Railway Co. will erect a power house in that city at a cost of about \$100,000.

The Manitoba Peat Co., Winnipeg, Man., will probably erect a peat plant with a capacity of 50 tons daily.

The James Stuart Electric Co., Ltd., Winnipeg, Man., have been incorporated with a capital of \$100,000, to carry on a business of mechanical engineers and manufacturers, etc. The provisional directors include James Stuart, A. M. Stuart, and J. T. Haig, Winnipeg.

The Selkirk Electric Light & Power Co., Selkirk, Man., have been incorporated with a capital of \$50,000, to manufacture electricity for light, heat and power purpose. The provisional directors include James Stuart, R. M. Stuart, and J. T. Haig, Winnipeg, Man., John Stalker, Selkirk.

The Turtle Mountain Milling Co., Poysevain, Man., have been incorporated with a capital of \$100,000, to carry on a general milling and warehousing busi-

ness. The provisional directors include R. G. Willis, J. J. Millidge, and A. R. Welch, Boissevain.

The town of Lacombe, N.W.T., is considering the following estimates: Waterworks system, \$30,945; sewerage system, \$30,856; pump house, pumps, boilers, stand pipe, mains, hydrants and valves, \$32,924; septic tank and sewer, \$8,441.

It is stated a cement plant will be established at Kananaskis Falls, N.W.T. by Sir Sanford Fleming.

The West Canadian Collieries Co. are installing additional plant and machinery at the Lille Colliery, near Frank, N.W.T. The tipple will be equipped with automatic dumps, slacking screens, picking tables, etc.

The Henderson Roller Bearing Co., Toronto, will erect a \$25,000 building at Portage la Prairie, Man., and install a plant at a cost of \$50,000.

M. J. Lyon's pickle factory, Winnipeg, Man., was destroyed by fire a few days ago. Loss about \$9,000.

The ratepayers of Winnipeg, Man., have voted favorably on a by-law to issue \$250,000 of School Board debentures for the erection of new schools.

The Winnipeg, Man., Street Railway Co., will erect a power house to cost about \$100,000.

The Canadian Pacific Railway Co. will erect a new depot at Medicine Hat, N.W.T., at a cost of about \$20,000.

The Canadian Rand Drill Co. and Jenckes Machine Co., both of Sherbrooke, Que., have opened an office in Vancouver, B.C., in charge of Charles Saugster.

It is stated that the Vancouver Portland Cement Co., Sidney, B.C., have received a contract to supply the city of Vancouver with cement, to be used in putting down new sidewalks.

The St. Eugene Consolidated Mining Co., at Moyie, B.C., have ordered from the Jenckes Machine Co., Sherbrooke, Que., a 30-drill air compressor. The new engine will have a capacity of about 3,000 cubic feet of free air per minute. A 60x60 foot building, to house this machine, is being erected. More steam boilers, of a total capacity of about 500 h.p., have also been ordered; when these shall have been installed the total boiler capacity will be 330 h.p.

The Western Fuel Co., Nanaimo, B.C., have placed an order with the Canadian Rand Drill Co., Sherbrooke, Que., for an 18x12 Jenckes double-cylinder, single-drum hoisting engine and a 30-drill air compressor.

Engineer Kilmer has recommended that Vancouver purchase a cement mixer. Armstrong and Morrison, of that city, are also purchasing an outfit.

The First Presbyterian Church, Vancouver, B.C., was damaged by fire May 5 to the extent of about \$6,000.

The Canadian Pacific Railway Co., will build forty-five miles of track this summer from Spence's Bridge to Nicola Lake, B.C.

W. Munday, Philadelphia, Pa., has erected a sawmill at Munday, B.C., with a capacity of 75,000 feet per day.

The Northern Canning Co., have been incorporated at Victoria, B.C., with a capital of \$25,000, to carry on a general fish canning and packing business.

The Vancouver-Skeena River Navigation Co., have been incorporated at Victoria, B.C., with a capital of \$100,000, to build vessels, steamships, etc.

The Geo. Hunter Hardware Co., Vancouver, B.C., have been incorporated with a capital of \$50,000, to acquire the business of Messrs. Fife & Hunter, and manufacture hardware, glass, granite and tinware.

The McLean Feed Water Heater Co., have been incorporated at Victoria, B.C., with a capital of \$35,000, to manufacture feed water heaters, purifiers, etc.

The British Columbia Tie & Lumber Co., have been incorporated at Victoria, B.C., with a capital of \$250,000, to manufacture lumber, ties, etc.

The Koksilah Mining Co., have been incorporated at Victoria, B.C., with a capital of \$50,000, to carry on a mining and refining business.

The Arrowhead Water Supply Co., Arrowhead, B.C., have been incorporated with a capital of \$10,000, to construct and operate a water-works system at Arrowhead.

ELECTRICITY.

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

An electric lighting plant will probably be installed at Yorkton, N.W.T.

The London, Chatham & Western Railway, Chatham, Ont., are applying for incorporation with a capital of \$2,000,000, to construct an electric line from London, Ont., to Windsor, Ont. The provisional directors include J. N. Lewis, Detroit, Mich., Hugh McSween and A. T. Boles, Leamington, Ont.

The electric arc-light as now so commonly used is produced by the passage of a powerful electric current between the slightly separated ends of a pair of carbon rods, or "carbons," about twelve inches long and from three-eighths to one-half inch in diameter, placed vertically end to end in the lamp. The lamp mechanism is so constructed that when no current is passing, the upper carbon, which is always made the positive one, rests upon the lower by the action of gravity; but as soon as the electric current is established the carbons are automatically separated about an eighth of an inch, thus forming a gap of high resistance in the electric circuit, across which the current is forced, resulting in the production of intense heat. The ends of the carbons are quickly heated to brilliant incandescence, and by the burning action of the air are maintained in the form of blunt points. As the carbons burn away, the lamp mechanism feeds the upper one downward just fast enough to maintain the proper separation. The carbons are not heated equally, the upper or positive one being much the hotter. A small cup-shaped cavity, or "crater," ordinarily less than an eighth

of an inch in diameter, is formed in its end, the glowing concave surface of which emits the greater part of the total light. In lights of the usual size, something like half a horse power of energy is concentrated in this little crater, and its temperature is limited only by the vaporization of the carbon. Carbon being the most refractory substance known, the temperature of the crater is the highest yet produced artificially, and ranks next to that of the sun. It is fortunate that nature has provided us with such a substance as carbon, combining, as it does, the highest resistance to heat with the necessary electrical conductivity. Without carbon, or an equivalent—and none is known—we could have no arc light.

CANADIAN ELECTRICAL ASSOCIATION.

The arrangements for the Annual Convention in Montreal, June 21, 22 and 23 next, are rapidly approaching completion. Following are some of the papers already arranged for:

"Transformers," by Mr. R. T. MacKeen, Canadian General Electric Co., Toronto.

"Operation of Transformers at Varying Frequencies and Voltages," by Mr. Sammett, Montreal Light, Heat & Power Co.

"Induction Motors," by Mr. Burson, Allis-Chalmers-Bullock Co., Montreal.

"Economy of Isolated Plants," by Mr. T. L. Aitken, Consulting Electrical Engineer, Toronto.

"Carrying Capacity of Enclosed Conductors," by Prof. R. B. Owens, McGill University

Some additional papers are also promised.

The Question Box under the able direction of Mr. A. A. Dion, of Ottawa, will of itself be a feature of great value.

Among the other features arranged for are a luncheon at the Allis-Chalmers-Bullock Co.'s Works, a smoking concert and visits to the various sub-stations of the Montreal Light, Heat & Power Co.

A trip to Shawinigan is also under consideration.

The Laboratories of McGill University will be open to inspection by the delegates during the convention.

The Committee under whose direction the local arrangements are being made is composed of the following gentlemen; Messrs. H. D. Bayne, Canadian Westinghouse Co., (chairman); R. E. T. Pringle; Pr. R. B. Owen; H. J. Fuller, (The Fairbanks Co.); C. F. Sise, Asst. Superintendent Bell Telephone Co.; Edgar McDougall, (Caledonian Iron Works); Ed. F. Sise, manager Wire & Cable Co.; R. S. Kelsch, Consulting Engineer; Wallace C. Johnson, (Shawinigan Water & Power Co.); W. F. Dean, (Canadian General Electric Co.); Alfred Collyer, (Allis-Chalmers-Bullock Co.)

This meeting in Montreal promises to be a record breaker, and it will be to the interest of every progressive electrical man in Canada to be there.

It is stated that Mr. H. F. Shaffer, of New York City, will erect a plant at Niagara Falls, Ont., for the manufacture

of acetylene gas burners, under patents held by him.

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.

Guernsey Camp, coal dealer, Buffalo, N.Y., now occupies commodious offices at 317 Fidelity Building, that city.

As the robin and other song-birds appear with the exodus of winter and coming of spring so are the coal salesmen to be met with in Canada about this season of the year. Like the song birds they return to the same old haunts after a short absence, remembering well where the choicest morsels are to be found. Like the birds of migration they are not to be met with when the snow is deep and drifting, the temperature low and piercing and the railroads blocked and congested—for then people really want to purchase coal. They are perhaps not so numerous, but are none the less appreciated, as they are just as bright and chipper, just as vivacious and just as sure an indication that the troubles of winter are over. Unlike the feathered tribe they are not as likely to be met with in the open, where the air is chilly and raw, the ground cold and soggy, but are more often to be met with in the corridors and rotundas of the warm, comfortable hotels advancing reasons why prices should be advanced over last year.

The Nova Scotia Steel & Coal Co.'s regular fleet for the season consists of eleven steamers including the two owned by the company. Eight of the steamers will be employed as coal carriers, and three in the ore trade. The capacity of the coal carriers is from 2,000 to 4,500. One of the ore steamers is very large, with a carrying capacity of 7,400 tons. The smallest of them carries 4,000. The company will pick up a tramp now and again, indeed it has already done so. This company has everything in splendid condition for rapid handling of its products, and this should be one of the best years in its history.

A company of London, England, capitalists have bought out the Northwest Coal & Coke Co., Alberta, N.W.T. The new company acquires thirty square miles of coal lands in Alberta. A railroad will be built from the mines to a junction with the Canadian Pacific Railway, and development pushed till the output amounts to at least 2,000 tons of coal per day.

All of the Saxman coal interests in the Latrobe, Pa., district have consolidated under the name of the Latrobe-Connellsville Coal & Coke Co. The following companies are included in the consolidation: Saxman Coal & Coke Co., Superior Coal & Coke Co., Latrobe-Connellsville Coal & Coke Co., Ligouier Coal & Coke Co., and the Dairy Coal & Coke Co. The new company will control about 3,000 acres of coal and 570 coke ovens.

OPPORTUNITIES.

Manufacturers and others in need of machinery, supplies, etc., of any kind are requested to consult our advertising columns, and if they cannot find just what they want, if they will send us particulars we will make their wants known free of cost, and in this way secure the attention of those who may be able to supply them. No charge for publishing what is wanted nor for giving information. When writing to enquirers kindly mention The Canadian Manufacturer.

The Green Island Cement Co., Hong Kong, Japan, will build a new plant to increase their output of cement, which at present is 34,000 barrels per month. The new factory will be equipped with rotary plants, two of which, with a capacity of 16,000 barrels per month have already been ordered from England. The factory, which is to cost, including equipment, in the neighborhood of \$400,000, will be large enough to accommodate two more rotary plants if required. The Green Island cement is sold largely to the Philippines and was the cement used in the construction of the Admiralty Dock at Hong Kong last year.

A large machinery house in Rostov-on-Don, Russia, asks to be placed in communication with manufacturers of flour milling machinery, as there have been several inquiries from Russian mills asking for prices, etc. Catalogues and other information should be addressed to Joseph Spiero, 11 Broadway, New York City, who will forward them to the concern in Russia. Mr. Spiero, speaking of business conditions in Russia, said that, contrary to the general impression, there has been a growing demand in the past three months for machinery of all kinds in the large cities, and, as an instance, cites a shipment of 400 typewriting machines which he recently made to Warsaw.

Mr. James H. Worman, American consul at Three Rivers, Que., advising his government of the opening for trade there for dairy utensils, says:—The recent establishment of a butter and cheese exchange at this post, whence it is anticipated large shipments of dairy products will take place, should make Three Rivers a very desirable place in which to sell the latest improvements in suitable utensils. The farmers will be stimulated to take up with the latest improvements, in order to give to their products a No. 1 mark. A first class salesman, knowing the French language, coming into this section with a full exhibit of butter and cheese making machinery and tools, will not only make an immediate opening for his wares, but will also be able to establish a permanent agency, which is very much needed here. Circulars will do no good. The farmers speak French only.

Tenders are being invited for the erection of the following buildings in Winnipeg, Man.:—John King school building; apartment building for J. A. M. Aikens, K.C.; five story brick and stone hotel, for Messrs. Geo. Wright & Co; block for

A. Johnston; four story brick warehouse, mill construction, for the Thos. Davidson Mfg. Co.; and a three story addition to the warehouse of the Consolidated Plate Glass Co.

J. R. Mitchell, Perth, Ont., will receive tenders for the supply of sewer pipe and junctions, sewer castings and Portland cement.

The Department of Public Works at Fredericton, N.B., will receive tenders for the rebuilding the McFarlane bridge over East Branch of Turtle Creek at Hillsboro, N.B.

The Chairman of the Board of Works, Peterboro, Ont., is inviting tenders for the construction of a main sewer and sedimentation tank, — 270 feet of 14 inch iron submerged outlet pipe, 1,400 feet of 18-inch tile pipe and 1,300 feet of 15-inch tile pipe.

G. B. Murphy, Moosomin, N.W.T., is inviting tenders for the erection of a general hospital in that town.

Tenders for the construction of a tunnel and shafts under Toronto Bay, will be received by the Board of Control, Toronto, up to June 6.

