

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

Covers damaged/
Couverture endommagée

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

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

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

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

Bound with other material/
Relié avec d'autres documents

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

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.

Additional comments:/
Commentaires supplémentaires:

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

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

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

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

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

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

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

10X		14X		18X		22X		26X		30X
									<input checked="" type="checkbox"/>	
	12X		16X		20X		24X		28X	32X

THE CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

Vol. 15.

TORONTO, SEPTEMBER 21, 1888.

No. 6.

"Old Dyewood Warehouse"
Established 1838.

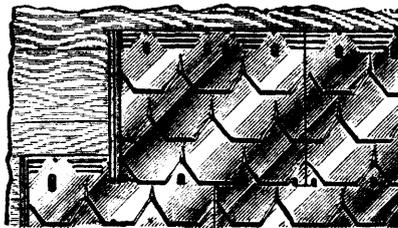
Theo. H. Eaton & Son,
Windsor, Ont. : Detroit, Mich.

IMPORTERS OF
ANILINE COLORS,
DYE WOODS,
DYEING & DRUG, CHEMICAL, Etc.

MANUFACTURERS OF
GLAUBER SALTS AND EXTRACT INDIGO.

SOLE AGENTS IN THE UNITED STATES AND CANADA
FOR THE "CROWN ANILINE DYES."

METALLIC
SHINGLES AND SIDING



FIRE AND STORM PROOF.
SEND FOR CIRCULAR.
METALLIC ROOFING CO.
82½ YONGE STREET,
TORONTO, - - ONTARIO.

IMPERIAL BANK
OF CANADA.

Head Office, - TORONTO.

H. S. HOWLAND, President. | T. R. MERRITT, Vice-President.
D. R. WILKIE, Cashier.

Capital (Paid up) - \$1,500,000
Rest - - - - - 600,000

Purchases Municipal Debentures.
Issues Drafts on its Branches and Agencies.
Transfers Moneys by Telegram to Winnipeg, Brandon
and Calgary.

Agents in London,
LLOYD'S, BARNETT'S & BOSANQUET'S BANK (Ltd).
72 LOMBARD STREET,
with whom moneys for transmission from Great Britain to
Ontario and the North-West may be deposited.

A general Banking Business transacted.

ESTABLISHED
1856

THE J. C. McLAREN BELTING CO

SUCCESSORS TO THE
LATE J. C. McLAREN

CARD CLOTHING

MONTREAL

THE
Gutta Percha & Rubber
MANUFACTURING COMPANY,
OF TORONTO.
WAREHOUSE
YONGE STREET, TORONTO.

The largest manufacturers in the world of
Vulcanized India Rubber Goods for mechanical
purposes.

Rubber Belting from 1 to 72 inches wide.

Hose, for conducting, suction and steam.

Blanking. Cloth Insertion and pure.

Blanking, of all kinds.

Rubber, Linen, and Cotton Fire Hose.

Maltese Cross Carbolized Fire Hose.

A full Stock always on hand.

Write for Price Lists and Discounts.

PATENTS

PROCURED in Canada, the United States and all foreign countries, Caveats, Trade-Marks, Copyrights, Assignments, and all Documents relating to Patents, prepared on the shortest notice. All information pertaining to Patents cheerfully given on application. ENGINEERS, Patent Attorneys, and Experts in all Patent Causes.

DONALD C. RIDOUT & CO.
ESTABLISHED 1867
22 KING ST EAST
TORONTO

John Bertram & Sons,
CANADA TOOL WORKS!

Dundas, Ont.

SEE ADVERTISEMENT, PAGE 225.

H. W. PETRIE,
Machinery Dealer,
BRANTFORD, ONT.

SEND FOR LISTS.

Toronto Branch, opposite Union Station.

The Canadian Bank of Commerce.

HEAD OFFICE, . . . TORONTO.

Paid up Capital, \$6,000,000.
Res. 500,000.

DIRECTORS.

HENRY W. DARLING, Esq., *President.*
GEORGE A. COX, Esq., *Vice-President.*
Jas. Crathern, Esq., W. R. Hamilton, Esq.,
Wm. Gooderham, Esq., John I. Davidson, Esq.,
Matthew Leggat, Esq., George Taylor, Esq.,
Hon. Wm. McMaster, Hon. S. C. Wood.
B. E. WALKER, GENERAL MANAGER.
J. H. PLUMMER, ASST. GEN. MANAGER.
WILLIAM GRAY, INSPECTOR.

New York—J. H. Goadby & Alex. Laird, Agents.
BRANCHES.

Ayr,	Guelph,	St. Catharines,
Barrie,	Hamilton,	Sarnia,
Belleville,	Jarvis,	Seaforth,
Berlin,	London,	Simcoe,
Blenheim,	Montreal,	Stratford,
Brantford,	Norwich,	Strathroy,
Chatham,	Orangeville,	Thorold,
Collingwood,	Ottawa,	Toronto,
Dundas,	Parkhill,	Walkerton,
Dunnville,	Paris,	Windsor,
Galt,	Peterboro,	Woodstock,
Goderich,		

Commercial credits issued for use in Europe, the East and West Indies, China, Japan and South America.

Sterling and American Exchange bought and sold. Collections made on the most favorable terms. Interest allowed on deposits.

BANKERS.

New York—The American Exchange National Bank.
Chicago.—American Exchange National Bank,
London, England—The Bank of Scotland.

Largest Manufacturers of STEEL and BRASS STAMPS in Canada.

PRITCHARD & ANDREWS

OTTAWA, ONTARIO.

Rubber Stamps, Stencils, Seals &c.

SEND FOR PRICES.

Dominion Dyewood & Chemical COMPANY,

JNO. TAYLOR & CO., Proprietors.

General Drysalts.

Sole Agents in Canada for the following leading Manufacturers:

Farbenfabriken vormals Friedr Bayer & Co., Elberfeld, Germany, Aniline Dyes and Alizarines. Patentees of the One Dip Benzidine Colors.

Read, Holliday & Sons, Huddersfield, England, Aniline Dyes. Patentees of Acid Magenta, Gambine and Indigo Compound.

Mucklow & Co., Bury, England, Dyewoods, cut and ground, Extracts, Logwood, Fustic, Hyperine and Sumac.

Dominion Dyewood & Chemical Co.

TORONTO,

SOLE AGENTS FOR CANADA.

M^CARTHUR, CORNEILLE & CO.

(Successors to JOHN McARTHUR & SON)

310 to 316 St. Paul Street,

and

147 to 151 Commissioners Street,

MONTREAL,

offer at closest prices

PURE OLIVE OIL.

WINTER-PRESSED LARD OIL,

EXTRA FINE SPINDLE OIL,

and a full assortment of other

LUBRICATING OILS.

Also

CHEMICALS,

DYESTUFFS,

DYEWOODS,

EXTRACTS,

&c. &c. &c.

Are Sole Agents in Canada for

SOCIETE ANONYME

DES

MATIERES COLORANTES ET

PRODUITS CHIMIQUES,

DE ST. DENIS,

Successors to

A. POIRRIER AND G. D'ALSACE,

PARIS,

Manufacturers of

ANILINE DYES,

ARCHIL,

CUDBEAR,

&c. &c. &c.

Prize Medal, London Universal Exhibition, 1862.

Gold Medal, Paris Universal Exhibition, 1867.

Grand Diploma of Honor, Vienna Universal Exhibition, 1873.

Medal and Diploma, with Highest Commendations, Philadelphia Centennial Exhibition, 1876.

Maintain large stock, replete with all the new and improved colors. Will be pleased to furnish quotations, with samples and directions for use.

D. MORRICE, SONS & CO.

Manufacturers' Agents,

MONTREAL & TORONTO.

HOCHELAGA COTTONS.

Brown Cottons and Sheetings, Bleached Sheetings, Canton Flannels, Yarns, Eggs, Ducks, etc.

ST. CROIX COTTON MILL.

Tickings, Denims, Apron Checks, Fine Fancy Checks, Gingham, Wide Sheetings, Fine Brown Cottons, etc.

ST. ANNE SPINNING CO. (Hochelaga.)

Heavy Brown Cottons and Sheetings.

Tweeds, Knitted Goods, Flannels, Shawls, Woolen Yarns, Blankets, etc.

The Wholesale Trade only Supplied.

New York Dyewood, Extract and Chemical Co.

SOLID AND LIQUID EXTRACTS

OF

LOGWOOD,

Fustic and Hypernic,

OF SUPERIOR QUALITY.

OFFICE, 55 BEEKMAN ST. N. Y.

PILLOW & HERSEY M^FG CO.,

Manufacturers of every description of Cut Nails, Tacks, Brads, Railway and Pressed Spikes, Horse Shoes, Carriage, Tire and other Bolts, Coach Screws, Hot Pressed and Forged Nuts, Fellos Plates, Lining and Saddle Nails, Tufting Buttons, &c., &c.

The Hardware Trade, Shoe and Leather Finding Dealers, and Boot and Shoe Manufacturers, will find the Largest and Best Assortment and Greatest Variety of above Goods always in stock, and can rely on orders being rapidly executed, our facilities for doing so being unequalled.

OFFICE, 105 Mill St., Montreal.

LOCKHART, MILLICHAMP & CO.

Toronto, Montreal, Winnipeg and Halifax,

Woolen Manufacturers and Agents for

Standard Woolen Mills Co., Toronto, Blankets, Blanketings, Knit Goods & Cardigans, Galt Knitting Co., Underwear and Top Shirts, Thorold Knitting Co. (Ltd.), Underwear and Shirts.

Waterloo Woolen Mfg. Co., Tweeds, A. W. Brodie, Peterboro', Grey and Fancy Flannels, Colored and White Saxoniae, Serpents, Halifax Tweeds.

Phillips & Berry, Lambton Mills, Grey Flannels, A. Dobson & Sons, Cannington, Yarn & Blankets, Slingsby & Sons, Brantford, Blankets.

KNOX & ELLIOT,

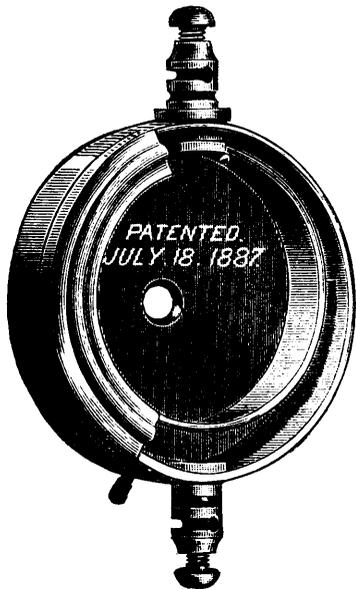
ARCHITECTS,

15 Victoria Street, Toronto.

We give special attention to the designing and planning of mills and factories. We have already been engaged upon the Springfield Paper Mills, Polton; the Lasswade Carpet Mills, the Eakbank Carpet Mills, the Canada Screw Co.'s Factory, Hamilton, etc.

W. C. HIBBARD, MONTREAL,

MANUFACTURER OF



Campbell
Water-proof
Wires.
Annunciator
and
Office Wire.
Silk and Cotton
Covered
Magnet Wire.
Aerial and Sub-
marine Cables.

Superior
Water-proof
Tape.
Telephones.
Hotel & House
Annunciators.
Gas Lighting
Apparatus.
Burglar Alarms.

AUTOMATIC FIRE ALARM APPARATUS

And all Electrical Appliances and Supplies.

SHIPES' PATENT

Perfect Fitting Stove Pipe.



Twenty-five lengths can be packed in a crate 18 x 8 inches.
Every joint guaranteed perfect fit.

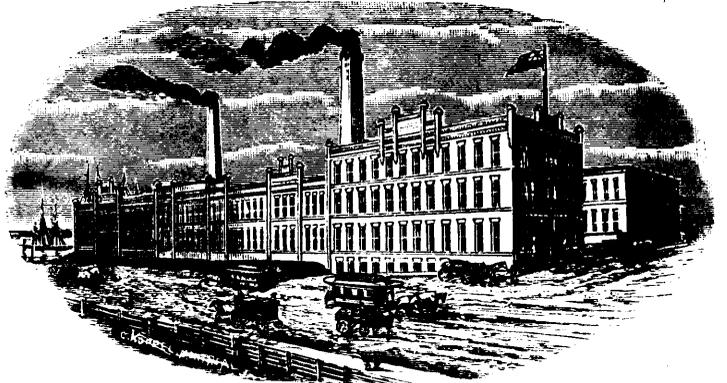
THOMAS McDONALD & CO.

Queen City Galvanizing Works,

69 To 75 SHERBOURNE STREET.

SOLE MANUFACTURERS IN CANADA.

DOMINION TIN AND STAMPING WORKS



Plain, Stamped and Japanned Tinware,
Copper Goods,
Star Patent Stove Pipe Thimbles,
Stove Boards, Wire Goods,
Machine Oilers, Coal Hods,
Fire Shovels, House-furnishing Goods.

SPECIALTIES—Spice Tins, Mustard Tins, Baking Powder Tins, Blacking Boxes, Pain
Irons, Lye Cans, Grocers' Canisters, Square and Round Oil Cans,
Oil Tanks, Patent Butter Tubs (Tin Lined).

KEMP MANUFACTURING CO'Y
Cor. Gerrard & River Sts., Toronto.

THE DOMINION SAFETY BOILER CO.

MANUFACTURERS OF

The "Field-Stirling" Patent

High Pressure Boiler,

THE SAFEST AND CHEAPEST STEAM-GENERATOR
NOW IN USE.

This Boiler is unusually durable, being made of the best steel and wrought
iron exclusively. **No cast-iron is employed.** It is simple in
construction, has a rapid, well-defined circulation, and a large
cool mud-drum, where all impurities are collected to be blown
off. **All parts of the Boiler are readily acces-
sible for the closest inspection.** This is
point of greatest importance. It has great excess
of strength and is not liable to be strained by
unequal expansion. The water space is
divided into sections so arranged that

No Explosion is Possible.

SOME OF OUR LEADING CUSTOMERS.

The Rathbun Co., Deseronto, Ont.; The J. A. Converse Mfg Co.
(A. W. Morris & Bro.), Montreal; The Canada Sugar Refining Co., Mont-
real; The Pillow-Hersey Mfg. Co., Montreal; The Berthier Beet Root
Sugar Co., Berthier, Que.; The Imperial Insurance Co., Montreal; The
Acadia Coal Co., (Lt'd.) Stellarton, N. S.; Canada Paper Co., Windsor
Mills, Que.; Royal Electric Co., (central station) Montreal; Dodge Split
Wood Pulley Co., Toronto; a repeat order for 400 h.p. from A. W. Morris
& Bro., Montreal, for new factory at Port Hope, Ont.

We guarantee dry steam and great economy of fuel.
Correspondence solicited.

J. FRASER TORRANCE, M.E.

P.O. Box 1707, Montreal.

Manager.



Published on the first and third Friday of each month, by the
CANADIAN MANUFACTURER PUBLISHING Co., (Limited).

6 WELLINGTON STREET WEST, TORONTO.

FREDERIC NICHOLLS, *Managing Director.*

J. J. CASSIDEY, *Editor.*

ED. D. McCORMACK, *Secretary.*

SUBSCRIPTION, - - - - \$2.00 per year.

ADVERTISING RATES SENT ON APPLICATION.

MR. FREDERIC NICHOLLS is Secretary of
The Canadian Manufacturers' Association,
The Woolen Manufacturers' Association, and
The Tanners' Association.

His Office is at the Publication Office of the
CANADIAN MANUFACTURER,
6 Wellington Street West, Toronto.

Captains of Canadian Industry.

[OWING to the exceedingly heavy pressure on our columns in this issue of the CANADIAN MANUFACTURER, the sketches relating to the "Captains of Industry," whose artotype portraits are here given, are unavoidably omitted, but will be published in our issue of October 5.]

TORONTO'S GREAT FAIR.

NEVER in the history of the Dominion of Canada has such a successful Exhibition been held as that which has just come to a close in this our good city of Toronto. No matter from which standpoint the results may be viewed, the conclusion arrived at must be the same. Its success from a financial point of view has been marvellous, the total receipts at the gates amounting to \$59,354, which shows an increase over last year of \$7,475, and the significance of the above figures is better arrived at when it is remembered that last year was the only occasion of the Toronto Industrial Exhibition receiving the Dominion Government grant of \$10,000, and that it was then surmised by many that the officially Dominion character of last year's Fair had enabled it to reach the maximum of popularity.

From an exhibitor's point of view the verdict is the same, as interviews with almost every exhibitor in the manufacturing departments have assured us that more business has been done, more general satisfaction given and less friction has resulted during the busy days of the past two weeks than since the Industrial Exhibition Association first became a body corporate.

And now for the general public:—what has been their verdict? The attendance during the opening days of the first week proved that its appreciation was great; the opening day of the second week, appropriately named "Citizens' Day," de-

monstrated that its appreciation was greater than on any previous occasion, and when the day of final reckoning came—when the Treasurer handed in his last daily returns—the whole country knew that public appreciation of our truly National Exhibition had been the greatest accorded to any Exhibition ever held within the boundaries of British North America.

The foregoing paragraphs having proved, authoritatively because statistically, that the management, through their wisdom and energy, had achieved success—that the exhibitors, through their enterprise, had achieved success, and that the general public has endorsed by its magnificent attendance the action of both, we do not think that editorial commendation in this paper is necessary, although we cannot let this opportunity pass without defending the management against certain aspersions cast against them by a few who may have resorted to obstructive tactics, through personal pique or some kindred incentive. We have an intimate knowledge of the inner workings of the Industrial Exhibition Association, and experience, born of observation, has taught that the most painstaking and hard-working members of the Board are those who are oftenest attacked. They give their time uncomplainingly, without fee or reward—some of them work harder in the interests of the Association than if personal gain were their object; and although they are illy rewarded by the injudicious complaints of a few, the measure of their estimation in the eyes of the public is most accurately gauged by the lasting place they will occupy in the regard of the citizens, for whom they have done so much.

