

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
									✓		

**CANADIAN MANUFACTURER**  
 AND INDUSTRIAL WORLD  
 DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

VOL. 30. TORONTO, MAY 17, 1895. No. 10.

... ESTABLISHED FIFTY-FIVE YEARS ...

**THEO. H. EATON & SON**  
 WINDSOR, ONT.  
 Importers and Manufacturers  
 OF  
**Dyewoods, Dyeing Drugs**  
**ACIDS**  
 PURE DYEWOOD EXTRACTS  
**CHEMICALS, ALKALI, ETC.**

Sole Agents for  
**THE CROWN ANILINE DYES, ALIZARINES, ETC**

**ANILINES** **EXTRACTS**

TORONTO.  
**DIRECT DEEP BLACK, T.**  
**DIRECT BLUE BLACK, B.**  
*For Dyeing Fast Black on Cotton or Mixed Goods, one dip.*  
 - - - Manufactured only by - - -  
**Farbenfabriken vorm F. Bayer & Co.,**  
 - - - ELBERFELD - - -  
**Dominion Dyewood & Chemical Co.**  
 TORONTO - Sole Agents - -  
 - - - for Canada.

**HENRY PORTER**  
 Oak Leather Tanner, and Manufacturer of  
**PURE OAK TANNED**  
**BELTING**

Lace Leather, Goodyear Welting, Bag and Colored Shoe Leather, Carriage, Furniture and Patent Leather, Oak, Sole, and Harness Leather.

434 to 442 Visitation St.,  
**MONTREAL, Que.**

**OAK TANNED BELTING**

**THE J. C. McLAREN BELTING CO.,** TORONTO and ...  
 ... MONTREAL

CHARLES F. CLARK, Edw. F. RANDOLPH,  
 President, Treasurer,  
 ESTABLISHED 1849.  
**THE BRADSTREET**  
**MERCANTILE AGENCY**  
 THE BRADSTREET COMPANY  
 PROPRIETORS,  
**NEW YORK.**  
 Offices in the principal cities of the United States, Canada, the European Continent, Australia, and in London, England.

The Bradstreet Company is the oldest and financially the strongest organization of its kind—working in one interest and under one management—with wider ramifications, with more capital invested in the business, and it expends more money every year for the collection and dissemination of information than any similar institution in the world.

**TORONTO OFFICES:**  
 36 Front St. E., & 27 Wellington St. E.  
 THOS. C. IRVING, Superintendent.

**THE GUTTA PERCHA & RUBBER MFG. CO.**  
 OF TORONTO  
 HO-WARRREN, PRES. & TREAS.  
 BELTING, PACKING, HOSE, CLOTHING, FACTORIES AT PARKDALE.  
 WAREHOUSE & OFFICE 61 & 63 FRONT ST. W. TORONTO.

**THE WALKERVILLE**  
**Malleable Iron Co.**  
**LIMITED.**  
 Manufacturers of  
 REFINED  
 AIR FURNACE  
 MALLEABLE CASTINGS.  
 Walkerville, Ontario.

**Ridout & Maybee**  
 J. C. RIDOUT, (Late C. E.) J. EDW. MAYBEE,  
 Barrister, Solicitor, Etc. Mech. Eng.

Solicitors of and Experts in  
 Pamphlet on Patents Sent Free  
 103 Bay Street, Toronto.

**PATENTS**

SPECIAL The best Electric Motor in Town Manufactured by The John Abell Engine and Machine Works Co., Ltd., TORONTO ONT. The "Improved" Eastern system of Electrical Machinery.

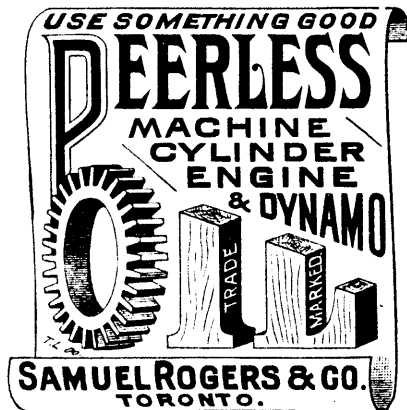
MANUFACTURING EXPERTS AT GIBBS PLACE, HOOPS, & CO.

**ROBT. S. FRASER,**  
Commission Agent & Importer  
MONTREAL, QUE.

Tetlow's English Card Clothing.  
Patent White Belting.

ROOT & CO. . .  
Camel Hair, Noils & Tops  
F. O. GA LKE & CO. . .  
Worsted and Mohair Fancy Yarns

FR. JAC ANDERES  
Egyptian and  
Peruvian Cot-  
ton.



Largest Manufacturers  
of STEEL and BRASS  
STAMPS in Canada

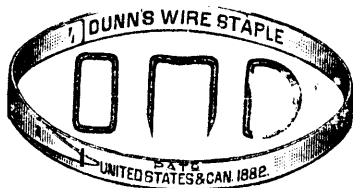
**PRITCHARD  
& ANDREWS**

OTTAWA, ONT.

Rubber Stamps,  
Stencils, Seals, Etc.

Send for Prices.

**P. DUNN, Manufacturer**  
COTE ST. PAUL, Near Montreal.



All Kinds of Wire Staples and Sus-  
pender Rings.

**WM. BARBER & BROS.,**

GEORGETOWN, ONTARIO,

Manufacturers of

**BOOK AND FINE PAPERS.**

**The Toronto Paper Mfg. Co.**  
CORNWALL, ONT.

Manufacturers of  
ENGINE SIZED SUPERFINE PAPERS  
WHITE AND TINTED BOOK PAPERS

Blue and Cream Laid and Wove Foolscaps, Account  
Envelope and Lithographic Papers etc.

**BROWN & CO.**



MANUFACTURERS  
OF

Square and Hexagon  
**HOT PRESSED NUTS**

Paris, Ont.

**Smith Wool Stock Co.**

210 FRONT STREET EAST, - - - TORONTO  
...MAKERS OF...

**Wool Stock, Shoddies, Etc.**

All lines of Graded Woollen Rags. Carbonizing and  
Neutralizing. Buyers of Wool Pickings, all lines of  
Hard and Soft Wastes.

**McARTHUR,**  
**CORNEILLE & CO.**

Manufacturers and Importers

310-316 St. Paul Street

AND

147-151 Commissioners Street

MONTREAL

OFFER AT CLOSEST PRICES

Pure Olive Oil, Winter Press-  
ed Lard Oil, Extra Fine  
Spindle Oil and a  
Full Assortment  
of Other  
Lubricating Oils,  
Greases, Mill Soaps, etc.  
Also Chemicals, Dye Stuffs,  
Dye Woods, Extracts, etc.

SOLE AGENTS IN CANADA FOR

**St. Denis Dyestuff and Chemical Co.**

PARIS,

A. POIRRIER, - PRESIDENT.

Aniline Colors, Archil Extract, Cachon de  
Laral, Etc.

**BRITISH ALIZARINE CO. LONDON**

Paste and Dry  
Alizarine

..

Stamford M'fg Co., New York.  
Dyewoods and  
Extracts

..

**COIGNET & CO., PARIS**

Glues, Gelatines,  
Etc.

..

Watson, Walker & Quickfall, Leeds  
Indigo  
Extracts

..

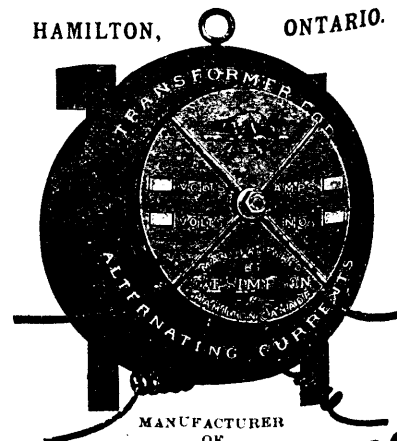
**MILLERTON, TANNIN EXTRACT CO.**

Hemlock  
Extract

...

Maintain Large Stocks, fully assorted, and will  
always be pleased to furnish  
quotations and samples.

**G. T. SIMPSON**  
HAMILTON, ONTARIO.



MANUFACTURER  
OF

**TRANSFORMERS**

**F. W. HORE'S SONS**  
Hamilton - - Ont.

Manufacturers of

Wheels, Wheel Materials, Shafts, &c

**W. H. STOREY & SON**  
ACTON, ONT.

Manufacturers of Fine Gloves  
and Mitts

In every variety and style.

Moccasins.



For Iron Fencing, Bank and Office Railings and all kinds  
of Ironwork, address Toronto Fence and Ornamental  
Iron Works, 73 Adelaide St. West, Toronto.

**THE BELL - - -**

**TELEPHONE - COMPANY**

OF CANADA

Manufacturers and Dealers in

Electro-Medical Apparatus,  
Fire Alarm Apparatus, Elec-  
trical Gas-Lighting Appara-  
tus, Magnets for Mills,  
Burglar Alarms, Hotel and  
House Annunciators,  
Electric Call Bells, etc.

FOR FURTHER PARTICULARS APPLY TO

No. 12 Hospital Street,  
MONTREAL.

# ROLPH, SMITH & CO.

Engravers, Lithographers,  
Stationers, Die-Sinkers & Embossers

Bill Heads, Envelopes, Note Paper,  
Shoe Cards, Calendars, Business  
Cards, Cheques, Stock Certifi-  
cates, Seals, Pamphlets, Circulars,  
Notes, Drafts, Maps, Plans, Medal  
Dies, Book Plates, Folders,  
Hangers, Letter Heads, Debentures,

OFFICE SUPPLIES.

MONUMENTAL BRASS PLATES.

Bonds, Invitation Cards, Visiting  
Cards, - Labels, - Posters.

49 Wellington St. West,  
....TORONTO....

Send for Catalogue and Price  
List to

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

## HACKNEY POWER HAMMERS

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

**STEVENS, HAMILTON & CO.**

Manufacturers of Iron Working Machinery.  
GALT : : ONT.

## Leitch & Turnbull,

CANADA ELEVATOR WORKS,  
QUEEN AND PETER STS., HAMILTON, ONT.

Patent Safety Hydraulic Hand and  
**POWER ELEVATORS.**

Telephone connection.

McLaughlin Bros.

## Teasels

Skaneateles Falls, N. Y.

Business Established in 1832.

# ALBERT MANUFACTURING CO.

Manufacturers of the Well Known

"HAMMER BRAND"

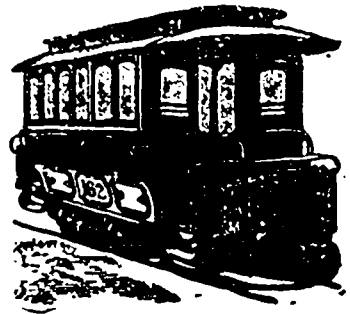
Calcined Plaster and

Patent Rock Wall Plaster.

HILLSBOROUGH, N. B., CANADA.

## PATTERSON & CORBIN

FINE  
**ELECTRIC  
CARS**



OUR SPECIALTY

St. Catharines, Ont.

MANUFACTURERS OF

# Horse and Trail Cars

—OF—

Every Description

**THE CANADIAN OFFICE & SCHOOL FURNITURE Co. Ltd.**  
PRESTON, ONT.

FINE OFFICE, SCHOOL,  
BANK, OFFICE, CHURCH & LODGE FURNITURE,  
COURT HOUSE & DRUG STORE FITTINGS

SEND FOR CATALOGUE.



# ELEVATORS

FENSOM ELEVATOR  
WORKS  
52-54-56 DUKE ST  
TORONTO.

ELECTRIC HYDRAULIC  
STEAM & HAND-POWER  
PASSENGER & GOODS  
ELEVATORS. DUMBWAITERS

The Largest Factory of the kind in the Dominion

**Lion "L" Brand**

PURE GOODS

HONEST GOODS



REGISTERED  
TRADE  
MARK

Leading Dealers from Ocean to  
Ocean Handle These Goods.

Pure Vinegars, Mixed Pickles,  
Jams, Jellies and Preserves.

**Michel Lefebvre & Co.**  
Man'rs, MONTREAL, QUE.

Also BEET SUGAR Manufacturers  
at Berthierville, Que.  
ESTABLISHED 1849.

... 30 First Prizes,  
Gold, Silver and Bronze Medals.

Lion "L" Brand.

REGISTERED

DRAMA

**.. Sampson ..**

**Portland Cement**

Equal to the Best English and German Brands

..... MANUFACTURED BY.....

**THE OWEN SOUND PORTLAND CEMENT CO. LTD.**  
OWEN SOUND, ONTARIO

use is authorized by the Toronto City Engineer and Engineers  
of other Public Works.

**QUALITY GUARANTEED**

..... Write for Prices, Tests and Samples.

**JOHN LUCAS, 377 Spadina Ave. Representative for Toronto**



**ROCK**

Trade  
Mark.

**EMERY**

MILL  
STONES

MADE TO FIT ANY MILL FRAME.

**FASTEST GRINDERS KNOWN. CHEAP. DURABLE**

**NOTHING CUTS LIKE ROCK EMERY. ROCK EMERY IS NEXT TO THE DIAMOND IN HARDNESS.**

Made of **LARGE BLOCKS** of Rock Emery set in **BRONZE**.

**NEVER GLAZE.** Emery face requires **NO DRESSING—STAYS SHARP.**

MORE OF THESE MILLSTONES ARE NOW IN USE THAN ALL OTHER MODERN GRINDERS TOGETHER.

**ROCK EMERY MILLSTONES GRIND EVERYTHING.**

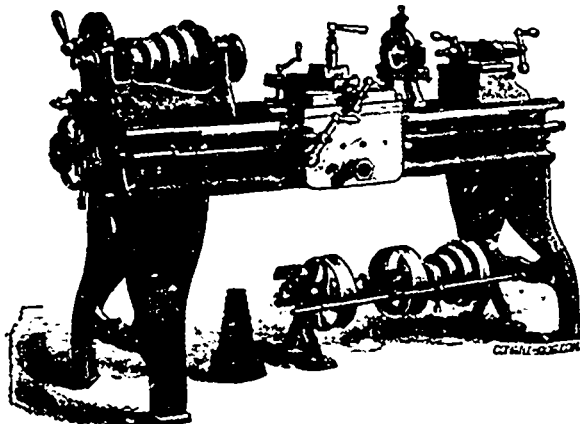
Send for Circular **B** to **STURTEVANT MILL CO., Boston, Mass.**

ESTABLISHED 1850

**Robert Gardner & Son,**

MANUFACTURERS OF

**Fine Tools, Lathes, Planers, etc.  
Shafting, Hangers & Pulleys, etc.**



Nazareth, Brennan & Dalhousie Sts., **MONTREAL.**

**REDDAWAY'S PATENT**



BREAKING STRAIN 6 IN CAMEL HAIR BELT—14,181 lbs  
6 IN DOUBLE OAK LEATHER—7,522

**W.A. FLEMING.**

SOLE AGENT FOR CANADA.

57, ST. FRAS. XAVIER ST. (24 FRONT ST. E. VICTORIA CHAMBERS  
MONTREAL. (TORONTO.) OTTAWA.

Our Motto on **EMERY WHEELS,**

**"LARGE CONTRACTS, QUICK SALES  
and SMALL PROFITS"**

For an A NO. 1 Wheel

ALSO THE LARGEST and BEST LINE OF EMERY WHEEL  
MACHINERY in the U. S.

Catalogue furnished upon application.

**The Springfield Emery Wheel Co.,** Bridgeport, Conn.

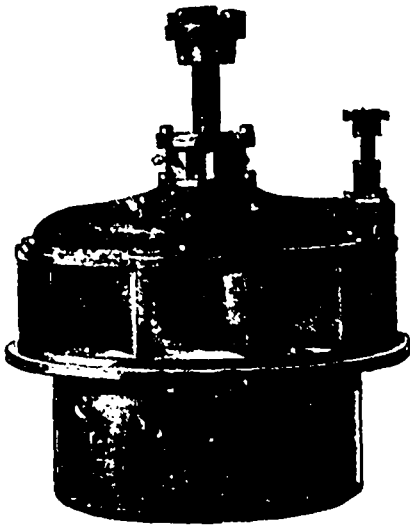
# ROE & GRAHAM

Iron Founders and Machinists

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

OTTAWA,

ONT.



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



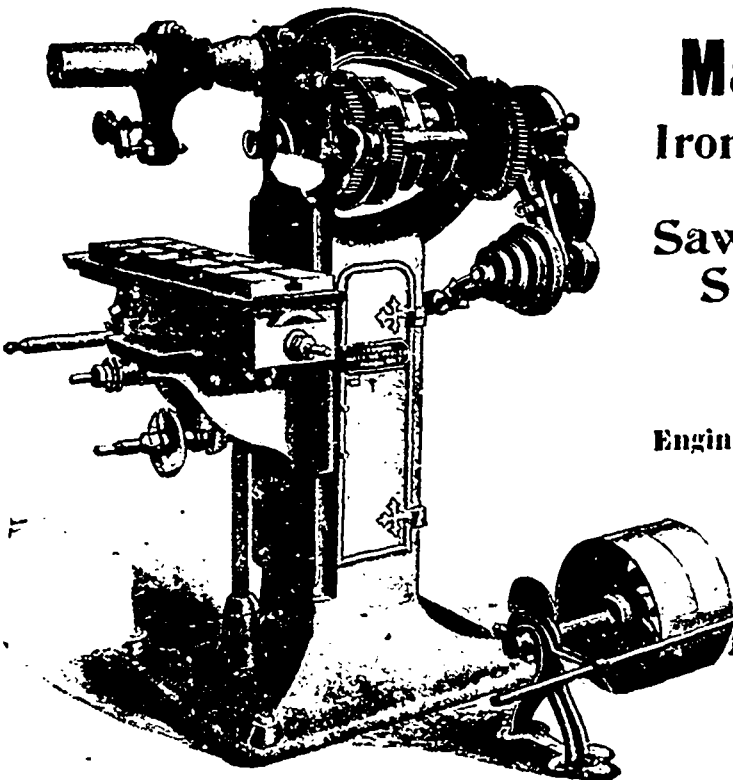
*Cut Showing Wheel Removed from Case.*

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

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

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

# A. R. WILLIAMS,



Manufacturer of and Dealer in  
**Machinery and Power**  
Iron Working Machinery.  
Wood Working Machinery  
Saw Mill Machinery.  
Shingle Mill Machinery.  
Veneer Mill Machinery.  
Mining Machinery.

Engines and Boilers, Motors and Dynamos, Fans, Blowers and Dry-Kilns.

MILL SUPPLIES OF EVERY DESCRIPTION

Office and Works:

Soho Machine Works, TORONTO, Ont.

Branch Warehouse

305 St. James St., MONTREAL, Que.

# EAGLE FOUNDRY

Established 1820.

...GEORGE BRUSH...

14 to 34 King and Queen Streets, - Montreal

..Maker of..

STEAM ENGINES, STEAM BOILERS,  
HOISTING ENGINES, STEAM PUMPS,

Circular Saw Mills, Bark Mills, Shingle Mills, Ore Crushers, Mill Gearing, Shafting Hangers and Pulleys.

Safety Elevators and Hoists for Warehouses, Etc.

HEINE SAFETY STEAM BOILERS...

Blake "Challenge" Stone Breaker.

## HYDRANTS, VALVES, WATER WORKS SUPPLIES.

ALSO IRON AND BRASS CASTINGS  
OF EVERY DESCRIPTION

AT PRICES TO SUIT THE TIMES.

## Law Bros. & Co.,

FOUNDERS AND MACHINISTS,

OTTAWA, ONTARIO.



### THE STANDARD DRAIN PIPE CO., St. John's, P.Q.

Manufacturers of Salt Glazed Vitrified Sewer Pipes, Double Strength Railway Culvert Pipes, Inverts, Vents, and all kinds of Fire Clay Goods.

The Standard Drain Pipe Co., of St. John's, P.Q., (Ltd.) W. C. THORNTON, President

### BENT RIM WOOD SPLIT PULLEYS.

REID'S PATENT.



The Strongest, Lightest and Best  
Belt Surface in the world.

No Glue, No Nails in Rim, like Segment Rim Pulleys, to be affected by Steam, Dampness or Moist Temperature.

Every Pulley Guaranteed.

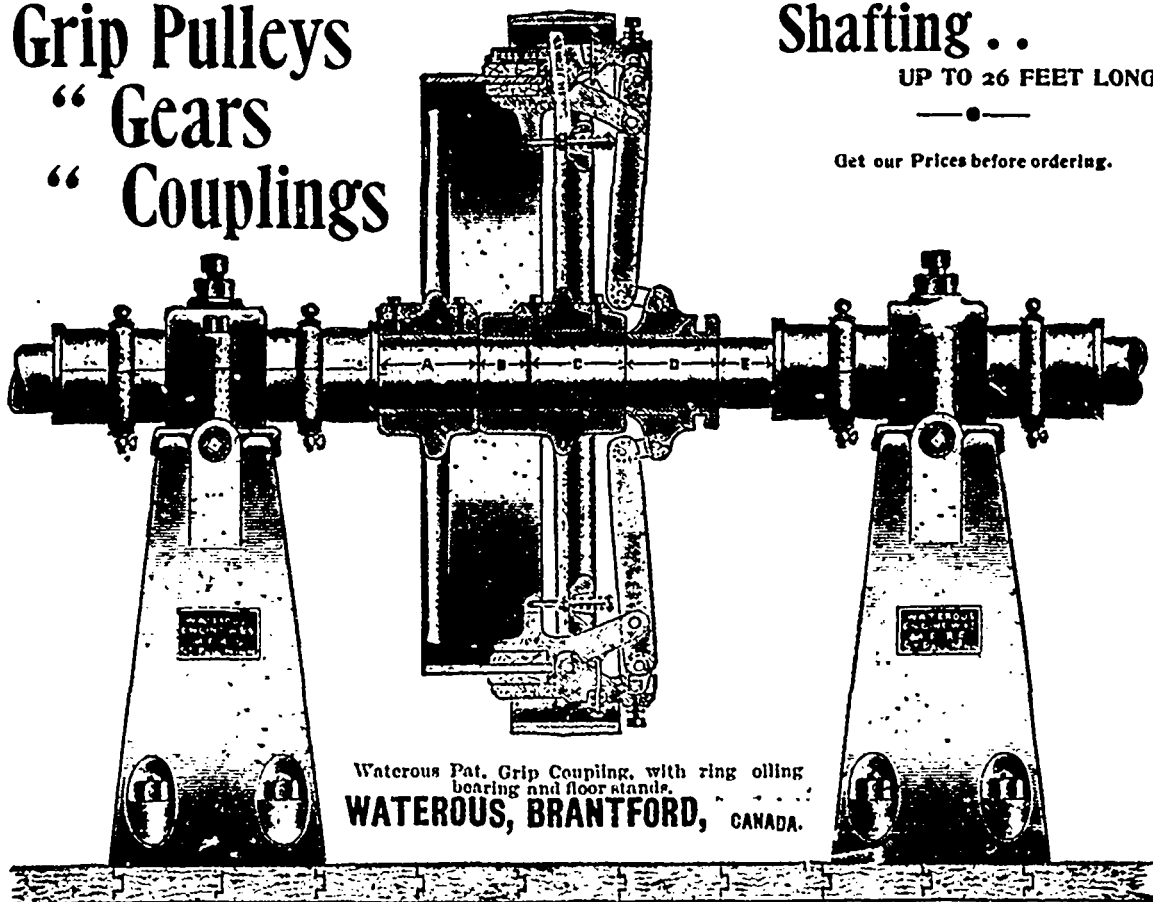
THE REID BROS. MFG. CO., Ltd., Toronto, Ont.

Grip Pulleys  
"Gears"  
"Couplings"

Shafting . .

UP TO 26 FEET LONG

Get our Prices before ordering.



Waterous Pat. Grip Coupling, with ring oiling bearing and floor stands.  
**WATEROUS, BRANTFORD, CANADA.**

FOR • • •

# Railway and Contractors' SUPPLIES

SEND TO - - -

## G. & J. BROWN MFG CO. Ltd.

BELLEVILLE, ONT.

Bridge Builders, Engineers, Roller Makers, Machinists and Foundrymen,

MANUFACTURERS OF

Frogs, Diamond Crossings, Switches, Hand Cars, Lorries, Velocipede Cars, Jim Crows, Track Drills, Semaphores, Rail Cars, Double and Single Drum Hoists, Etc.

# A. & E. LOIGNON, CIVIL ENGINEERS

AND BUILDERS OF

# BRIDGES and IRON BUILDINGS

FOR MANUFACTURING PURPOSES.

Structural Iron Material Kept In Stock.

DESIGNS, ESTIMATES AND SPECIFICATIONS.