James Austan, Hamilton, Ont., will establish a tack factory and is desirous of purchasing a number of cut tack machines.

Tenders for the construction of two breakwaters at Port Stanley, Ont., will be received by the department of Public Works, Ottawa, up to June 5.

Tenders will be asked for a new armory at Brandon, Man.

The Department of Public Works, Ottawa, are inviting tenders for a new post office building at Chicoutimi, Que., until May 31.

Tenders are invited by the Department of Public Works, Ottawa, for Peel Head Bay Landing Pier, Que., until May 29.

Tenders for construction of Rifle Range, Port Hope, Ont., are invited by the Department of Militia and Defence, up to May 22.

The Department of Railways and Canals are asking for tenders for docking at Port Colborne, Ont., until May 22.

Tenders for penitentiary supplies are invited by the Department of Justice, Ottawa, up to June 5.

The town of Strathcona, N.W.T., is calling for tenders for the installation of a waterworks and sewer plant.

United States Consul Worman, at Three Rivers, Que., says:— Very few motor boats are in use on this part of the St. Lawrence. There is not a single craft owned in this town of 12,000 inhabitants, with more than 500 well-to-do people, of which one half could well afford pleasure boats. American manufacturers of the latest improved models would do well to send a man into this section. He would doubtless carry off some very good contracts from Three Rivers, as well as from the wealthy towns adjoining. There is no use in sending circulars. Only the individual soliciting of a first-class salesman understanding the French language can make headway here.

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 H. B. Smith Machine Co., Smithville, N.J., manufacturers of woodworking machinery, are sending out an exact reproduction in colors of the notice of the St. Louis Exposition awarding them a gold medal for their line of machinery.

"The Westinghouse Companies in the Railway and Industrial Fields" is the title of a very handsome publication just being sent to their friends by that concern. It was intended primarily for distribution at the International Railway Congress at Washington. It gives a brief account, historical and descriptive, of the various Westinghouse works, with incidental mention of some of the more remarkable apparatus that have been built by them. The frontispiece shows a most excellent portrait of Mr. George Westinghouse.

The B. Greening Wire Co., Hamilton, Ont., have sent us a circular relating to "Crimped Diamond Mesh Fencing" manufactured by them.

The Canadian Westinghouse Co., Hamilton, Ont., have sent us a folder describing and illustrating Westinghouse Direct Current Motors, Type R.

Messrs. Ritchie & Ramsay, Toronto, have issued a folder containing a list of magazines, catalogues, booklets, etc., which were printed on coated paper manufactured by them.

"Oil vs Grease Lubrication" is the title of a pamphlet issued by the Joseph Dixon Crucible Co., miners and manufacturers of graphite, plumbago and blacklead at Jersey City, N.J., which contains valuable information showing the special advantages of Dixon's graphite greases.

The Pennsylvania Fire Brick Co., Beech Creek, Pa., manufacturers of Beech Creek fire brick, Portland cement, roof brick, etc., have sent us the usual handy desk pad, which is issued every four months by them and contains valuable memos of their products.

The Westinghouse Electric & Mfg. Co., Pittsburg, Pa., have issued circular No. 1110 relating to Westinghouse Catenary Line construction.

The Wellman-Seaver-Morgan Co., engineers and manufacturers, Cleveland, Ohio, have sent us a handsome brochure entitled "Water Power Equipment" which contains a bird's eye view of their extensive plants at Cleveland and Akron, Ohio, also some fine half tones, of the standard vertical cylinder gate wheels, balance gate, standard runners, standard horizontal single turbines, etc., manufactured by them.

Messrs. Darling Bros., Reliance Works, Montreal, have issued a neat folder describing and illustrating "The Victor low-pressure steam trap" manufactured by them.

The Canadian General Electric Co., Toronto, have sent us Section 3. Supply Catalogue, describing and illustrating construction material, such as all kinds of insulators, etc.

The Bristol Co., Waterbury, Conn., have sent us a copy of their latest revised edition of their Recording Thermometer catalogue, No. 28. In this edition they have classified their thermometers according to the principles upon which they depend for their operation. The lists of these different classes of thermometers, which cover all ranges to 1200° Fahr. have been carefully arranged with special reference to make it convenient for a prospective user of these instruments to easily select one which would be best adapted to meet any special condition. Each instrument is designated by an individual catalogue number and by a code word.

In the discussion of artificial vs. mechanical draft, to which the B. F. Sturtevant Co., Hyde Park, Mass., have contributed so much in its admirable treatise entitled "Mechanical Draft," there occurs the following pertinent quotation from W. S. Hutton. "Artificial draft can be readily adjusted to effect the combustion of different kinds of fuel at different rates of combustion. It permits efficient combustion of fuel of inferior quality, and enables a steady supply of steam to be maintained, independent of climate and weather. It enables the supply of air to be properly distributed to the fuel in the furnace to effect economical combustion. The supply of air above the fuel can be readily adjusted to effect combustion of the gases devolved by the fuel, and the supply of air below the fuel can be regulated to effect the combustion of the solid portion of the fuel, and the movement of the hot gases can be readily controlled." There is no valuable feature of the chimney that is not possessed by the fan to at least the same, and in many cases to a more marked degree. The very features which are most conducive to economy are those which are incidental to the use of a fan for draft production. While the recent extensive introduction of induced draft in stationary practice has done much to emphasize the advantages of this system, the general superiority of mechanical draft, properly applied, has long been recognized by those who have given careful consideration to the matter.

The activity in the application of motors to cranes, hoists and machine tools of every description is indicated by several orders entered during the week as follows: The Morgau Engineering Co., Alliance, Ohio, eight railway type crane motors with a total of 250 h.p.; the Pond Machine Tool Co., Plainfield, N.J., twenty-eight type C induction motors; Niles Tool Works, Cincinnati, Ohio, five type S direct current motors; Lang & Allstatter Co., Hamilton, Ohio, thirteen type S motors; the Delaware, Lackawanna & Western Railway, twenty type C induction motors; U. S. Hoe & Tool Co., Columbus, Ohio, eight type S motors; the Austin Powder Co., ten type C induction motors.

PERSONALS.

Mr. Herbert J. Armstrong, mechanical engineer, has established offices at 43 Victoria Street, Toronto.

Mr. E. Lewis, general manager of the Solid Draft Rigging & Equipment Co., Terre Haute, Ind., was in this office last week seeking information regarding a suitable location for the establishing of a Canadian branch works for his industry, which is the manufacture of a patented device for coupling railway cars.

The proprietor of the Gallatin Hotel, 70 West Forty-Sixth Street, New York City, is offering some special inducements

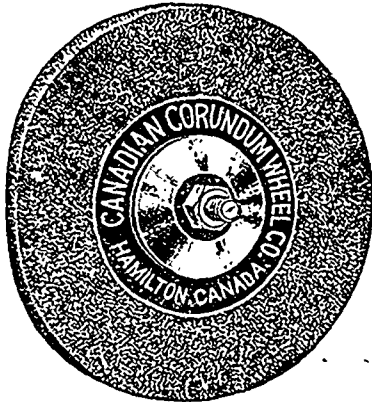
to Canadians, who may be visiting that city, for either business or pleasure. His invitation snacks strongly of the southern style, as it is extended only to white people. The Hotel is located in a desirable part of the city, and the accommodations are first-class in all particulars.

Mr. E. N. Gunsaulus, the retiring United States Consul, was a guest of the evening at a complimentary dinner tendered him by some of his friends at the National Club last week, prior to his departure for Cork, Ireland. No more popular and acceptable gentleman ever filled the position of Consul, than has Col. Gunsaulus during his sojourn in Toronto.

Mr. John B. Charleson, late superintendent of Yukon telegraphs, has been appointed Inspector of Public Buildings for the Dominion.

ONTARIO'S MINERAL AND METALLIC OUTPUT.

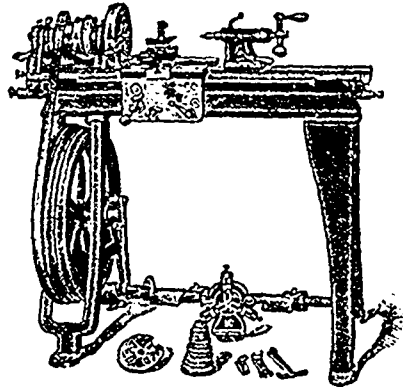
The Bureau of Mines has issued an interesting statement showing the mineral production of Ontario for the year 1904. The net metallic production was valued at \$5,071,677, and the non-metallic at \$6,665,970, making a total of \$11,737,647. The industry gave employment to 10,281 persons, who were paid in salaries the sum of \$3,838,583.



Manufacturers of
Corundum
Wheels,
Emery Wheels
 and
Grinding
Machinery

CANADIAN CORUNDUM WHEEL CO., - Hamilton, Ont.

LATHES



9 inch and 11 inch Lathes with Foot Power or Countershaft as desired; also a 15 inch Power Lathe.

All strong, rigid, high-class tools.

Sold at reasonable prices.

Ask for Catalogue C.

B. F. BARNES CO.,
 ROCKFORD, ILL.

Ontario Agent:
 H. W. PETRIE, Toronto.

SUNBEAM LAMPS

Cost most money to make.

Cost most money to buy.

Save most money in producing light.

Therefore are the Cheapest in the End.

MADE IN CANADA BY

THE SUNBEAM INCANDESCENT LAMP CO.
 OF CANADA, LIMITED

Factory—ST. CATHARINES.

Main Office—TORONTO.

The following table shows the metallic output and the value of it:

Product.	Amount.	Value.
Gold, ounces.....	2,285	\$40,000
Silver, ounces.....	206,875	111,887
Platinum, ounces....	536	10,452
Palladium, ounces...	952	18,564
Cobalt, tons.....	29	36,620
Copper, tons.....	2,163	297,126
Nickel, tons.....	4,748	1,516,741
Iron ore, tons.....	128,253	273,068
Pig iron, tons.....	127,845	1,811,664
Steel, tons.....	51,002	1,188,349
Lead ore, tons.....	3,210	11,000
Pig lead, tons.....	43	2,500
Zinc ore, tons.....	533	3,700
		\$5,321,677

Less value Ontario ore smelted into pig iron, Ontario pig iron converted into steel, and lead ore smelted into pig lead... 250,000

Net metallic production \$5,071,677

The non-metallic output was as follows:

Product.	Amount.	Value.
Actinolite, tons ...	\$408	\$102
Arsenic, tons	72	903
Tile, drain, number 16,000,000		210,000
Brick, com., numb'r 200,000,000		1,430,000
" paving, numb'r 4,436,000		55,450
" pressed, numb'r 26,857,000		226,750
Building and crushed stone.....		700,000
Carb. of calcium, tons.....	2,343	152,295
Cement, nat. rock, bbl.....	85,000	65,250

Product.	Amount.	Value.
Cement, Portland, bbl.....	\$880,871	\$1,239,971
Corundum, tons.....	1,665	150,645
Feldspar, tons.....	10,983	21,966
Graphite, tons.....	235	4,700
Gypsum, tons.....	5,412	10,674
Iron pyrites, tons...	13,451	43,716
Lime, bush.....	2,600,000	406,800
Mica, tons.....	332	37,847
Natural gas.....		253,524
Peat fuel, tons.....	800	2,400
Petroleum, imp.gals. 17,237,220		904,437
Pottery.....		100,000
Salt, tons.....	5,577	362,621
Sewer pipe.....		283,000
Talc, tons.....	1,813	2,919

Total non-metallic production.....	\$6,665,970
Add metallic production.....	5,071,677
Total production.....	\$11,737,647

EXTENSIVE HEATING SYSTEM.

The magnitude of the Canadian Pacific Railway Co.'s new Angus Shops at Montreal is plainly evident from the fact that no less than thirty-seven miles of steam piping was massed in the Sturtevant heaters which were installed in connection with the blower heater system. Before a decision was reached a thorough comparative study was made of the different systems of shop heating by direct steam and hot water and by blower methods. The latter was finally adopted as being the most efficient and economical

where the requirements are so severe on account of the large spaces to be warmed, the high proportion of window area and the low external temperature. The apparatus was built and installed by the B. F. Sturtevant Co., Boston, Mass. Steam is distributed in tunnels to the different buildings from the central powerhouse which is about 2,600 feet from the most distant part of the system. The buildings have a combined volume of about 26,000,000 cubic feet. From one-quarter to one-half of the wall surface is glazed, besides which there are skylights aggregating 25 per cent. of the roof surface. The specifications require most of the buildings to be heated to a constant temperature of 65 degrees when the temperature outside is 10 degrees below zero. The radiation for this service is arranged at local points in vertical coils with cast-iron bases, which are coupled up in groups. The fans which draw the air through these heaters are calculated to have an hourly capacity of the enormous volume of about 80,000,000 cubic feet, sufficient to completely change the air in every building once in about every 20 minutes. In very cold weather, however, a closed circulation will be maintained and the air returned to the heaters without receiving any access of cold air from outside. In the planing mill the fan engine and heaters are located on platforms between the roof trusses. In most of the other buildings they are located in one or more separate lean-to brick annexes. Each set of heaters is supplied with both exhaust

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

WALKERVILLE, ONT.

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

and live steam mains. In the locomotive and blacksmith shops the hot air from the heaters is distributed partly underground through brick conduits; but in the other buildings and in parts of these, the distribution system consists of cylindrical overhead galvanized iron ducts, supported on the lower chords of the roof trusses, having outlets through the vertical pipes carried down beside each of the interior columns. Practically no valuable floor space is occupied by the heating apparatus.

The Myers Royal Spice Co., have acquired the Anglo-Saxon Stock Food Co., Toronto, and the business will be moved to Niagara Falls, Ont., and conducted as a branch of the Myers famous plant. Mr. Nesbitt, formerly of Toronto, will be manager of the Canadian branch.