In conclusion, we depart from our usual practice of rigidly excluding personalities from these columns by writing a few lines in reference to the executive officers. The President of the Association, Mr. J. J. Withrow, has watched, directed and fostered the interests of the Exhibition, through both good and ill repute, until to-day he has guided it into smooth water with such bright prospects for its future that jealousy in some quarters has naturally been aroused. Mr. Withrow, however, is a level-headed business man, and while he may regret any such animus having arisen from obscurity to the surface, he is no doubt well aware that only the inevitable has happened, and that history repeats itself in this connection as it has done in many similar instances since the beginning of creation.

Our pleasure at the position achieved by Mr. H. J. Hill, the Manager and Secretary, is intensified by the fact of our long acquaintance with him in his official capacity and our almost as lengthy personal friendship. No person unacquainted with the difficulties and responsibilities of his position can imagine the thousand and one opportunities he has for creating ill-feeling, nor can they fail to wonder how it is that he gives offence to so comparatively few. The very energy of his manner, resulting from his characteristic forcefulness, may possibly be so construed as to sometimes cause a little friction, but it should be remembered that calm serenity and habitual energy are very difficult to drive in double harness. The following pages will give an excellent account of nearly every important exhibit on the grounds, although several notices have been crowded out and will have to await the publication of our next issue.

SPECIAL ADVERTISEMENTS.

TISDALE'S BRANTFORD IRON STABLE FITTINGS.—We lose no job we can figure upon. Catalogue sent free. The B. G. Tisdale Co., Brantford, Canada.

KNITTING CREELMAN BROS., MACHINES.
Georgetown, Ont.

To COTTON MANUFACTURERS.—A young Englishman, 30, married, wants to improve himself; experienced weaver; 5½ years as cloth boss and shipper. Steady; good references. Address, "DOBBIES," CANADIAN MANUFACTURER.



1888



— Captains * of * Canadian * Industry. —

(SUPPLEMENT TO THE "CANADIAN MANUFACTURER.")

WATEROUS ENGINE WORKS COMPANY.

ONE of the most familiar features in the Machinery Department was the saw mill, engine and machinery exhibited by the Waterous Engine Works Company, of Brantford, Ont. For many years this display has been a prominent feature at Toronto Exhibitions, and it would be interesting if by comparison one could note the steady improvement and development that have taken place in these exhibits, until now the acme of perfection seems to have been reached, and all done that it was possible for skill and ingenuity to accomplish in bringing this class of machinery to perfection. And this applies not only to the saw mill machinery manufactured by this company, but to all the other lines made by them; and this is one of the largest, most important and most reliable concerns in Canada. Their other lines include steam engines of all styles and sizes, and for all purposes; shingle machines; grain choppers; veneer cutters; lath machines; saws; fire proof Champion farm engine, etc.

This company also manufacture chain belt machinery, applying the Ewart attachable link belting, sprocket-wheel shafting, pulleys, etc.—an improved appliance for handling any material in bulk or package. This link belting is made of refined malleable iron, carefully and correctly tested; and although made of iron it is no heavier, and in many cases much lighter than the leather or rubber belt which it replaces. It is very extensively employed in the equipment of flour mills, grain elevators, breweries, paper and pulp mills, etc. It is also successfully used for driving rotary furnaces, and for transmitting power under water, as it is uninjured by being used in hot or damp places. This system of elevating grain, etc., has come largely into use, and it has been extended so as to include the handling of all sorts of merchandise—in boxes, barrels, bundles, bulk—in fact anything whatever that is movable may be moved by it; and this company manufacture this link belting in connection with elevators for grain, packages, ice, brick, mortar, for saw mills, tanneries, breweries, brick and tile yards, paper mills, coal, stone and ore machinery, etc.

The Waterous Company do not confine themselves to link belting and its applications, but also manufacture extensively shafting, pulleys, hangers, pillow-blocks, etc., in fact, all appliances for the transmission of power. They also manufacture general mill machinery; and their facilities are such that they can supply saw mills, engines and boilers, either portable or stationary, of any required power and capacity, at very short notice.

To those living in good fruit districts there is no more easy, pleasant and profitable investment than an economical fruit drier. The Waterous Engine Works Company build such a drier, complete, set up with furnace or not, including the Ewart chains, with or without wire cloth traps. An outfit consisting of drier, slicer, parer and bleacher, will prepare 150 bushels per day with ten hands.

Having large experience, this company will be pleased to correspond with any who may contemplate using any machines of the classes manufactured by them.

AVIS & COMPANY.

MESSRS. Avis & Company, of the Dovercourt Twine Mills, Toronto, had their usual attractive and unique display in the nave of the Main Building near the eastern entrance. It was in the representation of a small house, every part and portion of which disclosed products of these mills; and the house was well stocked with and surrounded by specimens of threads, twines, ropes, nets, seines, etc. In fact about every thing and article that could possibly be constructed of fibrous material was represented in the display. Festoons of plow lines, chalk lines, clothes lines, garden lines, fish lines, and bag twine; canopies of seines, fish nets, hammocks and cricket nets; cordons of big ropes, little ropes and all kinds of ropes; horse and cattle halters, etc.; barricades of coils of ropes; bundles of cordage and packages of materials of which cordage is made; bouquets of cut flowers and pots of beautiful blooming and ornamental hot house plants, all constructed of cordage; all sorts of braiding twine, suspender cord and corset lacing; folding hammocks made of hardwood, linked and fastened together with cordage so that they may be folded up and stowed away when desired, in a small compact and convenient form. One naturally wonders where the materials come from from which this cordage is made. The cotton fields of the South supply the cotton, and immense quantities of it are required; and cordage manufactured of cotton is perhaps more largely consumed in every day mercantile transactions than any other material. Jute and manilla also find large consumption for certain lines, and these are largely imported from India and other countries; but the linen or flax cordage is now manufactured largely from Canadian grown flax; and Messrs. Avis & Co. say that the home grown product compares favorably with any similar material grown anywhere else in the world. The exhibit here alluded to attracted a great deal of attention by the very novel arrangements of the various articles embraced in it.

CHARLES ROGERS & SONS COMPANY.

FROM the opening day of the Exhibition the splendid exhibits of furniture in various lines made by the Charles Rogers & Sons Company, of Toronto, never ceased to attract crowds about the spaces which they occupied in the Main and Annex Buildings. Lady Stanley was the first to express her admiration of the artistically designed, rich drawing-room, dining-room, and bed-room sets shown in the Main Building; and the opinion of her Excellency was voiced by thousands of other ladies day after day. No firm in return for the great expense which such a display must necessarily imply were more signally rewarded with general public praise than this. They have been as successful in years past, but with the growth of their trade their enterprise seems proportionately to flourish.

The church furniture exhibited in the Annex building should be of equal interest to ministers and members of their churches. The high merit of the style which this company are introducing is so manifest that though all new churches are adopting it, there seems no reason why older churches should not go to the expense of discarding their old-fashioned pews for comfortable and handsome chair accommodation. There is one reason in particular which should strongly urge church bodies to do this, and the argument does not need the backing of luxury, individual and beautiful appearance which is to be observed in the churches in Toronto which have been furnished by this enterprising company.

They also showed lines of office desks and furniture made in the finest and most substantial manner, which attracted the attention of all business men. Taken as a whole the display of this company was exceedingly comprehensive and well calculated to lead buyers into the way of abandoning the use of cheap and trashy furniture. In a growing city like Toronto, where there is wealth to back the demands of refined and cultured tastes, fine furniture will always find ready sale.

JAMES MORRISON.

MR. JAMES MORRISON, 75-77 Adelaide Street West, Toronto, occupied his usual space in the centre of Machinery Hall, in which he displayed the Hancock inspirator, of which he is sole manufacturer for the Dominion of Canada; Morrison's improved globe valve, angle valve and radiator valve; the "Simplex" lubricator; steam gauges and indicators, steam and gas fitters' supplies, etc. The Hancock inspirator is an apparatus for feeding water to steam boilers, for filling tanks, and for any and all purposes for which a pump may be used in handling water. It has no movable or working parts, is durable, and will not get out of order. It is a double apparatus, one-half of which is a lifter and the other half a forcer, the lifter drawing the water and delivering it to the forcer, which delivers it to the boiler, at any steam pressure, without adjustment. On some accounts it is more reliable than a pump, as there are no valves or movable parts to break or get out of order, and it will work under all the conditions where a pump would be used. One important advantage of it over a pump is that all the steam required to operate it is condensed in the water—thereby heating it—and returning it all into the boiler, and it will lift water 25 feet and deliver it into tanks, or to the boiler, as may be desired. Each inspirator is carefully tested before leaving the manufactory, and is guaranteed to perform all that is claimed for it, it being attached and operated according to the printed directions that accompany each machine.

Regarding the "Simplex" lubricator, it is an accepted fact that the internal lubrication of the cylinder of steam engines, steam pumps, etc., is as nearly important as the application of oil to their outside wearing surfaces, and it only remains for the steam user to select from the many devices offered for this purpose, one that shall seem to be the most desirable. This has no outside tubes, glass or metal, to be disarranged or broken; has a positive flash-feed; contains the fewest possible parts; its body is cast in one piece, avoiding joints and leakage. Its range of feed is wide, from one drop of oil per minute to one drop per second. When in exposed positions it can be protected from frost, and with fair treatment it never fails to operate.

Mr. Morrison's exhibit at the Fair was of that exceedingly interesting character as to attract the attention of all visitors to Machinery Hall. Machinery in operation is always attractive and the question with the uninitiated was: Where does that hot water come from? Of course it was caused by the action of the Hancock inspirator. The inspirator with $\frac{3}{8}$ inch suction and feed, has capacity to deliver 60 gallons of water per hour against a pressure of 60 pounds to the square inch; while that with $2\frac{1}{2}$ inches suction and feed will deliver 3,600 gallons against the same pressure, supplying water to boilers of 600 horse-power capacity.

GEO. F. BOSTWICK.

MR. GEO. F. BOSTWICK, 24 Front Street, Toronto, occupied a liberal space in the north end of the Annex Building, in which he made a large and exceedingly attractive display of several lines of articles for which he is the Toronto agent for the manufacturers.

On behalf of Messrs. W. Stahlschmidt & Co., manufacturers of office, church, and school furniture, whose factory is at Preston, Ont., he showed a line of these goods which was exceedingly interesting, and from an artistic and utilitarian standpoint, perfection. This was particularly the case as regarded the flat and cylinder top rotary office desk. Awkward desks which served the requirements of the past are no longer adequate for the business bustle of the present, and progressive business men are adopting the labor saving contrivances which they find embodied in these desks. They possess merits of a positive character, and the manufacturers of them claim them to embody the best devices in this line. They are made of the best seasoned materials, and are designed for actual service. They possess features of a distinctive character which add greatly to their intrinsic worth, and their various accommodations and conveniences make them superior to most other desks on the market, and therefore in a relative sense much cheaper than such other desks. The condensed arguments advanced in favor of this desk are:—ingenious construction, improved convenience, and increased accommodation. The condensed results of it are:—saving valuable time, saving of vexatious worry, and saving of veritable labor. The Office King is another desk which deserves special mention. It is an open and shut desk that has accommodation for two persons. It contains 129 compartments, and it can be instantly closed without removing the papers in use on the sliding table, which shoves back into the body of the desk. On the standing side is a writing table for bookkeeper fifty inches long and twenty-four inches wide. The firm require one month's notice to build one of these desks to order, but they are also kept in stock. Other articles in this line included ladies' writing cabinets, secretary bookcase, plain writing tables, bookkeepers' desks, etc.; also pulpits, reading desks, church chairs, pews, lecterns, etc.; and a large variety of school desks and lodge furniture. About four years ago Messrs. Stahlschmidt & Co. commenced the manufacture of these lines of furniture on quite a small scale, but at this time they have risen to be ranked among the most important in Canada, their high position being recognized by the trade everywhere. They have one of the best equipped factories in Canada, and employ the very best and most expert workmen.

Of equal importance, but of an entirely different character, were the lines of fire and burglar proof safes manufactured by Messrs. Goldie & McCulloch, of Galt, Ont., for whom Mr. Bostwick is also agent. Prominent among a large number of burglar proof safes is one large bank safe, with ten locks, including one time lock. Another of these burglar proof safes is only twelve inches high. Against the wall stands a formidable looking row of fire proof safes, many of them with burglar proof chests. Fronting these is a variety of vault doors never before shown at the Industrial Fair. Facing these again is something entirely new in the way of jewelers' safes, both fire and burglar proof, and claimed to be ahead of anything heretofore shown or manufactured in this country, if indeed in any other. Owing to a railroad accident, which destroyed the safes intended for the exhibition, the entire exhibit, with the exception of one safe, had to be taken from the stock of Mr. Bostwick's warehouse, so that the safes in this exhibit were not especially gotten up for exhibition purposes. Messrs. Goldie & McCulloch do not make the locks which they place on their safes; they are all made by Messrs. Sargent & Greenleaf, who have perfect tools and appliances for the manufacture of locks of this description. Over 5,000 banks and other financial institutions are guarded by these locks. Messrs. Goldie & McCulloch are sole agents in Ontario for Messrs. Sargent & Greenleaf. The Goldie & McCulloch safes are made of the best welded steel and iron, with solid frames and corners. All bolt work is highly polished and nickled, door and frame solid tongued and grooved to prevent wedging or the introduction of powder or other explosives, and are also fitted with packing and improved eccentric hinges and lever bars. Regarding the necessity for time locks upon safe doors, the use of such a lock, and the giving of the greatest possible publicity to the fact of its use, affords the only thorough protection against the latest and most dangerous form of bank robbery, and the experience of the past would seem to make it the duty of bank directors to provide this means of protection not only for their valuables, but for the lives of their officers also.

Mr. Bostwick has recently removed his place of business in this city from King street, where he had an elegant place, but which had become entirely too contracted for his rapidly growing trade, to 24 Front street West, where he has ample room and accommoda-

tions for the display of the many lines of office supplies which he handles, and where he is at all times pleased to meet his friends.

GEORGE GALE & SONS.

MESSRS. GEORGE GALE & SONS, Waterville, Que., manufacturers of the patent "Dominion" wire mattresses, etc., made a remarkably fine display of some of their specialties in the Annex Building, the most attractive line being their wire mattresses. In the manufacture of their ordinary mattress there are seventy springs, of an average tested strength of seventy pounds each, making the total tested strength 4,900 pounds. Connecting the springs there are about 1,000 links, making a very fine surface, and so constructed that in case of accident to any piece, it can easily be replaced. Last year this firm manufactured 15,000 of these mattresses, about 5,000 of which were exported to Great Britain. Wherever introduced the strength, ease, almost perfect durability, fine finish and excellent shipping advantages of this article commend it to the trade, and secure for it a speedy popularity. A commemorative medal was awarded this firm for their display of these mattresses at the Indian and Colonial Exhibition, in London, in 1886; and a medal at the International Exhibition, in Liverpool, England, the same year. They have also been awarded medals and prizes as follows: Quebec, 1887; Sherbrooke, Que., 1886; Montreal, 1884; Montreal, 1882; Toronto, 1879; Ontario Provincial Exhibition, 1879; Kentville, N.S., 1880; Montreal, 1881; also Honorable Mention, highest award in its class, at Antwerp, 1885. The Ontario Government have over 2,000 of the hospital beds manufactured by this firm in their different institutions, and the article is being generally adopted for use in hospitals and asylums, while their combined spring bed and iron bedstead, with inverted side rail, is deservedly very popular with the general public, as it is conveniently set up or taken down. The spring bed keeps its place; it is neat and pretty in appearance, and is strong and durable. The firm carry a full assortment of sizes of nine different patterns of iron and brass bedsteads. The children's cots and cribs shown were really very pretty, and could not but be a great convenience in any family. They are made of iron tubing, and are therefore exceedingly strong and durable; are made in quite a variety of styles, japanned in colors to suit, ornamented with brass mountings, casters, etc. All sizes of iron bedsteads are also made, with more or less ornate ornamentations; and a combination brass bedstead was shown, with reeded ferrules and knobs, that was very elegant.

Since the inception of this business a few years ago its increase has been so phenomenally rapid that Messrs. Gale & Sons have been compelled to increase their facilities from time to time, and within the year they have completed the erection of a solid brick factory 180x55 feet, with ell 48x28 feet, five stories high, equipped throughout with the latest improved machinery.

TORONTO SILVER PLATE COMPANY.

THE space occupied by the Toronto Silver Plate Company, of Toronto, near the east entrance of the Main Building, was covered by a very large and handsome plate glass show case, in which was displayed a large assortment of the goods manufactured by them. Of course this display was intended to attract the attention of the ladies chiefly, and it succeeded in doing so, for they thronged about it at all times, and the ejaculations, exclamations, admiration points, adjectives and pleasant remarks generally concerning it were only such as the glib and nimble tongues of the fair ones can discharge in unending volleys when they are provoked to do so. The provocation was there, for the exhibit was exceedingly beautiful, and what made it all the more interesting was the fact that every article of it was manufactured here in Toronto, and the further fact that the designs were not obsolete and discarded ones, but entirely new and fresh. The beginning of this business but a few years ago was small and unpretentious. It was a comparatively untried field in Canada, and the competition from abroad was strong and persistent. But in producing this class of work this company determined from the beginning that they would make none but really first class goods; that these should be as artistic in design and as perfect in workmanship as any made even in the most renowned establishments in other countries, and that the designs and patterns on which they were made should be perfectly new, not reproductions of wares discarded in other markets. The result has been that the purchaser in buying these goods knows that he is getting the very best in all respects, and it is the high reputation the Toronto Silver Plate Company have acquired by such management that makes their wares so much admired and sought after. Visitors to Toronto should not fail to visit the works of this company and observe one of the most beautiful and extensive displays of silver-plated ware to be seen in Canada.

JOHN BURNS.

AMONG the most noticeable exhibits in the Stove Building was that of Mr. John Burns, of Montreal, who displayed a line of excellent cooking ranges manufactured by him. These ranges embody every thing requisite in such affairs. They are of attractive appearance, artistically designed and nicely finished; their operation is all that could be desired, and private families, restaurants and hotels find them "just the thing" to meet their most exacting requirements. They are constructed of the best materials, in which cast iron is not included; and an important feature is the small quantity of fuel required in their use, the Burns' patent shifting grate being an improvement which adds greatly to its value. The hotel range shown was built with three ovens, two fire grates, water back, warming shelf and hood for carrying off smoke and gases.