17 COTE PLACE D'ARMES, MONTREAL.

## NOTICE

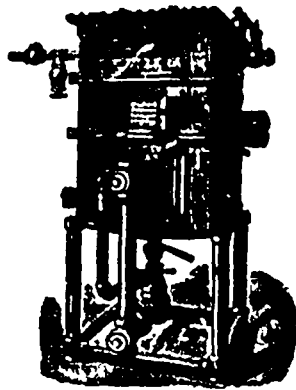
Manufacturers and Capitalists Patent Acts of 1872, and Amendments, Section 28.

NOTICE is hereby given to all persons desirous of practicing the invention in the manufacture of Aluminum and Alloys thereof, for which certain letters patent of the Dominion of Canada were granted on June 7th, 1883, to Chas. Martin Hall, assignor to the Pittsburg Reduction Co., to wit, Nos. 31, 612, 31,513, 31,514, 31,515, 31,516, 31,517; and also the invention in aluminum alloys and manufacture thereof, for which certain letters patent of the Dominion of Canada were granted on July 29th, 1892, to John W. Langley, assignor to the Pittsburg Reduction Company, to wit, No. 39,402, that the undersigned is prepared to grant licenses upon reasonable terms under each and all of same letters patent, and otherwise place the patent inventions in possession of the public in accordance with the provisions of the above recited act.

Communications to the undersigned may be addressed to 701 Fergusson Building, Pittsburg, Pa., U.S.A.

(Sgd) The Pittsburg Reduction Co ASSIGNED.

## 400,000 Horse Power **AGGREGATE SALES** 400,000 Horse Power



### OUR CLAIMS FOR THE **WEBSTER VACUUM FEED WATER HEATER AND PURIFIER:**

It is the only Vacuum Heater made.  
It is the only Heater that returns the condensed steam and drip to boiler.  
It is so constructed that it can be cleaned out in a few minutes without having to stop the plant.  
It condenses 25 Per Cent. of the Exhaust Steam from the engine, purifies it and returns the same to the boiler.  
It is guaranteed to effect a Saving in Fuel and Water of at least 10 per cent. over an I above any pressure or tubular heater in the market.  
It takes up less floor space than any other heater.  
It is Guaranteed and Furnished Subject to 30 Days' Trial.

WRITE US FOR NEW CATALOGUE, ETC.

## DARLING BROTHERS,

SOLE MANUFACTURERS FOR CANADA,

Reliance Works, - - - MONTREAL.



## THE **PENBERTHY**

Automatic Injector. Safety Automatic Double Feed Crank Pin Oiler.

85,000 IN USE, AND ALL GIVING SATISFACTION. ONCE TRIED ALWAYS USED. IT HAS NO EQUAL.

A universal favorite. Spills no Oil. Wastes no Oil. But Saves Oil.



## PENBERTHY INJECTOR CO.,

French Factory: WINDSOR, ONT.

DETROIT, MICH.

...WE MANUFACTURE...

# FANS FOR NOTHING

But hard work, and having had twenty years experience we know how to get steam out of

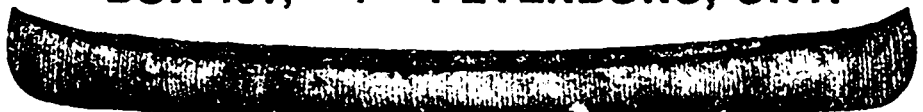
**Dye Houses** and the largest possible product from **Dry Rooms**

OUR COMPOUND WHEEL is the most powerful in the world, and if we can't be of actual value to you we don't want your money. No CUSTOMS DUTIES on our Fans.

Send for Circular and information **Barney Ventilating Fan Co.,** 54 Oliver St., Boston, Mass., U.S.

## The Canadian Canoe Co., Ltd.

BOX 107, : PETERBORO, ONT.



We build Canoes of CEDAR, BUTTERNUT, BASSWOOD and other woods, for Paddling, Sailing, Racing, Fishing, Etc. Skiffs of all sizes.

STEAM LAUNCHES to carry six persons, from \$175 up.

... WRITE FOR CATALOGUE ...

**Emery** Emery Wheels, Grinding Machines, Grinders' Supplies... Quick process and large stock. WHEN IN A HURRY ORDER OF

**The Tanite Co.,** Stroudsburg, Monroe Co., Pa., U. S. A. New York, 161 Washington Street. Cincinnati, 1 West Pearl Street. London, Eng., Thos. Hamilton, 90 Cannon St., E. C.

ADVERTISE IN

THE CANADIAN MANUFACTURER.



# THE COWAN PATENT MATCHING HEADS

With the Richardson Patent Cutters, for Tonguing and Grooving.

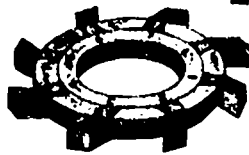
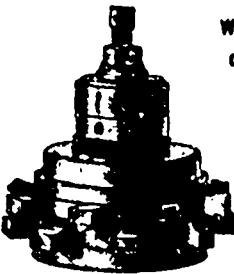
## TONGUE HEAD.

16 CUTTERS.

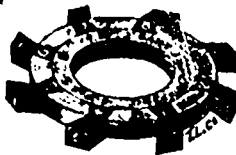
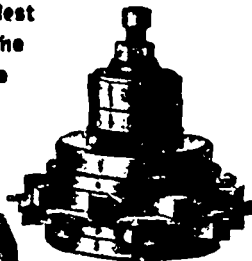
Tongue can be adjusted to any desired thickness.

Will not spawl or tear and makes a round nose tongue.

Head fastens on Spindle with our Patent Lock. No Set Screws used.



Warranted to work the hardest cross-grained wood with the greatest ease, and do the work perfectly.



## GROOVE HEAD.

32 CUTTERS.

Makes the cleanest groove of any Cutter in the world.

Can be adjusted to any width.

Does the most perfect work of any Head made, for uniformity and smoothness.

Can be applied to any machine.

MANUFACTURED ONLY BY

# COWAN & CO., GALT, ONTARIO, CANADA.

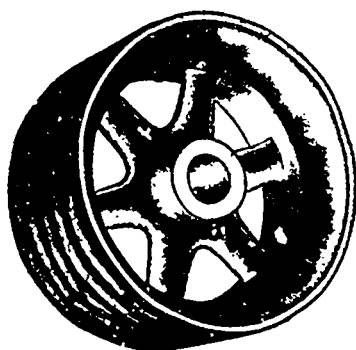
The Cheapest, Strongest, most Durable and Easiest Running Mather Heads ever produced.

Write for prices and descriptions of our Engines, Bolders, Heaters, Saw-Mills and Wood-Working Machinery.

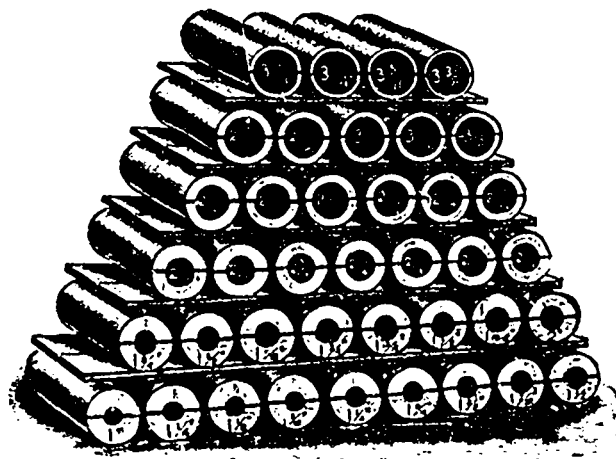
# Dodge Patent Wood Split Pulley

WITH INTERCHANGEABLE BUSHING SYSTEM.

Avoid Inferior Imitations.



DYNAMO PULLEY.



Dodge Patent Interchangeable Bushings.



4 Arm Pulley for Mill Work.

STRICTLY HIGH CLASS.

ALL PULLEYS BUILT ON HONOR

OURS IS THE ORIGINAL. SEND FOR 1895 CATALOGUE.

# DODGE WOOD SPLIT PULLEY CO.

TORONTO, - ONTARIO.

# FUEL OIL APPLIANCES

IMPROVED DUPLEX SYSTEM, for

Annealing, Forging, Enamelling, Welding, Melting, Brazing and Heating Generally

... WITH FUEL OIL ...

FURNACES DESIGNED AND BUILT FOR EVERY PURPOSE. ESTIMATES MADE, AND WORKS EQUIPPED COMPLETE.

**W. S. ROCKWELL,** Constructing Engineer, 26 Cortlandt St., New York

## THE IMPERIAL OIL COMPANY, (Limited.)

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

Lubricating, W. W. 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, etc. and solicit opportunity to compete against any oil on the market.

✉ Write for Prices and Samples.

### THE IMPERIAL OIL CO., Ltd.,

Head Office:—PETROLEA, CANADA.

— BRANCHES —

Halifax, N. S.	—	Hamilton, Ont.	—	Quebec, Que.	—	London, Ont.	—	Toronto, Ont.	—	Winnipeg, Man.
St. John, N. B.	—	Guelph, Ont.	—	Montreal, Que.	—	Chatham, Ont.	—	Peterborough, Ont.	—	Vancouver, B.C.
		Moncton, N.B.	—	Stratford, Ont.		Kingston, Ont.	—	Windsor, Ont.		

## Telephones

### THE "UNIQUE"

MAIN LINE AND WAREHOUSE

### TELEPHONES.

These Telephones are thoroughly well made and will stand the constant use to which they are subjected.

There is no economy in buying instruments that will give out after short use and become a constant source of worry and expense.

Competitive tests have proved the "Unique" to be superior to others.

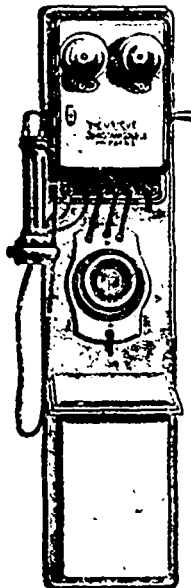
The "UNIQUE" is the simplest and most efficient Electric Telephone made. It has no spring or screw adjustment in Transmitter to work loose.

**SOLD OUTRIGHT. NO EXORBITANT ROYALTIES.**

The "UNIQUE" has the only Transmitter that never gets out of adjustment, and is always the same, viz., clear and distinct, either on long or short distances.

Illustrated Telephone Price List fully describing these will be sent on application; also our Catalogue of General Electrical Supplies.

**JOHN STARR, SON & CO. Ltd.** Sole M<sup>n</sup>'<sup>f</sup>'s,  
2 4, 6 Duke St., Cor. Water, HALIFAX, N. S.



## Canada Chemical Mnfng. Co.

Manufacturers of

Sulphuric, Nitric and Muriatic Acids, Commercial and Chemically Pure. Mixed Acids for Explosives, Liquid Ammonia, Glauber Salts. Copperas, Muriate Tin, Tin Crystals, Acetic Acid, Nitrate Iron, Bisulphite Soda, Acid Phosphate for Baking Powders and General Chemicals. Fertilizers, Etc.

LONDON, - - - - - ONTARIO

**Black Sheet Iron, all sizes.**  
**Sheet Steel, Ordinary & Dead Flat**  
**Russia Iron, Genuine and Imitation.**

## M. & L. SAMUEL, BENJAMIN AND CO.

30 Front Street West, Toronto

ENGLISH HOUSE:  
SAMUEL, SONS & BENJAMIN  
164 FENCHURCH ST., LONDON. E. C.

SHIPPING OFFICE  
RUMFORD PLACE, LIVERPOOL.

# NORTHEY MFG. CO. Ltd.

TORONTO, = ONTARIO.

## Steam and Power

# Pumps

& HYDRAULIC  
MACHINERY

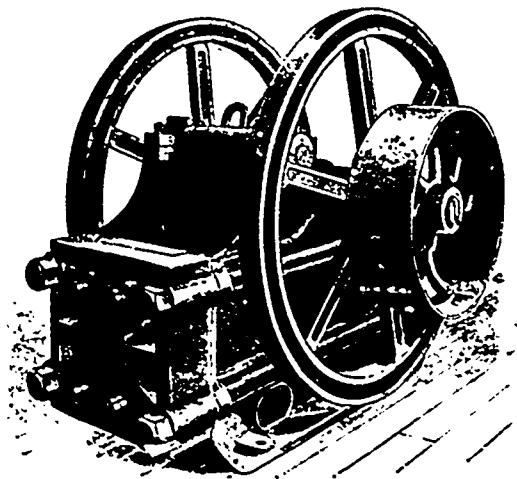
## FOR ALL DUTIES.

DODGE'S

GIANT

ROCK

CRUSHER



FOR

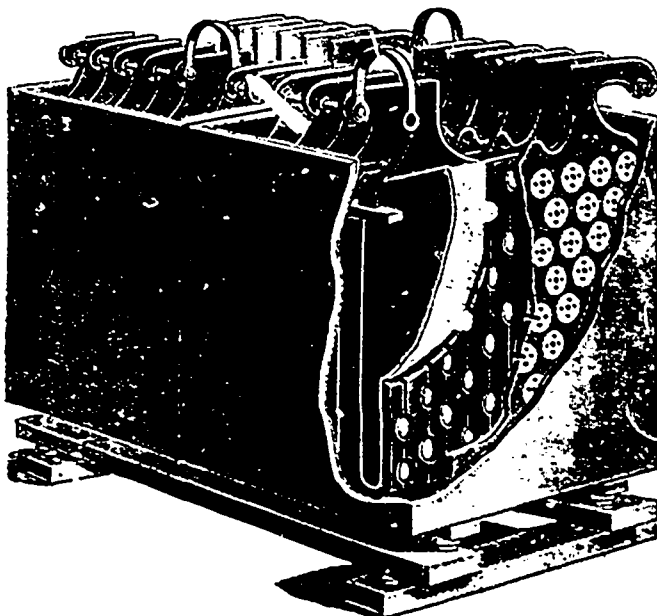
MINES

QUARRIES AND

CONTRACTORS

Manufactured  
By

# INGERSOLL ROCK DRILL CO., MONTREAL.



The Chloride Electrical Storage  
Syndicate, Ltd., Manchester Eng.

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

The only Storage Battery in use in Central Stations of  
American Manufacture.

THE ELECTRIC STORAGE BATTERY COMPANY.

Drexel Building, Philadelphia.

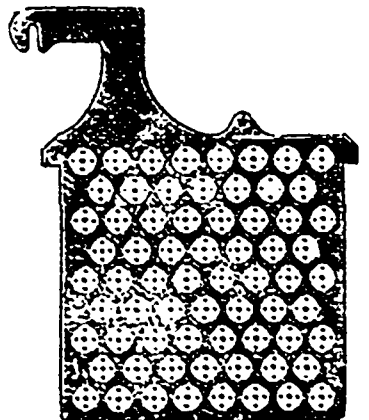
Trade Mark

## CHLORIDE ACCUMULATOR

Registered September 11th, 1894

Electrical Storage Cells of any  
Desired Capacity.

Catalogue giving capacities, dimen-  
sions, weights, prices, etc.,  
on application.





ESTABLISHED IN 1880.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

J. J. CASSIDEY, - - - - - Editor.

SUBSCRIPTION - - \$1.00 per year.

ADVERTISING RATES SENT ON APPLICATION.

The Canadian Manufacturer Publishing Company, Ltd.

Room 66 Canada Life Building, King St. W., Toronto.

J. J. CASSIDEY, - - President and Treasurer.

J. C. GARDNER, - - Manager and Secretary.

OFFICERS OF

**THE CANADIAN MANUFACTURERS' ASSOCIATION**

President	- - - -	ALBERT E. KEMP.
First Vice-President	- - - -	JAMES P. MURRAY.
Second Vice-President	- - - -	JAMES KENDRY.
Treasurer	- - - -	GEORGE BOOTH.
Chairman Executive Committee	- - - -	R. W. ELLIOT.
Chairman Tariff Committee	- - - -	W. K. McNAUGHT.
Secretary	- - - -	J. J. CASSIDEY.

SECRETARY'S OFFICE: Canada Life Building, King St. W.

**WOOLEN MANUFACTURERS' ASSOCIATION**

President	- - - -	B. ROSAMOND, M. P.
Vice-President	- - - -	JAS. KENDRY.
Secretary	- - - -	J. J. CASSIDEY.

**KNIT GOODS MANUFACTURERS' ASSOCIATION**

President	- - - -	JOHN PENMAN.
Vice-President	- - - -	J. HEWTON.
Secretary	- - - -	J. J. CASSIDEY.

**CARPET MANUFACTURERS' ASSOCIATION**

President	- - - -	JAMES P. MURRAY.
Vice-President	- - - -	ROBERT DODDS.
Secretary	- - - -	J. J. CASSIDEY.

**GLOVE MANUFACTURERS' ASSOCIATION**

President	- - - -	W. H. STOREY.
First Vice-President	- - - -	JOHN MACLAREN.
Second Vice-President	- - - -	A. R. CLARKE.
Secretary	- - - -	J. J. CASSIDEY.

REPRESENTATIVES TO

**TORONTO INDUSTRIAL EXHIBITION ASSOCIATION**

R. W. ELLIOT.	GEORGE BOOTH.
W. K. McNAUGHT.	SAMUEL MAY.
J. J. CASSIDEY.	

**THE TARIFF CHANGES.**

In the Dominion House of Commons on May 3 instant, Mr. Foster, the Minister of Finance, presented the following resolutions having reference to the Customs and Excise duties which immediately became law :

" Resolved, that it is expedient to amend section 130 of chapter 34 of the act 49 Victoria (the inland revenue act), as amended by section 4 of chapter 46 of the act 54-55 Victoria, by repealing such section and substituting in lieu thereof as follows :—130. There shall be imposed, levied and collected on all spirits distilled the following duties of

excise, which shall be paid to the Collector of Inland Revenue, as herein provided, that is to say :—(a) When the material used in the manufacture thereof consists of not less than 90 per cent., by weight, of raw or unmalted grain, on every gallon of the strength of proof by Sikes' hydrometer, and so in proportion for any greater or less strength than the strength of proof, and for any less quantity than a gallon, \$1.70. (b) When manufactured exclusively from malted barley, taken to the distillery in bond, and on which no duty of customs or excise has been paid, or when manufactured from raw or unmalted grain, used in combination, in such proportions as the Department of Inland Revenue prescribes, with malted barley taken to the distillery in bond, and on which no duty of customs or excise has been paid, on every gallon of the strength of proof by Sikes' hydrometer, and so in proportion for any greater or less strength, and for any less quantity than a gallon, \$1.72. (c) When manufactured exclusively from molasses, syrup, sugar or other saccharine matter, taken to the distillery in bond and on which no duty of customs has been paid, on every gallon of the strength of proof by Sikes' hydrometer, and so in proportion for any greater or less strength, and for any less quantity than a gallon, \$1.73."

Resolved, That it is expedient to amend the act 57-58 Victoria, chapter 33, " An act to consolidate and amend the acts respecting the duties of customs," by repealing the following mentioned items of the schedule A to the said act, viz. : Nos. 7, 31, 32, 55, 80, 81, 82, 152, 392, 393, 394, 396 and 397, and No. 708 of the schedule B to the said act, and substituting the following in lieu thereof:

" (7) Spirituous or alcoholic liquors, distilled from any material, or containing or compounded from or with distilled spirits of any kind, and any mixture thereof with water, for every gallon thereof of strength of proof, and when of a greater strength than that of proof, at the same rate on the increased quantity that there would be if the liquors were reduced to the strength of proof. When the liquors are of a less strength than that of proof, the duty shall be at a rate herein provided, but computed on a reduced quantity of liquors in proportion to the lesser degree of strength ; provided, however, that no reduction in quantity shall be computed or made on any liquors below the strength of 15 per cent. under proof, but all such liquors shall be computed as of the strength of 15 per cent. under proof, as follows :—(a) Ethyl alcohol, or the substance commonly known as alcohol, hydrated oxide of ethyl, or spirits of wine, gin of all kinds, n.e.s., rum, whiskey, and all spirituous or alcoholic liquors, n.o.p., amyl alcohol or fusil oil, or any substance known as potato spirit or potato oil, methyl alcohol, wood alcohol, wood naphtha, pyroxylic spirits or any substance known as wood spirit or methylated spirits, absinthe, arrack or palm spirits, brandy, including artificial brandy and imitations of brandy, cordials and liquors of all kinds, n.e.s., mescal, pulque, rum shrub, schiedam and other schnapps, tafia, angostura and similar alcoholic bitters or beverages, \$2.25 per gallon. (b) Spirits and strong waters of any kinds, mixed with any ingredient or ingredients as being or known or designated as anodynes, elixirs, essences, extracts, lotions, tinctures or medicines, n.e.s., \$2.25 per gallon and 30 per cent. ad valorem. (c) Alcoholic perfumes and perfumed spirits, bay

rum, cologne and lavender waters, hair, tooth, and skin washes and other toilet preparations containing spirits of any kind, when in bottles or flasks, containing not more than four ounces each, 50 per cent. ad valorem; when in bottles or flasks containing more than four ounces each, \$2.25 per gallon and 40 per cent. ad valorem. (d) Nitrous ether, sweet spirits of nitre and aromatic spirits of ammonia, \$2.25 per gallon and 30 per cent. ad valorem. (e) Vermouth containing not more than 30 per cent. and ginger wine containing not more than 26 per cent. of proof spirits, 80 cents per gallon; if containing more than these percentages respectively of proof spirits, \$2.25 per gallon."

(31) Condensed milk,  $3\frac{1}{4}$  cents per pound.

(32) Condensed coffee, condensed coffee with milk, milk foods and all similar preparations, 35 per cent. ad valorem.

(55) Biscuits of all kinds not sweetened, 25 per cent. ad valorem; biscuits of all kinds sweetened,  $27\frac{1}{2}$  per cent. ad valorem.

(79) Fruits in air-tight cans or other packages,  $2\frac{1}{4}$  cents per pound, the weight on which duty shall be payable to include the weight of the cans or other packages,  $2\frac{1}{4}$  cents per pound.

(80) Fruits preserved in brandy or preserved in other spirits, \$2 per gallon.

(82) Jellies, jams and preserves, n.e.s.,  $3\frac{1}{4}$  cents per pound.

(152) Paints and colors ground in spirits and all spirit varnishes and lacquers, \$1.12 $\frac{1}{2}$  cents per gallon.

(392) All sugar above number sixteen Dutch standard in color and all refined sugars of whatever kinds, grades or standards, one cent and fourteen-hundredths of one cent per pound; sugar, n.e.s., not above number sixteen Dutch standard in color, sugar drainings, or pumpings drained in transit, melado or concentrated melado, tank bottoms and sugar concrete, one-half cent per pound, the usual packages in which imported to be free.

(393) Glucose or grape sugar, glucose syrup and corn syrup, or any syrups containing any admixture thereof,  $1\frac{1}{4}$  cents per pound.

(394) Sugar candy, brown or white, and confectionery, including sweetened gums, candied peel and pop corn, one-half cent per pound and 35 per cent. ad valorem.

(396) Syrups and molasses of all kinds, n.o.p., the product of the sugar cane or beet root, n.e.s., and all imitations thereof or substitute therefor, three quarters of a cent per pound.

(397) Molasses produced in the process of the manufacture of cane sugar from the juice of the cane, when imported in the original packages from the district where produced in the country where the cane was grown, and which has not been subjected to any process of treating or mixture after leaving the country from which originally shipped, the packages in which imported when of wood to be free. (a) Testing by polariscope, forty degrees or over, one and three-quarter cents per gallon. When testing by polariscope, less than forty degrees and not less than thirty-five degrees, one and three-quarter cents per gallon, and in addition thereto one cent per gallon for each degree or fraction of a degree less than forty degrees.

Resolved, that it is expedient to provide that the fore-

going resolutions and the alterations thereby made in the duties of customs and of excise on the articles therein mentioned shall take effect on and after the 3rd day of May instant.

Resolved, that it is expedient so to amend the act 54-55 Victoria, chapter 31, as amended by the act, 55-56 Victoria, chapter 8, so as to provide that under such regulations and restrictions as may be made by the Governor-in-Council there may be paid to the producers of any beet root sugar produced in Canada wholly from beets grown therein between the 1st day of July, 1895, and the 1st day of July, 1897, a bounty equal to 75 cents per one hundred pounds, and in addition thereto one cent per one hundred pounds for each degree or fraction of a degree of test by polariscope over 70 degrees, such bounty, in no case, however, to exceed in the aggregate \$1 per one hundred pounds.

These changes should be read in connection with the Canadian tariff of 1894 which was published in full in the issue of THE CANADIAN MANUFACTURER of September 7 last.