The Wisconsin Light & Power Co., LaCrosse, Wis., have placed orders with the Westinghouse companies covering the entire equipment of a large light and power plant. Besides two alternating current generators with an output of 400 k.w. each, which will be driven by Westinghouse - Parsons steam turbines,

there are three Westinghouse verticle steam engines, one of which will be connected to a 25 k.w. direct current generator. The order also includes two motor generator sets, each consisting of a 7½ k.w. direct current generator and a 15 h.p. type C induction motor; three 10 k.w. and three 15 k.w. O.D. transformers; one 6,600 volt ten panel switchboard and one 220 volt arc lamp panel; fifteen low equivalent lightning arresters and choke coils; 25,000 incandescent lamps with Edison base. Roney stokers, manufactured by the Westinghouse Machine Co., will be used in the boiler installation.

CALIFORNIA EXCURSIONS.

The Chicago, Union Pacific and North Western Line runs through first-class Pullman and Tourist sleeping cars to points in California and Oregon. Personally conducted excursions from Chicago every week. Lowest rates. Choice of routes. Finest scenery. Special attention given to family parties. For maps, illustrated folders and rates, address, B. H. Bennet, General Agent, 2 East King Street, Toronto, Ont.

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:

- Barrie, Ont.
- Brantford, Ont.
- Fort William, Ont.
- Halifax, N.S.
- Hamilton, Ont.
- Lindsay, Ont.
- Orillia, Ont.
- Peterborough, Ont.
- Regina, N.W.T.
- Sherbrooke, Que.
- Toronto, Ont.

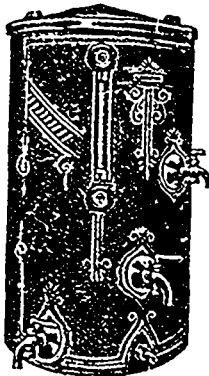
Keystone Engineering Co.

Limited
 54 Adelaide St. West, TORONTO, CAN.
 Consulting and Contracting Electrical Engineers.
 Complete Power Plants Designed and Equipped.
 National Electric Code Standard Wiring.
 Advisory Reports. Repairs, Alterations, Etc.
 Phone, Main 3021.

The largest steel and brass manufacturers use McCullough-Dalzell Crucibles. They prefer them because they have been proved by actual test. Send us an order.

MCCULLOUGH-DALZELL CRUCIBLE CO., Pittsburg, Pa.

Don't Throw Away Dollars



The used lubricating oil which you have been throwing away or allowing to waste in the drip pans is worth money to you if you have a

CROSS OIL FILTER

at hand. Guaranteed to save one-half your oil expenditure and afford oil as good as new.

"We heartily endorse all your claims for the Cross Oil Filter."—The Cleveland Electric Illuminating Co., Cleveland, Ohio.

Send for Filter to-day on thirty days' trial to test our guarantee.

THE BURT MFG. CO.,

LARGEST MFRS. OF OIL FILTERS IN THE WORLD,

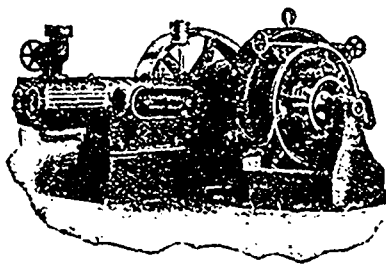
212 Main Street, AKRON, OHIO, U.S.A.

A complete stock carried by the

CANADIAN FAIRBANKS CO., Limited, Montreal.

Also supplied by Oil Companies, Dealers and Power Contractors.

EVERYBODY KNOWS



that we build Blowers, but do you know that we build Generating Sets in a full line of sizes from 3 to 250 H.W.?

B. F. STURTEVANT CO., Boston, Mass.

General Office and Works, Hyde Park, Mass.

New York. Philadelphia. Chicago. London.

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fans, Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc.

“CAMEL HAIR BELTING”

NOTICE—Mr. Fleming having resigned the Agency for the sale of our Manufactures in Canada, we are arranging Agencies at TORONTO and ST. JOHN, N.B., for the prompt supply of

CAMEL HAIR BELTING
CAMEL BRAND BELTING
CANVAS HOSE
PAPER MAKERS' FELTS
PRINTING PADS

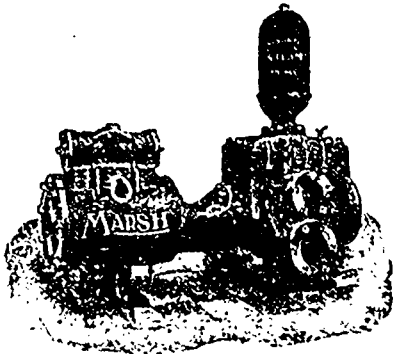
ADDRESSES of AGENCIES will be published as soon as possible.

Meanwhile all enquiries will receive prompt attention if addressed to

F. REDDAWAY & COMPANY
LIMITED

PENDLETON,
Manchester, England

"SIMPLEX" NOT DUPLEX.



STANDARD BOILER FEED.

MARSH STEAM PUMPS

FOR EVERY SERVICE.

OVER 60,000 IN SUCCESSFUL OPERATION.

Immediate Delivery from Agencies Everywhere.

Unequalled Economy and Durability.

AMERICAN STEAM PUMP CO., - Battle Creek, Michigan, U.S.A.

THE A. R. WILLIAMS MACHINERY CO., LIMITED, TORONTO.
WILLIAMS & WILSON, - MONTREAL.

CAMMELL STEEL RAILS ALL SECTIONS and WEIGHTS

LIGHT RAILS—12, 18, 25 lbs.—in Stock

SUPPLIES—STEAM SHOVELS, LOCOMOTIVES, CARS, DUMP CARS, BALLAST PLOWS
LARGE STOCK of Wheelbarrows, Scrapers, Picks
Shovels, Hammers, Track Tools,
BARRETT JACKS

F. H. HOPKINS & CO., - Successors to LATE JAMES COOPER - Montreal

Steel Roofing and Siding, \$2.00 per 100 Sq. Ft.

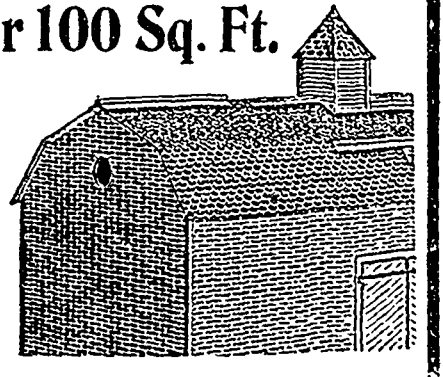
Painted red on both sides. Most durable and economical covering for Roofing or Siding, for Residences, Houses, Barns, Elevators, Stores, Churches, Poultry Houses, Cribs, etc. Easier to lay and will last longer than any other covering. Cheaper than wood shingles or slate. No experience necessary. A hammer and snips are the only tools required. It is semi-hardened high grade steel. Brick or Stone Siding at \$2.00 per 100 Square Feet. Pedlar's Patent Steel Shingles at \$2.50 per 100 Square Feet. Also Corrugated Iron, Painted or Galvanized, in sheets 96 inches long. Beaded and Embossed Ceilings. V Crimped Roofing. 2000 designs of Roofing, Siding and Ceilings in all grades. Thousands of buildings through the Dominion covered with our Sheet Metal Goods making them

FIRE, WATER AND LIGHTNING PROOF.

Send in your order for as many squares (10 x 10 feet) as you require to cover your new or old building. The very best roofing for this climate. We can supply Eave Trough, all sizes, Corrugated or Plain Round, Conductor Pipes, Shoes, Elbows, Spikes, Tubes. All goods shipped day after order is received. We are the largest concern of the kind under the British Flag. Established 1861. Capital Invested \$150,000.00.

PEDLAR PEOPLE, OSHAWA, ONTARIO, CANADA.

Eastern Warehouse—767 Craig St., Montreal, Quebec.



THE PETER HAY KNIFE CO., Limited



GALT, ONT.

Manufacturers of

MACHINE KNIVES

For WOOD-WORKING,
PAPER CUTTING and LEATHER SPLITTING
MACHINES,



Quality Warranted.

Send for Price List.

SHEAR BLADES,

BARK and RAG KNIVES,

Etc. Etc., Etc.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

"I would say to Steam Users—'If you want to save coal, if you want to save repair bills, if you want to prevent shut-downs, if you want to lengthen the life of your boilers, if you want to increase their efficiency—then Scale Formation must be prevented.'"

Tri-Sodium Phosphate keeps boilers clean and free from scale.

For complete information about T.S.P. write to

The Canada Chemical Mfg. Company, Limited, - London, Canada

Telegraphic Address: "PHENOLATE."

51 Lime St., LONDON, E.C., ENG.

Blagden, Waugh & Co.

—SOLE AGENTS FOR—

THE DOMINION TAR & CHEMICAL CO., Limited
Works at Sydney, Cape Breton, CANADA.

Manufacturers of Pitch (Roofing and Target); Creosote (Dead Oil); Carbolic, Naptha, Disinfectants, Refined Tar.

Also Naphthalines (all qualities) Cyanides (Prussiates of Potash and Soda) and Ammonia Salts.

GASSELLA COLOR COMPANY

(American Branch of Leopold Cassella & Co.)

ARTIFICIAL

DYE STUFFS

New York, 182-184 Front Street.

Boston, 68 Essex Street.

Philadelphia, 126-128 South Front St.

Providence, 64 Exchange Place.

Atlanta, 47 North Pryor Street.

Montreal, 86-88 Youville Square.

ANILINES

St. Denis Dyestuff and Chemical Co.,

(A. POIRRIER), of Paris, France.

Manufacturers of

Aniline Colors, Aniline Oil and Salt, Archil Extracts
Cudbear, Cachou de Laval, Thiocatechines, etc.

A Complete Assorted Stock of the above always on hand.

W. T. Benson & Co.,

Sole Agents for Canada.

164 St. James St., MONTREAL

GEIGY ANILINE & EXTRACT CO.

69 Barclay Street, NEW YORK.

BOSTON, PROVIDENCE, PHILADELPHIA, ATLANTA,
CHICAGO, TORONTO.

ANILINE COLORS,

Dyewood and Sumac Extracts,
Calico Printing Specialties.

Canadian Manager:

T. D. WARDLAW,

11 Front St. East, TORONTO.

Established 1799.



BY
SPECIAL WARRANT.

NOW READY FOR 1905

KELLY'S DIRECTORY

OF THE

Merchants, Manufacturers and Shippers
OF THE WORLD.

Containing classified lists of the Merchants, Manufacturers, Importers and Exporters, as well as the Customs Tariffs of every known Country in the World. Over 4,000 pages.

KELLY PUBLISHING CO.,

5 Bockman St., New York. Head Office: LONDON, W.C., ENGLAND.

Dominion Branch—70 Dunn Ave., TORONTO

And at Paris, Hamburg, Melbourne, Sydney, Dunedin, Cape Town, Bombay, Buenos Ayres, etc., etc.

THE NICHOLS CHEMICAL COMPANY OF CANADA, LIMITED

Head Office—222 ST. JAMES ST., MONTREAL.

Works—CAPELTON, P.Q.

MANUFACTURERS OF HIGHEST QUALITY CHEMICALS

Sulphuric, Muriatic and Nitric Acids, Glauber's Salt, Salt Cake, Mixed Acid for
DYNAMITE MAKERS, Etc.

AGENTS FOR STAR and TRIANGLE BRANDS

BLUE VITRIOL.

PUREST AND STRONGEST

PAPER MAKERS' ALUM.

Address all Correspondence to the Head Office, - MONTREAL.

THE IMPERIAL OIL COMPANY, Limited

Highest Awards at the World's Fair, Chicago, upon

Lubricating, Water White Illuminating Oils,
Paraffine Wax, Etc.

We manufacture all grades of oils, greases, soap stocks, candles, wool stocks, leather and tanners' oils, fuel gas, machinery, cylinder oils, &c. And solicit opportunity to compete against any oil on the market. Write for prices and samples.

Refineries at SARNIA and PETROLIA, CANADA. Merchandising Branches at:

HALIFAX, N.S. HAMILTON, ONT. QUEBEC, QUE. LONDON, ONT. TORONTO, ONT. WINNIPEG, MAN. ST. JOHN, N.B. GUELPH, ONT.
MONTREAL, QUE. CHATHAM, ONT. PETERBORO, ONT. VANCOUVER, B.C. MONCTON, N.B. STRATFORD, ONT. KINGSTON, ONT. WINDSOR, ONT.

RICE LEWIS & SON, LIMITED, Hardware and Metal

MACHINIST TOOLS, PIPE FITTINGS,

COMPLETE STOCK OF STOCKS AND DIES. PIPE VICES.

STILLSON AND TRIMO WRENCHES.

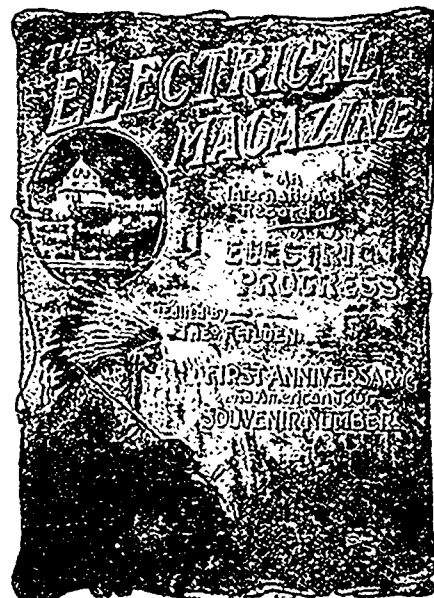
STEAM PIPE.

CORNER KING AND VICTORIA STREETS, . . . TORONTO.