HART EMERY WHEEL COMPANY.

THE Hart Emery Wheel Company, of Hamilton, Ont., occupied their usual stand in Machinery Hall, making an interesting and important exhibit. Embraced in it were solid emery cones, spider and pot wheels, and wheels for every imaginable variety of work; also the Wray patent paper wheels, for polishing and buffing. This company make a specialty of supplying solid emery wheels adapted to the work for which they are intended. The work cannot be accommodated to the wheel, therefore the wheel must be made to suit the work. Their special wheels do special grinding thoroughly. For general purposes, ordinary tool-grinding and saw gumming stocks are kept at the factory and by those who handle the goods. The Wray wheels are made of discs of cardboard pressed together, their flexible and absorbent qualities specially adapting them for polishing and buffing purposes. The emery is glued directly on the wheel, and the constant expense of renewing the leather covering of wooden wheels is saved. They can be cleaned in three minutes without soaking or dirt. The Hart emery wheel has been in use a great many years, and had an acquired reputation when Mr. Hart procured a patent on the inserted wire web, since which time this web is inserted in all wheels unless the other sort is preferred. The value of the web consists in its being a safeguard against accident or ill usage. It does not affect the cut, as the wire wears in advance of the emery.

It is almost needless to discuss the merits of the Hart emery wheel. All who have occasion to know the uses to which such tools are put, know and appreciate its merits. No specialty manufactured in Canada has obtained a stronger hold.

In the company's catalogue a number of valuable hints are given to consumers concerning economy in the use of emery wheels, and as the true interests of both manufacturers and consumers are identical, they should be observed. These hints suggest (1st) that heavy and substantial grinders or machines be provided, so that the wheels will not overtax them in running; (2nd) that curve pulleys be used so graduated that as the wheels wear down the number of revolutions of the mandrel can be properly increased; (3rd) that iron collars be invariably used on both sides of the wheel, and that rubber washers be used with thin wheels; (4th) that constant supervision over the grinder be exercised, so that the mandrel will not run out of true; (5th) that before putting a new wheel on the mandrel it be tested to see if it is perfect; (6th) before starting a new wheel, to be sure and have the belt on the proper step of the cone; (7th) to see that the motion of the wheel is true and even before allowing it to go into work; (8th) that no wheel be allowed to get perceptibly out of true—there being both danger and undue waste when such is the case; (9th) that heavy pressure on the wheel be avoided in grinding, and (10th) that the rests be kept close up to the wheels. If all emery wheel users would act on these hints they would save money, time and vexation.

They show a machine for grinding iron hollow ware, a belt polishing machine, a planing machine knife grinder, etc. A special machine which this company are manufacturing, and which is being most favorably received, is the Rodgers' patent adjustable saw filer.

This tool, though introduced only about three years ago, has achieved a splendid record, shipments having been made not only to parties in Canada, but also in the United States, England, Australia and India. The company inform us that they are in daily receipt of orders for this tool from large lumber manufacturing concerns who already have them in use and are desirous of having more of them. The fact that they are comparatively inexpensive is a strong inducement to mill men to have several of them in their mills so that there may be as little delay as possible in sharpening saws. They are exceedingly simple in their construction and operation, and do as good and satisfactory work, and as quickly as machines costing four times as much money, and they save the whole cost of files wherever they are used. The company show an unsolicited testi-

monial from Mr. W. W. Parsons, of McLaren's Depot, Ont., who had been using one of these saw filers. He says:—

"I did all the filing for a circular mill, and changed saws every four hours. The mill cut in same time 2,500,000 feet, mostly all into inch boards, also 9,000 railroad ties, and during that time I used a Hart Emery Wheel Co.'s gumming wheel. It was 8x½ when I started to use it, and it was reduced to 6x½ when I got through. I used no files at all, as the saws needed no pointing up between shifts. The average daily cut was 25,000 feet of inch stuff." The cost of keeping these saws sharp with the Hart Emery Wheel Co.'s emery wheels and Rogers' saw filer was just fifty cents.

THOMAS McDONALD & COMPANY.

MESSRS. THOMAS McDONALD & COMPANY, proprietors of the Queen City Galvanizing Works, 69 to 75 Sherburne Street, Toronto, exhibited the Shipes patent perfect fitting stove pipe manufactured by them. This stove pipe is of that peculiar construction which does not require any tools whatever to put it together, its simplicity being such that any person of ordinary intelligence, without the aid of tools, can form the pipe, and when occasion requires that the pipe shall be taken down and laid away for the summer, it can be released from the fastening that holds the edges together, and as many as twenty-five lengths of it packed in a crate eighteen inches long and eight inches square. This is the way that Messrs. McDonald & Co. send it out from their factory, and the advantages of it can be readily seen. It saves expense. Usually stove pipe is made by the seam being riveted together, and under any and all circumstances it is bulky, clumsy, expensive to handle, and always provocative of profanity—unless the handler be an angel or saint. The Shipes stove pipe, on the other hand, as is stated, is not built that way. In the process of manufacture ingeniously contrived ears are stamped on one edge, and receptacles for the ears on the other edge, and the metal made round; and it requires no skill to make the ears engage where they belong—and the section of pipe is formed. That is all there is to it. As is usual in all pipe, one end is slightly crimped, enabling it to be easily pushed into the next joint. It is made in all the usual sizes. The stove pipe question has now become a warm subject for discussion in Canada, and one in which every person is interested—the stove dealer especially, for he must obtain the pipe from the manufacturer, and transporting it costs heavily, when it is made in the old style.

J. S. HAMILTON & COMPANY.

THE question of Canadian made wines successfully competing with the foreign article could not be doubted after an examination of the fine exhibit made by that well known Canadian wine firm, Messrs. J. S. Hamilton & Co., of Brantford, Ont., in the west nave of the Main Building. This concern are the sole agents for Canada for the Vin Villa vineyard of Pelee Island; the West View vineyard on Pelee Island, and the Pelee Island Wine and Vineyard Company, also of Pelee Island. This famous island, from its geographical location as the most southern point in Canada, has the advantage over all other sections in ripening to perfection the Catawba, Isabella and Virginia Seedling grapes. This advantage, in connection with the knowledge and experience gained in twenty years of practical wine making, has placed the vineyards of Pelee Island which Messrs. Hamilton & Company control, ahead of all other Canadian vineyards. Their products, especially their Catawba, Isabella, St. Augustine and clarets, compare very favorably with foreign wines. Messrs. Hamilton are also sole agents for Canada for the Fairfield vineyards, of Fairfield, Ont., and the St. Malo vineyards, of Tilsonburg, Ont. The entire product of these vineyards is shipped to Messrs. Hamilton & Company's extensive warehouses at Brantford, from where the wines are distributed to all sections of the Dominion.

CHARLES CLUTHE.

MR. CHARLES CLUTHE, surgical machinist, of Toronto, made a remarkable display in the west nave of the Main Building, in which was embraced specimens of the Cluthe patented, perfected spiral spring trusses, single and double, for adults, youths and children, manufactured by him at his works in this city. The discussion of a subject such as this, where the internal organs of the human body are deranged, and which cause so much mental and physical suffering unless speedy and permanent relief is found, is not a pleasant matter, but there are so many people who suffer from hernia, or rupture, that it is a mercy to them to direct their attention to the fact that so experienced a man as Mr. Cluthe is engaged in the manufacture and application of appliances which will give relief from the terrible suffering caused by such a malady, and make life worth the living. Mr. Cluthe has devoted a lifetime to the study of surgical mechanism as applied to this class of disease, and has achieved an

envious reputation in it, meeting with great success in the manufacture of trusses for hernia that really give relief. Included in his exhibit were trusses of all styles, also apparatus for remedying such human deformities as curvature of the spine, club foot, crooked legs, etc. Mr. Cluthe has been engaged in this business about twenty-five years. His address is 118 King Street West, Toronto.

JOHN DOTY ENGINE COMPANY.

THE exhibit of the John Doty Engine Company, shown in Machinery Hall, attracts a great deal of interest, steam engines, dynamos and electric appliances, and other machinery manufactured by them being displayed in great variety, and much of it in active operation.

A specialty of this Company is the manufacture of the Armington & Sims automatic cut-off engine. An automatic engine is one in which the steam is admitted to the cylinder at full boiler pressure and allowed to follow as far as may be necessary for the work required, and then cut off by a mechanical action embodied in the engine itself, the steam being allowed to follow at full boiler pressure for a portion of the stroke, and working expansively for the balance. The regulation of the speed of the engine for varying loads is obtained by varying the point at which the steam is cut off. Certain economical limits of cut-off are established, and the governor controls the admission valve in such a manner as to cut off the steam according to the load, thus maintaining regular speed. These engines are specially adapted to work where great regularity of motion is essential, and they have been selected by a great many users of electricity for driving dynamos. Regarding its use for electrical purposes, Mr. Thomas A. Edison states that after having tried various types of engines he had found the Armington & Sims the best for simplicity of construction and excellence of workmanship, durability and economy; and that he could not see any possible fault to be found with it, or what improvement in its mechanism could be suggested.

This company also manufacture variable cut-off, plain slide valve, vertical, hoisting and other engines; boilers of all descriptions; saw mill machinery; iron and brass castings, etc.; also the new "Otto" silent gas engine; and they justly claim for it that among its points of excellence are that it is safe, convenient and economical. The quantity of gas required in this engine averages for the different sizes, eighteen cubic feet of gas per indicated horse power per hour, which, at the varying cost of gas from \$1 to \$2 per 1,000 cubic feet, a cost of from two to four cents per hour. Their constant readiness for work and perfect safety render gas engines remarkably cheap and convenient, and they have been widely adopted for pumping and ventilating purposes, and are specially adapted for blowing organs, driving coffee and spice mills, sewing machines, boot and shoe making, etc.

BRANDON MANUFACTURING COMPANY.

THE Brandon Manufacturing Company, of Toronto, manufacturers of wooden goods, etc., present a most attractive display of their products in Annex of the Main Building. Among the goods included in this exhibit is noticeable a large line of wood and iron axle express wagons, in the construction of which particular attention is paid to the selection of all materials, and to the workmanship, style and finish. Prices of these wagons vary from 40 cents to \$40 each. The Diamond mop and brush holder is adjustable to brushes of all sizes, and holds equally as well with a mop cloth when used as an ordinary mop. The company manufacture some fifty dozen of the holders a day. Step ladders are shown in great variety—the Challenge, with detachable self attachment, which will fit any size ladder, and can be readily applied to any lengths; the Automatic has self-acting stay legs which fall into position when the ladder is opened for use, and a shelf ladder of different lengths is shown, an article much needed in every store. A folding steps is exhibited which is a great departure from the ordinary clumsy article, and of which the company are making very large sales. A piano stool is shown in both square and round top, the pillar and legs of which are made of hard wood, covered with best haircloth, seats framed together with heavy serpentine moulded edges, which are equal to any known to the trade, and which are sold at remarkably low prices. A commode, well made and beautifully finished and ornamented, is a specialty. It has a hinged top covered with carpet, which, when closed, makes a convenient seat, and when open discloses a finished whitewood seat and an improved English white earthenware pan, movable at pleasure. A boot-blackening cabinet presents the same general appearance when closed, and is very convenient for storing blackening brushes, slippers, etc. The World washboard, "the best washboard of the age," is made with

solid back in one piece, of best materials strongly put together. The company have erected special machinery for the manufacture of this line of goods at a cost of \$1,000, and a capacity of 150 dozen a day. The Improved Union Churn, manufactured exclusively by the Brandon Company, is a stave-bottom box churn which unites the durability of the barrel with the convenient appliances of the most approved open top box churns. No fewer than seventeen medals have been awarded the manufacturers for this churn, and its use extends throughout the Dominion. Other goods shown are children's sleighs of all kinds, sorts and sizes, snow shovels, broom racks, broom handles—of hardwood and basswood—of which 50,000 are made every week; the Ideal hose reel for lawn hose, etc. The facilities of this company are such that they are in a position to undertake and execute with great despatch contracts of any magnitude for the manufacture of all kinds of articles made wholly of wood, or a combination of wood and light iron work.

CLARE BROTHERS & COMPANY.

MESSRS. CLARE BROTHERS & COMPANY, Preston, Ont., made a remarkably fine exhibit in the Stove Department of the hot-air furnaces, etc., manufactured by them. The most noticeable of these was the Pleasant Home steel plate tubular furnace, for burning either wood or coal, made in several sizes, with capacity to properly heat from 9,000 to 50,000 cubic feet of air. Special features of the Pleasant Home heater are large ash pan with sifter and automatic dust flue attachments, extra heavy fire pot, heavy steel plate dome with heavy corrugated top, and cast iron tubes. In the construction of these furnaces the old method of forming joints by using bolts, rivets, cement, etc., is discarded, and a new method of fused joints adopted, which the firm guarantees absolutely gas tight. Other heaters shown are the Waterloo self-feeding coal furnace, the Preston steel dome furnace, a sanitary school-room heater, and the Hilburn hot-air wood burning furnace.

This firm, in the construction of their furnaces, aim to do away with all impurities from the cellar, dust, coal-gas and smoke, and their success in this direction is seen in the numerous testimonials from parties who have given their furnace practical tests. The cost of putting in hot-air furnaces is but very little in excess of that of stoves, while the cost of fuel—a most important point—is greatly diminished. Besides the hot-air furnaces above alluded to, Messrs. Clare Brothers & Company manufacture large and important lines of cook stoves and ranges for coal and wood fuel, embraced in which are all the usual sizes and embodying all the latest and most desirable improvements; also heating stoves, agricultural furnaces, hollow-ware, etc. They have recently made large and important addition to their works at Preston, rendering their facilities for manufacturing unsurpassed, and being favorably situated as a shipping point, and their stocks of goods large, they can fill all orders with great promptness.

A. SCHNEIDER AND COMPANY.

MESSRS. A. SCHNEIDER & Co., engineers and machinists, Toronto, made an attractive display in the east end of Machinery Hall, of the Tuerk hydraulic motor manufactured by them: also a newly invented broom making machine, which was connected with and operated by one of the water motors. These motors can be economically and effectually applied to any machinery requiring light and intermittent power: and the Tuerk is now conceded to be the neatest, cheapest, simplest, most durable and powerful water motor made. It is always ready for work, and is satisfactorily used as a motive power for running printing presses, elevators, pumps, blowers and fans, sewing machines, and in fact any kind of machinery which may require similar power. As compared with the steam engine, a No. 13 motor under a water pressure of thirty to fifty pounds per square inch is equivalent to from five to eight horse power, while the same motor, under a pressure of 100 to 200 pounds per square inch, gives the equivalent of from twelve to twenty horse power. These motors are made in six sizes: No 8—the smallest, being six inches in diameter and weighing complete but eight pounds: while the largest—No. 13—is thirty-six inches diameter and weighs 390 pounds. The size of the stream and quantity of water necessary to operate these motors being varied by the governor, only the actually necessary quantity is allowed to pass through, and no more, the quantity used netting the highest per centage of useful effect. Within a surprisingly small glass show case a fully equipped miniature broom factory was shown in the exhibit in full operation, driven by a toy like motor. This broom machine is something entirely novel in its construction and perfect in its operation. It can be operated by either steam or foot power, winds the wire into the bundle, and embodies a special improvement for holding the broom while being made.

RELiance ELECTRIC MANUFACTURING COMPANY.

THE Reliance Electric Manufacturing Company, of Waterford, Ont., made a beautiful display in Machinery Hall of their electric lighting apparatus, the exhibit being of such a comprehensive character as to itself fully explain the Reliance system and to demonstrate its advantages. The chief excellencies of this system are in the simplicity of the combinations which secure perfection, mechanically and electrically; and the positive protection provided. To those who contemplate the use of electricity for lighting purposes, it would be well to carefully examine the claims of this system, and realize how much such a harmonious system is to be desired. The Reliance dynamo is the latest modification of the celebrated Gramme machine, which is a type of the best arc-lighting or high tension machine known. The Reliance arc lamp in some of its essential features resembles what is commonly called the Siemens lamp. The 8, 10, 12, and 14 hour Reliance lamps are all single carbon—simple and reliable. This company do not make a double carbon lamp, because they say all double carbon lamps have proven unsatisfactory when in actual use. The accessory appliances of this system are especially adapted for the operation of electrical apparatus in series, as is commonly done in arc lighting.

The Reliance system is replacing other systems in Canada, so the company informs us, and this shows the esteem in which it is held, as it is but six months since the first Reliance dynamo was built in Canada, and it has already replaced other systems in part in four towns in Ontario, to wit: Perth, Gananoque, Oshawa and Brantford. This is an unparalleled record. In addition to these, propositions from other towns for exchanges have been refused by the Reliance Electric Manufacturing Company. The Reliance system is at present in operation in Perth, Gananoque, Port Dover, Niagara, Oshawa, Brantford, and Ingersoll, and is giving the most perfect satisfaction.

From a large number of testimonials, shown by the Reliance company from persons who have adopted their system, a few extracts are given: Perth, Ont., Electric Light Company—"The great advantage possessed by the Reliance dynamo, apart from the attention involved, is the protection of the armature. We consider the Reliance system no experiment but an assured success. One great advantage of the Reliance is that from its construction it does not require a tithe of the care and attention that other systems demand." Jonathan Ellis, Port Dover, Ont.,—"Referring to the Reliance plant just placed in my sawmills, I have no hesitation in recommending your system of lighting as superior to any with which I am acquainted." Gananoque, Ont.; Electric Light Company:—"Your machine in every way merits what you claim for it. We are much pleased with it. We have no hesitation in recommending your system." Messrs. Taylor & Watson, Gananoque:—"We are entirely satisfied with the dynamo we bought from you. We have not had any trouble with dynamo or lamps, and have had a good steady light." Other similar testimonials are from Mr. John Garland, and from Mr. A. Watts, Brantford, Ont., Mr. B. Pickett, electrical engineer in charge of Assembly Park, and Mr. Lewis C. Peake, Managing Director, Niagara, Ont., and many others.