### THE TARIFF CHANGES AND THE REASONS FOR MAKING THEM.

The Finance Minister, in explaining his reasons for making the tariff changes that went into effect on May 3, said:—

In 1891, under the new tariff, there were imported 14,000,000 odd pounds of sugar, the duty on which, taking an average of the old rate, would be \$227,447. In 1892 the quantity was \$327,000,000 pounds, duty on which would have been \$5,200,000; in 1893 the quantity was 252,500,000 pounds, the duty on which would have been \$4,000,000; in 1894 the quantity was 303,000,000 pounds, the duty on which would have been \$4,822,000; in 1895 the actual import and the estimated receipts on the same basis would have shown an import of 310,000,000 pounds, the duty on which at the old rates would have been \$4,919,700. This was on the article of sugar alone. The tax on raw sugar was paid certainly out of the consumers' pockets, it being a tax not on an article grown in the country, but on a raw product brought in, which must pay the tax at the cost of the consumer of the article, every cent of it at the least. If hon. members will add the three items together they will find that the remission of sugar taxation in those years up to the current year aggregate \$19,175,333. Some one may fairly say, "But if the duty had remained at the old rate there would not have been so large an importation." Cutting off whatever proportion you please, you will still have an amount of from \$15,000,000 to \$19,000,000 removed from the people's shoulders. That was not during the time when we had surpluses; it was during the time when the people, especially during the past two years, have been passing through a period of depression and what have been called hard times in Canada. Now, Mr. Speaker, the country, I think, will not quarrel with the Government if the time has come when we think it best, for the credit of the country and its general good, to secure an equilibrium between expenditure and revenue, when we show our bona fides by cutting down the expenditure of the country to the extent of \$2,500,000; and we have just done our duty in that regard. I think the country will not complain, and this House will

not complain, if we ask the people in the year that is to come, not to pay back to us an equivalent of the old rate of duty on sugar, but to give us one-third of the amount of duty placed on it in 1890 and in 1891, thus securing to the people a remission of two-thirds the taxation on sugar in the year to come, and ask them simply for a return equivalent to one-third of the old impost. So, it is proposed to place one-half cent per pound on raw sugar, and to increase the protection on refined sugar, and on the articles into which sugar largely enters, proportionately, and only proportionately, to the increased tax of 1 cent on raw sugar. That, on the import which will probably come into the country this year, will give \$1,200,000 or \$1,250,000. That is not quite all we want. We must be careful, if we are going to place taxes on the people for the avowed purpose of filling up the gap between revenue and expenditure, not to make the mistake which my hon. friend opposite made, and put on a large taxation but yet not fill up the gap. We must add enough to restore the equilibrium; we must be sure that it will be enough, and we must take a little more than we would estimate at the present time to be enough in order to be certain that what we propose to do shall be fully and thoroughly done; so that a little more is necessary. I propose to impose a slight additional tax upon distilled spirits. The excise duty on the spirits is now \$1.50 per gallon, and we propose to add 20 cents per gallon and make the excise duty \$1.70. The customs duty on spirits is now \$2 12 1-2 cents per gallon, and we propose to make that \$2.25, an increase of 12 1-2 cents. That, we think, will bring into the revenue about \$500,000 or \$600,000, which will give us \$1,700,000 or \$1,800,000 of taxation. This will, under the estimate I have prepared and submitted to the House, fill up the gap, restore the equilibrium and bring us out at the end of next year with a clean sheet, and, if times improve fairly well, may bring us out a little to the good, which certainly will not be deplored by the country, and not be a bad thing for it.

Mr. Foster, in moving the House into committee to consider ways and means for raising the supply, said:—Mr. Speaker, the revenue was estimated last year, when I delivered the exposition of the budget, at \$36,500,000; the actual revenue which has accrued is \$36,374,693, being less than my estimate by \$125,307. On looking at the items of increase and decrease in the revenue for the past year it will be found that customs realized \$19,198,114, being a decrease over the customs yield for the preceding year of \$1,755,339; excise yielded \$8,381,088, being an increase over the preceding year's collection of \$13,724. From miscellaneous there was derived \$8,795,489, a decrease of \$51,751. The total decrease for the preceding year was \$1,793,915.

Mr. Foster read a list of the principal articles in which reductions in customs revenue had taken place. Among them he enumerated as follows:—

Coal and coke.....	\$147,000
Cotton and manufactures of.....	156,775
Iron and steel manufactures of.....	421,683
Paper and manufactures of.....	72,217
Soap of all kinds.....	83,188
Wool and manufactures of.....	432,515
Wood and manufactures of.....	56,550

On the other hand, the following will show increased amounts over that received on the same articles in 1893:—

Arrowroot biscuit, rice, macaroni, etc.....	\$ 2,370
Carriages.....	23,723
Embroideries.....	11,340
Fish and products of.....	4,617
Fruit and nuts, dried.....	52,569
Fruit, green.....	63,347
Glass and manufacturers of.....	2,380
Oils, coal, kerosene, and products of.....	22,537
Packages.....	9,852
Provisions, butter, cheese, lard and meats.....	28,478
Seeds and roots.....	3,967
Spirits and wines.....	58,284
Sugar of all kinds.....	11,894
Tea.....	8,737
Vegetables.....	6,523

It will be noticed that the decreases are pretty generally spread over the list of imported articles; the increases being principally in the articles I have named and not nearly so extensive in their scope.

Turning his attention to the public debt, Mr. Foster said that he wished to make clear that the whole had not been created for Dominion purposes. There was assumed for the four provinces in 1867 \$77,500,000, and there had been assumed since \$31,930,000, with which nobody quarrelled, or a total of \$109,430,048. On June 30, 1894, the total net debt was \$246,183,029.

"Deduct the first amount from the second," said Mr. Foster, "and you have the debt created by the Dominion for Dominion purposes from 1867 till to-day, which is \$137,752,881, or an average yearly of a little over \$5,000,000. On the Intercolonial railway, of a little more than a thousand miles in length, the capital expenditure has been \$44,966,424. The great waterways and arteries of the central part of this Dominion, at which nobody cavils, have had \$4,709,038 expended on them. On the Canadian Pacific railway, which was reviled and opposed and looked upon as the most absurd scheme that sensible men ever placed before a body of legislators, and which has shown its essential utility to this country, we have expended \$62,605,535, a total of \$149,280,097. That is on these three works alone, the arteries and veins of this country, we have expended \$11,500,000 more than on the whole of the debt created by this country since Confederation. (Applause.) Besides that we have Dominion lands opened up, public works, built parliamentary and public buildings, the Prince Edward Island railway, the Northwest territories purchased and opened up and other works accomplished. You will find that more than the added Dominion debt of \$28,616,407 has been expended on the services of this country. Taking all this into account and the first three named assets, if there were no more, it is sufficient justification for any Canadian for the assumption and maintenance of a debt of \$137,000,000. But when you come to the other side there is something more to be said. If you take the net actual interest you will find that whereas in 1869 we paid 4½ per cent., in 1894 we were paying 2.94 per cent. The net interest per head in 1868 was \$1.29; in 1873, \$1.31; in 1878, \$1.58, and to-day 7 cents less than it was in 1889, so that at the present time we can carry almost twice the amount of debt that we carried in 1867, and not feel the per capita burden as much as we did in 1867.

## MANUFACTURING INDUSTRIES IN TORONTO.

The conditions that should indicate that Toronto should be a great and successful centre for manufacturing industries are woefully handicapped by a system of vexatious taxation well calculated to retard the growth of such industries, and by a spirit prevailing with certain classes well calculated to dampen the enthusiasm of any adventurous ones who might otherwise be induced to enlarge establishments already in existence here, or who might desire to locate among us. Of what avail is it that the City Council have a Manufacturers' Committee of their number whose supposed duty it is to encourage the building up of manufacturing industries in our midst, or that the Toronto Board of Trade have a Manufacturers' Section organized for a somewhat similar purpose? When it becomes known that parties who may desire to establish an industry are looking about for a suitable location, efforts are made to bring them to Toronto, and much carriage riding is done to show the great advantages we possess; and it is pointed to with pride that this great commercial centre enjoys both water and railway facilities equalled by few and surpassed by no other cities on the continent. Of course all this is laudable; but even if real estate agents and owners of desirable tracts of land tumble over themselves in their endeavor to make sales; and even if the aforesaid Manufacturers' Committee of the City Council offer suitable locations along the water front, or on the reclaimed borders of the Don, we observe that the new enterprises so earnestly wished for and worked for do not materialize, and that even of those that we have, some of them—perhaps many of them—are slipping away to the advantage and aggrandizement of other places. Whatever of manufacturing life there may be in many towns in the neighborhood of Toronto exists at the expense of Toronto and consists of concerns that existed in Toronto, carried thither simply because they were driven hence.

Instead of bringing additional industries to Toronto, some unfortunate and unhappy influences seem to be constantly at work to drive away those that we have; and even at this very time it seems quite possible that at least two of the largest manufacturing establishments in the city may be forced to erect works elsewhere. These two concerns usually give employment to an aggregate of perhaps more than five hundred hands, which number would be greatly increased were the capacity of the existing works increased, or new works erected, as proposed. This means that if the enlargement of these industries was made in Toronto, from those sources alone several thousands of the inhabitants of the city would thereby exist. But if a more liberal policy is not extended in these directions, whatever benefit the city now enjoys because of the existence of these industries here will be lost.

A great deal of discussion has been going on in Toronto over the proposition of the Cobban Manufacturing Company to lease from the city a vacant lot of land recently reclaimed from the water near the Union Station. This company now occupy leased premises on Terauley street, which they will soon have to vacate, and they are looking for another location. Mr. W. C. Phillips, of that company, explains the situation in this manner:—

Some two years ago we asked the city at what rate they would lease block C to us. At that time the committee were willing to make a bargain at \$1,200 per annum for the whole block, but afterwards they found it would not be wise on their part to tie their hands in any way, on account of the difficulty of a settlement with the C. P. R. We were told all along to "Just wait and it would be all right." There was no immediate necessity for us to move in the matter, as our present lease of the premises we are now occupying does not expire until March, 1897, but it will take time to put up the buildings and get things into proper order, so it is now absolutely necessary to have our arrangements all completed without any further delay. We only have about sufficient time now to complete the necessary buildings.

We are not trying to beat the city down or get anything from them for nothing. The rental named by us is that placed by Mr. Maughan, who is considered, we believe, one of the most competent valuers in the city. We are perfectly willing to take his valuation, but should the price be raised above that then the offers we have received from other places will be seriously considered, and if the advantages outweigh the disadvantages we have no hesitancy in stating that we will go out of the city. With us it is strictly a matter of business. There are no threats about it at all. The bulk of our business is done with parties outside of Toronto, and can be done from the Junction quite as well as from this city. As far as it being a question of a "bluff" on our part, we will say nothing, but time will tell.

A great deal is being made out of the value of the water-front to us but as not one per cent. of our shipments are made by water we regret that we cannot make use of this supposed great advantage.

Often the city wants too much, for instance in the case of the smelting works, the Waterous Engine Company and other bona fide institutions that have been desirous of locating in Toronto. After making enquiries and finding out what it would cost them to do so, they found that they could not come here to their advantage. We have a large factory, employing as many as 225 hands in our busy season. We have at present some 200 hands, 93 of whom are householders and heads of families. We think that it would be much to the interests of the city to retain this class of citizens. In fact, it must be of more benefit than trying to induce outside concerns to come here. For the past few years we have paid out in the neighborhood of \$90,000 per annum in wages.

Should we accept the Junction offer of the McCormack & Jackson property in Keel street for the sum of \$500 and exemption from taxes and water rates it would be equal to at least \$45,000 in our pocket, spread over the term of the lease we ask from the city. Having been established in Toronto for a long time, of course, we would prefer to stay here, and if we can secure the ground in Block C on what we consider reasonable terms, our plans are laid out to spend between \$35,000 and \$40,000 in putting up a building that will be a credit to the locality. Owing to its being new ground it will cost at least \$5,000 to lay foundations. The spiles in some instances will have to be set at a depth of 25 feet. The building we propose to erect will be five stories high, will be fireproof and the latest form of mill construction. We shall then have a capacity for employing 400 hands. In our present quarters we are too much crowded. Had we more room we could go even more extensively into manufacturing, which would, of course, necessitate our employing more men. Our export trade is very large, and we could find a market for more goods than we are now turning out.

One of the disadvantages in moving to the Junction would be the fact that we would have to have a sample room and show rooms in the city. This would, of course, necessitate considerable inconvenience. Should we be located in block C, of course, this would all be overcome.

as we could have our premises all together. We do not think that we are asking the city for anything particularly cheap. A lot on the University property in Queen's Park is leased for 42 years at \$3 per foot frontage, and it is far deeper than the lot we desire on Block C. The lease I speak of was made during the last few years. Then, again, take the Hay property in the Esplanade, which is of greater value than Block C, it being north of the track. The lease for that was made in 1885 at \$4 per foot frontage, and their lot is 325 feet deep. The frontage of the lot we require from the city is 296 feet by an average depth of 150 feet, and we would pay \$3.50 per foot for a 21-year lease, which is in accordance with Mr. Maughan's valuation.

#### BRITAIN'S MANUFACTURING INDUSTRIES.

In his able address at Sarnia Dr. Nesbitt, discussing the effects of free trade in Great Britain not only upon the laboring classes but also upon the manufacturers, said:—

But it may be said that England has thrived so in her manufactures that the benefits derived therefrom, the large number of people employed, the bettered condition of her working classes, and the enlargement of her foreign commerce, have more than made up for any injury done to agriculture. While Mr. Laurier and Mr. Paterson may tell you that our manufacturers and workmen will fare better, I tell you that there is no more ground for their assertions than for those about the improved condition of the farmer. That England has a great commerce no one will deny; that that commerce was built up under protection and received its great impetus from this source is shown by the fact that in the half century since protection the per capita wealth has only increased from \$10.40 to \$12.45. This was England's progress under free trade. To-day all nations are protecting their own interests, their own industries, their own workmen, making markets and giving employment to their own in preference to foreigners, and this is the policy of the Conservative party. This was the advice given to England by Lord Bacon when he said, "Let us advance the commodities of our kingdom, and employ our own countrymen before strangers." But where does England stand to-day? Such is the condition of trade in England purely on account of the competition she has laid herself open to that the Industries and Iron Review says:—"Our commerce has at last attained its growth, and is now on the decline. It is not that the volume of our exports exhibits a gradual but persistent retrogression; it is not that the beating of our manufacturers on their own ground by foreign rivals is being conducted on a larger and larger scale; that our agriculture has gone to the dogs, and that our iron industry seems in a fair way to follow its example." Then it tells how the English manufacturer is beaten in iron by Belgium, in textiles their customers manufacture their own, in chemicals their trade goes to Germany, and their ship-building seems to be in a fair way of going to the States, and it concludes by saying "that England was in the van of industrial prosperity, but the most ardent advocate would hardly venture to assert that this is England's position now." I am sure that there is not a man here present but regrets the tone of the English press, but are we to change our plan of campaign just when it is shown that to advance along the lines of free trade means commercial defeat? It is not contended that a sudden change of tariff principle will not injure the

country, disturb values, and probably precipitate a panic, but with the experience of England before us is there any proof that present depression would bring in its train future prosperity under a system that numbers of the trade papers of England are crying out against? English commerce does not seem able to hold its own with all the advantages of free trade.

Then, is the English workman benefited by it? There is practically no similar trade in England and Canada where the Canadian is not better paid, and has more of the comforts of life. In Manchester there are nearly 90,000 women in the cotton mills, and their wages do not average \$5 a month, and they board and clothe themselves. Take the coal mines in Scotland. This is labour of the most arduous and dangerous kind, and the miners receive \$5.55 to \$5.89 a week, and board themselves. Our miners would not look at it. But have the English labourers better homes; do they not own their own houses? It would seem not, for Mr. John Bright, the great Liberal leader, says that in the city of Glasgow, out of 100,000 families, 41,000, or nearly half, have only one room each. You workmen in Canada, each with sufficient rooms in the house for comfort and happiness, moral and physical, how would you like to have one room for kitchen, parlor, and bedroom for father, mother, brothers, and sisters? But you may say, while for a city like Glasgow half of the working people have only one room for the whole family, this is an exception, and wealth and comfort are more equally distributed in other parts of the Kingdom. We have the opinion of Sir James Kittson, ex-president of the British Iron and Steel Institute, and president of the Aged Pension League, who says that in England and Wales 45 per cent. of the aged are paupers. This means that in the Mother Country such has been the unequal distribution of wealth under free trade that half of the aged parents of England, half of the fathers and mothers, are paupers. The Globe quoted from Sir William Harcourt's speech trying to show the improvement in England on account of a slight decrease of paupers. We here in Canada, who know no such conditions as I have shown you, are accused of extravagance. We have spent money on our public works, on improving and developing our country, and what does it cost us?—\$1.70 each per annum; but under free trade they spend \$1.50 each per annum, not in building up and developing the country, but in keeping the paupers their fiscal system has produced. What is the cause? The Textile Mercury has a letter from a gentleman in a cotton mill in India, in which he says:—"I have not seen a white face since October; all here are black as night, and almost as naked. We work from light till dark, Sundays included; no Factory Act here; and we only stop engines half an hour for dinner. Our hands only get on an average six annas, or ten ten cents, a day, and board themselves." And you wonder that 90,000 white women, our own flesh and blood, work in the cotton mills of Manchester, and only get \$5 a month. You wonder that they have paupers in England, when free-born Britons compete with the black slaves of India, who get ten cents a day and board themselves.

#### THE BEET SUGAR INDUSTRY.

Speaking of the lesson taught by the success of the beet sugar industry in Utah, the American Economist says:—  
There are many States that can take lessons from Utah,



with profit to themselves. In no equal area of the Republic have greater results been achieved in the face of greater difficulties. The diversity of agriculture, the development of manufactures, and, above all, the nurture of a strong feeling of local pride—which happily is in subjection to a yet stronger feeling of nationalism—in Utah, would be remarkable in any State or Territory, and are peculiarly remarkable in a community that has been so sorely exercised in the solution of social problems, as well as in those of successful resistance to adverse physical phenomena.

Among the industries created and nourished by the persevering genius of the people of Utah is that of beet sugar. The demand for sugar in Utah requires about 15,000,000 pounds for its yearly supply. The genius of the people already has furnished about one-third of this from beet-roots, grown on Utah soil, converted into sugar by Utah workpeople and by the aid of machinery that is almost wholly of American construction. The Utah people justly pride themselves not a little on this last circumstance. Their Lehi beet sugar factory comes nearer to being purely American in every item of its construction than any other sugar works in the United States. Elsewhere we print a detailed account of the method of growth and manufacture of beetroots and beet sugar in Utah that cannot fail to be interesting to the general reader, and especially to such readers as may be canvassing the merits and opportunities of other States with a purpose of investment of capital or of immigration.

From that report we condense a few facts and a striking corollary. The fact is that the Lehi factory, with a capital of \$700,000, yearly pays out \$230,417.64, or much more than a third of its capital stock, for labour and material used in the manufacture of beet sugar. The account stands thus :

26,800 tons of beets which cost .....	\$143,233.96
4,500 tons of coal at \$3 .....	13,500.00
200 tons of coke at \$17.10 .....	3,420.00
1,609 tons of lime rock at \$2.50 .....	4,022.50
40,000 double sugar bags at 14½ cts. ....	5,800.00
4,150 yards of heavy duck at 15 cts. ....	622.50
1,050 yards of German duck at 50 cts. ....	525.00
6,000 pounds of sal soda .....	150.00
4,507 pounds tallow .....	270.00
30,000 pounds of sulphur .....	600.00
10,000 pounds of muriatic acid .....	350.00
Laboratory and other supplies .....	5,000.00
Paid for labour .....	52,923.68

Total cash outlay to produce 4,000,000 pounds of sugar.....\$230,417.64

The number of people employed in the factory, inclusive of boys and girls, was 2,000. The season of work covers 110 days.

Now, if one factory which turns out no more than 2,000 tons of sugar a year expend \$230,417.64 a year for labour and material, what would be the amount of money expended for American grown cane and beets, for American labor in sugar farms and factories, and for American made machinery and chemicals if our market were supplied wholly with home-made sugar? The answer to the question is the striking corollary to the Utah fact. A partial answer is to be found in this statement :

If the entire amount of sugar consumed in the United States during the fiscal year ending June 30th, 1893, had

beer manufactured in this county the people of the United States would have received the following for sugar and beets, etc. :—

Cost 21,574,000 tons beets .....	\$115,313,337.80
Coal .....	10,867,500.00
Coke .....	2,753,100.00
Lime rock .....	3,231,112.50
Sugar bags and ducking .....	5,592,737.50
Sal soda .....	170,750.00
Tallow .....	217,350.00
Sulphur .....	483,000.00
Muriatic acid .....	281,550.00
Laboratory and other supplies .....	4,025,000.00
Wages .....	42,603,562.40

Total that would have been expended at home.....\$185,546,000.20

The cost of machinery and of transportation of raw and manufactured material is not included in these estimates, probably they would add a third to the total.

But even on the basis of \$185,546,000, we have an expenditure on home labour far exceeding, nearly doubling, that of the value of all the wheat exported from the United States. The exports of wheat during the year 1893 were of the value of \$95,434,970.

The amount spent in producing American-made sugar in quantity sufficient for the supply of the American market would have been near to 186,000,000. Is not Utah giving valuable suggestions to farmers who are fretting under the unprofitableness of 50 cent wheat?

But we cannot produce American sugar in quantities adequate to the American demand under provisions of the Wilson-Gorman Sugar Trust Tariff. Other nations have created sugar industries by sugar bounties. We must do likewise if we create them.

There is another lesson to be learned from Utah. As soon as the Cleveland-Wilson-Gorman-favoured Sugar Trust saw the growth of the Utah industry it resolved to destroy it. To that end it sought to deluge the territory with sugar at a lower cost than it could be produced at by the Lehi works. The motive was plain. The purpose was to break down the Utah industry by unprofitably low prices, and to recoup the trust by high prices obtained after it had regained a monopoly of the supply. The Utah people rose to the height of the occasion. They refused to buy the cheaper product of the trust. They cheerfully paid a temporarily higher price for home product, and by so doing prevented themselves from paying a higher price hereafter and at the same time conserved a great home industry which, there is a good reason to believe, is as yet but in its infancy.

THE CANADIAN COTTON INDUSTRY.

The following are important facts relating to the manufacture of cotton goods in Canada :—

DOMINION COTTON MILLS CO.

Mills.	Looms.	Spindles.	Hands.	Wages.
Hochelaga .....	1,264	56,532	832	\$230,701
St. Anne's .....	524	21,948	353	81,197
Magog .....	610	32,540	323	153,423
Coaticook .....	250	11,000	140	34,093
Moncton .....	350	16,014	250	45,119
Halifax .....	542	21,000	358	141,310
Windsor .....	250	10,600	165	33,475

Mills.	Looms.	Spindles.	Hands.	Wages.
Kingston.....	300	10,380	189	44,722
Brantford.....	298	14,000	185	36,089
<b>Total.....</b>	<b>4,388</b>	<b>191,014</b>	<b>2,775</b>	<b>\$723,189</b>

CANADIAN COL. COTTON MILLS CO.

Mills.	Looms.	Spindles.	Hands.	Wages.
St. Croix.....	1,088	34,144	675	\$191,415
Canada.....	870	33,076	529	143,865
Stormont.....	632	22,560	444	128,885
Ontario.....	446	12,000	308	85,915
Merritton.....	227	13,000	185	51,840
<b>Total.....</b>	<b>3,263</b>	<b>114,780</b>	<b>2,141</b>	<b>\$601,920</b>

Montreal Cotton Co., Valleyfield, Que.,	2,150	68,346	1,400	244,222
Merchants Cotton Co., St. Henri, Que.....	1,200	52,000	650	175,000
Gibson Cotton Co., Marysville, N. B.	652	26,112	550	190,000
Hamilton Cotton Co., Hamilton, Ont.....	71	6,000	200	48,000
W. Parks & Son, St. Johns, N. B., 2 mills.....	380	30,000	500	120,000

Total in Canada 12,104 491,252 8,216 \$2,102,231

This statement shows that in these twenty factories are 12,104 looms and 491,252 spindles, giving employment to 8,216 hands who are paid \$2,102,231 per year. An average of \$256 to each employe. Of the more than 8,000 hands employed in these factories, nearly 5,000—to be exact, 4,916—are employed by the Dominion Cotton Mills Company and the Canadian Colored Cotton Mills Company in their fourteen mills, which are located in the provinces of Nova Scotia, New Brunswick, Quebec and Ontario. Two of these mills, the Hochelaga and the Merchants, both at Montreal, make bleached goods; the Magog mills produce prints only; half-a-dozen mills make plain greys, half-a-dozen more, shirtings; still others, denims, ginghams, linings, ducks, while at St. John, Halifax, Cornwall and Hamilton, yarns and warps are manufactured, as well as denims and other fabrics.