ALL
GENUINE ARMSTRONG
STOCKS & DIES
HAVE THIS
TRADE MARK
FOR SALE BY

TORONTO, ONT.—Rice Lewis & Son; Bennett & Wright Co.; James Robertson & Co.
MONTREAL, CANADA—Fairbanks & Co.; A. R. Williams Machinery Co.; Laurio Engine Co.; Williams & Wilson.
QUEBEC—Clinic Hardware Co.
VANCOUVER, B.C.—Boyd, Burns & Co.
WINNIPEG, MAN.—Marshall-Wells Hardware Co.; Jas Robertson & Co.; Miller, Morse & Co.; Geo. D. Wood & Co.
VICTORIA, B.C.—Marine Iron Works; Victoria Machinery Depot.
HAMILTON, ONT.—Wood, Vallance & Co.

And are manufactured only by
THE ARMSTRONG MFG. CO.,
BRIDGEPORT, CONN.
NEW YORK OFFICE, 139 CENTRE STREET
Catalogue sent on request.



THE ELECTRICAL PUBLISHING CO., Limited
4, Southampton Row, Holborn, London, Eng.

Revolution

In Electrical Literature.

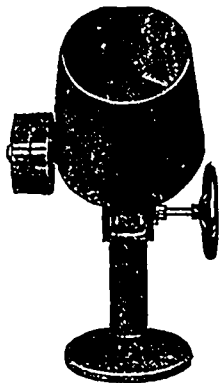
The First Anniversary Number of
THE Electrical Magazine

The most superb production ever offered. It contains about 200 pages of Special Matter (Profusely Illustrated). Presenting **The Tour of the Members of the British Institution of Electrical Engineers of the United States and Canada.**

Embracing A Stirring Story by Mr. Theo. Falldon, recording his investigations and treating upon the wonderful development of Electrical work in America and Canada, giving also interesting interviews with the exalted personages he had the privilege of meeting on the tour—among others PRESIDENT ROOSEVELT, GEORGE WESTINGHOUSE, THOMAS ALVA EDISON, PROFESSOR ELIHU THOMPSON.

37 CENTS (Post Free)
UNITED STATES and CANADA.

\$3 is the Annual Subscription for United States and Canada (including postage) to **The Electrical Magazine—the most interesting and valuable Engineering Journal in the world.** This subscription, if sent at once, will cover the Special Anniversary Number and all the issues of 1905, together with two handsome binding cases and full indexes (post free).



**IMPROVED
TUMBLING BARRELS**

The Globe Tilting Tumblers being CHEAPEST to operate are the CHEAPEST TO BUY.

SEND FOR CIRCULAR.
WRITE FOR AGENCIES.
MANUFACTURED BY

THE GLOBE MACHINE & STAMPING CO.
977 Hamilton St., CLEVELAND, OHIO.

COLLECTIONS

The Canadian Law List

PUBLISHED ANNUALLY IN JANUARY.

Contains a very complete list of
LAWYERS and COURT OFFICIALS
throughout the Dominion.

Also a list of

BALIFFS for ONTARIO and QUEBEC.

Together with a synopsis of the Laws of each Province, giving exemptions, and other information useful to the collection department of any Wholesale House or Manufacturer. Price, \$3.00. The edition is limited.

— ORDER EARLY —

THE CANADIAN LEGAL PUBLISHING CO., - TORONTO

THE WELLINGTON MILLS

LONDON, ENGLAND

Genuine EMERY

Oakley's Flexible Twilled Emery Cloth.
Oakley's Flint Paper and Glass Paper.
Oakley's Emery Paper, Black Lead, Etc:

Prize Medal and Highest Award Philadelphia, 1876, for Superiority of Quality, Skilful Manufacture, Sharpness, Durability, and Uniformity of Grain.

Manufacturers

John Oakley & Sons, Limited, Wellington Mills, Westminster Bridge Road, London, England.

Enquiries should be addressed to

JOHN FORMAN, - 650 Craig St., MONTREAL



If you are thinking of building a home, call on, or write.

Phone M. 1372. **R. J. EDWARDS, Architect, 18 Toronto St., TORONTO.**

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

MAPLE LEAF
STITCHED COTTON DUCK
BELTING
DOMINION BELTING CO. LTD.
HAMILTON CANADA

English Card Clothing

FULL STOCK ON HAND

"GENUINE OAK"
Leather Belting

OUR PRICES ARE LOW

Rubber Belting

D. K. McLAREN

751 Craig Street, - - - MONTREAL
196 King Street West, - - - TORONTO
21 St. Peter Street, - - - QUEBEC
169 Prince William St., - - - ST. JOHN, N.B.

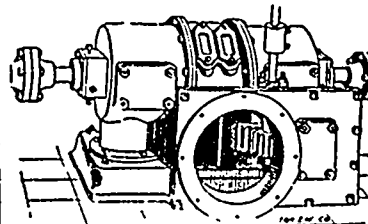


NOTICE The following are the Factory Inspectors for the Province of Ontario:

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.



"LITTLE GIANT" Turbine

FOR ALL PURPOSES

HORIZONTAL AND VERTICAL. BUILT IN 44 SIZES.

We guarantee a higher percentage of power from water used than any other wheel on the market.

Water Wheel Governors, Machine Dressed Gearing, Pulleys, Shafting and Bearings.

Catalogue and Gear List mailed on application. Correspondence Solicited.

J. C. WILSON & CO., Glenora, Ont.



THE UNDERWOOD

Manufacturers

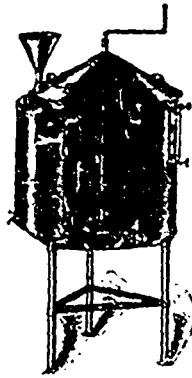
Throughout CANADA have unanimously decided in favor of the **VISIBLE UNDERWOOD Typewriter.**

Why?

Because the Underwood is the only successful invoicing and tabulating typewriter that has stood the test.

United Typewriter Co., Limited, - Toronto, Canada

The WETMORE Patent Glue Heater



All progressive manufacturers in the United States are using it. On the market since 1901.

No tariff. Made in Windsor. Sold by **A. R. WILLIAMS MACHINERY CO., Toronto, Ontario.**

We give you **30 Days' Free Trial** and if it does not convince you in that time that it will pay for itself in a year, send it back.

The Advance Machinery Co.,
19-23 So. Huron Street,
TOLEDO, OHIO.



THE GRIFFIN MILL

is conceded to be the highest type of mill for Portland Cement work ever produced. 579 sold in two years to the following large Portland Cement Works in the United States and Canada:

Lehigh Portland Cement Co.,	Ormsrod, Pa.	Iola Portland Cement Co.,	Dallas, Tex.
Lehigh Portland Cement Co.,	Mitchell, Ind.	Iola Portland Cement Co.,	Iola, Kan.
Lehigh Portland Cement Co.,	Wellston, Ohio	Wabash Portland Cement Co.,	Stroh, Ind.
Central Cement Co.,	Conlay, Pa.	Kansas Portland Cement Co.,	Iola, Kansas
Glens Falls Portland Cem. Co.,	Glens Falls, N.Y.	Alma Cement Co.,	Wellston, Ohio
Cuyaga Lake Cement Co.,	Ithaca, N. Y.	Aetna Portland Cement Co.,	Fenton, Mich.
National Portland Cement Co.,	Durham, Ont.	Penn-Allen Portland Cement Co.,	Allenstown, Pa.
Sandusky Portland Cement Co.,	Syracuse, Ind.	Martins Creek Portland Cement Co.,	Martins Creek, N. J.
Newaygo Portland Cement Co.,	Newaygo, Mich.	Wolverine Portland Cement Co.,	Coldwater, Mich.
Great Northern Portland Cement Co.,	Marble Rock, Mich.	Bronson Portland Cement Co.,	Bronson, Mich.
Midland Portland Cement Co.,	Bedford, Ind.	Quaker Portland Cement Co.,	Sandusky, Pa.
Bonnerille Portland Cement Co.,	Siegfried, Pa.	Diamond Cement & Litho. Stone Co.,	Chicago, Ill.
Ironquois Portland Cement Co.,	Caledonia, N. Y.	Mississippi Val. Portland Cem. Co.,	Louisiana, Mo.
Alpha Portland Cement Co.,	Alpha, N. J.	Bellville Portland Cement Co.,	Bellville, Ont.
Whitehall Portland Cement Co.,	Cementon, Pa.	Toledo Portland Cement Co.,	Manchester, Mich.
Struthers Furnace Co.,	Struthers, Ohio		

Surely that is evidence enough of its great superiority over all other makes. The way it works is the reason; most work, best work, in least time, at least expense.

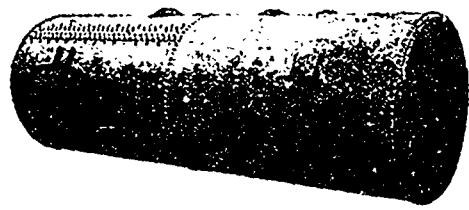
Illustrated catalogue shows what you need. And it is free!

BRADLEY PULVERIZER COMPANY, 92 State St., Boston, Mass.

BOILERS FOR ALL SERVICES

Our shops being equipped with the latest improved machinery, we are prepared to execute orders quickly and at lowest prices consistent with first-class material and workmanship.

RETURN TUBULAR (ALL STEEL CONSTRUCTION)



THE JOHN McDOUGALL CALEDONIAN IRON WORKS CO., LIMITED

ESTABLISHED 1852

MONTREAL, QUE.

ENQUIRIES SOLICITED

Builders in Canada for "Worthington" Turbine Pumps

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

MALLEABLE CASTINGS

ORDERS FOR LARGE OR SMALL TONNAGE IN MALLEABLE CASTINGS PROMPTLY EXECUTED.
 NEWEST AND BEST EQUIPPED MALLEABLE FOUNDRY IN AMERICA. FIRE-PROOF VAULTS FOR PATTERN STORAGE
 INTERNATIONAL HARVESTER CO., OF CANADA, Limited
 HAMILTON, - ONT.

WOOLLEN MILL For Sale

Water and steam power; one set Woollen Mill. Three story brick and stone 30 x 32 feet. Two story brick and stone addition 30 x 36 feet.

Good locality; wool plentiful.

Address,
 S. M. HUTCHESON,
 PAISLEY, ONT.

WANTED

Manufacturers contemplating changing or establishing branch factories or industrial stock companies forming, to correspond with me relative to cheap power; natural and artificial advantages that I have listed and am offering for the various municipalities, Boards of Trade, railway corporations, and individuals all over Canada. Factory sites and buildings listed and sold.

CHAS. F. ROLAND,
 ST. CATHARINES, ONT.
 Exclusive in industrials.

Pail Manufacturers, ATTENTION!

USE FISHER'S PATENT POWER RIVETTING MACHINE

For rivetting your hoops.
 Reduces your labor on rivetting by 40 to 50 per cent.
 Makes a much stronger joint, the laps being held firmly together, automatically, during process.

MANUFACTURED BY
 THE JOHN McDUGALL CALEDONIAN IRON
 WORKS CO., Limited
 MONTREAL, CANADA.

Address all orders for rivetting machines and all correspondence in regard to same to

GEORGE W. FISHER, Keene, N.H., U.S.A.

BARGAINS Money Savers

First Class.

- 2-250 k.w., 3 phase, 10,000 volt G. E. Herfeld, Al. Gen., 450 rev., 3 bearing.
- 3-100 k.w., 3 phase, 60 cycle Transformers, 10,000 x 2,300 volts.
- 1-300 k.w., 2 phase, 60 cycle, 2,100 volt Stanley Direct Connected Gen. Set.
- 2-300 k.w., 3 phase, 60 cycle, 2,100 volt G. E. Direct Connected Gen. Units.
- 120 - G. E. 35 h.p. Railway Motors
- 40 - Walker, 50 h.p.

Fire, Wrecking, Irrigation, Water Works, Mining Pumps, Air Compressors, Tanks, Cars, Pipe, Rail, Boilers, Engines, Beams, Scales, Dynamom., Motors, Car Trucks. Our prices are of interest to close buyers.

R. S. Corbett, 45-47 York Street, Crooklyn, N.Y., U.S.A.

Morris Machine Works.

BALDWINVILLE, N.Y.

MANUFACTURERS OF

Centrifugal Pumping Machinery and Steam Engines

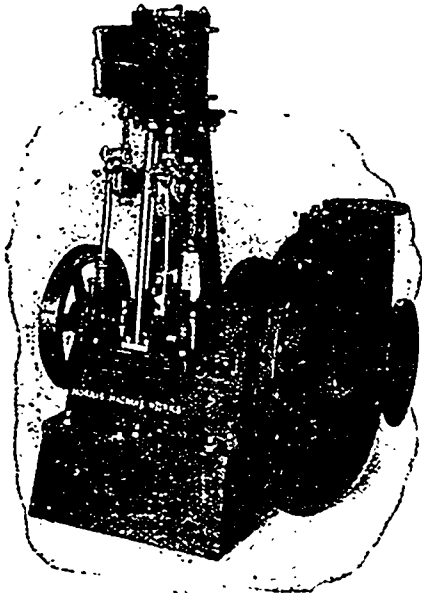
SPECIAL PUMPING OUTFITS TO SUIT
 SPECIAL REQUIREMENTS

Estimates Furnished upon Application.

H. W. PETRIE, Agent
 TORONTO, CANADA.

NEW YORK OFFICE: 39-41 CORTLANDT ST.

HENSON & HUBBELL, Agents
 61-69 North Jefferson St., CHICAGO, ILL.