THE E. & C. GURNEY COMPANY.

ONE of the most beautiful exhibition buildings on the fair grounds is the pavilion of the E. & C. Gurney Company, and probably the most extensive and attractive display made was that contained in that building. But even this building was not found sufficiently large to contain all the specimens of the various lines of goods manufactured by this company, and a large number of heating and cook stoves were displayed in the Stove Building.

On the west front of the pavilion was arrayed a series of the new Gurney hot water heaters, which were illustrated and described in the last number of this journal, and there was one set up within the building, in full operation, a system of pipes extending into all the rooms connecting with radiators, by which the advantages of the system of hot water heating as embodied in the Gurney heater were self-demonstrating.

In the arrangement of this system the return pipes are introduced into the heater very close to the lowest level, while in other heaters the water is returned at the level of the fire pot, and thrown against the most highly heated surfaces. In this heater the water rises from the inlet in the base on perpendicular lines directly to the fire pot section, and is passed quickly over the hottest surfaces. In the construction of the fire pot, by a simple and ingenious device, the water is projected between the fire brick lining so that each individual brick is surrounded on three sides by water, thus presenting to the fire alternate surfaces of brick and iron, the maximum of fire

surface being preserved, and the fire brick rendered practically indestructible. In a general way the design of this heater embraces every feature necessary to efficiency and economy. The sections composing the heater are bolted together, each to its adjoining section, thus rendering it exceedingly convenient to tighten up the joints if necessary, a decided improvement over the method of having the clamping bolts extend continuously from top to bottom. The water in the system can never exceed a boiling temperature, even in the heater, and the heat given off from it in its passage through the pipes and radiators lowers that temperature only about twenty-five degrees, actual tests showing that the water leaving the heater at a temperature of about 200 degrees, after circulating through a system embracing 3000 feet of pipes and radiators, is returned to the heater at a temperature of about 175 degrees, the loss of heat in making the circuit being only about 25 degrees. The company exhibit testimonial letters from a very large number of well known and reliable people in Canada and elsewhere relating to the Gurney hot water heater, in which it is shown that the system does all that was ever promised for it. In circumstances where one heater is not sufficient, twin connections are used, as they are in cases when building is large and consumption of fuel of greater consequence than first cost of apparatus, for in some cases two fires are more economical than one. These heaters are made in seven sizes, the capacity of the smallest, No. 20, being to supply a system embracing 600 feet of one inch pipe; while the largest, No. 40, has a capacity for 8000 feet of pipe. Regarding the consumption of fuel in this heater, Mr. George E. Desbarats, of Montreal, states that with the No. 25 heater in his residence, the capacity of which was to supply heat through 1,500 feet of pipe, the consumption of coal during the winter was only about ten tons, the house being kept at a pleasant temperature during the coldest days.

Another line of heaters displayed by this company was the Gurney's "Harris" hot air furnace. This heater has been before the Canadian public since 1871, and has successfully passed the severe tests of all the winters since then, and while the quality of warm air supplied has been generally satisfactory, its tremendous heating capacity has been fully demonstrated. The "Harris" is made both as coal and wood burner, and is adapted for heating any kind of building. It is made in five sizes, with capacity to heat from 15,000 to 60,000 cubic feet of space.

In the Stove Building were shown full lines of cook and heating stoves, including the "Model" wrought steel range, finished in various sizes and equipments; the "Grand Duchess" range, than which there is no superior, and a large variety of other cook stoves and ranges. In heating stoves the display was entirely exhaustive, ranging from the "Royal Art," high art base burner of most elegant design, down to the little box stove usually used in heating the lumberman's cabin. A novelty in the stove line was a straw-burning cook, provided with a patented arrangement for feeding the loose straw into the fire box as required. It is "just the thing" for the prairies, where fire wood is scarce.

In the upper story of the pavilion were shown lines of scales and scale specialties manufactured by the Gurneys & Ware Scale Company, of Hamilton; the new gravity door lock, and other hardware specialties made by the same company.

TORONTO ENGINE WORKS.

MR. JOHN PERKINS, proprietor of the Toronto Engine Works, made a beautiful display in Machinery Hall of the celebrated Brown automatic steam engines built by him, also of a high speed engine specially designed for driving dynamos. These engines were in noiseless operation and demonstrated their peculiarities and advantages, and also that their workmanship and finish were equal to the very best built anywhere. These works were established in Toronto eighteen years ago, and Mr. Perkins is one of the best and most favorably known practical mechanics in this city. Brown engines built in these works are now in successful operation in Toronto as follows:—Lansdowne Piano Company, Lochrie Rope Works, Messrs. Kidd & Company, Barclay Flour Mills, and Messrs. Dalton Brothers' Spice Mills; and high-speed engines built by Mr. Perkins are in use in the stations of the Toronto Electric Light Company, Toronto; Royal Electric Light Company, in Montreal and Halifax, N.S.; the Quebec Electric Light Company, and the St. John Electric Light Company, St. John, N.B. The pattern department of the Toronto Engine Works is under the management of Mr. D. McRae, Brown engine pattern maker for eighteen years in the employ of Mr. Thomas Worswick, and for over twenty-one years on the Brown patterns. That the Brown engines made in these works have all the advantages, and are equal to the original maker's own manufacture, is a fact substantiated by all the parties whose names are mentioned, who have them in use.

AMERICAN RATTAN COMPANY.

THE American Rattan Co., of Toronto, exhibited in the Annex Building probably the most extensive variety of rattan goods ever shown at any exhibition. The principal display occupied nearly the entire north half of the west side of the building, and was the Mecca towards which all ladies—lovers of beautified homes—directed their steps.

The Up-Hill rocker attracted special attention, and deservedly so, for it is most delightfully easy and comfortable. As an adjunct of it was shown a beautiful plush-covered foot-rest and slipper-case combined, suggesting luxurious ease and comfort. Of course, all well-regulated families require cradles and baby carriages; and this company pay special attention to the production of these lines of goods. They displayed a cradle, a light, pretty little affair easily operated by hand or foot. The assortment of carriages was bewilderingly beautiful—quite enough so to make one wish for twins or a quartette of babies to occupy some of them. The railing was covered with different specimens of rattan work, similar to that of which fancy baskets, chair bottoms, etc., are made; and suggesting a novelty in house decorating which has never yet been adopted, but which would certainly be very beautiful.

Owing to business connections with some of the largest concerns in the United States manufacturing this class of goods, this company is able to place upon the Canadian market all the newest novelties and designs quite as soon as they are offered in any American city; and these connections enable them to manufacture these goods in Canada at prices that could not be otherwise approached. They are not only the owners of these designs, and the patterns on which these goods are made, but they are also the owners of the patents embodied in the Up-Hill rocker, foot rest, cradle, etc.

The walls and arches of the space were beautifully decorated and festooned with ornamental banners and signs, calling attention to the company's business. The floor was covered with an expensive Brussels carpet. The enclosure surrounded by the unique and novel railing here alluded to, and a remarkably beautiful display of chairs, rockers, baby-carriages, cradles, library and dining-room suites, parlor novelties, etc., completed the *tout ensemble*.

J. F. PEASE FURNACE COMPANY.

THE J. F. Pease Furnace Company, of Toronto, made an attractive display in the Stove Building, of the Economy wrought steel furnace and steam heater combined, and the Economy wrought steel warm air furnace, manufactured by them. Regarding the combination heater, the manufacturers say that it is years in advance of any other heater on the market. It is the result of patient and careful thought by Mr. Pease, who has made heating and ventilating the study of his life. It combines the best features of both the steam and warm air systems, the same fire which produces the warm air generating the steam also, giving the best results from a given quantity of fuel. It is not complicated, the heat being easily controlled, and its freedom from gas and dust are all important features in its favor. This system is low pressure; usually only from one half to three pounds of steam being all that is required, and it is seldom that necessity requires as much as five pounds. The boiler is provided with steam and water gauges and safety valves; and the consumption of water is only about one pailful per week. The whole apparatus is constructed with a view to simplicity, facility of erection and operation; has the greatest heating capacity at the least expense, and is thoroughly reliable. The most convincing evidence regarding the popularity of this heater, and the exalted opinion entertained of it by the general public, is the large number of testimonials which the company have received from persons who have them in use, showing that in each individual case where they have been fairly tested they have given unbounded satisfaction.

Regarding the advantages of the Economy furnace, in its use no coal has to be carried through the house; there is no gas or dust, but a constant supply of warm, fresh air; on damp or chilly days a moderate fire will soon produce a pleasant atmosphere.

DOMINION PIANO AND ORGAN COMPANY.

THE exhibit of the Dominion Piano and Organ Company of Bowmanville, Ont., is always one of the features of the great Fair, and this year the firm fully sustained and even surpassed their previous reputation in this respect. Their handsome pavilion, situated south of the main drive and west of the grand stand, was sumptuously furn-

ished throughout with rich carpeting, delicate curtains, and elegantly mounted pictures and hangings, the whole forming a most beautiful drawing room. The exhibit embraced some forty organs and pianos in great variety of styles and finish. Four magnificent pianos in a group attracted a great deal of attention; and while they resembled each other in shape, size and general excellence, they were finished respectively in French burl walnut, silver-grey maple, ebony and mahogany. The more elegant of the square pianos were finished in rosewood with four round corners; back finished like front, serpentine moulding—very beautiful indeed; very richly carved legs and lyre, and three strings on the treble to every note.

In organs the cabinet grand pedal, double bank reed is the finest instrument this firm has yet shown. It has wonderful volume and richness of tone, and when well handled is capable of marvelous effects. It is in walnut case, paneled and carved front and ends, nine sets of reeds, five octaves of keys, twenty-five stops and eight pedals. This elegant instrument is specially well adapted for church and chapel use.

The manufacturers call attention to the award made them at the Centennial Exhibition, Philadelphia, 1876, as being the only Canadian organ receiving an International Medal and Diploma of Honor; and although about forty organs were represented by different manufacturers, and after the severest competition by the best makers, and a critical inspection by one of the most competent juries ever assembled, they were assigned the first rank in the several requisites necessary in the construction of a first-class instrument, viz.: "a pure and satisfying tone, simple and efficient stop action, an elastic touch, and good general workmanship." They also call attention to the following other awards which they have received: Medal and Diploma at Sydney Exhibition, New South Wales, Australia, 1877; International Medal and Diploma at Paris Exhibition, 1878; Diploma and Gold Medal at Antwerp, 1885; Gold and Silver Medals at Toronto, 1878, 1879, 1880 and 1881.

The points of superiority claimed by the manufacturers for their organs are: superiority, power and volume of tone; capacity for variety of effect and for expression; quickness of touch; uniformity and equality of tone; the quality of keeping in good tune; smoothness and perfection of action, style and general appearance of case, and that the bellows and action are all tested by a mechanical arrangement before being put in the case. New patterns of cases have recently been put on nearly all styles of these organs, while several entirely novel features and extra styles have been added. The designs are beautiful; the tone unrivalled; the workmanship perfect, and the reputation earned by absolute merit. The company make a specialty of manufacturing instruments in any style to suit any submitted specifications.

TORONTO LITHOGRAPHING COMPANY.

THE Toronto Lithographing Co., did not have any particular space assigned to them at the Exhibition, neither did they make any collected display of their work; but their work was ubiquitous, for there was scarcely an exhibitor on the grounds who did not expose and distribute specimens of the work of the Toronto Lithographing Company; and it is safe to say that at this time there are millions—yes, millions of such specimens in the shape of picture cards, fans, chromos, etc., distributed all over Ontario, and in the United States also, in the possession of the uncounted thousands of girls and boys who visited the exhibition, carrying these specimens away as trophies and souvenirs of the happy occasion. Manufacturers of saw-mill machinery, agricultural implements, machine tools, etc., understand that when they go to the Toronto Lithographing Company to have work done, they get satisfaction.

THE MANUFACTURERS' ACCIDENT INSURANCE COMPANY.

JUST to the north of the eastern entrance of the Main Building stood a sheltering tent that covered an ambulance presented to the City of Toronto by the Manufacturers' Accident Insurance Company, of Toronto, of which Sir John A. Macdonald is president and Mr. J. B. Carlile, managing director. On last Wednesday, the 19th inst., this splendid ambulance was officially presented to the city, Mr. William Bell, of Guelph, the vice-president of the company, performing the graceful act of presentation. A large gathering of interested spectators filled the grand stand of the race-course, and the following named gentlemen assembled on the band stand opposite:—Mayor Clarke, Judge McDougall, Chairman of the Police Commissioners, Judge Boyd, Chief Grasett, T. Ballantyne, M.P. P., Drs. Strathy, Weir, Frank P. Cowan, Professor Goldwin

F. E. DIXON & CO.

MANUFACTURERS OF

TO MILL OWNERS
And Manufacturers.

We do not profess to make the **VERY BEST BELTING IN THE WHOLE WORLD**, but we claim that we can make as good as any one else, whether English or American or Canadian. Here is one instance. We made a 14 inch Double Driving Belt for Messrs. Hastings & Peterkin's Planing Mill and Sash Factory on Bay Street, Toronto (now occupied by Mr. C. R. Peterkin), in July, 1873. This belt has been in constant use driving the machinery of the whole factory ever since, and is still good.

If you want a really good Driving Belt, or any other Belt, send to us and we will give you one which will give you thorough satisfaction. You will find both our prices and the quality of our goods all right.

F. E. DIXON & CO.

70 KING STREET EAST,
TORONTO.

L
E
A
T
H
E
R

B
E
L
T
I
N
G

GEO. F. HAWORTH & CO.



(REGISTERED).

11 JORDAN STREET,
TORONTO.

Smith, Col. Denison, Messrs. D. C. Ridout, Frederic Nicholls, R. W. Elliot, Ald. Piper, Mr. William Bell, of Guelph, Vice-Chairman, and Mr. J. B. Carlile, Manager of the Company, when Mr. Bell read the following address:—

To the Police Commissioners of the City of Toronto:

Gentlemen, I appear before you to-day as the representative of the Manufacturers' Accident Insurance Company of Canada, owing to the unavoidable absence of our President, the Right Hon. Sir John A. Macdonald, who, it was hoped, would have been with us to perform the pleasing duty which now devolves upon me. I especially regret his absence, knowing as I do what a pleasure it would have been to him to present in person to the City of Toronto, through you, the ambulance which our company has felt called upon to place at your disposal.

It cannot have escaped the notice of anyone who has carefully interpreted the signs of the times, that greater attention is being given to those matters which tend to the amelioration of the condition of suffering humanity than ever before. At no time has there been so much interest taken in the welfare of those as at present; instance the various institutions in our midst sustained by no niggard hands, having this one object in view.

We are not insensible to the humanizing tendency of the efforts put forth in this direction, and the Manufacturers' Accident Insurance Company desires to be found among those who have noted the progress of events.

Our mission is a beneficent one, and in the conduct of the company's business, while on the one hand the stern exigencies of finance compel the most unyielding obedience to business principles, on the other we feel constrained to contribute our share to the relief of human suffering.

Toronto is increasing rapidly in population and in importance. Her manufactures are making rapid strides; an increasingly large number of artisans are making their homes with us, and everything points to a great future for the city as a commercial and manufacturing centre.

The company with which I have the honor of being identified realizes the necessity of the careful handling and prompt treatment of the sick and wounded. Our physicians who come into daily contact with cases in which we are interested have impressed upon us the fact that human life is often sacrificed through aggravation of the nervous shock incident to severe accidents, by the want of a proper means of conveying the wounded and bringing them within reach of medical aid.

With these conditions before us, and in remembrance of our responsibilities to a large number of people, especially the artisans of this great city, whom we number among our patrons by the thousands, we ask you to accept this ambulance as our tribute to the advanced ideas to which I have made reference.

I cannot close without bearing testimony to the efficiency of the force under your administration, than whom no finer exists, and I am sure I but express the unanimous opinion of the Board of the Manufacturers' Accident Insurance Company in saying this.

I have the honor to be, gentlemen, your most obedient servant,
WM. BELL, Vice-President.

Judge McDougall accepted the gift on behalf of the city, and spoke in high terms of the public spirit displayed by the company in giving such a splendid and necessary gift. He also thanked the firm of Elliot & Company for their generosity in completely furnishing the whole of the ambulances in the city with every requisite in the way of instruments, bandages, and medicine.

Mr. R. W. Elliot, in reply, urged the necessity of ambulances being placed in each quarter of the city, and said if other public bodies, private individuals, or the City Council provided the ambulances, his firm would be glad to furnish them.

An illustration of ambulance work was then given by the police.

This ambulance was manufactured specially for the Manufacturers' Accident Insurance Company by the Holmes Manufacturing Company, of Irvine, Scotland, and is equipped throughout with all the latest improvements. It is fitted to carry four beds with attendants, so that in case of a number of people being injured at once, no time need be lost in removing them. There is a door at the side for the use of the attendant. The bottom half of back end is hinged to fold to the ground, and form a platform giving easy access. The upper half is enclosed with light wood frame, bound with steel, and strong leather cloth stretched over and painted, and to raise or lower with slides and pinching screws. Folding seats fitted in front corners of wagon for attendants, also a cupboard to hold medical requisites, venetian ventilators on sides regulated by sliding covers, an opening on top, at front, with lined covering inside and awning cover over outside, windows in front to allow light from back lens of lamps to reflect light inside of wagon, sliding window on top of door to communicate with the driver. The

stretchers are fitted with telescope handles and rubber wheels and covered with strong brown Hessian canvas, having folding head raisers. The top stretchers are suspended on spiral springs encased in brass from roof, and hooks on strong leather straps. The bottom stretchers collapse together. The wheels and every portion of the running gear are made of the best possible material, and altogether it is one of the most complete turnouts ever imported into this country. It will be on view at the company's tent during the Industrial Exhibition, where a surgeon will be in attendance to look after any cases of accident which may occur on the grounds. The ambulance is well worthy of inspection by all who take an interest in the question of allaying the suffering of humanity, and the company is to be heartily commended for its thoughtful and graceful act in presenting such a vehicle to the city.