**BEEET SUGAR IN UNITED STATES.**

Speaking of the beet sugar industry in the United States, Mr. H. S. Adam, in an article in Cassier's Magazine, says that few people of the United States have any adequate idea of the extent of the beet sugar industry, and much less of its great possibilities. Instead of devoting so tremendous an acreage to the raising of wheat, western farmers would find the raising of sugar beets to be more profitable. With the exception of a small factory at Stanton, Va., the six other factories are located in Nebraska, Utah and California. The largest of these has a capacity of 1,000 tons of beets every twenty-four hours, the second in size 800 tons and the others an average of 350 tons per twenty-four hours. Formerly the machinery for equipping these factories was brought from Europe, but it is no longer necessary to go abroad for it, as the factory at Lehi, Utah, has been furnished with machinery by American manufacturers, and is in many ways greatly improved over the European production. It costs about

\$250,000 to fit out a sugar factory, and their multiplication in numbers will doubtless follow to the advantage of American mechanics.

The output for 1893 of the American beet sugar factories was as follows:—

Stanton, Va.....	36,458 pounds.
Grand Island, Neb.....	1,835,900 pounds.
Lehi, Utah.....	3,700,000 pounds.
Norfolk, Neb.....	4,107,300 pounds.
Alvarado, Cal.....	4,486,572 pounds.
Watsonville, Cal.....	14,500,000 pounds.
Chino, Cal.....	15,039,867 pounds.

Total..... 43,756,697 pounds.

The first named factory and the last two did not refine their product; hence the figures are proportionately larger than they should be to institute proper comparison with the others, but it may be safely said that if they had all turned out standard granulated sugar, the total would not supply the United States with sugar for more than three days.

As the consumption of sugar in the United States reaches about 2,000,000 tons per year, it can be seen that over six hundred factories would be required to supply the demand, putting it on a basis of the average factory using 350 tons of beets per day and producing therefrom about 50,000 pounds of sugar each twenty-four hours.

Other industries would also reap a great benefit from an increase of plants for making beet sugar, as each factory requires daily about four carloads of coal, two carloads of lime stone, besides large quantities of coke, a supply of sugar bags, barrels, filter clothes, knives, rubber goods, etc., which, during a season of about two months from the latter part of September, to the end of November—while the factories are in full blast, amount to thousands of dollars, and already form quite an item in the distribution of cash in the districts in which they are located.

**PROTECTION VS. FREE TRADE—FRANCE VS. GREAT BRITAIN.**

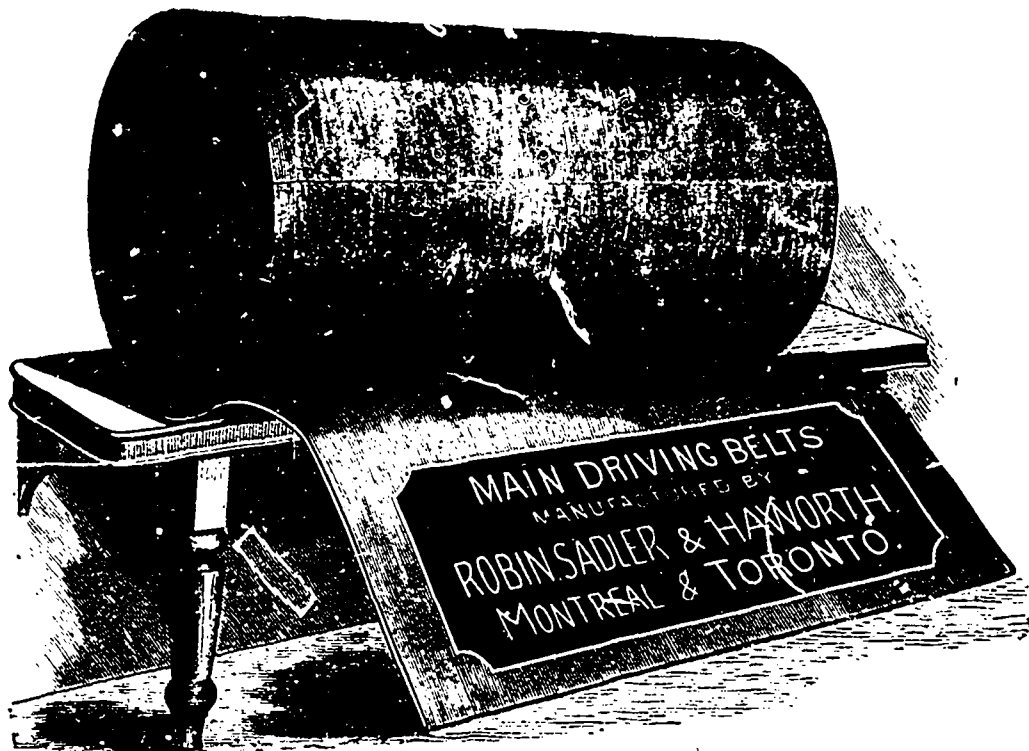
Said Dr. Nesbitt at Sarnia:—"Let us compare for a moment the agriculture of England and France during the last half century, during which England has had free trade, and they have had protection in France. For that time the average wealth in the two countries has increased as follows:—England, \$1,040, now \$1,245; France, \$465, now \$1,270. Free trade had twice the money at the start, but protection has \$25 the best of it at the finish. Has the condition of the farmer anything to do with this increase of wealth? It would seem so, for when you compare the agricultural condition of these two countries, what do you find? I have shown you that the farm produce has been steadily decreasing in England, so that today you have in free trade England two million acres under wheat and in protectionist France the farmers rejoice under a duty which gives them good prices for their eighteen millions of acres of wheat. In agricultural wealth the French farmer has nine times the best of the English agriculturist, but this is not all. England, with her small wheat acreage, has much more pasture lands than France, and therefore goes more extensively into dairying, yet France, with less pasture lands but with

more protection, produces three times as much milk and butter as England. But, on account of free trade, the Englishman ought to get food cheaper, as he consumes six bushels of wheat per head, and though the French have duty to pay, yet they have their home markets and better prices and use two bushels more wheat per head than their English neighbours. I have told you of the condition of the English agricultural labourer under free trade. While he gets no more, and sometimes less, than he did forty years ago, under protection the Frenchman's wages have been doubled. Further than this, what is most important to a nation, is that it be self-reliant and self-contained. The difference here is again most striking because France, like England, manufactures nearly all she needs, but, in addition, she can feed her own population from the produce of her own farms, while if England were cut off from her food supplies in March she must capitulate in June. We cannot but view with sorrow and alarm the effect of free trade on the farming population of the Mother Land. Not only is the condition of affairs recognized by the Liberals in England, but Lord Salisbury, in a speech at Trowbridge, said it (free trade) had been desperately severe upon that large class of producers who belong to agriculture, that it (free trade) had undoubtedly been the ruin of the agriculture of this country, but also so reduced are the earnings of the labourer that, as he says, the rates at this time over the country took one-eighth to one-seventh of a man's income in the rural districts. Yet we have the Liberal leaders of this country making a special appeal to the farmers asking them to support a

system which has ruined agriculture in England. I have shown you the condition of the farmers in two countries, one under protection, the other under free trade, yet Mr. Mulock says that under his policy of free trade you will have a wave of prosperity. Well, which will you believe -- Mr. Mulock in North York, or Lord Salisbury in Great Britain? Mr. Laurier says that those who labour at agriculture will fare much better under his policy of free trade as they have it in England. Who do you consider knows most about the effects of free trade on the agricultural labourer. Mr. Wilfrid Laurier, the Liberal leader from Quebec, or Mr. Wm. Ewart Gladstone, the Liberal leader in England?

#### EDITORIAL NOTES.

On several occasions recently reference has been made in these columns to the fact that the question of what to do with convict labor is troubling the minds of legislators in numerous states. The interests that are being injured by competition with convict labor products are making vigorous efforts to curtail those products and these efforts have in many cases been successful. As we stated a few weeks ago, the iron foundry interests of Texas are uniting for a movement against the state institution which employs convict labor in turning out castings so cheaply that the products of free labor cannot compete in the market. In Tennessee the coal producers are protesting against the employment of convict labor in the mines. The latest to hear from is the State of Ohio, whose officials are in a quandary to know what they will do with the convict labor



which will be thrown out of employment by the legislation enacted last winter. Through the influence of organized labor a law has been secured which provides that the number of convicts employed in any branch of manufacture shall not exceed 10 per cent. of the number of free workmen engaged in the same trade in the state. This will at once throw about 300 convicts out of employment. Enforced idleness within prison walls makes the convict's life absolute misery, and it is only humane that some sort of employment should be provided. For this reason the proposition to utilize convict labor in road making is receiving considerable attention.—American Manufacturer.

Speaking of the recent change in the tariff whereby an addition of twenty cents per gallon was laid upon distilled spirits, The Shareholder says that "were this confined to spirits used for potation no one could object, but when applied to raw material for manufacturing purposes it touches a different sphere altogether." It is to be regretted that the Government seem to be unable to see that even with the tariff standing where it did previous to this last change, and the excise laws being as they are, industries in which the use of distilled spirits are essential cannot possibly be profitably conducted in Canada, and that even under the Order in Council providing for drawback of duty paid on imported materials used in manufacturing merchandise for export, the Order cannot be made to apply to the manufacture of medicinal and similar preparations where distilled spirits are essential. No manufacturer in this line could afford to do business in Canada

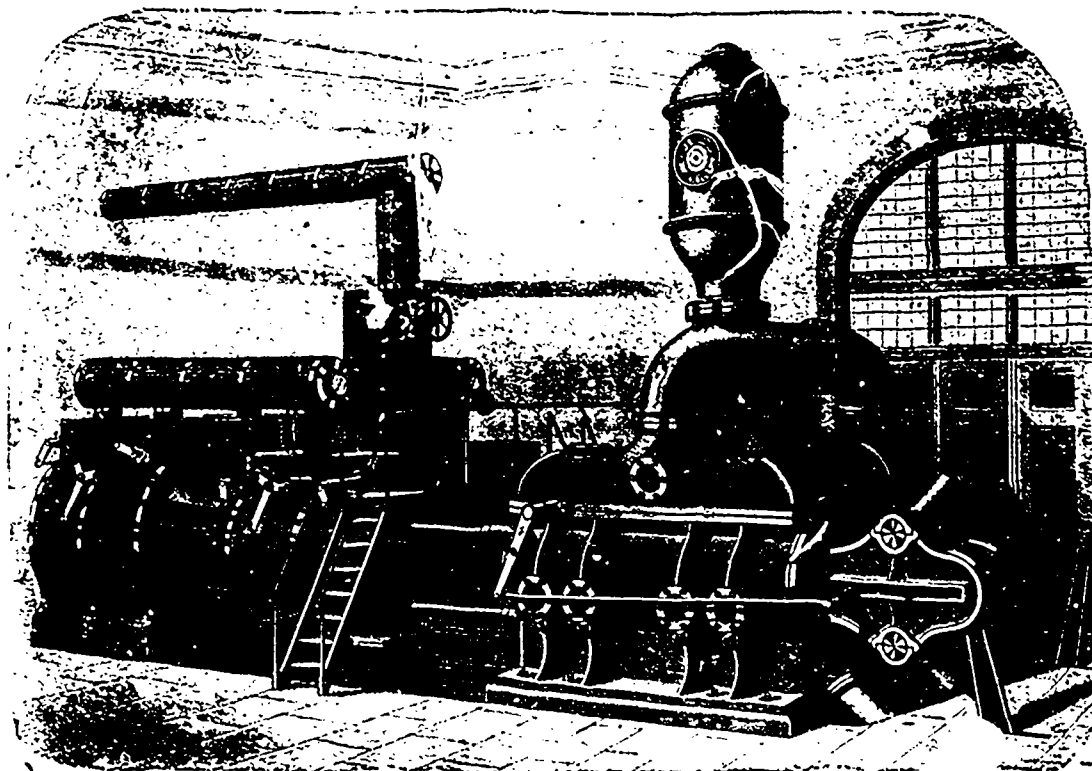
when the circumstances are so much more favorable in the United States.

The Canadian Fibre Chamois Company, of Montreal, which opened a manufacturing establishment in that city some months ago for the manufacture of the interlining called "fibre chamois" have invoked the law for protection from the competition of merchants who offer for sale an imitation article under that name. The article is protected by patents and trade mark. Last week the company obtained in Toronto a judgment against the T.E. Mara Company, of London, Ont., for damages and a permanent injunction restraining the Mara company from selling or offering for sale as fibre chamois, or under that name or title, or under any name or title similar to fibre chamois, any goods, substances or materials which are not the goods, substances or materials manufactured by the plaintiffs, and known as fibre chamois. The company has also an action for damages and injunction pending against the Ever Ready Dress Stay Company, of Windsor, Ont., and it is stated that similar actions will be taken against one or two Montreal merchants.

In the United States the greatly reduced cost of iron and steel has resulted chiefly from the largely increased use of machinery, not only improved machinery to do what machinery did years ago, but to do what labor did at that time. It would be impossible for our manufacturers to sell finished iron and steel, including in this blooms and billets, at the prices of to-day were they still using the method of ten or even five years ago. Labor, so far as it

# JOHN M<sup>C</sup>DOUGALL,

CALEDONIAN IRON WORKS, MONTREAL, QUEBEC.



General Agents  
 In Canada for  
 THE FAMOUS  
 Worthington  
 Pumps  
 Hydraulic  
 Machinery  
 Condensers and  
 Water Works  
 Supplies.

WORTHINGTON PUMPS ARE UNEQUALLED FOR EFFICIENCY AND ECONOMY

is employed, has become really more efficient. A day's word of a man, with modern machinery, in a rolling mill, will in some cases give ten to twenty times the output of ten years ago. It is reduced labor cost, the result chiefly of new methods and improved machinery, that has reduced the cost of production in iron and steel.—The American Manufacturer.

On page 53 of the last trade Blue Book we find the following entry under dutiable goods: "Imported, 342 pairs curling stones—334 pairs from Great Britain and 8 pairs from the United States—valued at \$1,506; duty paid, \$376.50. Of the stones aforesaid 192 pairs came into Ontario and 150 pairs went to Manitoba." We are happy to say that since that date curling stones have been put on the free list.—Monetary Times.

Why should the Monetary Times be happy because curling stones have been put on the free list? Are they a raw material of any industry? Are they an essential in the every day life of any working man, woman or child in Canada? Can they be made in Canada? Would the manufacture of them in Canada give employment to any Canadian workman? Are they not an article of luxury, used almost exclusively by the wealthier classes? Do working men and women have time or inclination to be active members of curling clubs? Why, then, should curling stones be allowed to come in duty free?

Mr. J. D. McEachren, manufacturer of drying, heating and ventilating machinery and apparatus, in renewing his advertisement in this journal for another year says:—"I am highly pleased at the numerous enquiries I have re-

ceived from parties all over the Dominion through my advertisement in THE CANADIAN MANUFACTURER. It certainly must have a large circulation and receive careful examination by the manufacturers of Canada."

The protective policy has come to an ignominious death, and has fulfilled the worst predictions of Liberals in 1878. A panic-stricken Government, depressed agriculture and wasted capital are its products.—The Globe.

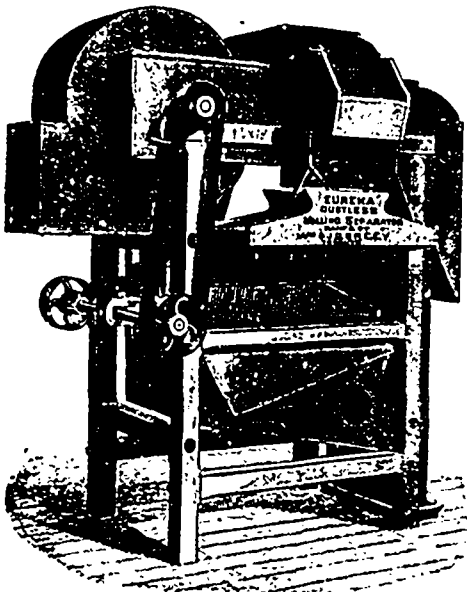
Northwest Conservatives are complaining because a Patron lodge passed a resolution calling for the union of all tariff reformers. The abolition of protection is certainly the most important political project in which the farmers of Canada can engage, and it is obvious to everyone that it can only be accomplished by the defeat of the Conservative Ministry. That Ministry depends for its life on the encouraged manufacturers, and while it lives protection will live. The Patrons of industry demand a revenue tariff, and they can never get it from the Conservative party.—The Globe.

In one breath the veracious Globe informs us that the protective policy has come to an ignominious death, and in the next breath it tells us that the abolition of protection is the most important project in which the people of Canada can engage. The Globe will find in the future, as it has found in the past, that the protective policy is a very, very live issue.

The British and South African Export Gazette publishes a striking table, showing that while British trade with the Cape Colony and Natal has fallen off 5 per cent. during the past five years, the total trade with those colonies of the United States, Belgium, Germany, France, and Hol-

WRITE TO

**WM. & J. G. GREEY,** 2 Church St.,  
TORONTO, ONT.



EUREKA DUSTLESS MILLING SEPARATOR.

For the

Latest and

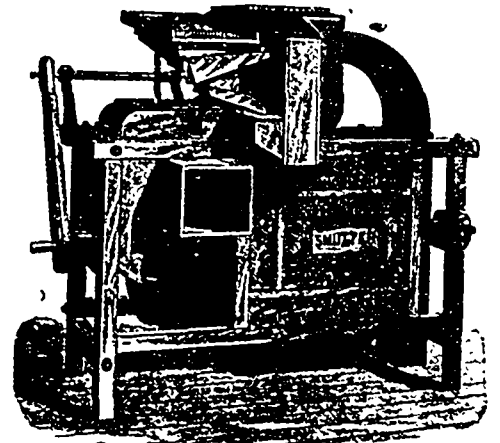
Best . . .

**Wheat Cleaners**

Up to Date

and

Guaranteed.



EUREKA HORIZONTAL CLOSE SCOURING SMUTTER

**Also Sole Manufacturers in Canada of the**

**. . . CELEBRATED PRINZ . . .**

**INDENTED STEEL CYLINDER COCKLE MACHINES.**

**ELECTRICAL SUPPLIES - - -**

We wish buyers to know that we are  
**SPECIALLY PREPARED FOR SPRING BUSINESS.**

Our stock is large and well assorted and we are maintaining a reputation for best values.

**JOHN FORMAN, = = 650 Craig Street, Montreal.**

AGENT for Crompton Howell Battery Co., Ediswan United Electric Co. and the India Rubber,  
Gutta Percha and Telegraph Works Co.

**LAMPS**

**"SWAN" and "EDISWAN"**

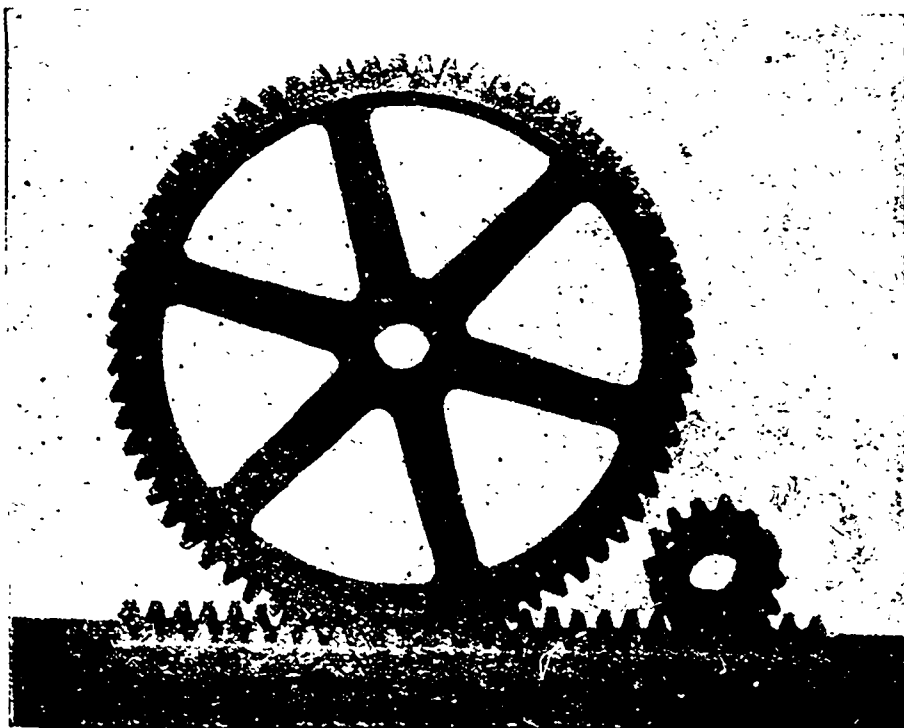
Incandescent Lamps made by EDISON & SWAN UNITED ELECTRIC LIGHT CO. Ltd,  
and Electrical Supplies of all kinds.

**JOHN FORMAN, 650 Craig Street, Montreal.**

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

**CANADA TOOL WORKS,**

Dundas, **JOHN BERTRAM & SONS,** Ontario.



Manufacturers of

**MACHINE TOOLS AND  
SPECIAL MACHINERY.**



Equipments for Bicycle Factories,

Boiler Shops, Ship Yards, Steam

Forges, Repair Shops, &c.



Gear and Rack Cutting to  
Order.



**Correspondence solicited.**

land has increased in the same period by 100 per cent. This growth in foreign competition is attributed to the starting of direct shipping lines to South Africa from America and the Continent.

Some of the incongruities of the tariff that make themselves so conspicuous from time to time would present ridiculous features if these were not overshadowed by the seriousness of them. The accepted theory is that whenever possible raw materials are non-dutiable; and certainly if any material upon which a certain amount of labor has been expended is placed in the free list, the cruder forms of that material, upon which a lesser amount of labor has been expended, should not, under any circumstances, be made to pay duty. The tariff provides for the admission duty free of aluminum and aluminum sheets, which is an article upon which a certain amount of labor has been expended. Pig aluminum is the crudest form of aluminum, and is the raw material from which aluminum sheets are made. But pig aluminum is not enumerated in the tariff, and because it is not it is classed as an unenumerated article upon which a duty of twenty per cent. ad valorem is imposed. In this instance the incongruity of the tariff consists in placing a finished article, to wit, aluminum sheets, in the free list, and in placing a raw material, to wit, pig aluminum, in the dutiable list. This is a ridiculous feature of the tariff which should be remedied without delay. But there is much seriousness in it to Mr. T. G. Brigham, of Ottawa, who a few days ago imported a quan-

tity of pig aluminum upon the value of which the Customs officers demanded twenty per cent. duty. The following letter further explains the situation:—

“T. G. Brigham, Esq., Central Chambers, Ottawa:

SIR,—I beg to acknowledge receipt of your letter of 4th inst., addressed to the Hon. Minister of Finance, complaining of the duty charged on the pig aluminum. In reply I have to state that tariff item No. 496 provides for the free admission of aluminum or aluminum sheets, but not in any other form. Therefore, pig aluminum, being an unenumerated article, is dutiable at 20 per cent. under tariff item No. 481.

Your obedient servant,  
(Signed) W. KILVERT,  
Acting Commissioner.

Ottawa, May 9th, 1895.

This is only one instance of a large number where the incongruities of the tariff are more painful than ridiculous, making it better to import finished products than raw materials.

When asked about the cause of the present stage of low water throughout the lakes, government engineers and others who have given attention to the subject of lake water levels all make the same answer. Every few years, they say, we pass through a regular cycle of changes in lake levels. There comes a period of high water, slowly decreasing each year to a very low point, and then returning again to the higher levels. We are now on the low point, and there is also a special cause for low water at this particular time. Gen. Poe is quoted as saying that since Feb. 1 the rainfall throughout the lakes has been 4

## ELECTRIC LIGHTING,



## ELECTRIC POWER TRANSMISSION,



## ELECTRIC TRAMWAYS.

**AHEARN & SOPER,** OTTAWA,  
ONTARIO.

**Electrical Engineers and Contractors.**

**Complete Electric Plants Installed.**

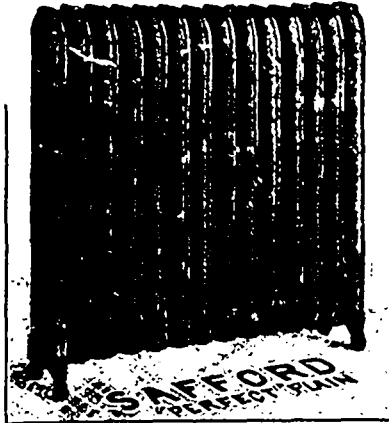
Dealers in Electric Supplies, Transformers, Motors, Meters, Lamps, etc., etc.

# HEATING APPARATUS

# Safford : Radiators

RECEIVED THE HIGHEST AWARDS :

ANTWERP	(BELGIUM)	EXPOSITION	1894.
TORONTO	(ONTARIO)	EXHIBITION	1894.
OTTAWA	(ONTARIO)	EXHIBITION	1893.
SHERBROOKE	(QUEBEC)	EXHIBITION	1893.