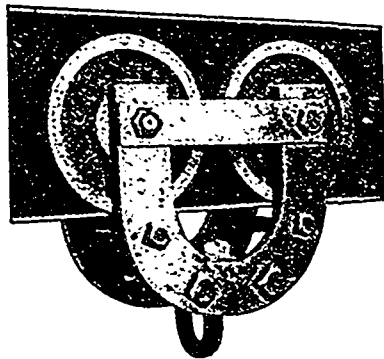


Where Time is Valuable

RAND TROLLEYS are in demand.

For moving materials in foundry and shop they are invaluable.

Designed to run on "I" beams, channels, rails, or any standard section.



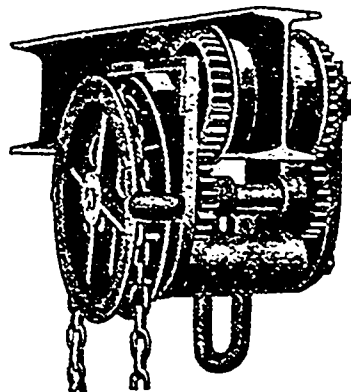
PLAIN TROLLEY

Where rapidity is required and accurate placing of load is not essential, we recommend our Plain Trolley.

For handling large loads and serving machine tools we recommend our Geared Trolleys. All sizes up to 25,000 lbs.

THE CANADIAN RAND DRILL CO.

Room 7 Imperial Bank Bldg.
 MONTREAL, - - QUE.



GEARED TROLLEY

— Advertise in —

THE CANADIAN MANUFACTURER.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ROBT. WORTH. LOUIS L. MARTIN.
 Telephone Main 3494.

WORTH & MARTIN
NOVELTY MANUFACTURERS

Manufacturers of Slot Machines,
 Novelties, Fine Tools
 and Dies.

Model and Experimental Work a specialty.
 Inventions perfected.

37-39 Adelaide Street West,
 TORONTO, ONT.

W. H. STOREY & SON, limited, Acton, Ont.
 Manufacturers of... **FINE GLOVES and MITTS**
 In every variety and style, Moccasins

F. W. HORE & SON, Limited, HAMILTON, ONT.
 Manufacturers of
CARRIAGE, WAGGON, AND SLEIGH WOOD WORK.

Dominion Oil Cloth Co.

LIMITED
 Manufacturers of **Oilcloths** of Every Description.


Floor Oil-Cloth, Table Oil-Cloth,
 Carriage Oil-Cloth, Enamelled
 Oil-Cloth, Stair Oil-Cloth, etc.

OFFICE AND WORKS:
 Cor. St. Catherine and Parthenais Streets
 MONTREAL, Que.

Special Announcement

An invitation is extended to any white merchant outside of New York City, or their representative, whose name appears in Bradstreet's or Dun's Commercial Agency Book, to accept the hospitality of our Hotel for three days without charge. Usual rates, apartment with private bath \$3.00 per day up, without meals. Parlor, bedroom and private bath \$35.00 per week and up, with meals for two. New York Merchants and Editors are requested to call the attention of their Out-of-Town Buyers and subscribers to this advertisement.

GALLATIN HOTEL,
 70 W.45th St., NEW YORK CITY.




GREASE LUBRICATION
 has many advantages and it is growing more popular every day. The advantages of grease lubrication are multiplied if Dixon's Ticonderoga Flake Graphite be an ingredient of greases. Our booklet, OIL vs. GREASE, is a valuable treatise on the subject. Copies are free to all.
JOSEPH DIXON CRUCIBLE CO.,
 Jersey City, N.J.




Hydraulic Screw
 —and—
..Filter Presses..
WILLIAM R. PERRIN & COMPANY, Limited
 Toronto, - Canada.

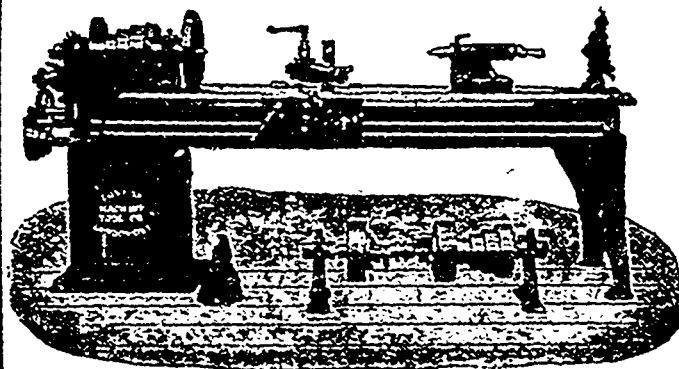
FOR POWER HOUSES WARE-HOUSES FOR COAL YARDS AND DOCKS
CONVEYING MACHINERY
 CATALOGUES AND ESTIMATES FURNISHED
BORDEN & SELLECK CO.
 ENGINEERS AND MANUFACTURERS
 CHICAGO



DEEP WELL PUMPS
 Steam Geared or Electrically Driven.
 Deep Well Pumping Systems for Cities, Railroad, Mines, Factories, etc.
DOWNIE PUMP CO., Downieville, Pa., U.S.A.



The **London Machine Tool Co., LONDON, ONT.**



MANUFACTURERS OF
GENERAL MACHINERY
 LATHES
 PLANERS
 DRILLS
 SHAPERS
 HAMMERS
 BULL DOZERS
 PUNCHES
 PRESSES

PAGE FENCES Wear Best

It is the fence that has stood the test of time—stands the heaviest strain—never sags—the standard the world over. In future Page Fences will be painted WHITE, which is an added protection against rust in addition to the galvanizing. Order through our local agent or direct from us.
THE PAGE WIRE FENCE CO. LIMITED, Walkerville, Toronto, Montreal, St. John, Winnipeg. 205

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

SCHUTTE & KOERTING CO.

12th and Thompson Sts., PHILADELPHIA, U.S.A.

CABLE ADDRESS: SCHUTTE, PHILADELPHIA.

CODES USED { A. B. C. CODE.
WESTERN UNION TEL. CODE.



The Schutte & Koerting blowers offer a means of burning low priced fuel, such as screenings, gas works breezes and other refuse with perfect combustion, thereby making a direct reduction in cost of steam. They are used to great advantage on:

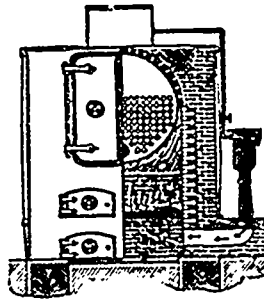
Can be actuated by steam or water jets.

1. Heating or Forging Furnaces.
2. Heating and Gas Producing Furnaces in chemical and glass works
3. Steam Boiler Furnaces.

Ask for catalogues: Injectors, Blast Nozzles, High Grade Valves, Water Jet Condensers, Air Compressors, Exhausters, etc.

THE FURNACE BLOWER

Attached to a Tubular Boiler.



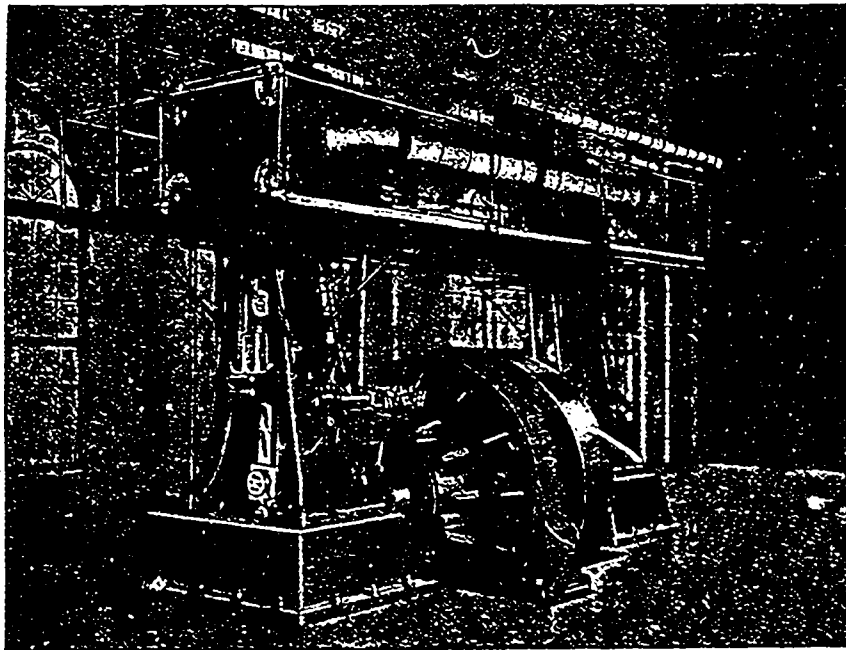
MANIPULATION

Regulate blast with side handle.

Start and stop by opening and closing a valve in steam pipe—full.

ASH PIT.

ROBB-ARMSTRONG CORLISS ENGINES



Robb Engineering Co., Limited
AMHERST, N.S.

AGENTS { WILLIAM MCKAY, 320 Ossington Ave., Toronto.
WATSON JACK & COMPANY, Bell Telephone Bldg., Montreal
J. F. PORTER, 355 Carlton Street, Winnipeg.

CLASSIFIED INDEX.

Abrasives

Canadian Corundum Wheel Co., Hamilton, Ont.
Rice Lewis & Son, Toronto.
Williams, A. R. Machinery Co., Toronto.

Acids

Canada Chemical Co., London, Ont.
Nichols Chemical Co. of Canada, Montreal.

Air Compressors

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek Mich.
Canada Foundry Co., Toronto.
Canadian Rand Drill Co., Sherbrooke, Que.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
Schutte & Koerting Co., Philadelphia, Pa.

Alum

Nichols Chemical Co. of Canada, Montreal.

Aluminum

Northern Aluminum Co., Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Angles, Beams and Girders

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Aniline Colors and Dyewood Extracts

Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Casella Color Co., New York City.
Geigy Aniline & Extract Co., New York City.
McArthur, Cornelie & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

Annealing Muffles and Furnaces (Wire)

Leslie, A. C. & Co., Montreal.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Antimony

Syracuse Smelting Works, Montreal.

Anvils and Vises

Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
Rice Lewis & Son, Toronto.

Architects

Edwards, R. J., Toronto.
Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Automatic Gear Cutting Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Automobiles

Ford Motor Co. of Canada, Walkerville, Ont.

Axles

Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Babbitt Metal

Petrie, H. W., Toronto.
Syracuse Smelting Works, Montreal.

Banks

Bank of Hamilton, Hamilton, Ont.

Bar Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.
London Rolling Mills, London, Ont.
Rice Lewis & Son, Toronto.

Belt Dressing

McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rossendale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belt Fasteners

Bristol Co., Waterbury, Conn.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rossendale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

Belting (Cotton)

Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Greay, Wm. & J. G., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Roddaway, F. & Co., Manchester, England.
Rossendale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.

Belting (Leather)

Fleming, W. A. & Co., Montreal
Greay, Wm. & J. G., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Roddaway, F. & Co., Manchester, England.
Rice Lewis & Son, Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams, A. R. Machinery Co., Toronto.

CLASSIFIED INDEX.

(CONTINUED).

Belting (Rubber)

Greay Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal.
Petrie, H. W., Toronto.
Sadler & Haworth, Montreal and Toronto.

Belting and Supplies

Bristol Co., Waterbury, Conn.
Dominion Belting Co., Hamilton, Ont.
Fleming, W. A. & Co., Montreal.
Greay, Wm. & J. G., Toronto.
Gutta Percha & Rubber Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Reddaway, F. & Co., Manchester, England.
Rice Lewis & Son, Toronto.
Rosendale Belting Co., Toronto.
Sadler & Haworth, Montreal and Toronto.
Williams A. R. Machinery Co., Toronto.

Blast Furnace Brick

Dover Fire Brick Co., Cleveland, Ohio.
Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Boliver, Pa.
Savage Mountain Fire Brick Co., Frostburg, Md.
Stowe-Fuller Co., Cleveland, Ohio.

Blowers

McEachren Heating & Ventilating Co., Galt, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Boiler Compounds

Canada Chemical Mfg. Co., London, Ont.

Boiler Inspection

Boiler Inspection & Insurance Co., Toronto.
Canadian Casualty & Boiler Insurance Co., Toronto.

BOILERS (See Engines and Boilers)

Bolts and Nuts

London Rolling Mills, London, Ont.
Morro, John, Machine Screw Co., Ingersoll, Ont.

Brass Foundries

Hamilton Brass Mfg. Co., Hamilton, Ont.
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto.
Penberthy Injector Co., Windsor, Ont.

Brick and Bricklaying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.

Building and Paving Brick

Dover Fire Brick Co., Cleveland, Ohio.
Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Pennsylvania Fire Brick Co., Lock Haven, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Reese-Hammond Fire Brick Co., Boliver, Pa.
Savage Mountain Fire Brick Co., Frostburg, Md.
Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Fedar People, Oshawa, Ont.

Bulldozers' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Cetshoro, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Meadows, Geo. B. Wire, Iron & Brass Works, Toronto.

Metallic Roofing Co., Toronto.
Otis-Fensom Elevator Co., Toronto.
Fedar People, Oshawa, Ont.
Rice Lewis & Son, Toronto.
Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Phillips, Eugene F. Electrical Works, Montreal.
Wire & Cable Co., Montreal.

Canada Plates

Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalsell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.

Cast Iron Pipe

Canada Foundry Co., Toronto.
Rice Lewis & Son, Toronto.
Montreal Pipe Foundry Co., Montreal.
McDougal John, Caledonian Iron Works Co., Montreal.

Castings (Grey Iron, Malleable Iron and Brass)

Canada Machinery Co., Sarnia, Ont.
Greay, Wm. & J. G., Toronto.
International Harvester Co., Hamilton, Ont.
Jonckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougal, John, Caledonian Iron Works Co., Montreal.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.
Greay, Wm. & J. G., Toronto.
McDougal, John, Caledonian Iron Works Co., Montreal.

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinville, N. Y.