B. GREENING & COMPANY.

MESSRS. B. GREENING & COMPANY, Hamilton, Ont., whose stand was near the eastern entrance of the Main Building, made a fine display of some of the leading lines of goods manufactured at their Victoria Wire Mills in that city. Embraced in these are perforated metals, wire cloth of iron and steel, wire netting, staples, foundry supplies, spark arresters, wire springs, wire rope, wire and metal bank and office railing, etc. The perforated zinc sheets are specially adapted for use in the construction of fanning mills, threshing machines, clover mills, and all other grain cleaning machinery, and the perforated iron for malt and oat kiln floors, etc. The wire cloth is used for locomotive smoke stacks, malt kiln floors, cotton and wool dyers, coal and mining screens, threshing machines, etc., the varieties ranging from the finest plated milling cloth to the heaviest for coal and mining purposes. The superiority of the steel wire staples and double pointed tacks consists in their uniformity in regard of length, shape, points, etc. The foundry supplies include riddles, bellows, wire brushes, brooms, etc. The spark arrester, intended for slab burners, is made of extra heavy steel wire cloth, and the cloth in the roll is also shown, intended for those who desire to cover their own arresters. A small arrester is made with a strong frame, adjusted so as to firmly clasp the smoke stack, and hold it in its place. These are for ordinary stacks, and are specially adapted for mills, foundries, machine shops, factories, etc., and are made in sizes to suit. The wire railing manufactured by Messrs. Greening & Co. for offices, etc., is in general use throughout the country. It admits of free circulation of air and unobstructed light, and affords a beautiful appearance that cannot be had in any other material used for such purposes. Regarding the wire rope display, it embraced a large number of specimens, intended for a great variety of purposes and adaptable to many others. This firm have been engaged in the manufacture of wire rope for the past twenty-five years and their facilities enable them to turn out ropes of any desired length and size. The principle of their machinery and the methods of manufacture are the same as adopted by the leading foreign makers, and which long experience has proven to be the best. These ropes are made of all degrees of pliability, ranging from that containing forty-two wires with hemp centre, to that containing 798 wires, this latter being exceedingly flexible, and is only required when a large rope is to be worked over a small pulley. Their extra-pliable tiller rope is quite as flexible and pliable as a manilla rope of equal diameter; a sample of this rope exhibited, only a half inch in diameter, contained 252 wires. An article which attracted more than ordinary interest from architects and builders, was the Greening wire lathing, by which the plaster is kept one inch away from all woodwork, thereby furnishing a perfect protection against fire. In plastering the mortar forms a perfect key on the back, which makes it so strong that it can scarcely be broken off, nor does great heat or water detach it. It is rat proof, is of extra strength and stiffness, can be applied on any irregular form, and can be applied directly to a brick or stone wall without studding, the air space being sufficient to insure dry rooms. In the last issue of the CANADIAN MANUFACTURER an account was given of the severe fire test to which this lathing had been recently subjected. A section of this ceiling was among the exhibits here alluded to. Other specimens shown were galvanized seven-wire stays, for staying smoke stacks, instead of the old fashioned and exceedingly inconvenient iron rods; wire sash cords from one-eighth inch diameter up, crucible steel wire ropes for guying derricks and for heavy lifting, charcoal and bessemer wire ropes for transmission of power, for passenger and freight elevators, etc.; galvanized wire ropes for ships' rigging, railway switching, ballast plows, etc., and splices for all purposes. The general appearance of this remarkably interesting exhibit was such as to attract the attention of all engaged in manufacturing of any sort. It was in charge of Mr. R. H. Merriman, who was untiring in explaining the merits of the display.

CHATHAM MANUFACTURING COMPANY.

THE display of the Chatham Manufacturing Company, Chatham, Ont., was in the west end of the Carriage Building, and consisted of a number of specimens of fine and substantial work from the factory of that company. The lines of vehicles to which this company confine themselves include farm, light farm, one horse and freight wagons; farm and railway dump carts, log trucks, railway platform baggage trucks, bob sleighs, the patent Champion hay rack, etc. The wagons shown at the Exposition, and which were in all respects just like all that are sold from the company's works and agencies, showed the utmost care in selection of materials, precision of workmanship, and nicety of finish, and were much admired. The iron work was certainly as smooth and nicely finished as that on any elegant riding carriage on the grounds. The manufacture of the Government Standard Chatham Wagon was begun by this company about five or six years ago, when they erected works for the purpose of manufacturing farm wagons by machinery with a capacity of fifteen wagons per day. Regarding their facilities and advantages for manufacturing these wagons—the company are very large manufacturers of hardwood lumber and ship plank, having a band saw mill for sawing short logs, and a gang saw mill for sawing long timber. These mills cut from two to four million feet each annually. A great deal of this timber is white oak, white ash, hickory and rock elm, which is unsurpassed for wagon building; and it can be but conceded that in the matter of choice lumber the company have very great advantages in the manufacture of wagons. Whenever an extra good and tough log is hauled into the mill, it is sawn for the wagon works and piled out to dry. As to iron, being probably the largest consumers of certain special shapes in Canada, they have these specially and carefully made, and as they have their own foundry, they manufacture all their own castings from the best Scotch pig. Their arms patterns are altogether different from any used in Canada, the arms from them taking nearly the whole size of the axle at the shoulder, and are cast specially to receive the company's patent climax truss rod, which is applied to the axles of all their two-horse wagons, more than doubling the strength of an otherwise unusually strong axle. The boxes are made of clear balm, or basswood, with heavy iron straps; the bottoms are seasoned tongued and grooved ash, and the whole beautifully painted. The woodwork of the gears and wheels is thoroughly saturated with boiling oil, which expels and makes it impervious to moisture, after which three coats of red lead are laid on; then the work is artistically striped and varnished with the best varnish that can be procured. The company's wagon works proper is a brick building equal to 270 feet long by 40 feet wide, and two stories high, besides other buildings, all of which give an aggregate floorage of about fifty thousand square feet. "If you want a wagon that has an honest, square, stand up look about it, that you can depend on during rain or shine, fit for market, mill or meeting, buy the celebrated Chatham Wagon."

LANDSDOWNE PIANO MANUFACTURING COMPANY.

No exhibit of musical instruments at the Exposition presented more attractions than that of the Lansdowne Piano Manufacturing Company, of Toronto, whose space was in the west nave of the Main Building. It was crowded at all times by artists and lovers of good music, which was produced on really excellent instruments, and the appreciation of the public was such that sales were effected for a large number of both square and upright pianos. Perhaps the most beautiful and attractive instrument shown was an upright cabinet grand, 7½ octaves, in rosewood finish. It was described as having overstrung bass—three unisons throughout, quick repeating action, improved music rest and double fall, with continuous hinges, fancy carved trusses, and handsomely ornamented ends, the same being also shown in fancy rosewood, burl walnut, and mahogany veneer. A 7½ octaves square grand exhibited was in ebonized case, three stringed, like grand pianos, agraffe arrangement throughout entire scale, front corners large round, rich moulding on plinth, etc. Mr. Gerhard Heintzman, the manager of the Lansdowne Company, is an old and experienced manufacturer of musical instruments, having been in the business over twenty-five years. Pianos of his make have received the very highest encomiums from some of the most celebrated masters of the old world, who recognize a good thing when they see it. This company have recently completed the erection of an immense new factory building five stories high in the rear of their warehouses on York street, into which they are now introducing new and improved machinery, dry kiln, etc., which will be one of the most complete piano factories in Canada, the capacity of which will be fifteen pianos per week. The many expressions of pleasure given to the Lansdowne pianos by all visitors to the exhibition were exceedingly gratifying to the company. It is no matter

of surprise to find that the pianos made by this firm should be of such a superior quality, when it is known that the very best artisans of Europe and America are employed under the immediate superintendence of such an expert mechanic as Mr. Gerhard Heintzman, whose long experience and thoroughly practical knowledge of the fundamental principles in the construction of pianos is considered. That the Lansdowne piano has gained a reputation second to none is beyond question, and the increasing demand for these instruments among persons of fine musical tastes should be very gratifying to the manufacturers.

W. BELL & COMPANY.

MESSRS. W. BELL & Co., of Guelph, Ont., occupied their accustomed space near the eastern entrance of the Main Building, with one of the largest displays of musical instruments on the Exhibition Grounds. It consisted of organs and pianos manufactured by them, the exhibit being in charge of Mr. J. W. Scott, the Toronto representative of the firm, whose place of business is at 12 King street west. For years past visitors at the Exposition have been accustomed to seeing the beautiful display of Bell organs, and their name has long since become a household word throughout Canada; but this was the introduction into musical society of the Bell piano, an instrument which already takes equal rank with the Bell organ, and which cannot but speedily and permanently hold the highest place in the estimation of the music-loving public.

This firm is not of those who do things hastily or unadvisedly, and the proverbial caution of the Scotch character was never more fully illustrated than in the development of the business of Messrs. Bell & Co. in the manufacture of musical instruments. The beginning of it was about twenty-five years ago, when William Bell manufactured about twenty-five instruments, mostly melodeons; and finding that there was a fine prospective demand for this class of goods, the foundation having been well and truly laid, the advancement was steady and gratifying. The big growth of the business began in 1878—ten years ago—since which time the growth has been phenomenal, the robustness of it making it the equal of any on the American continent. The company's factories at Guelph, which include two very large buildings, have an aggregate floor space equivalent to eight and a half acres. They are equipped with full outfits of the very best machines, machinery and appliances, and give constant and profitable employment to some five hundred hands.

The recent enlargement of these works was with a view to embrace the manufacture of pianos as well as organs, and now the firm are turning out about one hundred of these excellent instruments a month. Having abundance of capital at command, and every desired facility, they are not making cheap goods, to be forced upon the market at slaughter prices, regardless of cost, but such as commend themselves to those who know what the requirements of a really first-class instrument are, and who find them embodied in the Bell piano.

Regarding their exhibit at the Exhibition, the firm found it impossible to build any instruments, either organs or pianos, specially for the occasion, as their books are crowded with orders and their works are being operated over-time, and the goods they displayed were all taken from the stocks they held in their warehouses. These, however, showed just what they are selling to customers and the trade, and they were certainly of a character that commended their excellence, both as regards style, finish and tone, to even the most hypercritical. The pianos were marvels of beauty—beauty of materials, of design, of workmanship, of finish and of excellence as musical instruments, regardless of all extraneous appurtenances and appendages. The organs were shown in a full dozen different styles, ranging from the small affair suitable for small families who live in unpretentious cottages, for the boudoir of ladies who indulge in such refined pleasures and luxuries, and who inhabit elegant mansions; and for churches, Masonic and other lodges, public halls, etc., where large volume and variety of tones, obtained only by such instruments as the Bell two-manual pedal organ, is required.

The catalogue of instruments manufactured by Messrs. Bell & Co. includes a very large variety of styles of cases, the organs varying from the small, modest affair, suitable for cottage use, to the more elaborate double manual and full pedals, with beautiful pipe tops. The larger of the organs shown was a double manual concert grand, with pipe top, embodying Scribner's tubes, blow lever, eighteen stops, seven sets of reeds, and pedals for thirty notes. This firm are the owners of the patent on the Scribner tubes, by which the quality and volume of the sound are largely increased. By means of this invention an organ containing but two sets of reeds

becomes equal in volume and quality of tone to a much larger instrument.

The business of this concern extends to almost every habitable portion of the globe. Their average shipments to Europe, distributed through their agency at London, England, amounts to about eight carloads a month; and to the Australian market about twenty-five carloads a year, besides a considerable and rapidly growing trade with Mexico, Central and South America, and South Africa. The export to foreign countries business of Messrs. Bell & Co. is larger than that of any similar concern in the United States.

Mr. J. W. Scott had charge of the display at the Exposition. He is the Toronto representative of Messrs. Bell & Co., his place of business being at 12 King Street West, where large numbers of Bell organs and pianos are always on exhibition.

CHARLES FIELD.

MR. CHARLES FIELD, manufacturer of the Canadian Sturtivant pressure blowers, 112 Queen street east, Toronto, made an interesting exhibit of his specialties in Machinery Hall. The steel pressure blower, for cupola furnaces and forges, is made in two sizes—40 and 45 inches—the outlets being 8½ inches and 10½ inches. The exhaust fan for planing mills, etc., is made with wrought iron shells in five sizes—from 28 to 32 inches, the diameter of the outlets varying from 10 inches to 21 inches. The narrow exhausters of the above sizes vary from 7½x10 inches to 16½x13½ inches. The exhaust ventilating wheel is made in ten sizes, from 18 inches to 84 inches. A blast gate, for use in connection with the blowers, is made in thirteen sizes. These blowers are used by blacksmiths, machine shops, foundries, boiler makers, and wherever a strong blast is required for heating iron for working under the hammer, or for melting it in cupolas, etc. The exhaust fan is indispensable in planing mills and wood-working establishments where the shavings and chips must be removed as rapidly as made, and carried to the boiler room to be used as fuel, or otherwise disposed of. The ventilating wheel is used wherever a constant change of air is required, as in factories, for carrying away the dust, in laundries for removing steam and heavy vapor, and similar purposes.

WITHROW & HILLOCK.

"THE coldest and driest atmosphere, together with the smallest use of ice, and thorough ventilation, constitute the most perfect refrigerator." This is the theory of philosophy, and the theory is embodied in the refrigerators manufactured by Messrs. Withrow & Hillock of Toronto, specimens of which were exhibited in the Annex Building. They show two large Arctics, six feet wide, seven feet deep, and ten feet high, with plate glass fronts through which was displayed a variety of butcher meats, supplied by Messrs. Chapman, Symonds & Co., which look exceedingly tempting. A feature in the construction of these refrigerators, and which is embodied in no other make, is the open bottom in the ice chamber. A portable combination hotel refrigerator was also shown, made specially for hotel use, similar ones in smaller sizes being made for families. They are made with patent covers; an arrangement for the admission of the cold air at the bottom of the provision chamber, and the ice chamber at either the side or top of the provision chamber. Messrs. Withrow & Hillock were awarded a gold medal and diploma for their exhibit of Arctic refrigerators at the International Fisheries Exhibition in London, England, in 1883. Mr. Wm. Hunter, the manager, knows all about refrigerators, and was always pleased to explain the merits of those he had on exhibition to all who desired information concerning them. A display was also made of the Hartman patent inside sliding window blinds, manufactured by this firm for hotels, private residences, etc., which attracted much attention.

T. McILROY, JR., & COMPANY.

THE Toronto Rubber Company of Canada, of which Messrs. T. McIlroy, Jr., & Company, are proprietors, did not make any display at the Exhibition this year, simply because they were so overrun with business as to preclude the possibility of their making the necessary preparation to do so. Within the last thirty days they have furnished over 10,000 feet of fire hose to various cities and towns throughout Canada, from the Atlantic to the Pacific, included in which were Halifax, N.S., Aylmer, Baden, Caledonia, Cayuga, Deseronto, Guelph, Milton, Midland, New Hamburg, and Peubroke, Ont., and Kamloops, British Columbia. This large quantity of hose was of the Eureka, Paragon and Red Cross brands, so well and favorably known by all firemen. The Eureka is a three-ply, the Paragon two ply, and Red Cross one ply circular seamless woven

hose—the most perfectly constructed fire hose known. It is a heavy cotton fabric, seamless and rubber lined, and is rapidly supplanting the styles heretofore in use. The production of fire hose in this form has hitherto been considered an impossibility. It weighs about fifty pounds per length of fifty feet, and will withstand a pressure of over 500 pounds per square inch. This company make a specialty of furnishing fire equipments for towns, mills, factories, etc., and are fully prepared to promptly supply all demands of that character. They also carry in stock about every article made of rubber known to the trade, including machine belting, steam packing, gaskets, valves, druggists' sundries, and all vulcanized rubber fabrics. Strong competition in the manufacture of rubber goods has resulted in the production of much that is cheap and worthless; but this is largely the fault of consumers who are not willing to pay fair values. This company, however, handle no goods that are not of prime and uniform quality, and they are at all times ready to meet all the requirements of honest competition.

W. DOHERTY & COMPANY.

MESSRS. W. DOHERTY & Co., manufacturers of organs, Clinton, Ont., made a fine exhibit of their instruments in the Main Building, which attracted crowds of music loving visitors. Mr. Wm. Doherty is a musician whose critical taste has led his inventive genius to the production of many valuable features in the construction of these instruments which are embodied in no other make, and make them much sought after by those who desire only the very best. Among the peculiar and exclusive features of the Doherty organ, and which render it so valuable to experienced musicians, are a patented arrangement for transposing manuals; mouse proof pedals; attachment for blowing pedals; improved stop action; improved coupler; improved swell, etc. One strong reason of the general popularity of these instruments is, that not satisfied with ordinary good results, the company are constantly adding new features and improvements.

DUNBAR, McMASTER & COMPANY.

MR. S. DAVISON, Toronto, the Canadian agent of Messrs. Dunbar, McMaster & Company, of Gilford, Ireland, had his usual attractive display of specimens and samples of products of that large manufacturing concern. His exhibit, contained in a large pyramidal glass case, occupied a prominent position in the central aisle of the Main Building, near the eastern entrance, the specialties shown including tailor's, carpet, lace, gilling, sole sewing, machine, floss, bookbinder's, netting and shoe threads; all well known in the trade for their superior excellence as regards strength and durability of colors. Specimens of Irish, Russian, Italian and German flax are also shown—materials which enter largely into the manufacture of the goods produced by Messrs. Dunbar, McMaster & Co. They are in different stages of preparation, and in every grade and quality from the coarsest threads to such as is used in the manufacture of the finest and most costly laces and fabrics. For many years past exhibitions of the products of this great Irish manufacturing concern have been made at all the more important Fairs and Industrial Exhibitions in Europe and America, and wherever prizes for superior excellence have been offered, the highest prizes have been awarded these. Among many others, medals have been awarded them at the Cork, Ireland, Industrial Exhibition, in 1883; at the Dublin, Ireland, Exhibition, in 1865; at the London, England, Exhibition, in 1862; at the Philadelphia Centennial Exhibition, in 1876, and a special gold medal at the Toronto Industrial Exhibition in 1884. Messrs. Dunbar, McMaster & Co. employ about two thousand hands in their works at Gilford—said to be the largest and most complete of any in the world.