## ALL IRON.



Largest Radiator Manufacturers

Under the British Flag.



THE **TORONTO RADIATOR MFG. CO. LTD.** Toronto, Ontario.

# The Packard Lamp.

WE are prepared to furnish you with the best LAMP in this market, the "PACKARD," at extremely low prices and can prove our claims.

# THE PACKARD TRANSFORMER.

It is impossible to burn out one of our Converters; and in efficiency and regulation they far excel all others.

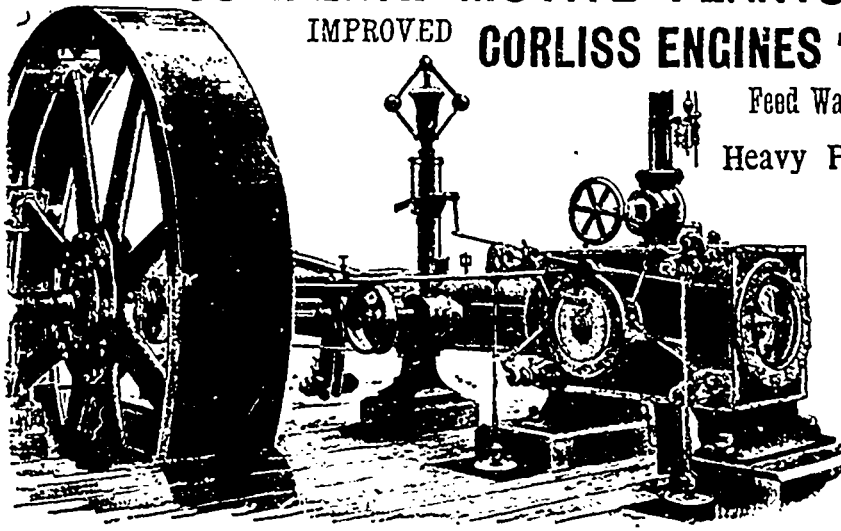
WRITE US FOR QUOTATIONS.

# The Packard Electric Co'y, Ltd.

ST. CATHARINES, ONTARIO.



**LAURIE ENGINE CO.** St. Catherine Street East, MONTREAL, ENGINEERS AND CONTRACTORS.  
**COMPLETE MOTIVE PLANTS, ETC.**



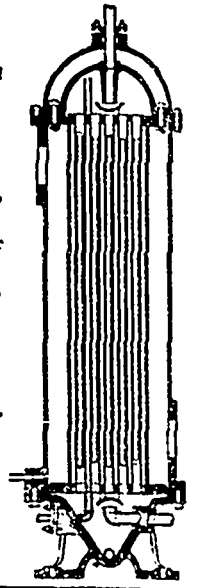
IMPROVED **CORLISS ENGINES** High Pressure, Condensing and Compound

Feed Water Heaters and Purifiers.  
 Heavy Fly-Wheels a Specialty.

Sole Agents in Prov. of Quebec for  
**NORTHEY CO. Ltd.**

Manufacturers of all kinds of  
 Pumps, Condensers and  
 Hydraulic Machinery.

Sole Agents in Canada for the  
**HOLLY GRAVITY  
 RETURN SYSTEM.**



**WM. & J. G.  
 GREY,**  
 TORONTO,  
 ONTARIO.

Manufacture  
**THE VICTOR  
 WHEAT  
 HEATER,**

The benefits  
 secured are

- WHITER  
 FLOUR,**
- UNIFORM  
 GRADES,**
- CLEANER  
 OFFALS,**
- BROADER  
 BRAN.**

**FOUNDRY FACINGS**

Ceylon Plumbago Foundry  
 Supplies, Fire Brick, Fire  
 Clay and Moulding Sand.

Canadian Agents for  
**COLLIAU CUPOLA FURNACE.**

**HAMILTON FACING MILL COMPANY,**  
 Hamilton, Ontario.

**ON HAND - - -**

**1 16x42 Reynolds'  
 Corliss Engine**

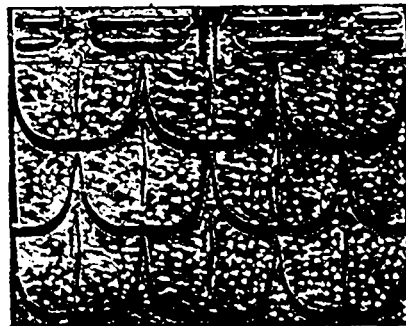
**FOR SALE VERY LOW.**

**I. Matheson & Co.  
 Engineers,**

**NEW GLASGOW,  
 NOVA SCOTIA.**

**METAL ROOFING.**

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

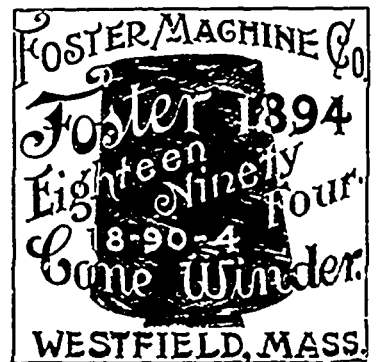


Guaranteed to be Water, Wind, Storm, Fire,  
 and Lightning Proof.  
**THE PEDLAR METAL ROOFING CO.**  
 Office and Works - OSHAWA, ONTARIO.  
 In answering please mention this paper.

**BARGAINS MACHINERY**  
 -IN-  
**NEW & SECOND-HAND**

- 2300 inch Double Corliss Engine, with Condenser, 60 H. P.
- 16x32 inch Double Cummer Automatic Engine, 30 H. P.
- 20x30 inch Automatic Engine, 150 to 200 H. P.
- 16x32 inch Buckeye Automatic Engine, 150 H. P.
- 12x20 inch Automatic Engine, 75 H. P.
- 12x12 inch Automatic Engine, 50 H. P.
- 12x12 inch Beek Automatic Engine, 50 H. P.
- 16x32 inch A'lia Corliss Engine, 150 H. P.
- 12x24 inch Wetherill Corliss Engine, 50 H. P.
- 10x18 inch Buckeye Automatic Engine, 50 H. P.
- Westinghouse Automatic Engine, 60 H. P.
- 5x12 inch Beek Automatic Engine, 50 H. P.
- 8x9 inch New York Safety Automatic Engine, 50 H. P.
- 8x12 inch Trenton Automatic Engine, 35 H. P.
- 8 1/2 inch Valve Engines, Vertical and Horizontal, 20 to 30 H. P.
- Hoisting Engines, 5 to 50 H. P.
- Yacht and Marine Engines.
- Boilers, all styles and sizes.
- Pumps, 2 1/2 inch, 30x6 inch, 36x9 inch, 42x12 inch, 72x24 inch.
- Lathe, 14x6 inch, 16x6 inch, 20x10 inch, 24x12 inch, 28x30 inch, 36x14 inch, 36x16 inch.
- 24 inch, 6 inch, and 48 inch Drill Presses.
- 36 inch, 3 and 4 ft. Radial Drills.
- Vertical and Horizontal Plain Milling Machine.
- 3 inch and 18 inch Lodge & Davies Turret Lathes.
- Box Lathes.
- 300, 600 and 300 lbs. Steam Hammer.
- Large stock of Steam and Centrifugal Pumps for water, steam, tanks.
- 4-foot Vacuum Fan.

FRANK TOOMEY,  
 131 NORTH THIRD STREET  
 WAREHOUSES,  
 119 AND 161 CANAL STREET,  
 150-162 BEACH STREET  
 PHILADELPHIA



**ADVERTISE  
 IN THE  
 Canadian Manufacturer.**

inches short of the normal quantity, while the natural evaporation and outflow has, of course, gone on without change. Observations taken at Quincy show that the Mississippi has now reached the lowest level that it has touches in years. The Mississippi flow always corresponds to the lake conditions, both being governed by the amount of rainfall through the interior regions from whose drainage they gain their volume of water.—Cleveland, O., Marine Review.

It is right for a young man to buy or build a house and pay interest on a mortgage instead of paying rent, and gradually become the owner of a home which he can leave to his family. He is not inclined to regard a mortgage as a curse, and should not. In the same way the young farmer, through the instrumentality of a mortgage, struggles along in the hopes of becoming the owner of a farm, and he will own it in time if he has average good fortune, be patient, industrious and careful. However, hundreds of thousands of men own valuable property today who never would have secured it except by executing mortgages at the start and gradually paying them off.—St. Louis Grocer.

Commerce, an illustrated weekly journal published in London, England, in a recent issue contains a long and exceedingly interesting account having reference to Siemens Bros. & Co., electrical engineers of that city. The article gives a brief description of the founders of the concern and of those who are now interested in it, including the late Sir Wm. Siemens, the late Dr. Werner Von Siemens, Messrs. Carl and Alexander Siemens, directors in the com-

pany and Messrs. Wilhelm Von Siemens and Arnold Von Siemens, who are also directors. A most interesting account is given of the method of constructing submarine cables, placing the same aboard ship and the paying out in the ocean. It is well known that a very large proportion of the submarine cables now in use throughout the world were manufactured and laid by this company. In addition to the description of the manufacture of submarine cables and the method of laying them, accounts are also given of the method of manufacture of the exceedingly delicate and accurate electrical instruments necessary for operating them. The article is illustrated throughout, containing photo-engravings not only of the gentlemen whose names are named but also of many others who are connected with the concern; different views of the company's works illustrating the method of manufacturing submarine cables; the tanks in which they are coiled during process of construction; representations of the now famous cable laying steamer Faraday showing apparatus placed upon her for paying out cables, recovering cables when lost, etc.; also interior views of cable testing room, instrument shop, instrument adjusting room, insulator shop, main dynamo fitting and erecting shop, views of different alternators and generators, dynamo testing shop, show rooms, etc. The article also contains a map of the world showing some of the cables and telegraph lines made, laid and erected by this concern. The article contains a list of the cables made and laid by the Siemens Bros. Co. from the time they engaged in that business in 1873 to 1894 inclusive; the list showing the laying of 18 cables aggregating in length 23,317 nautical miles, and the greatest ocean depth in which these cables were laid. The greatest depth was 16,000 ft. Mr. James W. Pyke, 35 St. Francois Xavier St., Montreal, is the representative for Canada of this large and important concern.

**The Two-Phase System.**

To the Editor of Electricity.

DEAR SIR, In an editorial in your issue of April 10th you say in reference to the new Westinghouse shop: "Aside from all this, these new works undoubtedly constitute the most complete electrical shops in the world of any kind, and the only ones using the two-phase currents for all operations." As to the first part of this statement it is a matter of individual judgment, and we have no comment to make; but we are certainly astonished at the latter part, as a reference to your own files would prove its accuracy. Our shops have long been operated by two-phase currents, and en-

**.. IMPORTANT ..**  
**TO LIGHTING STATIONS.**

OUR NEW  
**ALTERNATING CURRENT INDICATORS**

Are now ready. Before purchasing elsewhere send for our New Catalogue, which contain the prices and description of the above instruments, and also a list and prices of other new instruments of our manufacture.

**WHITNEY**

**ELECTRICAL INSTRUMENT CO.**

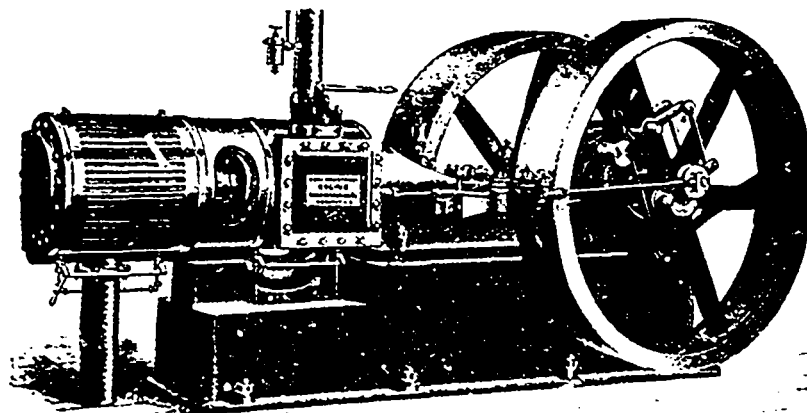
Sherbrooke, P.Q., Canada.

Penacook, N.H., U. S.

.. AGENTS ..

Henry F. Kellogg, General Selling Agent.

- BOSTON, MASS., W. S. Hill.
- BALTIMORE, M.D., The Poolo Electric Co.
- CHICAGO, ILL., Electric Appliance Co.
- CINCINNATI, O., Nowotny Electric Co.
- HALIFAX, N.S., John Starr, Son & Co. Ltd.
- NEW YORK CITY, Geo. L. Colgate, 121 Liberty Street.
- SAN FRANCISCO, CAL., California Electrical Works.
- TORONTO, ONT., Toronto Electrical Works.



In the Robb-Armstrong Tandem Compound Engine the high pressure cylinder is placed next the frame and both pistons and cylinder heads may be withdrawn through the low pressure cylinder without disturbing it. Both valves are controlled by the governor, arranged so as to give equal work to each cylinder.

**Robb Engineering Co., Ltd., Amherst, N. S**

AGENTS:

The Canada Machinery Agency, 345 St. James Street, Montreal,  
Wm. McKay, Seaforth, Ont., Travelling.

tirely so. There is not even a temporary use of direct current for elevators and cranes. The whole work is done by two-phase currents. Neither is our apparatus of such peculiar design that it can be operated only at abnormally low frequency. All the apparatus in our shop is supplied from the central station of the town by a generator using the standard frequency of 16,000 alternations. It is not necessary for us to limit ourselves, therefore, saying that our apparatus could also be used at Niagara. It can be used in connection with any central station, and is being used in connection with many. We are surprised above all that you should undertake to decide the legal question as to the right to use two or three-phase currents for transmission purposes. Surely an anti-monopoly journal need not start in to create a monopoly in advance of the decision of the courts. Had these statements appeared in a journal known to be biased, or to be affected editorially by its advertising columns, we should have passed them over in silence as of no importance. In the militant advocate of fair trade, however, they carry weight. We trust that, your attention having been called to their erroneous nature, in your usual spirit of fairness you will rectify them.

JOHN F. KELLY.

Stanley Electric Manufacturing Co., Pittsfield, Mass.

The above appeared in Electricity, and the editor makes the following comment:—We thank Mr. Kelly for correcting us in making too sweeping a statement, as the Westinghouse shops are not "the only ones using the two-phase currents for all operations." More than a year ago Electricity published a comprehensive write-up showing the application of the S.K.C. two-phase system in the Stanley works at Pittsfield, which, we believe, was the first extensive installation, and which has worked with perfect success. We regret the overstatement, which was purely inadvertent. In regard to our remarks as to the legal questions involved, we made no attempt to anticipate the decisions of the courts, discussing merely the Westinghouse and Monocyclic systems, as a careful reading will show. We stated, what we knew to be a fact, that the general Electric people had acknowledged their Monocyclic system to be an infringement of the Tesla patents.

#### New Aniline Colors.

Farbenfabriken vorm Friedr & Co., Elberfeld, Germany, have issued a circular regarding their new Aniline colors which explains itself as follows:—

As is well known the cotton shades of certain direct dyeing colors become far more resistant to the influences of the atmosphere by an after treatment with sulphate of copper, (a process which is patented

by us.) This effect is shown in a remarkable degree in the use of our two products Benzo Azurine G and 3 G, as by an after treatment with copper they attain the same fastness to light and air as indigo. This most important property was mentioned by us when these two colors were brought out.

In order to fix the colors better, a process slightly different to that which has been applied up to now has lately been brought into use, viz: After treatment with bichromate of potash and sulphate of copper (bluestone). The process is as follows:—After the cotton shades dyed in the usual manner with direct dyeing colors have been rinsed well, they are entered into a boiling bath consisting of 5 per cent. bichromate of potash and 2 per cent sulphate of copper (of the weight of the goods) and worked there for a quarter of an hour.

This very simple and cheap after treatment causes the shades to become much faster to washing and very fast to air and light.

This process we also tried with our direct dyeing cotton colors, and of these we found Benzo Azurine G and Diazo Brown R extra most useful.

The first of these gives a blue exceedingly fast to light and air. By the after treatment the shade is only changed in so far that it becomes somewhat greener and duller. The fastness to washing is considerably greater, although not quite perfect.

Diazo Brown R extra gives in this way very full catch brown

## THE PAUL FRIND

Woolen Machinery Company, Ltd.

.....TORONTO.....

Dealers in and Manufacturers of

WOOLEN MACHINERY. MILL SUPPLIES.

Specialties:

English H & T Steel Card Clothing.

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

DODGE WOOD SPLIT PULLEYS

Best Oak Tanned Belting and Lace Leather.

.....THE.....

# Goldie & McCulloch Co.,

Limited,

Galt, Ontario,

MANUFACTURERS OF

## STEAM ENGINES, BOILERS, WATER WHEELS,

Steam Engines, Boilers.

Water Wheels, Flouring and Saw Mill Machinery, Wood Working Machinery, Wool Machinery.

Fire and Burglar-Proof Safes, Vault Doors.

Wood Rim Split Pulleys, Friction Pulleys, Friction Clutch, Couplings, etc.

## "Dumfries - Foundry,"

Galt, Ontario, Canada.

# WM. & J. G. GREEY, TORONTO,

MANUFACTURERS OF

## SUPERIOR CHILLED ROLLS.

Perfect Surface, Deep Chill, Hard,  
Tough, Durable, Guaranteed  
Free From Flaw.

—FOR—

Iron Rolling Mills,  
Rubber Works,  
Paper Mills,  
Flour Mills, Etc.



For Rolling  
Iron, Steel, Cold,  
Silver, Brass, Copper  
Wire, Lead, Paper, Etc.

Have the Largest and Most Complete  
Plant of Grinding and Corrugating Machinery in Canada.

shades, the dyestuffs being absolutely fast to washing, as well as being fast when washed along with white, and also exceedingly fast to light and air.

Benzo-Violet R, (patented.) The demand for new shades in heliotrope and purple has induced Aniline manufacturers to make extra efforts in bringing out new colors that will produce violet and heliotrope tints, fast to light. The latest, and probably the best product introduced, is known as Benzo-Violet R, manufactured by the Farbenfabriken, vormals Friedr Bayer & Co., Elberfeld, which is similar to their well known Heliotrope B B.

Light, full shades of Benzo-Violet, show a weak fluorescence, which is not to be looked upon as a disadvantage, but on the contrary is just what is wanted in bright shades.

Samples and full particulars may be obtained by addressing the Canadian Agents, The Dominion Dyewood & Chemical Co., Toronto.

Azo-Acid Blue 4 B, (patented).—This is a self-color, not a mixture, and is very useful for producing fashion shades, combining with other acid aniline colors, and has the property of resisting iron and soiling and is very fast to rubbing.

For further particulars, address The Dominion Dyewood & Chemical Co., Toronto.

**The Bell Telephone Company's New Building.**

The Bell Telephone Company are about erecting in Montreal what will be one of the most complete and convenient telephone exchanges on the continent. The building which will be six-stories high will front on three of the principal streets of the city—35 feet on Notre Dame, 108 feet on St. John, and 98 feet on Hospital street, the walls of which will extend about 88 feet above the sidewalk. There will be two passenger elevators capable of running 350 feet per minute, which will make the time of passage to our from the sixth floor in twenty seconds. These elevators will be actuated by electric motors.

The second floor will contain the company's general offices, the eastern department office, the board room, president's and secretary-treasurer's apartments, stenographers' office, as well as those of the manager, the electrical engineer, the special agents, coat rooms, archives' room and large burglar proof vaults, besides bath room for the use of the company's officers.

On the third floor is found the battery room in which will be located all of the batteries operated in the company's lines, as well as the chief operator's office and headquarters of the "trouble" clerks.

On the fourth floor will be the operating room which will be 128

feet long by 32 feet wide with windows on four sides, as well as large skylights. Here will be located the switch boards and other apparatus connected with the telephone business. This apartment will have a height of 18 feet and will, on account of its splendid location, be one of the finest of its kind on the continent. Adjoining this room will be a recreation and lunch apartment for women operators, the dimensions of the room being 32 feet by 18 feet, and still again a locker room of the same size containing a locker for each of the operators. There will be accommodation for 125 operators. Upon the same floor will be the janitor's quarters.

The remaining space upon this floor, that upon the second floor, the entire fifth floor, and all other available spaces will be made into offices for business purposes, and will be fitted up and finished in the most elegant and comfortable manner. Each office will have gas, electric light, steel vaults, etc.

Besides the messengers' room, located in the basement, there will be a large room containing the distributing frame in which all the wires of the different telephones are assembled and carried to the operating room on the fourth floor.

The boilers, which will be in the basement, will be of the safety water tube pattern and of about 200 horse-power capacity. Special

**FOR SALE**

1 plain slide valve 15 h.p. Engine with pump and heater; 1 steel Boiler 30 h.p. 10' long, 42" shell with 40.3" tubes including settings, fronts and all connections complete. Both the above are in first-class order and in use but a short time, having been very carefully used. 1 Eclipse Planer and Matcher 2 1/2" knives; 300' Shafting 1 1/2" with hangers; 100' Shafting 1 1/4" x 2" with hangers; 75' Shafting 2 1/2" with hangers. Wood and Iron Pulleys, all sizes; Belting, new and old.

**BARGAINS.** ♦ WRITE FOR FURTHER PARTICULARS AND PRICES

**W. R. SCOTT,** MACHINERY BROKER, 489 Church St., Toronto

**BRUNNER, MOND & CO., LTD., NORTHWICH, ENG.**

MANUFACTURERS OF



**PURE ALKALI**

GUARANTEED 58 DEG REES.

**and BLEACHING POWDER.**

The Strongest and Purest Form of SODA ASH in the Market, and the Most Economical Form of SODA for the Manufacture of

**SOAP, GLASS, PAPER, WOOD PULP AND COLORS,**

also for PRINTERS AND BLEACHERS.

**WINN & HOLLAND, Montreal**

Sole Agents for the Dominion of Canada

**HEMOLIN** PATENTED

**T**HE Cheapest Black-producing Dye for Wool on the Market. Has all the advantages of Logwood with none of its inconveniences. Can be Dyed in one Dip, or may be employed in Wool Dyeing as a self-color, or in combinations, wherever Logwood is used, by following practically the same recipes.

This is not a mixture, but a new product for which patents have been granted in U. S. A., Great Britain, Canada, Germany, France and Austria, and in these countries has increased constantly since its introduction.

MANUFACTURED BY

**Wm J. Matheson & Co., Limited, New York, U. S. A.**

BRANCH HOUSES:---Boston, Providence, Philadelphia, Montreal.

# THE ROYAL ELECTRIC COMPANY,

MONTREAL, QUE.

WESTERN OFFICE, TORONTO, ONT.

Have just completed their new manufacturing building, providing additional floor area of 40,000 square feet, and have secured the sole right for the manufacture and sale in the Dominion of Canada of the celebrated

## S. K. C. TWO PHASE Alternating Current System

as manufactured by the

### STANLEY ELECTRIC MANUFACTURING COMPANY,

Pittsfield, Mass., U. S. A.

Acknowledged to be the only complete and perfected system by which light and power can be supplied from the same generator and circuit.

#### GENERATORS ;

HAVE no moving wire,  
no collectors,  
no brushes.

Greatest Efficiency, Extreme Simplicity, Best Regulation.

#### MOTORS ;

Self-starting, simple, efficient, have no commutators.  
Superior in many ways to direct current motors.

#### TRANSFORMERS ;

The Stanley Transformers are standard.  
All others are compared with them.

They are the most efficient, best regulating and safest.

All S. K. C. Apparatus made from drawings, patterns and details of construction as used by The Stanley Electric Manufacturing Co., Pittsfield, Mass.

The manufacture will also be continued and extended of :

**Arc Dynamos, Arc Lamps, Railroad Generators, Railroad Motors,  
Direct Current Generators and Motors, Station Equipments  
and Instruments, Switchboards, Wire,  
Electrical Appliances.**

Correspondence solicited for

Electric Lighting, Railway, Manufacturing and Mining Work.  
Isolated Plants. Central Stations. Long Distance Transmission  
Of Light and Power.

attention has been paid in perfecting the heating appliances of the entire building, fresh air being drawn from the outside passed through steam coils and forced by large steam fans to every room in the edifice. The air will be washed and freed from all impurities before being delivered, and a uniform temperature will be maintained. This system has been tried at the General hospital, in Montreal, and has given every possible satisfaction.

The structure will be as thoroughly fire-proof as it is possible to make it. The windows of all the rooms containing the apparatus of the company will be protected by rolling steel shutters so as to avoid danger by fire from the adjoining buildings. A fire escape will lead to the roof from the operating room, and there will be fire escapes from every story leading to the basement from whence a fire proof passage will lead to the street. To this is added a stand pipe for fire purposes with a hose on each floor.

The cost of this building will reach well on to a quarter of a million dollars. The roof will be covered in this season and the company will take possession about the beginning of May, of next year.