Chain Making Machinery (Welded Coll Chain)

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

Channels

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
McDougal, John, Caledonian Iron Works Co., Montreal.

Chemicals

Canada Chemical Co., London, Ont.
Nichols Chemical Co. of Canada, Montreal.

Chemists

Archbold, Dr. Geo., Prescott, Ont.
Heys, Thomas & Son, Toronto.

Clay Working Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.
Coal and Coke

Bourne-Fuller Co., Cleveland, Ohio.
Brownlee, J., Galt, Ont.

Ferguson, J. D., Hamilton, Ont.
Hoffman, Jules G., Detroit, Mich.
Milnes, James H. & Co., Toronto.
Myles' Sons, Hamilton, Ont.
Ontario Coal & Coke Co., Pittsburgh, Pa.
Pittsburgh Coal Co., Pittsburgh, Pa.
Shawmut Coal & Coke Co., St. Mary's, Pa.
Sawyer, Edward T., Columbus, Ohio.
Shipman, O. W. Co., Detroit, Mich.
Skar, E. A., Detroit, Mich.
Wick, H. K. & Co., Buffalo, N.Y.
Wilson, H. T. Coal Co., Detroit, Mich.

Coal Cutting Machines

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

Coal Tipples

Jeffrey Mfg. Co., Columbus, Ohio.
Jonckes Machine Co., Sherbrooke, Que.

Coll Chains

Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.

Coke Oven Brick

Dover Fire Brick Co., Cleveland, Ohio.
Dunbar Fire Brick Co., Pittsburgh, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. & Co., Montreal

Contractors' Machinery

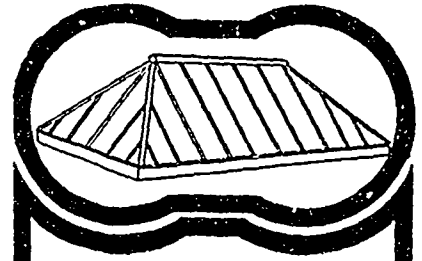
Allis-Chalmers-Bullock, Limited, Montreal.
Gasthore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Jonckes Machine Co., Sherbrooke, Que.
McDougal, John, Caledonian Iron Works Co., Montreal.
Schutte & Koerting Co., Philadelphia, Pa.

Contractor's Plants

Allis-Chalmers-Bullock, Limited, Montreal.
Hopkins, F. H. & Co., Montreal.
Jonckes Machine Co., Sherbrooke, Que.
Petrie, H. W., Toronto.
Von der Osten, E. & Co., Toronto.
Williams, A. R. Machinery Co., Toronto.

Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Borden & Selleck Co., Chicago, Ill.
Canada Foundry Co., Toronto.
Greay, Wm. & J. G., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougal, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Rosendale Belting Co., Toronto.



Metallic Skylights

The acme of Skylight perfection!

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

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

METALLIC ROOFING CO.,
Limited,
Wholesale Manufacturers,
TORONTO, CANADA.



Send for Catalogue and Price List to

Mfrs. of Set, Cap and Special Screws, Studs, Finished Nuts, etc.

WM. BARBER & BROS.
Georgetown, Ont.

Manufacturers of.....

Book and Fine Papers.

THE.....

Toronto Paper Manufacturing Co.,
Cornwall, Ont.

Manufacturers of Engine Sized Superfine Papers, White and Tinted Book Papers, Blue and Cream Laid and Wove Foolscap, Account, Envelope and Lithographic Papers, etc.

Smith Mfg. Co.

LIMITED

219 Front Street East, Toronto

Makers of

WOOL STOCK,
SHODDIES, Etc.

R. SPENCE & CO.
HAMILTON, ONT.

FILE and RASP MANUFACTURERS
AND RE-CUTTERS.

A trial order solicited. Write for terms.
C. P. MOORE, PROPRIETOR.

"MADE IN CANADA"

SADLER & HAWORTH

TANNERS & MANUFACTURERS OF

OAK LEATHER

BELTING

LACE LEATHER

HYDRAULIC & MECHANICAL

LEATHER

LEATHER

FILLET

Factories at

MONTREAL

TORONTO

LEATHER LIKE

GOLD HAS NO

SUBSTITUTE

CLASSIFIED INDEX.

(CONTINUED).

Copper Materials

Greening, B. Wire Co., Hamilton, Ont.
Phillips, Eugene F. Electrical Works, Montreal.
Syracuse Smelting Works, Montreal.
Wire & Cable Co., Montreal.

Corundum Wheels

Canadian Corundum Wheel Co., Hamilton, Ont.
Rice Lewis & Son, Toronto.

Cotton Banding and Rope

McLaren, J. C., Belting Co., Montreal.

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.

Cutter Grinding Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

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., Sarnia, Ont.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.

Drills (Pneumatic and Rock)

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

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio.

Drop Forging Dies

Canada Machinery Co., Sarnia, Ont.
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

Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Cassella Color Co., New York City.
Geigy Aniline & Extract Co., New York City.
McArthur, Cornelio & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamos)

Electric Motors 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

Keystone Engineering Co., 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.
Keystone Engineering 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.
Darling Bros., Montreal.
Greer, Wm. & J. G., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
Otis-Fensom Elevator Co., Toronto.

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.
Parks, R. J., Toronto.
Vogel C. H., Ottawa.

Engineers (Consulting)

Aitken, K. L., Toronto.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Hunt, Robert W. & Co., Chicago, Ill.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Parks, R. J., Toronto.
Perrin, William R. & Co., Limited, Toronto.
Vogel, C. H., Ottawa.
Von der Osten, E. & Co., Toronto.

Engineers (Contracting)

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

Engineers (Electrical)

Aitken, K. L., Toronto.
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.
Electrical Construction Co., London, Ont.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Worth & Martin, Toronto.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong, Herbert J., Toronto.
Babcock & Wilcox, Limited, Montreal.
Borden & Selck Co., Chicago, Ill.
Darling Bros., Montreal.
DeLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Greer, 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)

DeLano-Osborn Engineering Co., Toronto.
Hawksworth, Alfred, Montreal.
Vogel, C. H., Ottawa.

Engineers (Mining)

Heys, Thomas & Son, Toronto.
Mills, S. D., Toronto.

Engineers (Municipal)

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

Engineers and Contractors

Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

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.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER

CLASSIFIED INDEX.

(CONTINUED).

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Hopkins, F. H. & Co., Montreal.
 Jencks Machine Co., Sherbrooke, Que.
 Morris Machine Works, Baldwinville, N. Y.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 McEachren Heating & Ventilating Co., Galt, Ont.
 Oil Well Supply Co., Pittsburgh, Pa.
 Petrie, H. W., Toronto.
 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.

Exhaust Fans

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

Exhaust Heads

Bart Mfg. Co., Akron, Ohio.
 Darling Bros., Montreal.
 Sheldon & Sheldon, Galt, Ont.

Exhausters

Schutte & Koerting Co., Philadelphia, Pa.
Explorer and Geologist
 Evans, Horace F. Ashcroft, B.C.

Factory Sites

(See Factory Locations, page 35).
 Central Ontario Power Co., Peterboro, Ont.
 Hutcheson, S. M., Paisley, Ont.
 Roland, Chas. F. St. Catharines, Ont.

Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.
 Darling Bros., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Robb Engineering Co., Amherst, N.S.
 Schutte & Koerting Co., Philadelphia, Pa.

Files

Spence, R. & Co., Hamilton, Ont.
 Elliot (Pattern)

McLaren, J. C. Belting Co., Montreal.
 Sadler & Haworth, Montreal and Toronto.

Filters (Oil)

Babcock & Wilcox, Limited, Montreal.
 Bart Mfg. Co., Akron, Ohio.
 Darling Bros., Montreal.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Perrin, William R. & Co. Limited, Toronto.

Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.
 Jencks Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Financial

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

Fire Brick and Clay

Dover Fire Brick Co., Cleveland, Ohio.
 Duabar Fire Brick Co., Pittsburgh, Pa.
 Hamilton Facing Mill Co., Hamilton, Ont.
 Pennsylvania Fire Brick Co., Lock Haven.
 Queen's Run Fire Brick Co., Lock Haven, Pa.
 Reese-Hammond Fire Brick Co., Boliver, Pa.
 Savage Mountain Fire Brick Co., Frostburg, Md.
 Stone-Fuller Co., Cleveland, Ohio.

Fire Escapes

Darling Bros., Montreal.
 Meadows, Geo. B., Wire, Iron & Brass Works, Toronto.

Flour Mill Machinery

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

Forges and Blowers

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

Founders

Canada Foundry Co., Toronto.
 Canada Machinery Co., Sarnia, Ont.
 Gddie & McCulloch Co., Galt, Ont.
 Grey, Wm. & J. G., Toronto.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Jencks Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Robb Engineering Co., Amherst, N.S.

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babcock & Wilcox, Limited, Montreal.
 Schutte & Koerting Co., Philadelphia, Pa.
 Sturtevant, B. F. Co., Hyde Park, Mass.

Furniture (Lodge, Opera and School)
 Canadian Office & School Furniture Co., Preston, Ont.

Galvanizing

Ontario Wind Engine & Pump Co., Toronto.
Galvanizing and Tinning Machinery and Furnaces (Wire)
 Turnor, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Gas and Gasoline Engines

Gddie & McCulloch Co., Galt, Ont.
 Morrison, T. A. & Co., Montreal.

Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

Gauges (Steam)

Ponberthy Injector Co., Windsor, Ont.
 Petrie, H. W., Toronto.
 Williams, A. R. Machinery Co., Toronto.

Gauges (Water)

Babcock & Wilcox, Limited, Montreal.
 Ponberthy 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.

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

Grease Cups

Ponberthy Injector Co., Windsor, Ont.

Grinding Machinery

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

Hardware

Butterfield & Co., Rock Island, Que.
 Gartschore, 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.

Heating and Ventilating Apparatus

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

Holisting Engines

Bertram Engine Works Co., Toronto.
 Jencks Machine Co., Sherbrooke, Que.

Holsts (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.
 Canadian Hand 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.
 Sadler & Haworth, Montreal and Toronto.

Hotel

Gallatin Hotel, New York City.

Hydrants

Kerr Engine Co., Walkerville, Ont.
 Jencks Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

Jencks Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Leather

McLaren, J. C. Belting Co., Montreal.
 Sadler & Haworth, Montreal and Toronto.

Hydraulic Machinery

Canada Foundry Co., Toronto.
 Darling Bros., Montreal.
 Hamilton, Wm. Mfg. Co., Peterborough, Ont.
 Jencks Machine Co., Sherbrooke, Que.
 McDougall, John, Caledonian Iron Works Co., Montreal.
 Perrin, William R. & Co., Limited, Toronto.
 Petrie, H. W., Toronto.

Industrial Plants

Wilson, J. C. & Co., Glenora, Ont.

Industrial Plants

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

WORK AND PRICES RIGHT GALVANIZING ONT. WIND ENGINE & PUMP CO. TORONTO, ONT. LIMITED.



BANK OF HAMILTON

J. TURNBULL, General Manager.

HEAD OFFICE, - HAMILTON, ONT.

Capital.	Reserve.	Total Assets.
\$2,000,000	\$1,700,000	\$22,000,000

BRANCHES IN

TORONTO, MONTREAL, WINNIPEG, VANCOUVER, and all principal towns in Canada.

Collections made in all parts of Canada.

The Mercantile Agency

ESTABLISHED 1841.

R. G. DUN & CO.

Offices in 189 of the leading business centres of the world.

CANADIAN OFFICES

TORONTO,	MONTREAL,
HAMILTON,	QUEBEC,
LONDON,	OTTAWA,
WINNIPEG,	ST. JOHN,
VANCOUVER,	HALIFAX.

W. G. MATTHEWS, Toronto, General Manager for Canada.

Established 1849.

BRADSTREET'S

Capital and Surplus, \$1,500,000

Offices Throughout the Civilized World.

EXECUTIVE OFFICES,

346 & 348 Broadway, New York City, U.S.A.

CORRESPONDENCE INVITED.

OFFICES IN CANADA :

Hallifax, N.S.	Hamilton, Ont.
London, Ont.	Montreal, Que.
Ottawa, Ont.	Quebec, Que.
St. John, N.B.	Toronto, Ont.
Vancouver, B.C.	Winnipeg, Man.

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

Advertise in the
Canadian Manufacturer.

WOOD ENGRAVING PHOTO ENGRAVING HALF TONES

OR ANY CLASS OF ENGRAVING
FOR ADVERTISING PURPOSES.
CATALOGUES, MAGAZINES, &c

J. L. JONES ENG. CO.
168 BAY ST - TORONTO

You must
Advertise or Lose!
Then why not
Advertise wisely?

The best advertisers in the
country—and they are all
thinkers—tell you how to
advertise successfully in

BRAINS

FOR
The Retailer and Advertiser

The very best examples of clever,
money-making advertising in the
world are presented weekly.

If you advertise without reading
BRAINS you miss the benefit
of other men's experience, men
who have given years to the
study of advertising.

Five dollars a year is all it costs, and
its worth it. Sample copy 5 cents.

JAMES KNAPP REEVE
PUBLISHER
DEPOSIT, N. Y.

The Most
Persistent and

Successful Salesman

You can employ is the ad
that is read by those who
are and those who ought
to be your customers.
Think it over and let us
sell you some space.

CANADIAN MANUFACTURER,
TORONTO, Canada.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

CLASSIFIED INDEX.

(CONTINUED).

Insulated Wires and Cables

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

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Mont-
real.
Meadows, Geo. B., Wire, Iron & Brass Works Co.
Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Rice Lewis & Son, Toronto.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Penberthy Injector Co., Windsor, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

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.
Cowdrey, C. H. Machine Works, Fitchburg, Mass.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Williams, A. R. & Co., Toronto.

Lathes (Wood-working)

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

Loom Reeds.