SAMUEL ROGERS & COMPANY.

MESSRS. SAMUEL ROGERS & COMPANY, proprietors of the Queen City Oil Works, made a beautiful display near the fountain in the Main Building. There was an array of glass tubes and show bottles in which were contained all grades and qualities of petroleum oils, from the crude black product as it comes from the ground, to the colorless illuminating oil for domestic and similar purposes. In addition to the lines of American oils which they handle, they also manufacture wool, machinery and cylinder oils—their "Peerless" brand for engine use being well known and extensively used throughout the Dominion. Their "Eldorado" oil is especially adapted for roller flour mills and steamboat machinery. The display of petroleum products, paraffine, etc., was a revelation to many who never before knew the large variety of articles—many of which enter into the uses of every-day life—that are manufactured from petroleum.

CROMPTON CORSET COMPANY.

THE display of corsets by the Crompton Corset Company, of Toronto, in the Main Building, was a centre around which the female visitors were crowded at all times. The exhibit included more than a dozen styles of corsets, some of which were beautifully trimmed with lace and expensive needlework, the prices ranging from twenty-five cents up to several dollars each. The difference in prices, however, is due not to any difference in the intrinsic merits of the goods, but to extra work, trimmings, etc., bestowed upon them. In the lowest priced corset there is quite as much care taken in making it "just right" as there is in the more expensive ones. All are guaranteed perfect fitting, affording both ease and comfort. This company give constant employment to over three hundred hands.

JOHN BERTRAM & SONS.

THE Canada Tool Works, at Dundas, Ont., of which Messrs. John Bertram & Sons are proprietors, did not have an exhibit in Machinery Hall this year as usual, owing to the fact that, although their works are being run overtime, their business is such that they could not withdraw any of their machinery for the purpose. They inform us that they have just finished and tested a planing machine built for the Montreal machine shops of the Canadian Pacific Railway Company, which is five feet wide, five feet high, thirty-six feet long and has twenty-five feet stroke. It was subjected to a severe test on a five ton casting, four cutting tools being used simultaneously and with perfect success. Other machinery which they have recently made for the same shops include special planers, lathes, frame slotters, boring machines, etc. They are now at work filling large orders for the Canada Atlantic Railway Company for hydraulic presses, planers, borers, etc.; for the Manitoba and North-Western Railway Company; or a large quantity of similar tools; and these, with other orders in hand for parties in different parts of the Dominion, will keep their works running to their full capacity for several months. At the recent Colonial and Indian Exhibition, in London, England, the tools manufactured by this firm merited the attention of eminent engineers there, and were selected for illustration by the leading British mechanical journals. The improvements recently made by this firm in all their new machinery have placed it in very high estimation among machine users; and they feel warranted in recommending their tools for finish, durability, and the quality of work which they produce. They have recently added to their list a complete line of brass workers' machinery; and they always keep on hand complete lines of parts of all their standard tools, so that customers may be certain of having their duplicate orders filled without delay. Their new catalogue, which can be obtained on application, embraces illustrations and descriptions of a variety of tools which it would be impossible to enumerate here.

HEINTZMAN & COMPANY.

MESSRS. HEINTZMAN & COMPANY, of Toronto, have occupied the north-east corner of the Main Building for displaying their pianos for so many years that it is generally conceded they have a pre-empted right thereto. They occupied this space again this year, and it was, if possible, more attractive than ever. This space is generously large, but it was filled with instruments nevertheless, the general appearance and high character of them being such that they were the attraction that held large numbers of visitors hovering around all the time. The festooning and other ornamentation of the stand was in keeping with the elegance of the instruments displayed; and these were in such numbers and variety of style and finish as to require a repetition of the catalogue to mention and describe them. Among the large number shown, however, was one large parlor grand, which had been already sold to the St. John Ladies' Seminary, at St. John, New Brunswick. A concert grand, originally intended for this exhibit, was included in the large number of Heintzman pianos recently sold to the Ontario Ladies' College, at Whitby, Ont., and which the firm were compelled to send away before the opening of the Exhibition. The capture of this large order for the Whitby College was a merited recognition of the intrinsic value of these instruments, the purchasers having previously carefully and critically examined the instruments manufactured by all the leading piano manufacturing concerns in the Dominion. This was no small distinction conferred upon Messrs. Heintzman & Company, and the fair inference is that these pianos, for artistic design, elegance of finish, furnishing, tone, etc., are unsurpassed by any made in this or any other country. The concert grand piano sold to the Ontario Ladies' College was an elegantly furnished affair, the case being of rosewood, while the decorations were of a very elaborate and fascinating character. Another piano, which was much admired by all persons who saw it, and which was among the eleven instruments which had been sold to the St. John Ladies'

BRUSHES

Paint, Whitewash, Kalsomine, Household Brushes—
Horse, Factory, Machine Brushes, etc., etc.
Corn Brooms and Whisks.

MANUFACTURED BY

T. S. SIMMS & CO., - ST. JOHN, N.B.

CANADIAN TEAZELS.

PATRONIZE HOME INDUSTRY

very user of Teazels should purchase those of
Canadian Growth in preference to Foreign
Imortations.

ORDERS FILLED BY

F. W. SCHWENDIMAN, DRAYTON, ONT.

OR

THE DOMINION DYEWOOD & CHEMICAL CO
TORONTO, ONT.

Seminary, was a parlor grand, beautifully finished, which for volume and richness of tone was remarkably complete. Although not included among the number on display at the exhibition, the piano made by this company for the Toronto Press Club is now one of the most beautiful ornaments in the reception parlors of that club; and the newspaper "gang" of Toronto, and their visiting lady and gentleman friends, as well as the many local and visiting musical celebrities who were so frequently entertained at the Club's receptions last season, were and are loud in their praise and commendations of the excellence of the instrument which Messrs. Heintzman & Company made for them. The piano of the exhibit, and the one par excellence which probably most attracted the eye and ear of the ladies who hovered about the place more than any other, was an upright cabinet grand, finished in natural oak, the general opinion being freely expressed that never before was there such an elegant and completely artistic and elaborate instrument shown at Canada's Great Fair. Another beautiful instrument shown was a cabinet grand finished in bird's eye maple, stained in silver gray, with ornamental mahogany mouldings. The grand oblique, elegantly finished in rosewood, was not by far the least attractive instrument embraced in the display; while the splendidly equipped square, with the Heintzman patent bridge, which occasions a lovely silvery tone only heard in such instruments, was a marvel of artistic workmanship. A large number of the instruments which were on exhibition found purchasers where they stood and will be delivered direct from the Exhibition building to their delighted owners; a fact which in itself is an index of the high opinion entertained by the music-loving public of the pianos manufactured by Messrs. Heintzman & Company. This firm, and their pianos, have been before the public for the past thirty-eight years, and it is but scant justice to say of these instruments that they are unrivalled and unexcelled either in this or any other country. Since this company first began to manufacture pianos they have turned out about seven thousand instruments, and their factory is perhaps the largest and best equipped of any in the Dominion; the industry, thanks to the National Policy of Canada which makes such "high chimneys" possible, being in a most flourishing condition. The patented improvements and other peculiar arrangements embodied in the Heintzman piano have elicited the admiration and approval of the very best musical critics, as will be observed from reports from the Colonial and Industrial Exhibition in London, where a commemorative bronze medal was awarded to this firm. A special feature introduced exclusively into these pianos, is the Heintzman patent duplex bridge, which is used in all this firm's grand and square instruments. Other special features include a patent bridge ring applied to the sounding-board; an improved action in the upright pianos which renders them less complicated and liable to derangement; a new metallic flange for the hammer-but to work in, and a new and novel arrangement of the music rack for uprights, by which the music is brought more conveniently within the range of sight of the player.

THE BARBER & ELLIS COMPANY.

THE Barber & Ellis Company, manufacturing stationers, Toronto, have a little over four tons of blank books of their manufacture on exhibition in the east gallery of the Main Building, in the care of Mr. W. T. Clark, which shows the character of the work done by that concern. To business men the most attractive feature of the exhibit is a pyramid of four hundred books manufactured to order for the Imperial Bank of Toronto, one hundred of which are cash books. There are also a large number of books of special designs for the Queen's Hotel, Rossin House, and other large hotels; also for auctioneer and commission houses, mercantile houses, insurance companies, etc. A special ledger, made for Messrs. Cooper & Smith, commission merchants of this city, is noticeable for its immense size, excellence of the materials of which it is made, and substantial beauty of its binding. In contrast with this is shown what is claimed to be "the smallest book in the world"—a miniature book-keeper's journal full and properly ruled, full bound in Russia leather, with spring back and beautifully ornamented cover. Its dimensions are three-eighths of an inch wide by seven-eighths of an inch long, and contains four hundred pages. A glass case contains a number of valuable letter press works, some of them very scarce, belonging to the library of Mr. William Christie, of this city, which the Barber & Ellis Company have bound and ornamented with a taste and elegance that makes them the admiration of all who see them. This concern include among their permanent customers a large number of the largest and most important banks and banking institutions in the Dominion; fire and life insurance companies; land and investment companies; manufacturers, merchants, etc. In addition to the large and varied stock of blank books which they always carry, covering the requirements of all ordinary lines of business, they are prepared to make blank books in any designs and for any and all purposes, their immense factory in Toronto enabling them to turn out work with great promptness.

GUGGISBERG BROTHERS.

Messrs. GUGGISBERG BROTHERS, manufacturers of the Guggisberg patent office desks, office furniture, etc., whose factory is at Preston, Ont., made a display in the Annex of specimens of their workmanship which attracted the attention of about every business man who passed through the building. That which seemed to command the most critical and favorable inspection was their patent rolling swing desk, which seemingly embodies all that any business man might require in such an article—compartments under the top, which, operating on rollers, when pulled forward, allow the swinging open of divisions which present ranges of pigeon holes, drawers, shelves, upright spaces for books, etc.; the whole including some fifty spaces, all of which can be readily reached by the occupant of the desk. The desk has a folding top which, when thrown back, presents a writing table and other necessary conveniences; and when the top is turned down, the turning of one key securely locks up every accessible part of the desk. It is made in cherry, walnut and oak, piano finished, and unexcelled in every respect. Other specimens shown include the Little revolving drum desk, with and without folding top; the Guggisberg rolling swing, with flat top, and the Economy wall desk, which, commending itself specially for the use of ladies who do not require larger desk accommodation, when made specially for their use and finished up as these are, is a beautiful article of parlor furniture. It has been the study of years with this firm to make their desks superior in every way. The entire arrangement of every part of them is calculated to give the greatest economy of space, for convenience and comfort. They also manufacture rotary screw, and tilting spring office chairs, exceedingly comfortable in use, in mahogany, cherry, walnut and oak, and seat and back covered with morocco leather. They also make every variety of office furniture, and manufacturers and business men generally should inspect these indispensable articles. Mr. John M. Blackburn, 3 Leader Lane, handles these goods in Toronto.

THE REMINGTON TYPE WRITER.

Mr. GEORGE BENGOUGH, Toronto, displayed the Remington Standard Typewriter in the western gallery of the Main Building. In these days of push and hurry no business office is complete without a typewriter, and it was with one of these machines that McGurrian broke all previous records at Lake George, New York, in August, by writing over one hundred and eight words per minute. Certainly the saving of time effected by the use of the Remington machine is enormous; and the popularity of this instrument is shown in the fact that over fourteen thousand of them were sold last year. The manufacturers of this machine have a standing challenge to match it for speed and accuracy against any other in the market, which has never been accepted, although made nearly a year ago.

ESTABLISHED - - 1828.

J. HARRIS & CO.

(Formerly HARRIS & ALLAN),

NEW BRUNSWICK FOUNDRY.

RAILWAY CAR WORKS, | PORTLAND ROLLING MILLS,
PARADISE ROW. | STRAIT SHORE.
PORTLAND, ST. JOHN, N.B.

Railway Cars of all descriptions. Chilled Car Wheels, "Washburn Peerless" Steel Car Wheels. Car, Machine, Mill, Ship, and all kinds of Castings. Steam Engines, Mill and other Machinery. Nail-Plate, Bar Iron, Street and Mine Rails, Ships' Iron Knees, Hammered Car Axles, Shafting and Shapes.



By Royal

Letters Patent

THE PERFECTION
SMOKE CONSUMER
— AND —
FUEL ECONOMIZER

FOR ALL HORIZONTAL BOILERS.

AT PRESENT BEING APPLIED TO FLUED BOILERS.

PRICE IN MONTREAL, \$100 PER FURNACE.

AT MONTREAL WATER WORKS; C. P. R., SHOPS; AND
CANADIAN RUBBER WORKS.

BOILERS SET AND TRAVELS CONVERTED TO NEW SYSTEM.

CORRESPONDENCE INVITED.

DOBSON & BRODIE,

169 St. James St., Montreal.



Notice to Iron Bridge Builders.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for Chaudiere Bridge," will be received at this office until Friday, the 5th day of October next, for replacing the present roadway of the present Suspension Bridge across the Ottawa, at the City of Ottawa, with an IRON TRUSS BRIDGE, in accordance with a specification incorporated in and forming part of a form of tender, a copy of which, together with a plan of the present structure, will be supplied to Iron Bridge Builders only, on application to the Chief Engineer.

Tenders must be accompanied by plans, specification and strain sheets of the structure proposed to be constructed, and also a description in detail of the mode or manner in which it is to be erected and put in place, as no interference with the present bridge or the traffic across the same will be permitted, except as stated in the specification; and they—the tenders—will not be considered unless made on the forms supplied, and signed with the actual signatures of the tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contr. ct. or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order,

A. GOBEIL,
Secretary.Department of Public Works, }
Ottawa, 10th September, 1888. }

WARDEN KING & SON.

Messrs. WARDEN KING & SON, proprietors of the Craig Street Foundry, Montreal, had a display in the Stove Building of the Spence's patent hot water heaters manufactured by them, one of these heaters being exhibited in actual operation, being connected with a series of radiators, the aggregate length of the tubes of which was about two thousand feet. Owing to the cool weather the display attracted a great deal of attention, especially from the ladies, who hovered constantly around the apparatus, discussing its merits while enjoying its pleasant warmth.

This system of heating buildings by hot water circulation was introduced into Canada some twenty years ago by Messrs. Rogers & King, the predecessors of the present firm, and has proved a great success. Some of the advantages claimed for it are its adaptability to climatic changes; uniformity in giving off heat; healthfulness; safety, and economy of fuel. Many of the largest buildings in Canada, including churches, colleges, convents, asylums, schools and private residences, are heated by the Spence system. The heaters are made in eight different sizes, and are suited in capacity for the heating of all varieties of buildings, from the smallest cottages to the largest seminaries; and the manufacturers exhibit numerous testimonials which they have received from architects, engineers and users, attesting the satisfaction which these heaters have uniformly given. In describing this apparatus the makers call special attention to that feature of the construction embracing the sections and the methods of holding them in position, which, they say, is a radical departure from the customary means employed. The sections are held in position by short studs, which are securely bolted to the water post, or header, in such a manner as to be in no wise affected by expansion or contraction; and the joints are removed from the action of the fire and gases. One of the advantageous results of this arrangement is that the danger of leaking from the expansion of long bolts and consequent loosening of the packing, is entirely overcome. A frequent cause of complaint with sectional heaters is the breaking of sections, due to the unequal expansion of these long bolts, or straps. In the Spence heater there are only seven joints which require packing to prevent leakage. This is a decided advantage, and it is to be noticed that these joints are entirely removed from the action of the fire. The apparatus is easily set up and readily attached to the connecting pipes; and it is possible to remove or replace a section at any time with but little delay or annoyance. Physicians fully endorse this system of heating for its health promoting qualities, the advantages of which over other methods are, less cost of fuel; no danger of explosion; small demand for repairs; temperature maintained six to eight times longer than in steam pipes after the fire is extinguished, and warmth easily increased or diminished by regulating the flow of water. The system neither vitiates nor detracts from the quality of the air in the apartments heated.

GOLDIE AND McCULLOCH.

Messrs. GOLDIE & McCULLOCH, of Galt, Ont., had a very fine display of wood-working and flour mill machinery, in Machinery Hall. They showed one of the celebrated Wheelock automatic cut-off engines of seventy-five horse-power, which furnished the motive power to drive the four large dynamos of the Ball Electric Light Co., supplying 100 arc lights for several buildings throughout the grounds. As this engine now takes a leading position in the Canadian market as well as in the United States, England and France, it might be advisable to give a general description of it.

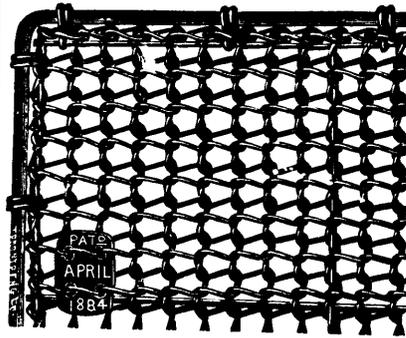
The general arrangement of the engine follows the American type, the main bed being of trunk girder pattern, so arranged that the chief bulk of metal lies in the direct line of strain between the cylinder and crank shaft bearings. The Wheelock engine was awarded the great gold medal at New York, in 1875; the Centennial medal at Philadelphia, in 1876; the gold medal at Cincinnati, in 1881; a gold medal at Boston, in 1881; and the grand prize at Paris, in 1878; and at the Millers' International Exposition at Cincinnati, in 1880, the great gold medal for the best automatic engine under actual test. The Cincinnati test cost \$15,000, and the award given in competition with the Corliss and other automatic engines, stated that "the Wheelock engine gave the best regulation, the highest economy of fuel, the least clearance and the least trouble to the operator"—the highest award ever given to a steam engine. The chief features of the cut-off gear are its great simplicity; the fewness of its moving parts; the small amount of power absorbed in working it, and therefore the absolute control which the governor has over the slightest variation in the load on the engine and the economy of steam thereby obtained. As distinguished from most of the automatic cut-off engines now manufactured, the Wheelock engine has only one eccentric, from which both the main steam and cut-off valves are actuated.