### CAPTAINS OF INDUSTRY.

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

Messrs. Ward & Steele, will erect a planing mill at Prescott, Ont.

Ed. Kendrew will rebuild his flour mill which was recently burned at Pond Mills, Ont.

The Hudson Bay Co., will rebuild its flour mill which was recently burned at Prince Albert, Sask.

W. C. McDonald, Montreal, will immediately rebuild his tobacco factory which was recently destroyed by fire.

Messrs. D. Dungate & Co., boot and shoe manufacturers of Brantford, Ont., will remove their establishment to Hamilton, Ont.

Jas. Richardson's shingle, tile and sawmills at Kerwood, Ont., were completely destroyed by fire on May 5; loss about \$6,000.

Jas. Randall, of the Meaford, Ont., woolen mills, has added a boiler to the mills' equipments for the purpose of dyeing by steam.

The Ontario Veneer Co., Toronto, has been incorporated with a capital stock of \$20,000 to manufacture veneers, veneer goods, etc.

The V. & B. Sporting Goods Co., of Quebec, has been incorporated with a capital stock of \$20,000 to manufacture sporting goods, etc.

Messrs. Stetson, Cutler & Co., Indiantown, N.B., will shortly reopen their mill at that place, which has been closed for some years.

The Rogers & Morris Co., Toronto, has been incorporated with a capital stock of \$70,000 to manufacture mineral, vegetable, and animal oils, etc.

The Fulton Jewell Mfg. Co., of Toronto, Ont., are applying for incorporation with a capital stock of \$5,000 to manufacture silverware, general jewelry, etc.

The Windsor Salt Co., Windsor, Ont., are applying for incorporation with a capital stock of \$200,000 to mine and manufacture salt in its various forms, etc.

The Bicycle Accident Repair Co., of Canada, Toronto, are applying for incorporation with a capital stock of \$10,000 to manufacture and repair bicycles, etc.

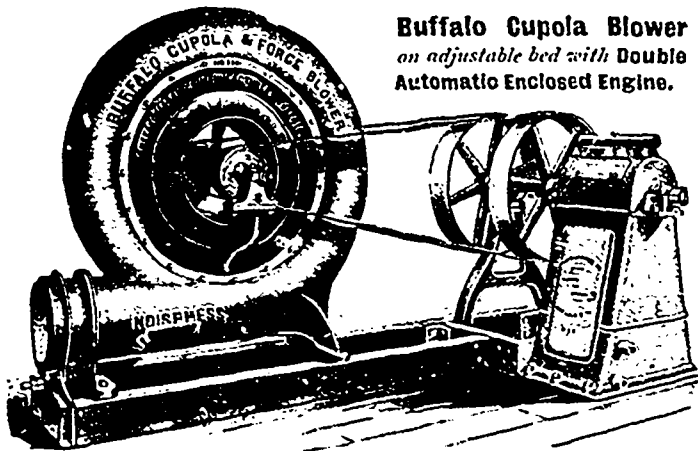
The Light, Heat & Power Co., Lindsay, Ont., are applying for incorporation with a capital stock of \$70,000 to produce electricity for commercial purposes.

The Ingersoll Electric Power & Light Co., Ingersoll, Ont., has been incorporated with a capital stock of \$45,000 to construct works for the production of electricity for power, light, heat, etc.

Messrs. Wm. Mason & Sons' mill at Ottawa, Ont., has undergone extensive repairs. The old circular saws have been discarded and in their stead are large band saws of the latest improved style.

The Richmond Industrial Co., Richmond, Que., has been incorporated with a capital stock of \$100,000 to manufacture wooden ware, and to acquire the belongings of the Richmond Water Power & Mfg. Co.

The Dodge Wood Split Pulley Co., report an increasing foreign trade in their split pulleys. They are at present preparing for shipment an order from their general agents in London, England, for eight hundred pulleys, ranging in size from six inch diameter to four feet. These pulleys are now distributed from the Company's warehouse in Liverpool to all points of the globe.



**Buffalo Cupola Blower**  
on adjustable bed with Double  
Automatic Enclosed Engine.

**Buffalo Dry-Kilns, Shaving Fans, Forges,  
Blowers, Exhausters, Black-  
smith Drills, Etc.**

Are described in Sectional Catalogues FREE on application.

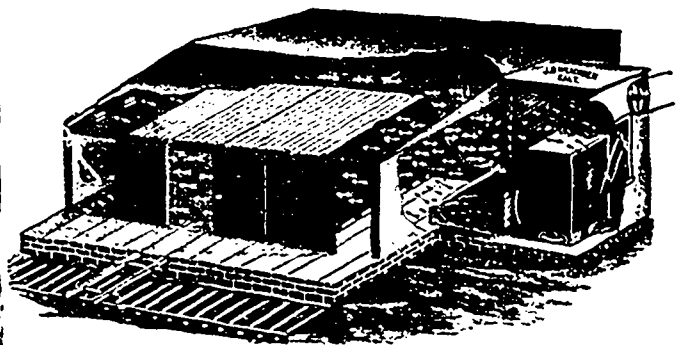
**Their Efficiency, Smooth Running, and  
Durability are Unsurpassed**

**BUFFALO FORGE CO., Buffalo, N. Y., U.S.A.**

SOLD IN  
TORONTO, ONT., BY H. W. PETRIE.  
BRANTFORD, ONT., BY CANADIAN MACHINERY & SUPPLY CO.  
MONTREAL, QUE., BY CANADA MACHINERY AGENCY.  
CHICAGO STORE, 22 and 24 WEST RANDOLPH STREET.

## McEachren's System of Drying, Heating and Ventilating

Under Recent Patents.



CHEAP AND EFFECTIVE.

Highly approved of by practical men.

The following is a specimen of letters received from customers:

Ottawa, April 1, 1895.

J. D. McEachren, Esq., Ga't, Ont.

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

Yours truly,

McKAE BROS. & Co.

For particulars address

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

The Dominion Art Wood-Working Co's. factory, at Toronto Junction, was damaged by fire on May 7 to the extent of about \$6,000.

The Hall Mowing Machine Co., of Canada, Que., has been incorporated with a capital stock of \$100,000 to manufacture agricultural implements and machinery.

The Toronto Motor Co., Toronto, are enlarging their factory, and a large boring mill specially adapted to motor work is being put in, which will increase their facilities for turning out electric work.

The Wallaceburg Flax Mill, Wallaceburg, Ont., are applying for incorporation with a capital stock of \$10,000 to grow flax and to manufacture the same into whatever products may be made therefrom and to manufacture linseed oil, etc.

The Embro Oatmeal mill, Embro, Ont., owned by D. R. Ross, will be closed to be thoroughly overhauled and repaired. Another story will be added giving room for additional machinery. The capacity of the mill will be doubled, and all the latest improvements for cleaning grain, manufacturing oatmeal and rolled oats will be secured. A large oat elevator, together with a new feed building, has recently been erected adjoining the mill.

The Moffat Stove Co., Weston, Ont., have sent us their new catalogue, having reference to the stoves and ranges manufactured by them. It is very neatly bound, attractive, and a credit to the company. It contains portraits of the several members of the firm, also an engraving of their works. Illustrations and descriptions of the Pearl stoves and ranges manufactured by them are given, together with lists of prices. The castings, mounting, nickel work, and all the workmanship in their goods are guaranteed to be unexcelled in every particular. The following are the names of some of their goods:—Imperial Range, Welcome Pearl, Bright Pearl, Ideal, Cozy, Splendid, Crown, Matchless, Home, Capital, Modern, Daisy, Radiant, Elegant, Vesta, Magic, Gem, Pearl Oak, Pearl Coal Oil Heater, etc. They also make gas stoves, pots, boilers and a thermometer or clock to be applied to their stoves and which registers the exact heat required for different articles of food.

T. C. STEWART, Electrical Expert. C. M. ARNOLD, M. E. F. J. CROSS, E. E.

## STEWART, ARNOLD & CO.,

CONSULTING ELECTRICAL ENGINEERS

... AND ...  
MANUFACTURERS OF ELECTRICAL APPARATUS

And Dealers in all kinds of Electrical Supplies.

We make a specialty of  
ARMATURE AND ARC LAMPS. All Work Guaranteed.  
Repairs Promptly Executed.

164 KING STREET WEST.

AUBURN WOOLEN CO.....

MANUFACTURERS OF PETERBOROUGH, ONT.

### FANCY TWEEDS, ETC.

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

## HAMILTON COTTON CO.

Hamilton, Ontario

### DYERS, BLEACHERS

AND MANUFACTURERS OF

Warp Yarn, in Beam, Chain or Skein, White or Colored.

Single and Double Yarns, Cop Yarn, Single and Double Hosiery Yarn in all Colors, including genuine "Fast Black."

### PAUL FRIND & CO., - TORONTO

Selling Agents for Beam Warps

The Toronto Radiator Co., Toronto, will erect a two-story brick addition to their factory which will cost about \$5,000.

The Three Rivers Iron Works Co., Quebec, has been incorporated with a capital stock of \$100,000 to manufacture iron, steel and brass wares, gas and water pipes, and machinery used in foundries, etc.

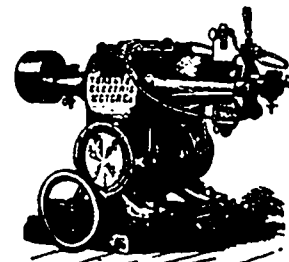
The Kamloops Canning & Preserving Co., Kamloops, B.C., are applying for incorporation with a capital stock of \$10,000 to manufacture vinegar, catsups and sauces, and to carry on a general canning and preserving business, etc.

On another page will be found the ad. of the Hamilton Bridge Works, successors to the late Hamilton Bridge Co., Hamilton, Ont. This company construct every size and design of railway and highway bridges, structural work in steel and iron, observation and water towers, tanks, caissons, piers, columns for buildings, etc. They have every facility for construction of steel and iron ships.

The ad. of Messrs. Cowan & Co., Galt, Ont., displayed on another page, has reference to the Cowan patent matching heads manufactured by them. These are warranted to work the hardest cross-grained wood with the greatest ease and do the work perfectly. The tongue head can be adjusted to any desired thickness and will not sprawl or tear but makes a round nose tongue, and, as the head fastens on the spindle with their patent lock, no set screws are used. The groove heads can be adjusted to any width and applied to any machine.

Messrs. Monroe Bros., New Glasgow, N. S., inform us that they are very busy manufacturing specialties in woven wire work. A few days ago they made a shipment of 12 car loads of railway gates for the Intercolonial railway. A patent wire mattress they make finds exceedingly large sale, particularly in the Maritime Provinces. Their patent church seat spring wire cushion is very neat, elastic and durable. The firm are now filling a \$500 order for these for a church at Dartmouth, N.S. Their patent wire buggy cushion is another specialty which is received with much favor. This cushion was supplied to the road cart built for the Duchess of Kent. The works of Messrs. Monroe Bros. are large, conveniently arranged and well equipped for the purposes of their business, most of their machinery having been manufactured for them by the Goldie & McCulloch Co., of Galt, Ont.

## Toronto Electric Motor Co.



We Manufacture  
INCANDESCENT DYNAMOS,  
ARC DYNAMOS,  
AND MOTORS,  
ANY VOLTAGE.

Our record is not equalled  
by any manufacturer.  
Our Success our Proof.

107 and 109 Adelaide Street West,  
TORONTO, ONT.

### Penman Manufacturing Co., Ltd.

Manufacturers of... PARIS, ONT....

Hosiery, Shirts, Drawers  
Glove Linings and Yarns

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

### ROSAMOND WOOLEN CO.

... ALMONTE, ONT...

Fine Tweeds, Cassimeres and Fancy Worsted Suitings  
and Trousersings.

### Guelph Woolen Mill Co., Ltd.

GUELPH - - ONTARIO

Manufacturers of  
UNDERWEAR, HOSIERY, WHEELING, FINGERING and WORSTED YARNS  
EIDERDOWN FLANNEL, Etc.

Selling Agents: DONALD FRASER, MONTREAL: E. H. WALSH & Co., TORONTO

Mr. C. C. Harris, Toronto, manufacturer of tin foil bottle capsules, bar and wire solder, babbit and stereotype metal, etc., will remove his works to St. Catharines, Ont.

The Disney & Devlin Mfg. Co., Hanover, Ont., has been incorporated with a capital stock of \$24,000 to acquire the business of builders, machine manufacturers, etc., heretofore carried on by R. J. Disney & Co.

The Cant Bros. Co., of Galt, Ont., manufacturers of woodworking machinery, announce the retirement of Mr. H. Cant from that concern, which will not, however, in any way interfere with their business which will be carried on as before.

A Kingston press telegram states that Mr. G. A. Kirkpatrick, President of the Canadian Locomotive and Engine Co. at that place, has been in Chicago negotiating with a German firm, manufacturers of electric machinery, in respect to locating their proposed Canadian works at Kingston. Mr. Kirkpatrick desires to transfer the locomotive works to them.

Messrs. Ahearn & Soper, Ottawa, Ont., have been awarded the contract for the construction and equipment of an electric railroad in Oshawa, Ont., besides an extension from the town to Lake Ontario. The line to be built will be about six miles and a half in length; and the extension from the town to the lake will be about two miles in length. The price for the contract is between \$175,000 and \$180,000.

The Brantford branch of the Dominion Consumers' Cordage Co. has changed hands and will hereafter be known as The Brantford Binder Twine Co. The factory, which was established ten years ago by a local syndicate, was bought by the Binder Twine combine four or five years ago. It has now been acquired from them by a company consisting of the present local manager Mr. P. Y. Connor, and Messrs. N. K. Connolly, Quebec; M. Connolly, Montreal; and John Connor, St. John, N.B.

The Danville Slate Company, of which Messrs. Boas and Green-shields are principal shareholders, have purchased for \$150,000 the Jeffrey asbestos mines. The number of employes will be increased, says the Quebec Chronicle, and it is also proposed to establish a factory of asbestos tissue. At Thetford asbestos mines there is unusual activity just now, and since the 15th March more than fifty families have swarmed into the place in search of employment. More mining is going on at present than has been the case for a couple of years past. The Bell Company is erecting a three storey building measuring 60 by 40 feet, in which three machines for breaking the ore will be installed.

The Canadian Rubber Company, Montreal, are getting ready a shipment of 30,000 pairs of shoes for Australia. Orders have also been received from that country for many thousand feet of hose and belting.

The Lake of the Woods Milling Co. are improving their mill at Keewatin, Ont., by the addition of a new machine shop and machinery for cleaning and corrugating rolls. The old machinery has been overhauled and some new machinery put in.

The Hamilton Brass Mfg. Co., Hamilton, Ont., have at present an attractive ad. to be found on another page, and which illustrates the T. J. C. injector manufactured by them. They say that coal is money and to save it the T. J. C. injector should be used, as it is a most economical boiler feeder, saving 20 per cent. in coal over other makes; is absolutely automatic, easily attached and applicable to all kinds of boilers, besides being inexpensive. It is simple in construction, easy to operate and a very powerful feeder. With high or low steam the result is equally satisfactory, and it combines the utmost simplicity with perfect efficiency.

The Metallic Roofing Co., of Canada, Toronto, have sent us their new catalogue for 1895. It describes and illustrates the different kinds of roofing, siding, lathing, sheeting, etc., manufactured by them, and especially adapted for use in the erecting, finishing and decorating of large buildings such as mills, elevators, storehouses, etc., also residences, and offices. Illustrations are given of the process of laying the several kinds of roofing and parts; the way in which they are fastened together; and the tools used in connection therewith. It shows the advantages of their Eastlake, and Empire patent shingles, and Eureka diamond tiles over wood shingles and slate, and calls attention to the economy of using pressed corrugated iron or steel, for the inside finish of ceilings, walls, wainscoting, etc., as it possesses the essential advantages of beauty, durability and fireproof qualities. This catalogue further shows that the panelled and embossed sheet-metal ceilings are suitable for every kind of building where not only permanency and beauty of design and color is wanted, but also perfect acoustic properties. Rules for ordering the materials, and suggestions for a practical and efficient fire escape are given, also engravings of buildings on which these goods have been used. For further information apply to the above company.

# STEAM TRAPS

Pipe Machines

Buffing and Polishing Lathes

Strapping Machines

Shafting Hangers

## G. T. PENDRITH

MANUFACTURER,

73 to 81 Adelaide Street West, Toronto.

## TORONTO CARPET MFG. CO., Ltd.

TORONTO

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

INGRAIN . . . . .

and --

"Imperatrix" Axminster

# CARPETS

SEVEN QUALITIES OF INGRAINS

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

Esplanade and Jarvis Sts., - Toronto

## GEO. WHITE FRASER, Consulting Electrical Engineer.

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

Electric Railways and Electric Light Construction Superintended.

18 Imperial Loan Building, Toronto.

## ALEX. P. MENDE & COMPANY 14 Water St., NEW YORK,

MANUFACTURING CHEMISTS.

FAST ONE DIP COLORS, F Dyeing and Printing of Cotton, Woolen, Mixed Fibres, Etc., Etc.  
BLACKS AND CHEMICALS O R SHADES MATCHED.

German Finishing Paste Cordage and Carpet Size  
German Warp Dressing Shade Cloth Colors and Size  
Cotton and Merino Softeners Belt Dressing  
Wool and Cloth Scourers, etc., etc.

The Industrial Economizer Apparatus patented, for reclaiming the valuable products from waste waters. Apparatus in operation at our works. Patented June 26th, 1894.

This means a saving to you of thousands of dollars every year.

## I. Butler & Co. Distillers of Benzole, Naptha, and Manufacturers of Carbolic Acid and Varnish. 303 Front St. East, - - - TORONTO.

FERGUSON & PATTINSON

PRESTON : : : ONT.

Manufacturers of ....

Fine and Medium TWEEDS.



The Standard Shirt Co., Montreal, has been incorporated with a capital stock of \$200,000 to manufacture shirts, collars, haberdashers' supplies, etc.

The Josiah Fowler Co. Saint John, N.B., are applying for incorporation with a capital stock of \$50,000 to acquire the business heretofore carried on by Josiah Fowler, and to manufacture edge tools, springs, axles, etc.

Few people recognize the magnitude of the work connected with the construction of the steel gates of the new government locks at Sault Ste. Marie, which was started last fall. The Detroit Bridge and Iron Works has the contract. At the start it was necessary to build an unloading traveler, for the purpose of hoisting the immense sections of the gates from the railway cars. This is located north of the swing bridge on the canal. Next came the building of the erection traveler, which is used in lowering the sections of the gates into position. The construction plant alone cost over \$10,000. It is expected that the gates will be finished early in July, work on four of them being at present practically completed, and the fifth and last having been commenced this week. The gates are designated as the upper guard and the upper lock gate, the intermediate lock, the lower lock and the lower guard gate. The upper lock and the guard gates are 26 feet, 6 inches in height. The gates are all of the uniform length of a trifle over 55 feet. They are the largest gates of steel in the world. Each leaf has two air pumps and two air chambers situated near the bottom of the gates, and two water chambers, a few feet above the center. The air pumps will be operated by hand from the top of the gates. The air and water chambers are used in conjunction to preserve the equilibrium of the gates, and to prevent any undue strain on the quoin posts. The top of the gates will be provided with a wooden walk, which will have gas pipe railings on either side, for the convenience of foot passengers. The method of erecting the gates is interesting. In the first place the quoin post of the gate is lowered by the construction traveler to the bottom of the chamber. It is then up-ended and placed in position on the petel, a heavy plate of steel, from the center of which is raised a hemisphere, over which the center of the quoin post sets. The pentel rests unfastened on a steel plate, imbedded in concrete. The quoin post is anchored at the top, and section by section the different parts are lowered and riveted together with bolts and fastened to the quoin post, which might be termed the hinge of the gate. The sections weigh ten and twenty tons each. The anchor boxes are of forged steel, and weigh about eight tons, and to them the quoin posts are fastened at the top, the boxes having previously been placed solidly in position.—Sault Ste. Marie News.

John Burnett's sawmill at Breslau, Ont., was struck by lightning and totally destroyed on May 7; loss about \$3,000.

The George Matthews Co. are erecting a new power house at their works at Peterboro', Ont., which will contain a new 80 h-p boiler, manufactured specially for them by the Wm. Hamilton Mfg. Co. The Geo. Matthews Co. have also completed their large establishment in Hull, P.Q., and the new plant is now in operation. The Hull branch is the largest of the company's packing houses, and has an enormous capacity. With their splendidly equipped factories in Peterboro', Lindsay, Ottawa and Hull, this company is now probably the largest of its kind in Canada.

It is manifestly to the interest of Toronto to retain within its borders the manufacturing concerns that have grown up in the city, and have given evidence of substantial growth. A considerable degree of interest is therefore manifested in the proposal of the Cobban Manufacturing Company to take a 21-years' lease of a plot of land on the water front which has recently been filled in between the extensions of Bay and Lorne streets. That such a position would have many commercial advantages must be apparent to anyone who looks at the plans of the area and notes its proximity to both water and land carriage. But it will not be denied that firms who have borne their share of civic burdens in the past have some claim to be favourably considered in any disposition which may be made of the eligible lots now in the hands of the municipal authorities for disposal. Enquiry shows that the Cobban Company employ about 200 hands, about half of whom are married men, and that the taxes they would pay on the land proposed to be taken would amount to about \$400 per annum, while their general taxation for the term of years during which the lease will run would be, roughly speaking, \$30,000. It is understood that Toronto Junction is bidding for the location of the Cobban Company by the offer of a site which could be had practically free, viz., the fee simple of a plot of land worth \$30,000 for the nominal payment of \$1,000, and the Junction adds to this offer an exemption from taxation which brings its inducement up to a concession of \$30,000 to \$50,000. It will be gratifying therefore on all accounts if an arrangement can be made whereby, without trenching on what is due to the city, so important an industry may be retained within Toronto's boundaries. It is generally felt that the vacant lands in the commercial districts of the city cannot be better occupied than by manufactories employing a number of men, and which are the source of income of many households, and, within reasonable limits, it is better to recognize local established industries than to spend effort and money in endeavouring to attract those which are at present in the clouds.—Mail and Empire.

# VALVES and - Pipe :: Fittings

Write for Latest Prices.

## RICE LEWIS & SON

(LIMITED)

Cor. King and Victoria Sts. - TORONTO.

### THE J. B. ARMSTRONG

Road Wagons, Buggies and  
... Carriages ...

Excel in combining light and stylish appearance with perfect riding qualities and durability. Ask for our Catalogue illustrating all our different styles.

J. B. Armstrong Mfg. Co., Ltd.  
GUELPH, CANADA.

### PERFORATED METALS

... IN ...

STEEL                      IRON  
                                    ZINC  
COPPER                      BRASS  
                                    TIN



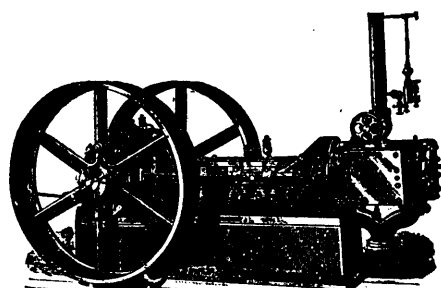
## The B. Greening Wire Co., Ltd.

HAMILTON, CAN.

We issue a special catalogue for this line with full-size cuts of perforations.

## Armington & Sims

AUTOMATIC HIGH SPEED ENGINES



—FOR—  
**ELECTRIC LIGHTING!**  
—AND—  
**GENERAL FACTORY PURPOSES**  
Perfect Regulation and Highest Economy.  
**Steam Pumps**  
**SHAFTING, PULLEYS**  
—AND—  
**General Machinery**

Nie & Whitfield - HAMILTON, ONT.

Wenger Bros., Ayton, Ont., will erect a large elevator on the site of their present mill.

The flour mill of the Bassam estate, Portneuf, Que., will be renewed, having been washed away.

The brick and tile works of Jas. A. Close, Woodstock, Ont., were destroyed by fire on April 30; loss about \$3,000.

Mr. John Breaker, Chaudiere Falls, Que., has received one large size Little Giant turbine made for him by J. C. Wilson & Co., Glenora, Ont.

Mr. Geo. H. Wilkinson, Buttonville, Ont., has just received one 21 Little Giant water wheel and a quantity of other machinery, manufactured for him by J. C. Wilson & Co., Glenora, Ont.

The Edson Fitch Co., Etchemin, Que., have placed an order with J. C. Wilson & Co., Glenora, Ont., for one of their 33" Little Giant wheels with necessary gears, shafting, bearings, etc.

The Colonial Iron & Coal Co. of St. John, N.B., propose to erect a blast furnace at Carlton, N.B. They have also secured the right to build a railroad from the coal areas to Gibson, opposite Fredericton, N.B.