McLaren, J. C., Belting Co., Montreal.

Lubricators

Penberthy Injector Co., Windsor, Ont.

Machinists

Bertram Engine Works Co., Toronto.
Canada Machinery Co., Sarnia, Ont.
Goldie & McCulloch Co., Galt, Ont.
Greay, Wm. & J. G., Toronto.
London Machine Tool Co., London, Ont.
Robb Engineering Co., Amherst, N.S.
Worth & Martin, Toronto.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Canada Machinery Co., Sarnia, Ont.
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.
Worth & Martin, Toronto.

Machine Tools

Barnes, B. F. Co., Rockford, Ill.
Becker-Brainard Milling Machine Co., Hyde Park,
Mass.
Canada Machinery Co., Sarnia, Ont.
Cowdrey, 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
Canada Machinery Co., Sarnia, Ont.
Greay, Wm. & J. G., Toronto.

Malleable Castings

International Harvester Co., Hamilton, 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.
Jonckes Machine Co., Sherbrooke, Que.

Mechanical Draft

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

Metal Gates

Page Wire Fence Co., Walkerville, Ont.

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Pedlar People, Oshawa, Ont.

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.
Darling Bros., Montreal.
Fleming, W. A. & Co., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Greay, 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.
Jonckes Machine Co., Sherbrooke, Que.
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.
Reddaway, F. & Co., Manchester, England.
Rice Lewis & Son, Toronto.
Robb Engineering Co., Amherst, N.S.
Spence, R. & Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

Milling Cutters and Machines

Becker-Brainard Milling Machine Co., Hyde Park,
Mass.

Miners' Lamps

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

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
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.
Jonckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co.,
Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Schutte & Koerting Co., Philadelphia, Pa.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

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

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Nickel.

Canadian Copper Co., New York, N. Y.
Orford Copper Co., New York, N. Y.

Novelty Manufacturers

Worth & Martin, Toronto.

Nozzles

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

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston,
Ont.
Meadows, Geo. B., Wire, Iron & Brass Works Co., Tor-
onto.

Oils and Lubricants

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

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Oil Cups

Penberthy Injector Co., Windsor, Ont.

Paints and Colors

Berry Bros., Walkerville, Ont.
Fleming, W. A. & Co., Montreal.
Geigy, Anilino & Extract Co., New York City.
McArthur, Cornelio & Co., Montreal.

CLASSIFIED INDEX.

(CONTINUED).

Paper Manufacturers

Barber, Wm., & Bros., Georgetown, Ont.
Toronto Paper Mfg. Co., Cornwall, Ont.

Patents

Budden, Hanbury, A., Montreal.
Fetherstonhaugh & Co., Toronto.
Marion & Marion, Montreal.

Perforated Metals

Globe Machine & Stamping Co., Cleveland, Ohio.
Greening, B. Wire Co., Hamilton, Ont.

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

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

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Syracuse Smelting Works, Montreal.

Pipe (Riveted, Iron and Steel)

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

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.
Rice Lewis & Son, Toronto.

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Montreal Pipe Foundry Co., Montreal.
Rice Lewis & Son, Toronto.

Plaster

Albert Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Rice Lewis & Son, Toronto.

Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.
McCullough-Dalsell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Hand Drill Co., Sherbrooke, Que.

Pointer Rolls (For Rods and Wire)

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

Portland Cement

Owen Sound Portland Cement Co., Owen Sound, Ont.

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong, Herbert J., Toronto.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
McLano-Osborn Engineering Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Mey Mfg. Co., Columbus, Ohio.
Jes & Moore Electric Co., Toronto.
Elystone Engineering Co., Toronto, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Richard Electric Co., St. Catharines, Ont.
Terin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Sartevant, B. F. Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.
United Electric Co., Toronto.
Eason, J. C. & Co., Glenora, Ont.

Presses (Tire, Sewer Pipe, Nozzles and Sleeves)

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

Pulleys

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Gray, Wm. & J. G., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Mey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Rice, J. C. & Co., Glenora, Ont.

Pumps and Pumping Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Darling Bros., Montreal.
Downie Pump Co., Downieville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Jencks Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
Morris Machine Works, Baldwinville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.
Petrie, H. W., Toronto.
Schutte & Koerting Co., Philadelphia, Pa.

Punches and Shears

Canada Machinery Co., Sarnia, Ont.
Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.

Purifiers

Babcock & Wilcox, Limited, Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Purifying and Softening Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Railroads

Chicago & North-Western Ry., Toronto & St. Paul, Minn.

Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.
Allis-Chalmers-Bullock, Limited, Montreal.
Garthore, John J., Toronto.
Greening, B. Wire Co., Hamilton, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugene F., Electrical Works, Montreal.

Reamers

Butterfield & Co., Rock Island, Que.

Rivets

Bourne-Fuller Co., Cleveland, Ohio.
London Rolling Mills, London, Ont.

Rock and Ore Crushers

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

Roofing

Bourne-Fuller Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

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

Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Screws

Morrow John, Machine Screw Co., Ingersoll, Ont.

Screw Plates

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.

Shafting

Allis-Chalmers-Bullock, Limited, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Grooy, Wm. & J. G., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.

Shapers and Carvers

Advance Machinery Co., Toledo, Ohio.

Shear Knives

Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel)

Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Lysaght, John, Limited, Bristol, England and Montreal.

Sheet Metal Goods

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Podlar People, Oshawa, Ont.

THE CANADIAN MANUFACTURER

J. J. CASSIDEX, Manager.

PUBLISHED TWICE A MONTH.

Devoted to the Industrial Interests of Canada.

\$1.50 a Year. Sample Copies Free.

Advertising Rates on application.

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

Keep Posted on Coal

You will save money by reading THE RETAIL COALMAN. We guarantee the largest paid circulation of any coal trade paper. That's the best proof of its practical worth and genuine merit.

A Whole Year for only \$1

Sample Copy free for the asking.

Special attention given Canadian news.

THE RETAIL COALMAN,

1536 Monadnock Building,
CHICAGO, ILL.

THE AMERICAN Carpet and Upholstery Journal

The leading magazine devoted to these trades, published in Philadelphia, the center of carpet and upholstery manufacture in the United States.

Subscription, - \$2.00 per annum.

A copy of the "American Buyer's Directory" of the wholesale trade, free with subscription.

THE TRADES PUBLISHING COMPANY

102 South 12th Street,
NEW YORK OFFICE: PHILADELPHIA
Hartford Building.

CLASSIFIED INDEX.

(CONTINUED).

Sheet Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar Peopie, Oshawa, Ont.

Ship Builders

Bertram Engine Works Co., Toronto.

Smoke Stacks

Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co.,
Montreal.

Robb Engineering Co., Amherst, N.S.

Solder

Globe Machine & Stamping Co., Cleveland, Ohio.
Syracuse Smelting Co., Montreal.

Special Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canada Machinery Co., Sarnia, Ont.
Globe Machine & Stamping Co., Cleveland, Ohio.

Speed Recorders

Bristol Co., Waterbury, Conn.

Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Stamps and Stencils

Globe Machine & Stamping Co., Cleveland, Ohio.

Steam Pumps

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Mont-
real.

Petrie, H. W., Toronto.

Williams A. R. Machinery Co., Toronto.

Steam Separators

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.

Steam Specialties

Darling Bros., Montreal.
McEachren Heating & Ventilating Co., Galt, Ont.
Penberthy Injector Co., Windsor, Ont.
Schutte & Koerting Co., Philadelphia, Pa.
Sheldon & Sheldon, Galt, Ont.

Steam Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Steel and Composite Ships

Bertram Engine Works Co., Toronto.

Steel Rails

Algoma Steel Co., Sault Ste. Marie, Ont.
Drummond, McCall & Co., Montreal and Toronto.
Garshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.

Steel Shafting

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Greay, Wm. & J. G., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Leslie, A. O. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Wilson, J. C. & Co., Glenora, Ont.

Stocks and Dies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.
Rice Lewis & Son, Toronto.
Worth & Martin, Toronto.

Stoppers

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

Structural Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.

Sulphate of Alumina

Nichols Chemical Co. of Canada, Montreal.

Sulphur Furnace

Schutte & Koerting Co., Philadelphia, Pa.

Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Oil and Water)

Canada Foundry Co., Toronto.
Corbett, R. B., Brooklyn, N.Y.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Janekes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Ontario Wind Engine & Pump Co., Toronto.

Taps and Dies

Butterfield & Co., Rock Island, Que.
Globe Machine & Stamping Co., Cleveland, Ohio.

Tees

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.

Textile Manufacturers

Dominion Oil Cloth Co., Montreal.
Smith Mfg. Co., Toronto.
Storey, W. H. & Sons, Acton, Ont.

Textile Supplies

Greay, Wm. & J. G., Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.

Thermometers (Recording)

Bristol Co., Waterbury, Conn.

Tin

Leslie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

Tool Grinders

Barnes, B. F. Co., Rockford, Ill.

Tool Steel

Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.

Trucks

Corbett, R. B., Brooklyn, N.Y.
Greay, Wm. & J. G., Toronto.
Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Mont-
real.
Sheldon & Sheldon, Galt, Ont.

Trucks (Railway)

Canada Foundry Co., Toronto.

Trucks (Wire Mill Supplies)

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

Tubs (Cleaning and Coating Wire)

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

Tugs

Bertram Engine Works Co., Toronto.

Tumbling Barrels

Globe Machine & Stamping Co., Cleveland, Ohio.

Turbines

Canada Foundry Co., Toronto.
Greay, Wm. & J. G., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Janekes Machine Co., Sherbrooke, Que.
Wilson, J. C. & Co., Glenora, Ont.

Typewriters and Supplies

United Typewriter Co., Toronto.

Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Schutte & Koerting Co., Philadelphia, Pa.
Williams, A. R. Machinery Co., Toronto.

Valves (Rubber)

Gutta Percha & Rubber Mfg. Co. Toronto.

Varnishes

Borry Bros., Walkerville, Ont.

Ventilators

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

Wagon and Carriage Wood Work

Hore, F. W. & Son, Hamilton, Ont.

Washers or Hollinders (Cleaning Rubber)

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

Watchman's Clocks

Eco Magneto Clock Co., Boston, Mass.

Water Power Development

Vogel, C. H., Ottawa.

Water Purifying Chemicals

Canada Chemical Mfg. Co., London, Ont.

Windmills

Ontario Wind Engine & Pump Co., Toronto.

Wire Mill Supplies

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

Wire and Wire Rope

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.
Phillips, Eugene F., Electrical Works, Montreal.
Wire & Cable Co., Montreal.

Wire Rope Fittings

Dominion Wire Rope Co., Montreal.

Wire Cloth

Greening, B. Wire Co., Hamilton, Ont.

Wire Drawing Machinery

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

Wire Fencing and Netting

Page Wire Fence Co., Walkerville, Ont.

Wire Specialties

Meadows, Geo. B. Wire, Iron & Brass Works Co.
Toronto.
Page Wire Fence Co., Walkerville, Ont.

Wood-Working Machinery

Advance Machinery Co., Toledo, Ohio.
Canada Machinery Co., Sarnia, Ont.
Crowley, C. H., Machine Works, Fitchburg, Mass.
Goldie & McCulloch Co., Galt, Ont.
London Machine Tool Co., London, Ont.
Petrie, H. W., Toronto.
Sheldon & Sheldon, Galt, Ont.
Williams, A. R. Machinery Co., Toronto.

Yachts

Bertram Engine Works Co., Toronto.

Zinc

Leslie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

The Engineering Review

A High-Class Illustrated Monthly Technical Record.

The largest sale circulation throughout the Empire.

SUBSCRIPTION RATE :
12/6 per annum (post free).

For Advertising Rates apply to
General Manager.

104 High Holborn, - LONDON W.C.,
ENGLAND.

- or -

THE INTERNATIONAL NEWS CO., Limited
TORONTO and MONTREAL.

ATTENTION!

Do you desire to keep posted on the industrial affairs of Alabama, and more especially the Great Birmingham District? If so, subscribe for

The Dixie Manufacturer
BIRMINGHAM, ALA.

It is the only industrial paper published in Alabama. It is old and established. Published semi-monthly. Subscription price, \$2 per year. If you want to sell machinery, hardware, electrical and building supplies you cannot find a better medium. Send for copy and advertising rates.

ROUNTREE PUBLISHING CO.,
BIRMINGHAM, ALABAMA.

INDEX TO ADVERTISEMENTS.