VICTORIA WIRE MILLS

ESTABLISHED 1859.

PATENT

Reversible Steel Mat.



Having purchased from the Toronto Steel Wire Mat Co. their plant, stock and sole right to manufacture their celebrated mat in Canada, we offer the same for sale at the new reduced price list.

B. GREENING & CO.
HAMILTON, ONT.

TO MANUFACTURERS! FOR SALE

A fine Manufacturing Premises within easy reach of Toronto, in one of the most pleasant towns in Canada. No cash money required. Will take mortgage for whole amount at five per cent. per annum interest. Buildings all new, and aggregate over 16,000 square feet of floor surface. New boiler and engine. Shafting will be sold if required. Excellent shipping facilities. Free of all municipal taxes for ten years. Other substantial privileges go with the property.

For further particulars apply to

THE CANADIAN MANUFACTURER,
6 Wellington St. W., Toronto.

FOR Cylinder, Machinery & Wool Oils

WRITE TO

ROYAL OIL COMPANY,
1, 3 & 5 Sherbourne Street,
TORONTO.

OUR MOTTO: "High Class Oils at Low Prices."

COWAN & BRITTON,

GANANOQUE, ONT.

MANUFACTURERS OF

**Strap and T. Hinges, Screw Hooks and Hinges,
Wrought Steel Butts for Builders and Cabinet
Makers, Washers, Staples, Hooks, Hasps, Hay
Carrier Hooks, Patent Hasp Locks, Bed
Fasteners, Steel and Iron Cut Nails,
Clout, Truck and Finishing Nails,
Brads, Tacks and Shoe Nails.**

We are also prepared to make special Nails or Hinges, or other articles made from iron from samples. The quality of our goods is always A. 1 and our facilities for making them are unequalled.

The wristplate action which exists in the Corliss engine, obtained by a very simple and ingenious arrangement, is one of the chief features in the construction of this cut-off gear; and the great dissimilarity to ordinary practice is the suspension of the valve spindles on hardened steel bushes. As a consequence of being thus carried the valves are worked with very little power, from the absence of friction; and by an ingenious arrangement of the spindles and bushes a perfectly steam-tight joint is formed which dispenses with the ordinary stuffing gland and packing, the wear being practically nil.

The valves are flat slide, with multiplicity of opening and extraordinary area, with minimum of movement. By the use of a knuckle-joint movement very slight lap is needed, and almost instantaneous opening and closing are secured with great ease of action under the most extraordinary pressure.

This system can be applied to any engine, especially the Corliss type of anybody's make, and the manufacturers guarantee positive advantage by its use.

The valves are fitted to separate seats that are driven into the holes in the cylinder a little tapering, and no bonnets are used. All the work on them is completed on the workbench, and when in use they bring no wear on the cylinder.

This system is especially adapted to high speed. The valves are perfectly tight, with no necessity for balancing. By the peculiar arrangement of the valve movement the cut-off is very effective and positive in its action, as the cut-off valve has but slight movement after closing, while the knuckle-joint allows of continued movement of the mechanism without moving the valve.

At the recent Inventors' Exhibition in London, England, a gold medal was awarded the Wheelock engine.

The following from the Worcester, Mass., *Evening Gazette*, gives the reader an idea of the success of the Wheelock engine abroad.

"Mr. Jerome Wheelock has just returned from a business trip to England and reports a most favorable errand. He is now engaged in getting out several drawings of his improved cut off engine to send abroad. The machinery in the London, England, Exhibition building is driven by a Wheelock 300 horse-power engine, which is admired by the crowned heads and expert mechanics of all Europe. Another of his engines is in use in the British arsenal in Woolwich, having 1,000 horse-power. The French Government have ordered engines sufficient to cover 4,500 horse-power to be distributed throughout its various arsenals, and also engines having several thousand horse-power for the water works at Paris. Another is about to be put in a 100,000-spindle mill at Manchester, England, having a fifty-six-inch cylinder and eight feet stroke; another at Oldham, and still another is being put up in India by British authority. In this country one of the large shipments was recently made to the Chicago City Railroad Company for drawing street cable cars, consisting of two engines 36 x 72 inches, making the eleventh consecutive engine sent to this company.

TORONTO BAG WORKS.

MESSRS. DICK, RIDOUT & Co., proprietors of the Toronto Bag Works, exhibited a gigantic bag in front of Machinery Hall. It was constructed of bagging, and was made in their works. It was twenty-five feet high and thirty-six feet in circumference. Inside of it was a remarkably fine display of jute and cotton bags and jute piece goods, adapted for every possible use to which such goods could be put. The display included an almost endless variety of specimens of bag printing, of which this firm make a specialty. The work showed great artistic taste, and included the names of many of the well known and leading millers and other bag users in Canada. Outside the big bag was shown an untearable folding cot, patented by the firm, which attracted a great deal of favorable comment, particularly that feature of it by which the canvas is attached to the woodwork without the use of tacks. A new bag for farmers' use was also shown—cheap and durable. All buyers of such goods as these here alluded to, who appreciate enterprise and ingenuity, should visit Messrs. Dick, Ridout & Co. at their offices, 11 and 13 Front street east, Toronto.

R. W. KING & COMPANY.

MESSRS. R. W. KING & COMPANY, Georgetown, Ont., exhibited in the north-west gallery of the Main Building, one of their improved hosiery winders. It was used by Messrs. Creelman Brothers in preparing the yarns for their hand and power knitting machines. They also exhibited in the Stove Building one of their new steam heating apparatus, for heating private dwellings. Although the firm have been making improvements on this apparatus for some three years, and numbers of them have been introduced into residences where they have given the greatest satisfaction, this is the

Fenwick & Sclater,

43 and 44 Foundling St., Montreal.

MANUFACTURERS OF

Cast Steel Files and Rasps, Anchor Brand.

Cotton Waste, white and colored.

Asbestos Cement for covering Steam Pipes and Boilers.

Asbestos Piston and Joint Packing. Asbestos and Rubber Piston and Joint Packing. Plumbago Packing.

HOSE—Rubber, Canvas and Linen.

HOSE—Cotton, Rubber-Lined for Fire Brigades.

SELLING AGENTS FOR

Asbestos Packing Co., Boston; Boston and Lockport Block Co., Boston; American Cotton Waste Co.; Montreal Tent and Awning Co.; "Household" Fire Extinguisher Co.

A. C. LESLIE & CO.

MONTREAL and TORONTO,

MANUFACTURERS' AGENTS FOR

Iron, Steel, Wire, Tin, Plate,

GALVANIZED IRON.

Special value in STEEL BARS, ANGLES, SHEETS, PLATES.

BUYERS ARE INVITED TO OBTAIN PRICES.

"JESSOP'S" STANDARD TOOL STEEL IN STORE.

"BRIGHT LIGHT"

(WATER WHITE)



THE BEST ILLUMINATING

OIL

MANUFACTURED IN CANADA. SAMPLE ORDER SOLICITED.

Address **MCMILLAN, KITTREDGE & CO.**
Head Office, **PETROLEA, ONT.**

The Wm. Hamilton M'f'g Co.

PETERBOROUGH, ONT.

MANUFACTURERS OF THE MOST MODERN

SAW MILL MACHINERY

ALLINGTON'S PATENT DOUBLE COLUMN BAND MILL, WITH ROLLER GUIDES.

SINGLE COLUMN BAND MILLS. WILKINS' PATENT COMPENSATING BALANCE GANG, NO FOUNDATIONS REQUIRED.

Circular Saw Mill, and everything required in first-class Saw Mills. Send for Circular.

first season it has ever been placed in any exhibition, or any other steps taken to advertise it. It has, however, received most flattering notices in American and English mechanical journals. It is a great attraction to sanitary and heating engineers, and Mr. King and assistants were kept busy answering questions regarding its merits.

BOOTH & SON.

MESSRS. BOOTH & SON, coppersmiths and manufacturers of plumbers' supplies, Toronto, had a very attractive exhibit in the centre of the Annex Building. Enclosed in a large and beautiful show case was arranged a display of brass, copper and nicked goods, including coffee and tea urns, water kettles, coal hods, scuttles, cuspidors, house furnishing goods, etc., in great variety of styles and sizes; hose nozzles, spanners, and other firemen's goods. There were also a number of bath-room and water-closet appliances, including the Parker tip-over flushing tank, claimed to be the best and simplest flushing tank on the market, and, with the automatic connection, the most economical; and the Kensington sanitary closet, made of earthenware. In operating the tank, with each pull of the cord the contents of the bucket is emptied down the pipe into the closet, and no more water flows through the inlet valve until the bucket recovers itself, which it will do by releasing the pull. The firm have secured letters-patent upon this flushing tank in England, United States and Canada. The down pipe and all the connections and trimmings of the Kensington closet are of nicked brass; the seat and backboard are of hard wood, and the safe is polished marble. In construction it is simple and durable; devoid of complication; has no valves other than the supply valve, and there is a flexible joint for connecting the down pipe to closet. There are also displayed some attractive novelties in bath tubs and bath tub fittings; and the firm announce that they are making arrangements to carry a stock of porcelain baths, specimens of which are now on the way from the works in England. Another feature of Messrs. Booth's display was a beer cooler manufactured for the brewery of Messrs. Dawes & Co., Lachute, Que. It is twenty feet high by sixty-three feet long, and contains over a half mile of two-inch planished copper tubing.

DODGE WOOD SPLIT PULLEY COMPANY.

THE advantages of the Dodge system of transmission of power by manilla ropes operated over grooved wood pulleys were most strikingly illustrated by the display made by the Dodge Wood Split Pulley Company, of Toronto, in Machinery Hall. The system was applied to the large Wheelock steam engine exhibited by Messrs. Goldie & McCulloch for driving the dynamos exhibited by the Ball Electric Light Company and other machinery. The system was also extended so as to illustrate many of the peculiar leads which it is possible to make in no other way. The novelty of the exhibit attracted a great deal of attention from persons interested in such things, and resulted in considerable satisfactory business for the company.

All manufacturers and users of machinery are interested in the economic transmission of power from the engine, or source of power, to the machinery to be operated by it. There are many methods for such transmission, embracing the belt of rubber, leather, etc., wire ropes, linked chains and other devices. For general and ordinary purposes of transmission there is perhaps no better method than that known as the Dodge system; and there are features of it where it could not be substituted by any other method, such as where the driven shaft is at right angles with the driver; where the drive is perpendicular, particularly when it is in quarter twist and perpendicular; where the driver and the driven are close together; for long drives, such as across a street or a stream, over intervening buildings, etc. In transmitting power from an engine to a line shaft there is a uniform, steady strain, without flapping, jerking, stretching, slipping, or other loss of power; and it is claimed for it that an engine thus equipped will do twenty-five per cent. more work on the same consumption of fuel than with any other arrangement.

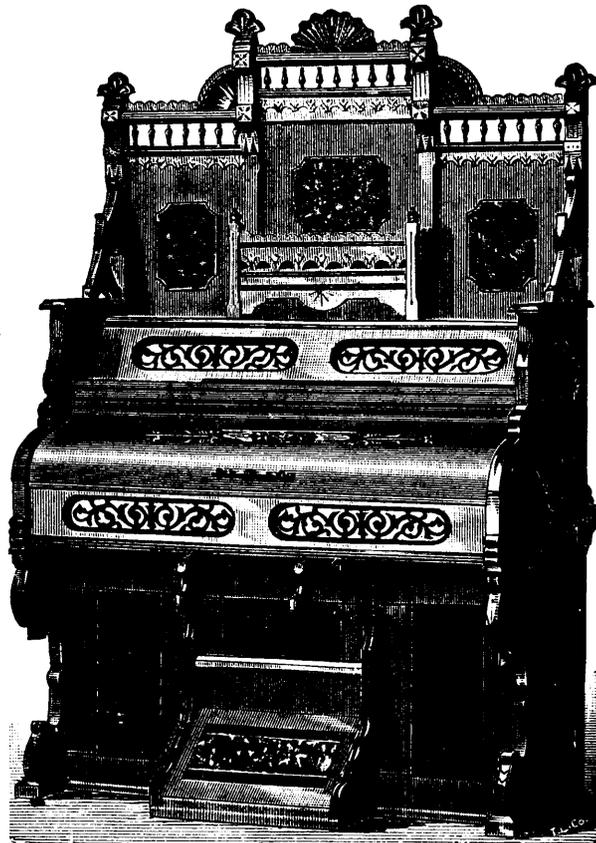
In another page of this journal, in this company's full-page illustrated advertisement, a view is given by which it is shown that it is practicable to transmit power from a mountain stream, flowing between precipitous cliffs, to a plateau several hundred feet above. In doing this the question might arise in some minds as to whether the rope by which the power is transmitted could possibly be strong enough for the purpose. The tensile strength of such rope as is usually used for this purpose, one inch in diameter, is 9,000 pounds—that

"DOMINION"

PIANOS

ORGANS

Hold more Gold
Medals from the
World's Fairs than
all other Cana-
dian makes put
together.



Large stock now on
hand at very low
prices at the

TORONTO
Temple of Music
J. S. POWLEY & CO.
68 King St. West.

s, it will bear a suspended load of that weight. If the height of the transmission is 1,000 feet, of course the weight of 1,000 feet of rope must be considered in calculating its capacity. The weight of 1,000 feet of such rope is 283 pounds, and therefore a vertical elevation of 1,000 feet might be overcome without taxing the strength of the rope by its own weight more than a trifle over three per cent. Of course, then, such transmission is perfectly feasible.

The favor with which the Dodge system is being received in Canada is as encouraging to the company as it is remarkable. Within the past two years they have introduced into various mills and factories over two hundred of these transmissions, ranging from five to 250 horse-power each, driving shafts in every imaginable position. Some of the more important of these drives are as follows:—Messrs. A. W. Morris & Brother, Montreal, took out several large driving belts, including one on their 125 horse-power engine, also eight pairs of gears, and replaced them with fourteen roped drives. They also substituted Dodge split pulleys for twenty iron belt pulleys, thereby effecting a saving of twenty-five horse-power. Mr. J. R. Booth, Ottawa, has six rope drives, one of which replaced a thirty-six inch belt transmitting 200 horse power; one making turns around two corners, making reverse motion, transmitting 150 horse-power, and one transmitting 100 horse power, turning one corner and driving a large band saw. The Barber & Ellis Company, Toronto, have eight rope drives transmitting the power from the engine in the basement to the shafting on each of the six floors of their establishment. The Grand Trunk Ry Company removed the large driving belts in their grain elevators at Sarnia and Point Edward, replacing them with these rope drives. Messrs. W. Bell & Co., Guelph, Ont., have six rope drives including one on their 150 horse-power engine; one to transmit fifty horse-power a distance of 500 feet to a factory which was previously operated by a separate engine, thereby effecting the saving of the cost and expense of engine.

This company are pushing the erection of their new factory at West Toronto Junction, this city, heretofore alluded to in these pages. The main building will be 250 feet long, 54 feet wide, and three stories high; and an adjoining building will be 80 feet long and 60 feet wide—both of brick. This latter will contain a drying kiln with capacity to kiln dry 15,000 feet of lumber per day. There will also be other buildings and every facility for manufacturing. The output of the present works is about 1,000 pulleys per month, and that number will be more than doubled when the new factory is occupied.

ONTARIO LEAD AND BARB WIRE COMPANY.

ONE of the most valuable displays in the Exhibition is the Du Bois seamless drawn lead traps manufactured by the Ontario Lead and Barb Wire Company, of Richmond st., Toronto, who are the sole manufacturers of these goods in Canada. These traps are intended to take the place of the old fashioned pieced sheet lead formerly used, and which is now condemned as worthless and never put into any first class plumbing job. The superiority over the cast trap, which is so liable to have sand and air holes, is admitted on all hands; and they, too, are never specified where good workmanship is required. They are manufactured by hydraulic machinery under a pressure of four hundred tons, which makes it impossible to have any imperfections; and the company say they have reduced the price of this article below any other in the market.

They are uniform in thickness, perfectly smooth inside and out, and are as easily worked as lead pipes, being readily flanged and plugged without danger of cracking. This industry has been fully appreciated by the architects of Toronto, who have adopted it and certified to its value.

The company have recently been appointed agents for the McClellan trap vent, a simple contrivance to be placed on the sewer side of the trap, and which absolutely prevents syphoning.

They are also large manufacturers of lead pipe, babbitt metal, white lead, barb wire, putty and shot. They claim great superiority for their chilled shot, which is warranted by them equal to the best English makes.

ALLAN BOWMAN.

JUST inside the eastern entrance to the Main Building, Mr. Allan Bowman, of Preston, Ont., exhibited an extensive variety of carved, waved and serpentine wood mouldings, which were exceedingly beautiful, and which attracted the special attention of architects and builders, as well as manufacturers of picture frames, fine furniture, pianos, etc. Mr. Bowman has given a great deal of time in the production of these specimens of his work, nearly every design being original with him. His object has been to produce really artistic mouldings specially for the interior decoration of residences, and for the ornamentation of pianos, organs, etc. The field

Central Canada Exhibition Association ANNUAL FAIR

Under the Distinguished Patronage of His Excellency
Lord Stanley of Preston.

- - OTTAWA - -
September 24th to 29th, 1888

For Prize Lists and Posters address,

Chas. Magee,
President.

R. C. N. MacCuaig,
Secretary, Ottawa.

WESTERN FAIR

Industrial and Arts Exhibition,

LONDON, CANADA,

20th to 29th Sept., '88

NINE DAYS.

\$25,000 Appropriated for Prizes, Attractions, etc. \$132,000 Value of New Grounds and Buildings. \$200,000 Display of Agricultural and other Machinery. \$500,000 Live Stock Exhibit.

Grand International Bench Show of Dogs.