J. C. Wilson & Co., Glenora, Ont., have just shipped one 24 vertical Little Giant turbine water wheel to the Granite Mills Co., St. Hyacinthe, Que., which makes the fifth Little Giant this company have ordered in the past two years.

J. C. Wilson & Co., Glenora, Ont., are having a railway siding laid down to their works, and in future will have cars ferried to and from Deseronto. This will enable them to receive and despatch freight by rail and save the extra cost and delay of trans-shipping by boat.

The Diamond Machine and Tool Co., Toronto, have bought out the machine business of W. H. Banfield & Co., 87½ Wellington St. West, this city. The new company is comprised of F. S. Jackson, H. Biddell and Wm. Ball. They will manufacture iron working machines, tools, embossing rolls, dies, presses, etc.

The Cant Bros. Co., of Galt, (Ltd.) have recently shipped a 42-inch band re-saw to Granby Rubber Co., Que.; a Bracket band saw to A. Latour, planing mill, St. John's, Que.; two revolving bed planers to New Brunswick; a buzz planer to Biennu & Co., Varennes, Que.; a double exhaust fan to the Laughlin-Hough Co., Guelph; and a scroll saw with tilting table to Hibner & Co., Berlin.

The Packard Electric Company, who recently removed their offices and works from Montreal to St. Catharines, inform us that they are now nicely and comfortably installed in their new quarters, and are well prepared to meet all demands that may be made upon them for the lamps, transformers, etc., which they make. Their new premises at St. Catharines, which they have recently purchased, were formerly known as the Neelon Empire Mills. The main building, which is constructed of stone, is 100x55 feet, five stories high, and is certainly one of the most substantial structures in Ontario. The building in which the offices are, is of brick, 60x20 feet, two stories high. There are also a capacious cooper shop and store rooms of 30,000 barrels capacity. There are also upon the premises, which cover an area of some ten acres, all necessary out-buildings—ice houses, stables, etc. The property fronts upon Race street and also upon the old Welland Canal, and in connection therewith the company have a lease from the Dominion Government extending over a long term of years for 700 h.p. to be drawn from that canal.

Messrs. Livingstone Bros' flax mill at Palmerston, Ont., was destroyed by fire April 28.

Messrs. Adolphe Turner & Co., of St. Boniface, Man., are applying for a bonus to erect a flour mill at that place.

S. Leveille of Ottawa, will erect a factory in Arnprior, Ont., for the manufacture of sash and doors, carriages, collars, etc., and will employ about forty-five men.

Messrs. A. W. Milne & Son, Don P.O., Ont., have just received one 28" Little Giant turbine with all necessary gearing and machinery, manufactured for them by J. C. Wilson & Co., Glenora, Ont.

Mr. Mark Warburton, the genial representative of Messrs. Mucklow & Company, of Bury, England, is paying his annual visit to the principal Canadian mills. From the way he is received it is evident that Mucklow's extracts and dyewoods are giving satisfaction. The Dominion Dyewood & Chemical Co., Toronto, are the agents for Canada.

J. C. Wilson & Co., Glenora, Ont., have recently received orders and shipped four of their Little Giant turbine water wheels to London, Eng. They also have an order for one horizontal Little Giant with large driving pulley, for J. F. Gax of Quebec City, and two horizontal Little Giants for the Montmorency Electric Power Co., Montmorency Falls, Que. This latter firm have now in use about twenty of these turbines, eight of which were furnished them two years ago, which develop a total of over 3700 horse power.

The Dominion Suspender Co., of Niagara Falls, have established salesrooms at Elizabethport, South Africa, in charge of E. E. Carter, formerly of Simcoe, Ont., and also on the English Brace-Makers own ground, 66 and 67 Milton St, London, E.C., in charge of F. Edward Harrison. Mr Harrison has charge of the West India trade also, with headquarters at Kingston, Jamaica. This concern have obtained by keen competition, excellent and well-made goods, control of the home market, and in the near future their export trade will be considerable.

**Steamboat, Railroad, Electric and Mill Supplies.**

◆ **100 Bales A1 White Cotton Waste 7½ cents per pound.**

**FRANKLIN CYLINDER, ENGINE and DYNAMO OILS**

Rainbow Sheet and Gasket Ring; and Spiral and Square Flax Packing.

**WILLIAM G. WILSON,** 24 Front St. East, TORONTO.

**A GOOD INVESTMENT**

**REQUIRING BUT LITTLE CAPITAL.**

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

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

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

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

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

The closest investigation as to its merits invited.

Address **Wm. E. Deibert,** Shamokin, Pa., U. S. A.

**WM. & J. G. GREY,**

**TORONTO,**

Carry full line of the

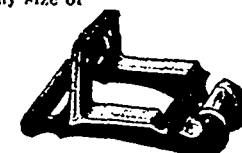
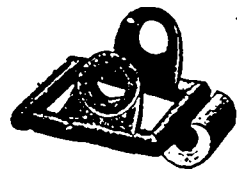
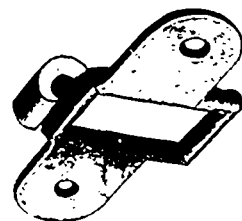
**LINK CHAIN BELTING AND ATTACHMENTS,**

Also Manufacture any size of

Sprockets

For

Any Chain.



**FRICION BOARD FRICTION BOARD FRICTION BOARD**

Manufactured by **Dominion Leather Board Co.,**

— MONTREAL —

Proprietors **Sauit Au Recollet Paper Mills.**

**ROOFING, SHEATHING AND FLOORING FELTS.**

**FIRSTBROOK BROS.**

**Mnfrs of Dovetail and Packing Boxes**

Top-Pins, Side Blocks and Cross Arms. Wood Printers, Etc. CIGAR BOXES, SHIPPING CASES.

**TORONTO : : : ONT.**

**ABOVE ALL COMPETITORS.**



Coal is money, why not save it by using the **T. J. C. INJECTOR**, the most economical boiler feeder in the world, 20% saved in Coal over any other make, absolutely automatic, easily attached, applicable to all kinds of boilers, not expensive, will outwear any other make, simple in construction, easy to operate, the most powerful feeder in the world.

The **T. J. C. INJECTOR** is the best because you cannot possibly wrong with it.

With high or low steam the result is equally satisfactory. It combines the utmost simplicity with perfect efficiency, and any boy can operate it.

**PRICE LIST.**

No.	Price.	HORSE POWER.
7	\$ 7 00	4 to 8
10	7 00	8 to 16
15	10 50	10 to 43
20	15 00	49 to 72
25	22 50	72 to 120
35	30 00	120 to 223
45	33 00	220 to 300

**HAMILTON BRASS MFG. CO., LTD.**  
HAMILTON, ONTARIO.

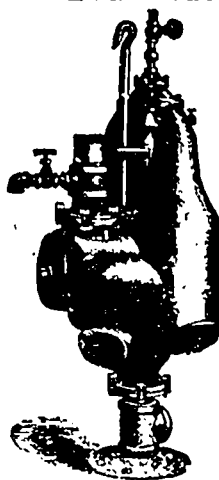
**THE PULSOMETER  
STEAM PUMP**

Often Imitated, but Never Equalled

The handiest, simplest, and most efficient steam pump for general Mining, Quarrying, and Contractors' purposes.

**MUDDY OR GRITTY LIQUIDS**  
HANDLED WITHOUT WEAR

Descriptive Catalogue, with Prices, Furnished on Application



**Pulsometer Steam Pump Co.**  
NEW YORK, U.S.A.

A. R. WILLIAMS, Toronto and Montreal,  
Selling Agent for Canada

**CROSBY Steam Gage & Valve Co.**



Sole Proprietors and Manufacturers of Crosby Pop Safety Valves, for all kinds of boilers Water Relief Valves, including the Underwriter, which is fully approved by the Associated Factory Mutual Ins. Cos.; Crosby Steam Engine Indicators, with Sargent's Electrical Attachment; Crosby Improved Steam Gages and Patent Gage Testers; The Original Single Bell Chime Whistles.

**BRANDEN PATENT PUMP VALVES**  
All kinds of Pressure and Vacuum Gages used in the various arts.

UNDERWRITER  
Clark's Linen Fire Hose and Adjustable Couplings.  
Gold Medal, Paris Exposition, 1889. Ten Highest awards, Columbian Expos., 1893  
Branch Offices at New York, Chicago and London, Eng.  
Main Office and Works, **BOSTON, MASS. U.S.**

ESTABLISHED 20 YEARS

**A. KLIPSTIEN & CO.**  
122 PEARL ST., NEW YORK

**Anilines, Dyestuffs . . .  
. . . and Chemicals**

of every variety, of the best quality and at the lowest prices. Delivery made at New York, Montreal or Hamilton.

WRIGHT & DALLYN  
AGENTS **HAMILTON, ONT.**

**NEW YORK AND BOSTON  
DYEWOOD COMPANY**

.....MANUFACTURERS OF.....

**Dyewood • Extracts**

....Selling Agents for the United States and Canada for the....

**ACTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION**  
Berlin, Germany.

METHYLENE BLUES, ERIKA, CONGO BROWNS, ETC.

NEW YORK, 55 Beekman Street. BOSTON, 115 High Street  
PHILADELPHIA, 122 and 124 Arch St.

A. W. LEITCH, 16 Hughson St. South, **HAMILTON, ONT.**

The Elkhorn Milling Co., Elkhorn, Man., has been incorporated. Edwin Wright, Jr., late of Newboro, Ont., will manufacture cheese boxes at Elginburg, Ont.

John F. Patton's dynamite factory at Sherbrooke, Que., was totally destroyed by an explosion on May 1.

Mr. Samuel Running is improving his sawmill at Frankville, Ont., by a large addition and placing new machinery in it.

A new salmon cannery will shortly be built by Thomas Earle, M.P., at Clayoquot Sound, B.C. J. H. Langley will be manager.

The Truro, N.S., Consolidated Milk Co., are about to commence the erection of an extension to their factory, 100x45 feet, two stories.

The British Pacific Fertilizer and Manufacturing Company, with a capital stock of \$50,000, is being formed by Capt. Walker, to manufacture oil and fish guano from dog fish at Quatsino sound.

The plant, etc., of the Royal Pulp and Paper Company at East Angus, Que., have been purchased by a new company, the Royal Paper Mills Company. The St. Francis Lumber Company have amalgamated with the Royal Paper Mills Company, and are going to build a gigantic saw mill. The officers of the new concern are F. P. Buck, president; R. H. Pope, vice president; H. B. Brown, secretary and A. F. Fraser, treasurer.

A press telegram from the city of Quebec states:—The biggest boom in asbestos mining that has struck Canada for some years has just made its appearance here, and the mines at Coloraine and Stratford, in the Eastern Townships, which have many of them been closed up during the last two years, are now resuming old-time activity, while thousands of people are flocking to the place for employment. The Bell Company is putting in three new machines for crushing the ore and separating the fiber from the rock, and the Jeffrey mine has been purchased for \$150,000 by a company which is erecting a factory for making asbestos tissue and weaving it into cloth for the manufacture of stage curtains and scenery, the skirts of variety actresses, and so on.

Mr. Samuel Running, Frankville, Ont., is putting a planer and matcher in his sawmill.

The machine and moulding shop of Robert Reid's agricultural works at St. Mary's, Ont., was destroyed by fire on May 1.

The George N. Oille machine shop and foundry, owned by Hogan Leggatt of Montreal and operated by Wright & Cunningham, St. Catharines, Ont., was destroyed by fire May 6; loss, \$10,000.

A canning factory at St. George, Ont., is projected and the following has been elected a provisional board of directors:—Messrs. E.E. Kitchen, F. I. Patton, W. B. Wood, J. Vanatter, J. L. Addison and O. Collins.

**The Stratford Patented Dust Collector.**

The accompanying illustration is of a new dust collector being offered by The Stratford Mill Building Co., Stratford, Ont.,

It is a cloth collector, but the cloth instead of being made into tubes, is stretched on pins placed between two heads of an upright cylinder. The dust laden air is blown into the top of the machine, where an outlet is found through the top plate into the settling chamber in the centre of the cylinder. The heavier particles settle on the bottom of the machine and are there discharged, while the lighter particles rise up through the lower plate of the cylinder into the outer chambers, formed by the cloth winding around the different pins.

The cylinder is divided into twelve sections, and once every half minute the cylinder revolves 1-12 of its circumference, bringing each section into place under the knocker, and while under the knocker the air is shut off from entering that chamber. Being relieved from

**A. C. NEFF, CHARTERED ACCOUNTANT**

Canada Life Bldgs., Toronto.

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

**THE ATTENTION** of the Woollen Manufacturers is called to **THE TORRANCE PATENT SELF-ACTING BALLING MACHINE** and positive Creel Feed for Wool Cards. **THE LATEST AND BEST AND ONLY FEED ON THE MARKET THAT WILL MAKE YARN POSITIVELY EVEN.**

These Machines are Built by

**THE TORRANCE M'N'F'G. CO.,** Harrison, (East Newark), N. J., U. S. A., for the States, and by

**THE ST. HYACINTHE M'N'F'G. CO.,** St. Hyacinthe, Que., Canada, for the Canadian market.

**MACHINERY FOR SALE.**

For quick turnover we will sell very cheap the following S. H. machinery: 2 Portable Engines good as new; 1 3 h p. Upright Engine; 1 Stationary Engine and Boiler 25 and 30 h.p., good order; 1 20 x 24 Iron Planer; 1 Large Iron Drill 20" and 12" swing; 1 Boiler, 10 ft. long x 24 inches diameter, 12 3-inch tubes; 1 Engine, Beckett & Kelley build, cylinder 5x9 horizontal, with all connections. This plant will be sold very cheap. May be seen running. Also new machines of every description at bottom prices.

We also have a medium size Planing-Mill in Toronto fully equipped with the most modern machinery, which we will sell on easy terms, or will give a long lease to reliable party.

Address:

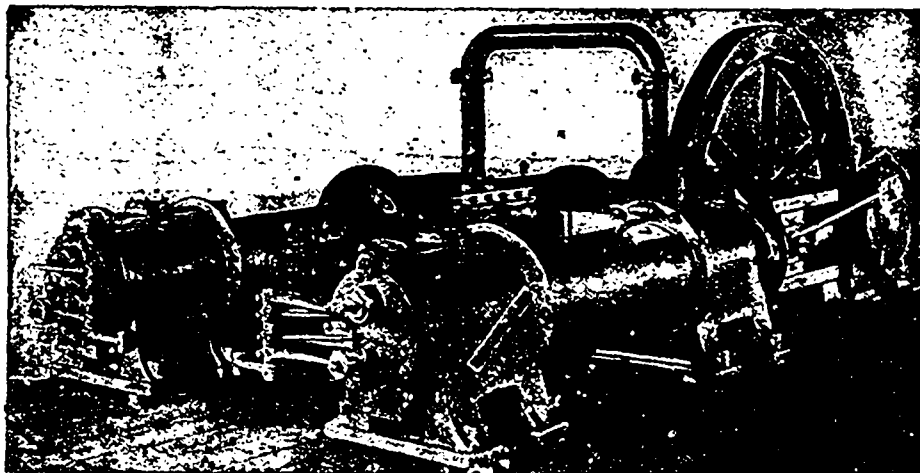
**THE TORONTO MACHINERY SUPPLY CO.**

164 KING STREET WEST, TORONTO.

A. J. LINDSAY, Manager.

**The Canadian Rand Drill Company, SHERBROOKE, QUE. CANADA**

Straight-Line and Duplex Air Compressors.



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

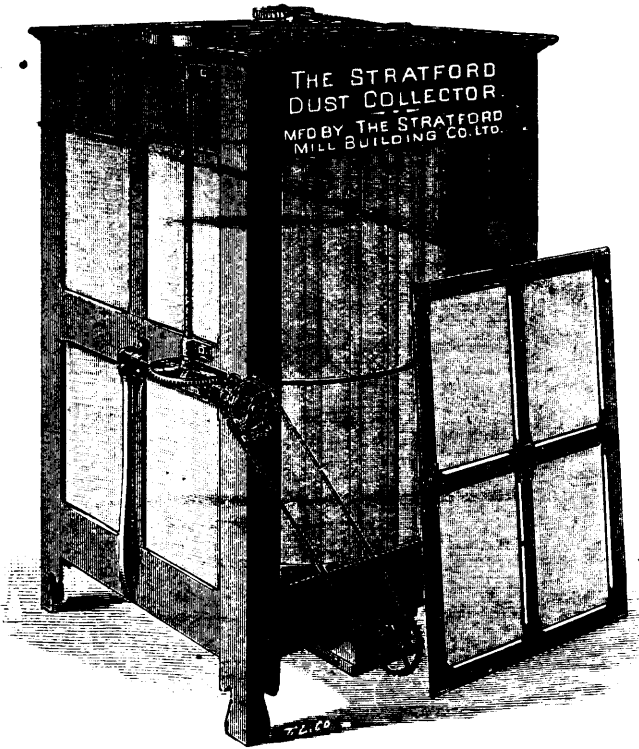
Duplex 12" x 18" Compound Condensing Steam Air Compressor, WITH HALSEY'S PATENT POSITIVE MOTION AIR VALVES.

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

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

the pressure of the air, the knocker effectually cleans each section as it rotates under it.

The output of the machine is discharged through a rotating valve that is so constructed as to be perfectly light.

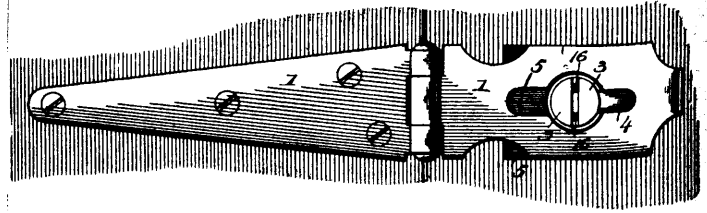


The company give a very strong guarantee with this machine and claim it to be as nearly a perfect dust collector as it is possible to make and offer to sell them on 30 days' trial to responsible millers. This new and enterprising firm are also putting on the market a

new reel that they say is built on principles entirely different from anything yet offered to the milling public, and of which we hope to be able to give a description in a future issue.

**Diebert's Hasp Lock.**

The accompanying illustration is of a very ingenious and novel hasp lock invented by Wm. E. Diebert, Shamokin, Pa. It is a combination of hasp and lock, is very simple in its construction and is not liable to get out of order. It does away with the use of padlock and



staple entirely. While it can be used wherever a padlock can be, yet there are many uses for it where a padlock would be both unsightly and cumbersome. Unlike a padlock, it cannot be mislaid or carried off: It is neat and durable, and is made of brass or iron and finished in nickle plate, japanned or tinned. For barns, stables, cellar doors, tool chests, butter and egg cases, refrigerators, etc., it is decidedly the thing. This lock is meeting with great success and has a large sale in the U.S. Mr. Diebert offers the Canadian patent for sale. Those interested in it can obtain full information by applying to Wm. E. Diebert, Shamokin, Pa.

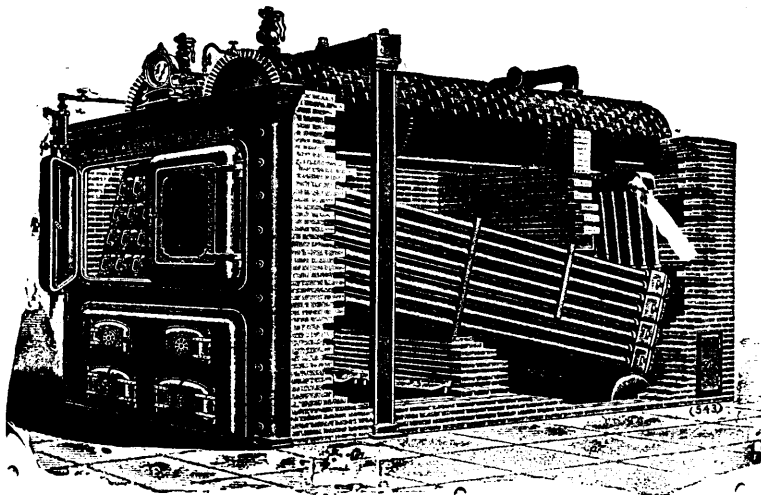
**The Eddy Paper Mills.**

A few days ago the members of the Parliamentary Press Gallery, Ottawa, visited the Eddy Paper Mills at Hull, Que., regarding which the Montreal Herald has this to say:—

The paper mills are situated close to the Chaudiere Falls, and cover a large amount of ground. Here a great part of the paper used in Eastern Canada is manufactured. The paper upon which the Herald is printed is made here, and one of the machines was at work on an order for this paper at the time the press men were there.

Wood pulp is used in the manufacture of news and wrapping papers,

**The Caldwell Standard Water Tube Boiler.**



THE BEST WATER BOILER IN THE MARKET.

**IRON FOUNDERS,  
BOILER MAKERS,  
MACHINISTS,  
ENGINEERS, ETC.**

General and Manufacturing Agents in Canada for the Famous Worthington Pumps, Hydraulic Machinery, Water Meters, Water Works Supplies and Condensers.

Worthington Pumps are Unequaled for Efficiency and Economy.

**JOHN McDougall,  
CALEDONIAN IRON WORKS,**

Office: Cor. William and Seigneurs Sts., MONTREAL.

and the process by which it is metamorphosed from a block of wood into good, serviceable paper is most interesting. The bark and all knots having been removed from the small logs and blocks of wood, they are placed in a large cast-iron hopper and forced by hydraulic pressure against a grindstone which reduces the wood to a pulpy mass. This is washed in clean water, and goes through several processes of preparation with chemicals. Later on it is placed in large circular vats where it is kept in motion and kneaded together by a sort of paddle-wheel arrangement. It is in this stage that the coloring matter is added for colored paper. The mass as it appears in the vats resembles curds or dough in the process of fermentation, and the most palpable odor from it is that of chloride of lime. The fibres of the wood are interlaced so firmly that it is with difficulty a lump of the pulp can be pulled to pieces.

The making of the paper follows, and a brief account of how the Herald roll was treated will serve for all. The machine on which it is manufactured is 155 1/2 feet in length. It is 10 1/2 feet longer than the height of a large smoke-stack just outside, but it is hard to realize that fact. The pulp is fed on to a fine endless wire sheet in a thin film, and the amount of oscillation given to this screen determines the quality of the paper. Just before leaving the screen and passing to an endless blanket which aids the yet fragile paper until it is strong enough to bear its own weight, the over surplus of water is expelled from it by a powerful air blast. After leaving the blanket the paper passes under and over and around a dozen or more huge cylinders kept hot by steam. It finally passes between heavy steel rollers bearing upon each other, and is reeled off ready for shipment. The time which elapses between the film of pulp at one end and the roll of newspaper at the other is somewhere about five minutes. The rolls as they stand ready wrapped up for shipment to Montreal contain

44 miles of paper in a continuous sheet 40 inches wide and weigh 700 lbs. each.

In other departments wrapping papers, card board and mill board are being made, the process being exactly the same. The yellow paper used in the C.P.R. folders and telegram blanks is super-calendered on the calendering presses. One of the machines was at work on a new "chamois" paper, which is practically untearable.

The manufacture of paper bags has recently been commenced by the firm, the bulk of the work being done by machinery in a closed room. The machines have not been patented and will not be. When this department is working at its fullest capacity it will be able to turn out one and a quarter million bags a day.

**Flexible Joints.**

Mr. W. H. Law, general manager of the Central Bridge and Engineering Company, whose extensive works are at Peterborough, Ont., is the inventor of the flexible joint for steel pipes to which the following alludes:—

The problems that meet the mechanical engineer who undertakes the direction of or to provide appliances for the construction of public or private works are yearly becoming more difficult. Operations that a score of years ago were deemed impracticable are now undertaken with confidence. It seems that no matter what difficulties arise or exigencies are to be met the skill of the engineer must grapple with and overcome. It is not that anyone in the profession has become possessed of a fertility of resource, but that all over the continent the work of men's brains and intelligence is being devel-

**FETHERSTONHAUGH & CO.**

Patent Barristers and Solicitors

Electrical and Mechanical Experts and Draughtsmen

Cable Address "Invention, Toronto."

Telephone 2589

**PATENTS**

Procured in Canada and all Foreign Countries

Head Office: Canadian Bank of Commerce Bldg., TORONTO

Established 1881 with Twenty Years' Professional Experience in Canada, England and Germany.

**A. HARVEY, C.E.**

**PATENT ATTORNEY**

Ottawa, Canada

Offices: Rooms 33 and 34 Central Chambers

Address: Postal Box 1071

TELEPHONE

Send for Circular 18a "How to Obtain a Patent."

R. C. Jamieson

A. T. Higginson

**R. C. JAMIESON & CO., VARNISHES AND JAPANS**

MANUFACTURERS OF

Importers of Oils, Paints, Colors, Turpentine, Shellacs, Methylated Spirits, Rosins, Glues, Gold Leaf, Bronze, Etc., Etc.