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

See Classified Index Beginning on Page 42

of outside front cover.		ofc..... ..outside back cover.	
A			
Advance Machinery Co., Toledo, Ohio	39	Canada Machinery Co., Sarnia, Ont.....	8
Agriculture, Ontario Minister of, Toronto.....	38	Canadian Casualty & Boiler Insurance Co., Toronto	5
Aitken, K. L., Toronto.....	10	Canadian Copper Co., New York, N. Y.....	5
Albert Mfg. Co., Hillsborough, N.B.	9	Canadian Corundum Wheel Co., Hamilton, Ont.	31
Algoma Steel Co., Sault Ste. Marie, Ont.	4	Canadian General Electric Co., Toronto.....	13
Allis-Chalmers-Bullock, Ltd., Montreal	61	Canadian Helne Safety Boiler Co., Toronto	33
American Carpet & Upholstery Journal, Philadelphia, Pa.....	47	Canadian Legal Pub. Co. Toronto.....	47-49
American Steam Pump Co., Battle Creek, Mich.	35	Canadian Office & School Furniture Co., Pres- ton, Ont	10
Anton, John & Son, Monongahela, Pa.....	10	Canadian Oil Elevator Co., Hamilton, Ont....	40
Archbold, Dr. Geo., Prescott, Ont.	10	Canadian Rand Drill Co., Sherbrooke, Que	51
Armstrong, Herbert J., Toronto.....	10	Canadian Westinghouse Co., Ltd., Hamilton, Ont	36
Armstrong Mfg. Co., Bridgeport, Conn.	37	Cassella Color Co., New York and Montreal ...	16
B			
Babcock & Wilcox, Limited, Montreal	ofc	Chicago & North-Western Railway, B. H. Ben- nett, General Agent, Toronto.....	36
Bank of Hamilton, Hamilton, Ont.....	45	Continental Iron Works, New York, N.Y.....	3
Barber, Wm. & Bro., Georgetown, Ont.....	43	Corbett, R. B. Brooklyn, N.Y.	40
Barnes, B. F. Co., Rockford, Ill.....	31	Cowdroy, O. H., Machine Works, Fitchburg, Mass	11
Becker-Brinard Milling Machine Co., Hyde Park, Mass.....	15	Crocker-Wheeler Co., St. Catharines, Ont.....	12
Bell Telephone Co.....	36	D	
Benson, W. T. & Co., Montreal	32	Darling Bros., Montreal	14
Berry Bros., Walkerville, Ont	36	Dean & Son, London, E.C., England	10
Bertram Engine Works Co., Toronto.....	14	Dalano-Osborn Engineering Co., Toronto	10
Blagden, Waugh & Co., London, E.C., England	36	Department Public Works, Ottawa.....	10
Boiler Inspection & Insurance Co., Toronto.....	ofc	Dawar Detective Agency, St. Louis, Mo.....	10
Borden & Selleck Co., Chicago, Ill.....	41	Dixon, Jos., Crucible Co., Jersey City, N.J	38
Bourne-Fuller Co., Cleveland, Ohio.....	4	Dominion Belting Co., Hamilton, Ont.....	41
Bradley Pulveriser Co., Boston, Mass	39	Dominion Oil Cloth Co., Montreal.....	9
Bradstreets, Toronto and New York	45	Dominion Wire Rope Co., Montreal.....	41
Bristol Co., Waterbury, Conn	ofc	Dover Fire Brick Co., Cleveland, Ohio.....	41
Brownlee, J., Galt, Ont	7	Downie Pump Co., Downieville, Pa.	4
Brunner, Mond & Co., Northwich, England ...	10	Drummond, McCall & Co., Montreal, Que	45
Budden, Hanbury A., Montreal.....	33	Dun, R. C. & Co., Toronto.....	9
Burt Mfg. Co., Akron, Ohio.....	3	Dunbar Fire Brick Co., Pittsburg, Pa	38
Butterfield & Co., Rock Island, Que.....	4	E	
C			
Canada Chemical Mfg. Co., London, Ont.....	36	Edwards, R. J., Toronto	13
Canada Foundry Co., Toronto.....	4	Eco Magneto Clock Co., Boston, Mass.	13
Canada Iron Furnace Co., Montreal.....	4	Electrical Construction Co., London, Ont.	10
D			
Electrical Publishing Co., London, W.C., Eng- land.....	37	Electrical Supervision Society, Toronto.....	48
Engineering Review, London, England.....	48	F	
Evans, Horace F., Ashcroft, B.C.....	10	Factory Inspectors, Ontario	33-40
Expanded Metal & Fireproofing Co., Toronto... 14		Factory Locations	6
F			
Ferguson, J. D., Hamilton, Ont.....	6	Fetherstonhaugh & Co., Toronto	10
Fisher, George W., Keene, N. H.....	40	Fleming, W. A. & Co., Montreal.....	2
Fleming, W. A. & Co., Montreal.....	2	Ford Motor Co. of Canada, Walkerville, Ont....	16-38
Ford Motor Co. of Canada, Walkerville, Ont....	2	Forman, John, Montreal.....	41
Forman, John, Montreal.....	16-38	G	
G			
Gallatin Hotel, New York City.....	41	Gartshore, John J., Toronto	38
Gartshore, John J., Toronto	10	Geigy Aniline & Extract Co., New York, N.Y..	36
Geigy Aniline & Extract Co., New York, N.Y..	36	Globe Machine & Stamping Co., Cleveland, Ohio	3
Globe Machine & Stamping Co., Cleveland, Ohio	3	Goldie & McCulloch Co., Galt, Ont.....	5
Goldie & McCulloch Co., Galt, Ont.....	3	Greening, B. Wiro Co., Hamilton, Ont	ofc
Greening, B. Wiro Co., Hamilton, Ont	5	Groey, Wm. & J. G., Toronto	ofc
Groey, Wm. & J. G., Toronto	ofc	Gutta Percha & Rubber Mfg. Co., Toronto	ofc
Gutta Percha & Rubber Mfg. Co., Toronto	ofc	H	
H			
Hamilton Brass Mfg. Co., Hamilton, Ont	11	Hamilton Facing Mills Co., Hamilton, Ont	15
Hamilton Facing Mills Co., Hamilton, Ont	11	Hamilton, Wm. Mfg. Co., Peterborough, Ont ..	14
Hamilton, Wm. Mfg. Co., Peterborough, Ont ..	15	Hawthornthwaite, Alfred, Montreal.....	6
Hawthornthwaite, Alfred, Montreal.....	14	Hay, Peter Knife Co., Galt, Ont	10
Hay, Peter Knife Co., Galt, Ont	35	Heya, Thomas & Son, Toronto	6
Heya, Thomas & Son, Toronto	10	Hoffman, Jules G., Detroit, Mich	35
Hoffman, Jules G., Detroit, Mich	6	Hopkins, F. H. & Co. Montreal.....	41
Hopkins, F. H. & Co. Montreal.....	35	Hore, F. W. & Son, Hamilton, Ont	10
Hore, F. W. & Son, Hamilton, Ont	41	Hunt, Robert W. & Co., Chicago, Ill.	40
Hunt, Robert W. & Co., Chicago, Ill.	10	Hutcheson, S. M., Paisley, Ont	
Hutcheson, S. M., Paisley, Ont	40		

When Arranging for Your Next Advertisement

Don't Forget the CANADIAN MANUFACTURER!

Give us a chance to show you that Advertising Pays.

For sample Copies, advertising rates, etc., address,

THE CANADIAN MANUFACTURER PUBLISHING CO., Limited
McKINNON BUILDING, TORONTO, CANADA.

INDEX TO ADVERTISEMENTS (Continued).

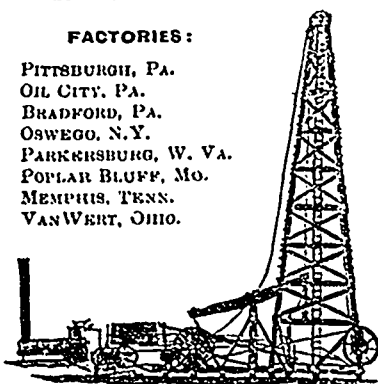
I	PAGE		PAGE	S	PAGE
Imperial Oil Co., Patrolea, Ont.....	37	McLaren, D. K., Montreal and Toronto	38	Sadler & Haworth, Montreal and Toronto.....	44
International Harvester Co., Hamilton, Ont....	40	McLaren, J. C., Belting Co., Montreal and Toronto	obo	Savage Mountain Fire Brick Co., Frostburg, Md.	10
				Sawyer, Edward T., Columbus, Ohio.....	8
J		N		Schutte & Koorting, Philadelphia Pa.....	42
Jeffrey Mfg Co., Columbus, Ohio	15	National Supply Co., Pittsburg, Pa	14	Shawmut Coal & Coke Co., St. Mary's, Pa., and Hamilton, Ont	6
Jenckes Machine Co., Sherbrooke, Que.....	8	Neff & Postlethwaito, Toronto	10	Sheldon & Sheldon, Galt, Ont.....	12
Jones & Moore Electric Co., Toronto	13	Nichols Chemical Co. of Canada, Montreal.....	37	Shipman, O. W. Co., Detroit, Mich	7
Jones, J. L., Engraving Co., Toronto	40	Northern Aluminium Co., Shawinigan Falls, Que. and Pittsburg, Pa	5	Skac, E. A., Detroit, Mich	7
		Nova Scotia Steel & Coal Co., Now Glasgow, N.S.	4	Smith Mfg. Co., Toronto	43
K				Smith's Falls Malleable Castings Co., Smith's Falls, Ont	obo
Kelly's Directories, Toronto and London England	36	O		Spence, R. & Co., Hamilton, Ont	43
Kerr Engine Co., Walkerville, Ont.....	13	Oakoy, John, & Sons, London, England	38	Storoy, W. H. & Son, Acton, Ont	41
Keystone Engineering Co., Toronto	33	Oil Well Supply Co., Pittsburg, Pa	50	Stowe-Fuller Co., Cleveland, Ohio	10
		Old Colony Coal & Coke Co., Pittsburg, Pa....	6	Sturtevant, B. F. Co., Boston, Mass	33
L		Ontario Wind Engine & Pump Co., Toronto	45	Sunbeam Incandescent Lamp Co., Toronto and St. Catharines, Ont.....	31
Leslie, A. C. & Co., Montreal	ofc	Orford Copper Co., New York, N.Y.....	5	Syracuse Smelting Co., Montreal and New York 5-13	
Lewis, Rice & Son, Toronto	37	Otis-Fensom Elevator Co., Toronto	ofc		
Link-Bolt Engineering Co., Philadelphia, Pa....	2	Owen Sound Portland Cement Co., Owen Sound, Ont	9		
London Machine Tool Co., London, Ont	41			T	
London Rolling Mill Co., London, Ont.....	16			Toronto & Hamilton Electric Co., Hamilton, Ont	13
Lowell Crayon Co., Lowell, Mass	10	P		Toronto Paper Mfg. Co., Cornwall, Ont	43
Lysaght, John, Limited, Bristol, England and Montreal		Packard Electric Co., St. Catharines, Ont	12	Turner, Vaughn & Taylor, Cuyahoga Falls, Ohio.....	10
		Page Wire Fence Co., Walkerville, Ont.....	41		
M		Parke, Roderick J., Toronto	10		
Marion & Marion, Montreal	obo	Pedlar People, Oshawa, Ont.....	35		
Meadows, Geo. B. Wire, Iron & Brass Works Co., Toronto	15	Penberthy Injector Co., Windsor, Ont	2		
Metallic Roofing Co., Toronto	43	Pennsylvania Fire Brick Co., Lock Haven, Pa	9	U	
Mills, S. D., Toronto	10	Perrin, William R. & Co., Limited, Toronto and Chicago, Ill	41	United Electric Co., Toronto.....	obo
Milnes, J. H. & Co., Toronto	7	Peterborough Canoe Co., Peterborough, Ont	45	United Typewriter Co., Toronto	39
Montreal Pipe Foundry Co., Montreal	14	Petrie, H. D., Hamilton, Ont.....	10		
Morris Machine Works, Baldwinsville, N.Y.....	40	Petrie, H. W., Toronto.....	11-12-40		
Morrison, T. A. & Co., Montreal	10	Phillips, Eugene F., Electrical Works, Montreal	13		
Morrow, John, Machine Screw Co., Ingersoll, Ont.	43	Pittsburgh Coal Co., Pittsburg, Pa	6		
Myles, Theo., Sons, Hamilton, Ont.....	7	Pittsburg Crucible Works, Pittsburg, Pa	33	V	
				Vogel, C. H., Ottawa	10
Mc		Q		Von der Osten, E. & Co., Toronto	10
McArthur, Cornello & Co., Montreal	obo	Queen City Oil Co., Toronto	ofc		
McCullough-Dalsell Crucible Co., Pittsburg, Pa.	33	Queen's Run Fire Brick Co., Lock Haven, Pa..	ofc		
McDougall, John, Caledonian Iron Works Co., Montreal	39-40			W	
McEachren Heating & Ventilating Co., Galt, Ont.....	8	R		Wardlaw, T. D., Toronto	40
		Reddaway, F. & Co., Manchester, England....	34	Westinghouse Electric & Mfg. Co., Pittsburg, Pa	51
		Reese-Hammond Fire Brick Co., Bolivar, Pa....	9	Wick, H. K. & Co., Buffalo, N.Y	7
		Retail Coalman, Chicago, Ill	47	Williams, A. R. Machinery Co., Toronto	35
		Retailer & Advertiser, Deposit, N.Y.....	46	Winn & Holland, Montreal	
		Rice Lewis & Son, Toronto	37	Wilson, H. T. Coal Co., Detroit Mich	7
		Robb Engineering Co., Amherst, N.S	42	Wilson, J. C. & Co., Glenora, Ont	38
		Roland, Chas. F., St. Catharines, Ont.....	40	Wire & Cable Co., Montreal	ofc
		Rosendals Belting Co., Toronto	ofc	Worth & Martin, Toronto	41
		Rountree Publishing Co., Birmingham, Ala	48		

OIL WELL SUPPLY CO.,

Main Office, PITTSBURGH, PA., U.S.A.

FACTORIES:

- PITTSBURGH, PA.
- OIL CITY, PA.
- BRADFORD, PA.
- OSWEGO, N.Y.
- PARKERSBURG, W. VA.
- POPLAR BLUFF, MO.
- MEMPHIS, TENN.
- VAN WERT, OHIO.



Established 1861—Pioneers in the business of manufacturing everything required to Drill, Equip and Operate OIL and GAS WELLS or for sinking deep wells for Water, or Mineral prospecting.

- CABLE SYSTEM for hard rock formations.
- HYDRAULIC SYSTEM for quicksand and clay.
- COMBINATION OUTFITS for any condition.

PORTABLE RIGS

ALL SIZES.

BOILERS, STEAM ENGINES, GAS ENGINES, CASING, TUBING, DRIVE PIPE, LINE PIPE.

Manila and Wire Drilling Cables, Tubing and Sucker Rod Lines, Iron and Wood Sucker Rods, Pumping Powers, etc. Our goods are known throughout the world.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

PAGE

MISSING