Office, 13 St. John Street, Factory and Warehouse, 23 to 29 St. Thomas St. MONTREAL.

**DOMINION SUSPENDER CO.**

Canada NIAGARA FALLS United States

Trade D Mark

The largest, oldest and most progressive Manufacturers of Suspenders and all kinds of Elastic Goods.

Toronto Office: E Stovel, 45 Canada Life Bldg.

Montreal Office: Phillip De Gruy, 162 St. James Street.

WRITE TO THE

**Paton Manufacturing Co'y**

of SHERBROOKE, QUE., for

**WORSTED • KNITTING**

AND FINGERING YARN

Montreal Office: 409 Board of Trade Building.

Toronto Office: 33 Melinda Street.

WHEN WERE

YOUR

Boilers

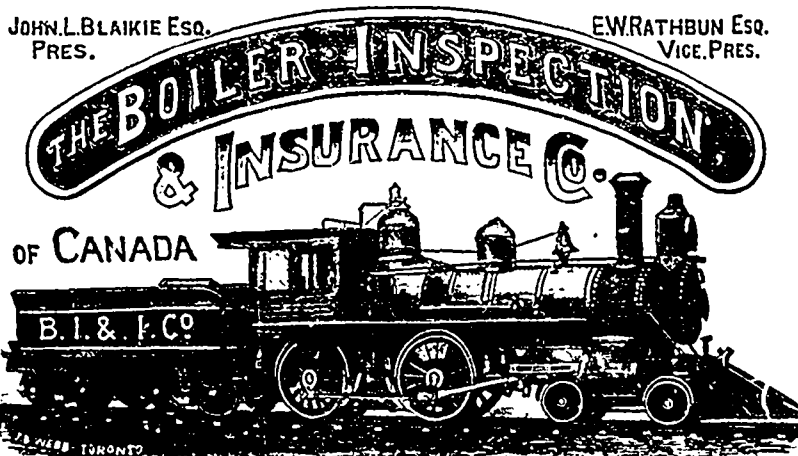
LAST

INSPECTED.

CONSULTING ENGINEERS:  
G. C. ROBB, Chief Engineer  
A. FRASER, Secretary-Treasurer

JOHN L. BLAIKIE ESQ.  
PRES.

EW. RATHBUN ESQ.  
VICE-PRES.



Head Office: TORONTO

ARE YOU SURE

THEY ARE

SAFE

AND

IN GOOD

CONDITION?

oped each in his particular line, and when the need arrives isolated bits of experience are culled and results applied. It may be the sinking of a cassion to a hitherto unequalled depth, the boring of a tunnel by new and scientific means or the balancing of the outer wall of a twenty-storey building on a cantilever hanging many feet outside the nearest foundation pier. The experience gained in one section of the country is caught up and applied thousands of miles away and the dissemination of facts in the technical papers is so thorough that very little of value is suffered to lay in obscurity.

Some few years ago the waterworks system of Toronto was hampered with serious breaks in the supply conduit, which crosses the bay to join the intake outside the island. To repair the old one was a costly work. To lay a new one was looked on as an expensive project. Toronto was puzzled—and rather alarmed at the prospect of imbibing the foul water from the bay. In the emergency Mr. W. H. Law, Manager and Engineer of the Central Bridge and Engineering Works here, proposed a plan and undertook to perfect an appliance that would allow of a new steel pipe of large dimensions being fastened together in sections and lowered from the surface of the water to the bottom.

The lowering of the pipe in sections could have been managed, but the difficulty incidental to fastening these sections together at a depth of 60 feet of water was very great. Mr. Law proposed to fasten the sections together before lowering and as the work progressed. Toronto men were dubious. Such an idea was rather wild you know, but of course—in short they would not undertake the work. To carry out this plan Mr. Law devised what is now well known as "Law's flexible joint," an appliance that has solved the problem of laying large pipes in water to almost any depth. The construction is a development of the ball-and-socket joint, but on very large lines, those for the Toronto works being nearly six feet in diameter. As many sections of the pipe as could be conveniently handled were joined together on crib work and where necessary one or more of the flexible joints were placed along a part of the line of pipe to lay on the bottom and a part to project upwards at an angle to the surface of the water where the operation of attaching other sections

would be in progress. The joints allowed of considerable lateral as well as vertical movement and proved a complete success.

At Syracuse, N. Y., and at other localities this invention has been made use of and the latest instance comes from Rochester, N. Y., where the supply mains of the waterworks system of the city have been undergoing considerable enlargement. It was necessary to put down a submerged intake pipe in Hemlock Lake one of the sources of supply. The engineer in charge recommended that Mr. Law's invention be made use of and it was insisted, in order that the joints should be perfectly satisfactory, that they be made at the Central Bridge and Engineering Company's works, Peterborough, although the pipe was made at Rochester. The Rochester joints have been improved over those first made by being stiffened with longitudinal and circular ribs, which in every way proved satisfactory, and were made of a size to fit a pipe of 60 inches diameter. The Engineering News, issue of April 11th, gives a description of these joints and illustrations showing the construction and tells of the manner of laying.

"Each section of pipe was moved down to the scows on trucks running on a track of 3 ft. gauge and lifted to the scows by steam hoisting machinery. The scows were hauled out by hand by means of ropes, the distance being small and there being but 15 sections to place. The hauling was aided in some cases by power from the pile driver engine. About 20 men moved the scow when section 14 was placed, which the writer witnessed, and there were in addition two boats with two men each. The pipe was brought in place quickly; the free end of the last length laid was raised above the water by means of the winch and the joint made. Before lowering the pipe a timber platform, floated out from the shore, was strapped beneath the bottom of the joint to prevent the latter from sinking into the soft clay bottom when lowered. After the connections were made both scows were removed by raising the pipe by means of the winches on the pile platform at each end, and the jointed end was lowered to its final resting place. The winch here was then free to be moved, on a scow provided with a trestle platform, to the location of the further end of the next section.

**Boiler Plates and Tubes,  
Wrought Iron, Steam and Gas Pipe,  
Cotton Waste.**

**JAS. W. PYKE,**

Merchant in Iron and Steel.

35 St. Francois Xavier St., Montreal

Established 1848

**SINGER, NIMICK & CO.**

LIMITED

PITTSBURGH, Pa., U.S.A.

MANUFACTURERS OF

Soft Centre Cruc. Cast

**PLOW STEELS**

Solid Cast, Open Hearth.

Steel for **SCUFFLERS** Cut to all Patterns

HARROW DISCS ROLLING COLTERS

**MR. HUGH RUSSEL**

Temple Building

185 St. James Street

MONTREAL

**C. G. ELRICK & CO.**

Factory: Sheppard Street, Toronto

Montreal Office: Fraser Building

MANUFACTURERS OF

HORN AND RUBBER COMBS, ETC.

STEEL

STEEL

**LaBelle Steel Co.**

PITTSBURGH, Pa.

Manufacturers of

CRUCIBLE, SOFT CENTRE and SOLID

**STEEL**

For Plows and Agricultural Implements of all kinds

Harrow Discs (plain and finished), Machinery Steel, Tool Steel, Axe Steel, Rake Teeth, and Miscellaneous Steel of all descriptions. For prices write to

**W. G. BLYTH**

CANADIAN AGENT

34 YONGE STREET

TORONTO

**WELLAND VALE MANUFACTURING CO**

LOCK No. 2, ST. CATHARINES, Ont.

Manufacturers of

**Axes, Scythes, Forks, Hoes,  
Rakes and Edge Tool.**

THE PETERBOROUGH

**CARBON AND  
PORCELAIN CO.,**

LIMITED

MANUFACTURERS OF

**Carbon Points for All  
Systems of Arc Lights**

BATTERY PLATES, CARBON BRUSHES, and all kinds of PORCELAIN for Electrical and Hardware Lines.

All goods guaranteed equal in quality to the best manufacturers in the world.

**PETERBOROUGH,  
ONTARIO.**

**The Paris Electro Plating Co.**  
Manufacturers of

**STOVE TRIMMINGS**

and Novelties. Orders Solicited.

PARIS STATION

ONT.

# Drummond-McCall Pipe Foundry Co. Limited

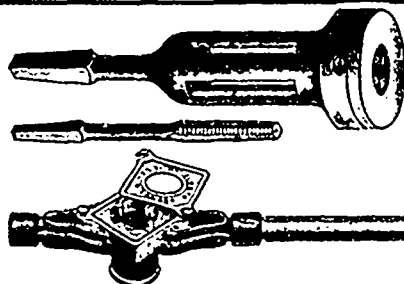
Manufacturers of



"SPECIALS," HYDRANTS, VALVES, ETC.  
Offices, - NEW YORK LIFE BUILDING, MONTREAL  
Works, Lachine, Quebec.



Manufacturers **CAST IRON WATER and GAS PIPES** SPECIAL CASTINGS

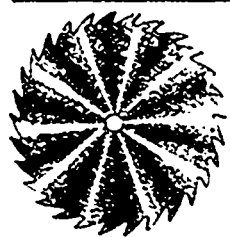


## BUTTERFIELD & CO.,

ROCK ISLAND, P. Q.,  
Manufacturers of



Blacksmith Stocks and Dies, Pipe Stocks in all sizes, New Reece Screw Plate, Pipe Tops, Hand Tops, Machine Tops, Pipe Cutters, Pipe Vises, all kinds of Tops and Dies-- Regular and Special.



MIDDLE STREET, OTTAWA,

Manufacturers of  
all descriptions of



Write us before buying elsewhere.

CIRCULAR,  
MILL and GANG,  
SHINGLE,  
BUTTING,  
CONCAVE,  
BAND,  
CROSS-CUT,  
BILLET WEBS.

# Fire Bricks, Cement, Drainpipes

AT LOWEST PRICES.

F. HYDE & CO., 31 Wellington St., Montreal.

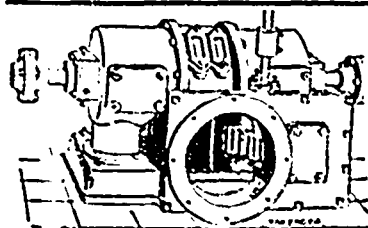
## DIAMOND ROCK DRILLS.

WE UNDERTAKE TO  
TEST MINERAL GROUND  
at price per foot to 1,500 feet.

We Lease Drills and Supply Operator. We offer complete drilling outfits at low prices.  
COMPLETE PLANING, SAW MILL AND MINING PLANTS.

THE JENCKES MACHINE CO., Sherbrooke, Que.

Montreal Branch: 16 Victoria Sq.



ONE TYPE OF HORIZONTAL.

## "LITTLE GIANT" TURBINE.

Built in 17 Standard Sizes and 27 Special Sizes, making a range of 44 different wheels in vertical and horizontal cases.

We solicit correspondence from those interested in developing or improving water power.

Address **J. C. WILSON & CO.,** GLENORA, ONTARIO.



**THE LONDONDERRY IRON CO., Ltd.**

A. T. PATERSON,  
President and Man. Dir.

JAB. PHYMISTER,  
Secretary.

MANUFACTURERS OF

**PIC IRON, PUDDLED BARS**  
**BAR IRON, NAIL PLATES,**  
**WATER PIPES, ETC.**

OFFICE **MONTREAL** WORKS **LONDONDERRY, NOVA SCOTIA**

**Canada Iron Furnace Co., Ltd.**

**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 utmost strength is required.

Unsurpassed in Strength by Swedish, Russian. or American Charcoal Iron

Offices: New York Life Insurance Building, Montreal

**Nova Scotia Steel & Forge Co. Offer Bright Compressed Steel Shafting as per Following List**

**PRICE LIST. BRIGHT COMPRESSED STEEL SHAFTING. Every Bar Guaranteed Straight and True to Size within 1/32 of an inch.**

Nominal Size of Shaft	Actual Size of Shaft	Weight per ft.	Price per lb.	Nominal Size of Shaft	Actual Size of Shaft	Weight per ft.	Price per lb.
1 1/4	1 1/4	4.13	4 1/2 cts.	2 1/4	2 1/4	18.91	4 cts.
1 1/2	1 1/2	5.01	"	3	2 7/8	22.59	"
1 3/4	1 1/2	5.94	"	3 1/4	3 1/2	26.60	"
1 3/4	1 1/2	7.46	"	3 1/2	3 1/2	30.94	"
2	1 7/8	9.83	4 cts.	4	4	42.33	5 cts.
2 1/4	2 1/8	12.53	"	4 1/2	4 1/2	53.57	"
2 1/2	2 1/8	15.55	"	5	5	66.13	"

NOTE--Shafting as per Actual Size Column, up to 3 in. dia., always kept in stock.

BOXING EXTRA AT COST.

Stock Lengths 12, 14, 16 and 18 feet.

On orders from stock cut to other lengths, we charge for length from which we cut.

Prices for Special Sizes, varying from list of actual sizes given above, will be furnished upon application.

All orders filled as per Actual Size column unless otherwise specified.

Prices Subject to Change Without Notice.

This is not Hot Polished or Cold Rolled Steel, and will not spring when keyseated. If your Wholesale Hardware Firm cannot supply you write direct to the Works, New Glasgow, Nova Scotia.

**PICTOU CHARCOAL IRON CO. Ltd.**

BRIDGEVILLE, NOVA SCOTIA

WORKS:

Bridgeville, N. S.

HEAD OFFICE

New Glasgow, N. S.

Manufacturers of all grades of

**Charcoal Pig Iron**

SUITABLE FOR

CAR WHEELS, CYLINDERS, Etc.

**Suspender Buckles**

AND....

**Wire Shapes** OF All Kinds.

We have put in a complete plant of AUTOMATIC MACHINERY for making above articles. . . .

**Write for Quotations**

**McKinnon Dash & Hardware Company**  
St. Catharines, Ont.

... THE ...

# Hamilton Bridge Works

(LIMITED.)

Cable Address: "HENDRIE"

HAMILTON, - - - CANADA,

Constructors of

## Railway and Highway Bridges

of Every Size and Design, and all kinds of

Structural Work in steel and iron.

Observation and Water Towers.

Tanks, Caissons, Piers, Turntables,  
Boilers, Buoys, Roofs, Girders  
and Columns for Buildings, Inclines.



Every Facility for the Construction and Launching of  
Steel and Iron Ships.



... REFERENCES ...

Grand Trunk Railway Co.  
Canadian Pacific Railway Co.  
Dominion and Ontario Governments,  
and nearly all Municipalities and Contractors in the Dominion.

# Dominion Bridge Co.

LIMITED

MONTREAL and LACHINE LOCKS, P.Q.



Steel Bridges for Railways and Highways  
Steel Piers and Trestles  
Steel Water Towers and Tanks  
Steel Roofs, Girders, Beams  
Columns for Buildings



A large stock of

ROLLED STEEL BEAMS, JOISTS, GIRDERS  
CHANNELS ANGLES, TIES, Z BARS,  
AND PLATES

Always on hand

IN LENGTHS TO THIRTY-FIVE FEET



Tables, giving sizes and strength of Rolled Steel Beams, on application.  
Post Office Address, Montreal.

J. H. MCGREGOR

AGENT

Canada Life Building, Toronto, Ont

## THE CENTRAL BRIDGE AND ENGINEERING COMPANY, Ltd.,

Capital Stock

PETERBOROUGH, ONT.

\$200,000.00.

Capacity 5,000 Tons  
Per Annum.



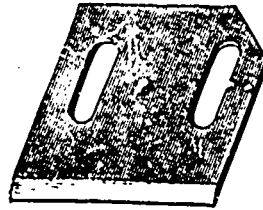
Capacity 5,000 Tons  
Per Annum.

MANUFACTURERS OF Bridges, Roofs, Viaducts, Piers, Girders, Turntables,  
Architectural Work, Forgings, and all kinds of General  
Engineering Work; also Law's Patent Surface Cattle  
Guards and Law's Patent "Optimates" Power Hammers.  
[W. H. LAW, - - Engineer and Man. Director.

# GALT MACHINE KNIFE WORKS

Planing..  
Machine..  
Knives...

Stave Cutter Knives



Moulding,  
Tenoning,  
Mitreing

Shingle - - - -  
Jointer - - - -

AND OTHER IRREGULAR SHAPES

Cheese-box and Veneer, Paper Cutting, Leather Splitting, and any special  
Knife made to order.

**PETER HAY, - - GALT, ONT**

## Stave Jointer Knives

Send for Price List

All Work Warranted



The Webber Patent  
**STRAITWAY VALVE**  
for Steam, Water or Gas.

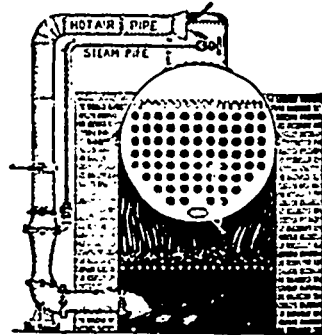
EVERY VALVE TESTED.

The Kerr Engine Co. (Ltd.)  
WALKERVILLE, ONTARIO.

Sole Manufacturers for Canada

Send for Price List.

## Earle's Steam and Air Injectors, Exhausters, etc.



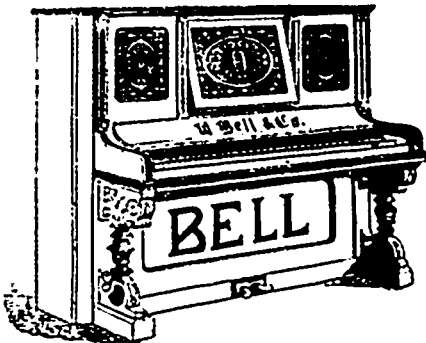
For burning hard and soft coal screenings, run mine and lump coal under steam boilers, exhausting air and vapors from buildings, ventilating ships, mines, etc.

Highest Medal and Diplomas given at the World's Columbian Exposition, Chicago, 1893.

The Best Blower in the market for Steam Boilers.

Send for Illustrated Catalogue to

**S. R. EARLE, - - - Belleville, Ont.**



**BELL**  
High Class  
INSTRUMENTS

USED AND  
RECOMMENDED BY  
Leading Musicians.

Send for Catalogue.

**THE BELL ORGAN & PIANO CO., Ltd.**

Guelph, Ontario.

## THE WELLINGTON MILLS,

LONDON, ENGLAND.

= **Genuine Emery.** =

OAKEY'S Flexible Twilled Emery Cloth. OAKEY'S Flint Paper and Class Paper. OAKEY'S Emery Paper, Black Lead, etc.

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

MANUFACTURERS

**John Oakey & Sons, Ltd.,** WELLINGTON MILLS,  
Westminster Bridge Road,

LONDON, ENGLAND.

Enquiries should be addressed to

**JOHN FORMAN, 650 Craig St., Montreal.**

# GALVANIZING . . .

Done For the Trade.

# KEMP MANUFACTURING CO.,

TORONTO, ONT.

# The CANADIAN MANUFACTURERS' ASSOCIATION



ALBERT E. KEMP, President. J. J. CASSIDY, Secretary.  
 GEORGE ROOTH, Treasurer.

**Office, Room 66 Canada Life Building**  
 KING STREET WEST, TORONTO TELEPHONE 1274

**THE OBJECTS OF THIS ASSOCIATION ARE**

To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.

To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.

To maintain Canada for Canadians.

Any person directly interested in any Canadian manufacturing industry is eligible for membership.

Manufacturers desiring to hold meetings for the promotion of their business, are invited to avail themselves of the Board Room of the Association for the purpose, which is offered to them free of charge.

J. J. CASSIDY, Secretary.



## Manufacturers' Life Insurance Company.

### Comparative Statement. Five Years' Record.

ASSETS.		LIABILITIES.	
1899.	1891.		
Cash.....	\$ 6,179 44	Reserve and on acct. of Policyholders..	\$160,401 00
Bonds and Mortgages.....	228,473 21	Other Liabilities.....	2,884 78
Other Assets.....	52,439 88	Net Surplus.....	Nil
Total.....	\$293,692 53	Income.....	157,354 07
		Expenditure Total.....	147,158 37
		Insurance in force.....	8,110,100 00
			\$355,300 00

Head Office: TORONTO. - - - - - GEO. GOODERHAM, President.  
 JOHN F. ELLIS, Managing Director. - - - - - GEO. A. STERLING, Secretary.

## IT LEADS THEM ALL

THE OLDEST THE LARGEST THE SAFEST THE CHEAPEST

Canadian Life Assurance Co. is

## The CANADA LIFE ASSURANCE CO.

Capital and Funds over \$13,000,000

WRITE FOR PROSPECTUS

A. G. RAMSAY, President. GEO. A. & E. W. COX, M'grs for Toronto and Eastern Ont.

# WOOL

## A. T. PATERSON & CO. MERCHANTS.

35, Francois Xavier Street, MONTREAL

Represented by MR. DAVID GUTHRIE.

## Jas. A. Cantlie & Co.

GENERAL MERCHANTS AND MANUFACTURERS' AGENTS

ESTABLISHED 22 YEARS

COTTONS—Grey Shootings, Checked Shirtings, Denhams, Cottonades, Tickings, Bags, Yarn, Twines, etc.  
 TWEEDS—Fine Medium and Low Priced Tweeds, Serges, Cassimeres, Denskins, Stoffes, Kerseys, etc.  
 FLANNELS—Plain and Fancy Flannels, Overcoat Linings, Plain and Fancy Dress Goods, etc.  
 KNITTED GOODS—Pina, Drawers, Hosiery, etc.  
 BLANKETS—White, Grey and Colored Blankets.

WHOLESALE TRADE ONLY SUPPLIED

ALBERT BUILDING, 250 ST. JAMES STREET, MONTREAL  
 20 WELLINGTON STREET WEST, TORONTO

Advances made on Consignments. Correspondence Solicited.

## The Dominion Cotton Mills Co., Limited

### MAGOG PRINTS

A Full Range of Pure Indigo Prints

Is now being shown to the trade. Ask wholesale Houses for Samples.

All Goods Guaranteed, and Stamped "Warranted Indigo Blue"

D. Morrice, Sons & Co. Selling Agts. Montreal & Toronto

**HOBBS MANUFACTURING CO**

London,  
Ont.

Mirrors  
Advertising Signs  
Glass Paper Weights

Wire Nails  
Roofing Material  
Bolts of Every Description

JAMES LESLIE  
428 St. PAUL STREET  
MONTREAL.

Send for  
Special  
Prices.  
Of Every Description,  
Quality Guaranteed

**CARD CLOTHING**

**Bellhouse, Dillon & Co.**

30 ST. FRANCOIS XAVIER St.  
MONTREAL

**CHEMICALS**  
**DYE STUFFS**  
**... ACIDS**

AGENTS FOR  
The UNITED ALKALI Co's  
VARIOUS BRANDS OF  
**BLEACHING POWDER**  
ALSO  
The Badische Anilin, Soda-Fabrik,  
.. ALIZARINES ..  
ANILINES AND COLORS.



**The Ontario  
Malleable Iron Co.**  
Limited

MANUFACTURERS OF  
**MALLEABLE  
IRON** . . . .  
Castings to  
Order for all  
Kinds of  
**AGRICULTURAL  
IMPLEMENTS:**

—AND—  
Miscellaneous  
Purposes : : : : :

OSHAWA . . . . ONT.

**SCALES**

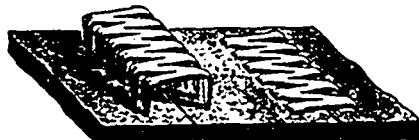
PLATFORM,  
DORMANT,  
ROLLING MILL  
HOPPER,  
COAL,  
Track Scales,  
Etc., Etc.

MANUFACTURED BY  
**The Gurney Scale Co.**  
HAMILTON, ONT.

Write for Illustrated Catalogue.

BRISTOL'S PATENT  
**Steel Belt Lacing**

.. 100 SIZES ..



READY TO APPLY FINISHED JOINT

**Greatly Reduced Prices**

Is a grand success. Try it and see  
for yourself.

**Saves Time, Saves Belts, Saves Money**  
SAMPLES SENT FREE

**The BRISTOL CO.**  
Waterbury, Conn.

SMITH'S FALLS

Malleable ..  
Iron ....  
Works ..

Capacity  
**2,000 Tons ..**

**WILLIAM H. FROST**  
Proprietor

SMITH'S FALLS : Ontario, Can.

MANUFACTURERS OF  
FINE VARNISHES  
JAPANS, ASPHALTUMS, SHELLACS.

**Maple Leaf Brand Coach Varnishes**

**J. H. FARR & CO.**

**Armature Insulating Compound**  
Insulating Compound for Weather-Proof Wire, Tube Compound,  
Silica Paste, etc., etc.  
8 to 16 Morse Street,  
TORONTO.

**RAILS**

New and Second-Hand  
for Railways and Tramways.  
Old Car Wheels and Scrap Iron.

**JOHN J. CARTSHORE**

49 Front St. W., Toronto.