THE INDIAN TRIBES OF ONTARIO are preparing an immense exhibit of manufactured articles, agricultural productions and curiosities of the old hunting days. There will be LARGER PRIZES, GRANDER ATTRACTIONS, more to see and more to learn than at any previous Exhibitions.

Prize Lists and all other information may be had on application to the Secretary.

CAPT. A. W. PORTE,
President.

GEO. McBROOM,
Secretary.

TO RENT.

MANUFACTURING PREMISES

60 feet by 60 feet.

Ten flights, extra well lighted, with unlimited water power.

On Mill Street, near Black's Bridge, Lachine Canal,
Montreal.

For full particulars apply to

WILLIAM JOHNSON & CO.

P.O. Box 926, Montreal.

To Manufacturers and Others

THE ONTARIO INDUSTRIAL LOAN AND INVESTMENT CO.

Having now in course of erection a Large Building on the north side of Lombard Street, between Church and Victoria, are prepared to receive offers for the renting of the same, with or without steam power, in flats or portions to suit lessees.

The proximity of the location to the wholesale houses and all the railroads entering the city, makes it particularly suitable for light manufacturing purposes.

By applying at once alterations in the plans can be made to suit convenience of lessees.

For full particulars apply at office of the Company, 32 TORONTO ARCADE, TORONTO.

E. T. LIGHTBOURN,

Manager.

which this artist has chosen is amply wide for the full display of his genius, for it is a fact that about all the mouldings now used in the trades are machine made, and seem to be confined to but very few patterns. Persons of refined tastes do not prefer to have to submit to the unvarying styles generally in vogue, and any departure in the direction of the introduction of decided and meritorious novelties will be sure to be hailed with pleasure. In this respect Mr. Bowman has struck a popular chord, and no doubt many who contemplate erecting handsome residences and those engaged in the manufacture of fine furniture, pianos, etc., will investigate the novelties which Mr. Bowman has to offer.

A. O. NORTON.

MR. A. O. NORTON, of Coaticook, Que., exhibited in Machinery Hall his Sleeper Improved Compound Lifting Jack. It is made in different sizes, styles and capacities; its advantage over other jacks being that it combines those three great mechanical powers—the lever, screw and bevel gear—and the three great elements of success—simplicity, durability and cheapness. It is operated with a reversible ratchet lever having a pump handle motion. The parts are interchangeable; gearing of steel or malleable iron; screw of steel, operating in a composition nut, the whole encased in an iron shell, protecting the working parts from dirt and rust. It can be used in any position; can be left supporting a load, and possesses all the advantages, and none of the disadvantages of the hydraulic jack. It combines lightness, speed, safety, ease in operation, cheapness and durability. It is provided with a hook for lifting from the ground, which, when not required, can be removed. The encasing shell revolves so that the handle can be brought into any desired position. It is also made as a travelling jack for railway shops, etc., and when made for the use of carpenters and builders it is quite as efficient but not so expensive as those made specially for railroad use. For raising buildings, where the sills are close to the ground, the use of the hook saves digging.

BALL ELECTRIC LIGHT COMPANY.

THE Ball Electric Light Company, of Toronto, had two exhibits of their electric light machinery in Machinery Hall that excited much attention. In one space they operated four of their Ball dynamos, which supplied electric currents to more than one hundred arc lamps, used for illuminating the Main Building, Machinery Hall, Horticultural Hall, Honey and Dairy Building, Carriage Building, Little World, Press Bureau, Dining Hall, the Dufferin street entrance to the grounds, and various parts of the grounds. These dynamos were driven by a 75 horse-power Wheelock steam engine exhibited by Messrs. Goldie & McCulloch, of Galt, Ont., the exhibit being a model electric light station. In another space they exhibited about a dozen dynamos of different sizes and for different standard currents, for both arc and incandescent lighting, the arc lamps being of 1,000, 1,200 and 2,000 candle-power respectively; the incandescent lamps being of from sixteen to one hundred candle power each, for either short or long distance lighting. The incandescent dynamos are self-regulating.

Owners of water and steam power favorably located can in many instances render their power the source of considerable income during the hours of darkness by renting or selling power, in the form of light. Regarding the Ball system, it requires but two thirds of one horse-power to produce each full arc of light of 2,000 nominal candle-power; and it can be operated in incandescent or arc lighting separately, or both in combination, in one circuit, or in separate circuits at the same time.

The use of electricity for lighting mills and factories is increasing very rapidly, while the cost is being reduced in like proportion. Time was when none but the more wealthy manufacturers could afford the use of incandescent lights and the necessary appliances for creating and distributing it in their establishments, but now they discover that they can reduce expenses by the introduction of it; and fire insurance companies are calling upon all who are still enduring the semi-darkness, and the constant danger occasioned by the use of oil or gas, to bestir themselves and observe how safe a thing the electric light really is.

The use of electricity for illuminating purposes is not in its infancy. It is now well developed and understood, and is evidently to be the common illuminant of the future for manufacturing, municipal and domestic purposes. The great advantages of it is in the volume of light afforded; its comparative cheapness, and that buildings and places may be sufficiently lighted—an impossible thing with gas or oil. The cost of it is no greater than that of gas, and it is the experience of manufacturers that while using the electric light their output is nearly or quite as great as during an equal number of hours of daylight.

G. & J. BROWN M'F'G CO.

(LIMITED),

BELLEVILLE, ONT.

Engineers, Machinists, Boiler Makers,

Foundrymen and Bridge Builders.

RAILWAY and CONTRACTORS' SUPPLIES A SPECIALTY.

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

BINGHAM & WEBBER



"Their Work Speaks Their Worth."

Their Telephone No. is 50
Their Office is in the Lake-side Court.

-- ARE THE --

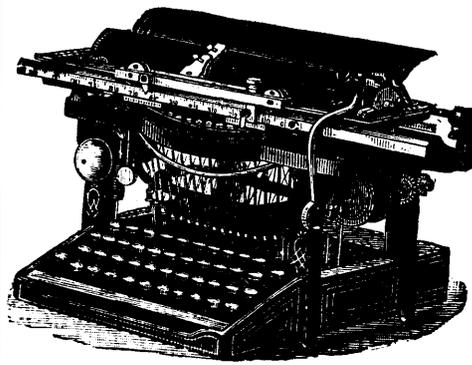
PREMIER CATALOGUE PRINTERS

- OF CANADA -

::: 25 1/2 Adelaide Street East :::

Toronto

Remington Standard Typewriter



AWARDED FIRST AND SECOND PRIZES Gold & Silver Medal

BY CANADIAN Shorthand Society, Aug. 13, '88.

Geo. Bengough, AGENT, 36 KING ST. EAST TORONTO.

PATENT ADDING MACHINE

A MATHEMATICAL MARVEL

Is not a toy but a practical article. Thousands in use. HUNDREDS OF TESTIMONIALS. By mail (charges prepaid) on receipt of price—ONE DOLLAR. Money returned if not satisfactory. Circular, testimonials, etc., for stamp. Agents wanted.

WHITON MANF'G CO., - TORONTO,

SOLE AGENTS FOR CANADA.

BRANCH OFFICE—BUFFALO, N.Y.

A partial list of Ball plants in service enumerates about a hundred users in Canada. The system is specially adapted for manufacturing, mercantile, street and domestic lighting, either arc or incandescent, or both combined.

CHARLES STARK.

In the eastern nave of the Main Building, Mr. Charles Stark, of Toronto, made a fine exhibit of some of the specialties manufactured by him, including gold, diamond and silver jewelry, gold and silver watch cases, fancy and sporting goods, etc. The most noticeable and important articles shown, however, were the silver watch cases, the manufacture of which is a specialty with Mr. Stark. These cases are made in all the standard sizes to accommodate the movements of all the more reliable manufacturers, and in a large variety of styles. The manufacture of watch cases on a large scale is a comparatively new industry in Canada, and the factory of Mr. Stark is one of the largest, best equipped and most important in the country, giving employment to over forty hands, the production being 250 silver cases per week.

EMPRESS SEWING MACHINE COMPANY.

The Empress Sewing Machine Company, of Toronto, presented their usual display of Empress sewing machines in the north-west section of the Main Building, in the second floor. A number of beautiful machines were shown, and attentive and skilled operators explained their advantages to the large numbers of interested visitors who fairly swarmed about the stand. The leading features of the Empress machine, which distinguish it from others, are its exceeding simplicity of construction, easy motion and general excellence; it being perfectly adapted for doing any and all work ever required to be done in a household. Some of its peculiar excellencies are, that a screw driver is never necessary; the shuttle covers swing instead of slide, and are never detached. The machine will not run backwards, thus avoiding the breaking of needles and thread. The general design of the machine is very elegant, the stand being in bronze, instead of black. Each machine is supplied with a beautifully trimmed work basket, arranged to hang at the end, a convenience which the ladies will appreciate. One of these machines was operated by a Meade electric battery of small power, placed beneath the machine, which illustrated very strikingly the small amount of power required to drive it. A lot of beautiful fancy and plain work done on this machine was shown; and a large book displayed numerous samples of the different styles of work that can be done on it.

CANADIAN RUBBER COMPANY.

The Canadian Rubber Company, of Montreal, through their Toronto manager, Mr. J. H. Walker, made the only display of rubber goods at the Exhibition, their space being near the western entrance of the Main Building. It consisted of specimens of most of the various lines of goods manufactured by the company, including rubber belting for the transmission of power, fire, suction, garden and other hose; steam packing, valves, car springs, wringer rolls, mould goods in almost endless variety, tweed and gossamer waterproofs, and rubber and felt boots and shoes, embracing 130 lines. This display of foot wear was probably the most varied and interesting of any ever shown in Canada, and the style, finish and quality of the articles indicated a perfection in this direction equal to any similar goods manufactured in Europe or the United States. This company give special attention to the manufacture of rubber belting for elevators, mills, factories, etc., and are selling large quantities of it for such purposes. The standard is exceedingly high, the goods being fully the equal of any made in America. They have recently been awarded the contract for supplying all the belting required for the new grain elevator recently built at Fort William, Ont., by the Canadian Pacific Railway Company. The belting for this order is the company's celebrated extra heavy Star brand; and included in the order is one seven ply belt 341 feet long and fifty-four inches wide, in one piece; and 4095 feet of six ply, same grade, twenty inches wide. The recently erected grain elevator of Messrs. Gooderham & Worts, in Toronto, is equipped throughout with belting made by the Canadian Rubber Company. On the occasion of the recent annual picnic and games always given by this company to their factory employees at Montreal, a special train consisting of eighteen cars was required to convey the happy and merry throng on their outing, the party consisting of 1,500 persons. Of course all of these people were not employees of the company, but over a thousand of them were, for this is one of the largest labor-employing concerns in Canada. The company's works in Montreal are one of the sights of that city. The face of the main building extends without a break a thousand feet along the line of two streets, five stories high; and

Leeds Foundry and Machine Works.

E. E. ABBOTT,

MANUFACTURER OF

Vertical Drills, Shears,

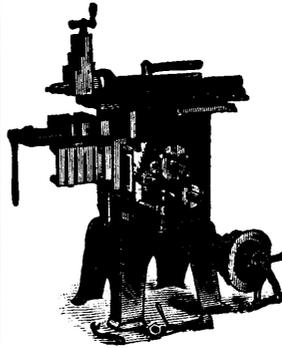
IRON PLANERS,

Punching Presses, Rolls,

BOLT CUTTERS

AND

SPECIAL TOOLS FOR WORKING
IRON AND WOOD.



GANANOQUE, - ONTARIO.

HENRY PORTER,

MANUFACTURER OF

LEATHER

BELTING

Visitation Street, Montreal, Que.

Mill Owners will do well to write for estimates before placing their orders.

MUNDERLOH & CO.

MONTREAL,

SOLE AGENTS FOR THE DOMINION

OF

Meyer's Watchman Control Clock.

REDUCED PREMIUMS ON FIRE INSURANCE
SECURED BY USING THIS CLOCK.

Description and particulars on application.

CANADA BANK NOTE CO. (Ltd.)

MONTREAL.

W. C. SMILLIE, Pres't. HERMANN DRECHSEL, Vice-Pres't.
EDW. B. PARKER, Sec'y-Treas.

BANK NOTE PRINTERS,

LITHOGRAPHERS,

ARTISTIC PRINTERS.

RAILWAY MAPS.

GLOSSED LABELS

ARTOTYPE (PHOTO) PRINTING.

there are numerous other buildings connected with this, to pass the full length of each floor of them all involving a walk of more than a mile. That is, the floor room of this immense factory is equivalent to over a mile in length by sixty feet wide.

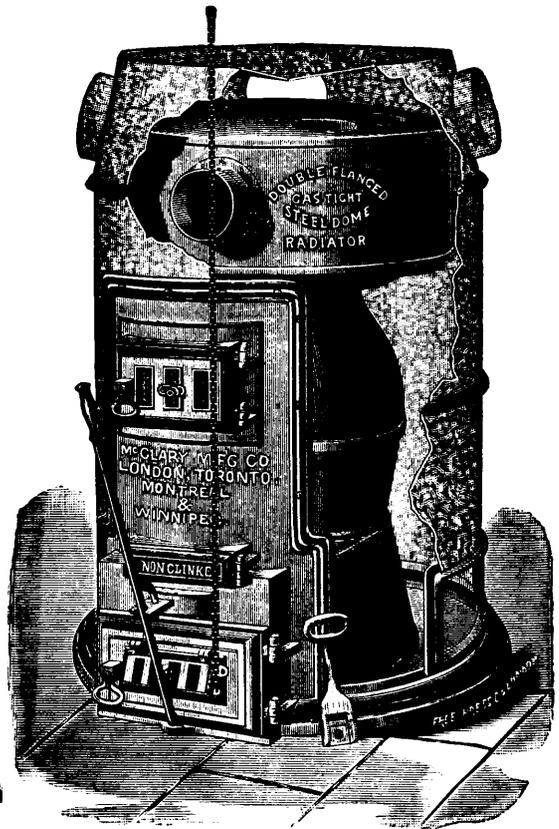
J. & J. TAYLOR.

ONE of the finest displays of fire and burglar proof safes for banks, jewelers, and all who require absolute security for their valuables, was that of Messrs. J. & J. Taylor, near the north door of the Annex Building. The most conspicuous of these was a six-ton burglar proof safe manufactured by them for the office of the treasurer of the Canadian Pacific Railway Company. Of course this safe is constructed with a view to the safety of the valuable deposits it will be required to hold, and it embodies all the latest improvements—tongue and groove doors, and absolute safety from burglars; also combination locks, and double chronometer time lock, with safety devices against dynamite, by which burglars are set at defiance. Then there are the patent built-in spindles, lever bars and rubber tube packing, which render the safe absolutely air tight, and prevent the introduction of gunpowder, dynamite or other explosive. The arrangement of the time locks is such that should any concussion or violence disarrange or destroy the delicate chronometer movements, by which the bolts securing the doors cannot be withdrawn from their sockets until the desired hour, by the application of an electric current to a protruding copper wire, an ingenious mechanism may be set in motion which will, in the course of a certain number of hours, relieve the obstructing bolt and allow the doors to be unlocked in the usual manner. Without this electrical arrangement, in case of the derangement of the chronometer locks, it would be necessary to cut through the steel doors—a very expensive and tedious job. This electrical arrangement may be set so as to release the time lock bolt at the expiration of any given number of hours up to seventy-two hours—three days—and a hand moving over a disc, similar to the hand of a watch moving over the watch dial, tells at a glance just how long the electricity may have been applied to it. Thus, if the electrical arrangement is set to operate at the expiration of seventy-two hours of electric action, while this does not interfere with the operation of the chronometer movement, in the event of the derangement of that movement it will require seventy-two hours of electric action to admit of the opening of the door in the usual way. Therefore, although a burglar may apply the electricity, it would not avail him, as the time required to effect his purpose would force him to retire before the denouement, and the dial-faced indicator would show that the unlawful visit had been made. Other safes shown included a jeweler's safe which has a combination fire and burglar proof door of novel construction, and which embodies all the improvements introduced into bank safes, including patent built-in spindles, lever bars and rubber tube packing, which render it absolutely air tight, and prevent the introduction of explosives. The door of this safe is so arranged as to admit any packages which the safe has capacity to receive, and admits of more space inside than by the old style double doors. Their fire-proof safes are also of peculiar construction, having two complete tongues and two grooves in each door and door frame, the value of which is quite apparent. The exhibit, as a whole, is remarkably fine and very attractive, many visitors being deeply interested in the construction and mechanism of the "strong boxes" which are used as the depositories of so much wealth and the representatives of wealth. The value of the display was over \$10,000.

The name of this firm has been identified for many years with the manufacture of fire and burglar proof safes of every description and for all purposes; and their fame as makers of such safes is not confined to Canada, but is world wide, for they have agencies established in Europe, where they have placed many of their finest safes, and in Australia, to which country they have sent many car loads of them, and where they have been awarded many medals and diplomas. A pleasing feature of the exhibit here alluded to is that all of the safes shown are their regular stock work, not one article having been made for exhibition purposes, and that everything in connection with these safes, including the combination locks, silver plating, fine cabinet work, painting, ornamenting, etc., is all done within their own factory in this city. Toronto is certainly proud to have within its limits an industrial establishment that can produce such beautiful and valuable work. At the recent Adelaide, Australia, Exhibition, where Messrs. Taylor had a number of their safes displayed, and where they were brought into direct competition with similar safes manufactured by Chubb, of London; Phillips, of Birmingham, and other celebrated British makers, the jury awarded the Taylor safes the Special First Award, and recommended the commission to also award an extra special prize, the certificate of the award made by them reading:—"J. & J. Taylor, Special First Highest Award."

FAMOUS TOP RETURN FLUE FURNACE.

IN THREE SIZES, FOR BRICK OR PORTABLE SETTING,



WITH EITHER CAST IRON OR STEEL RADIATOR.

Unequalled for economy of fuel, simplicity of construction ease of management and heating capacity.

NEW GEM

Wood Furnace

Entirely new and of novel design.

A Powerful and Economical Heater.

Thoroughly tested. Specially adapted for medium sized dwellings.

SURE TO SELL

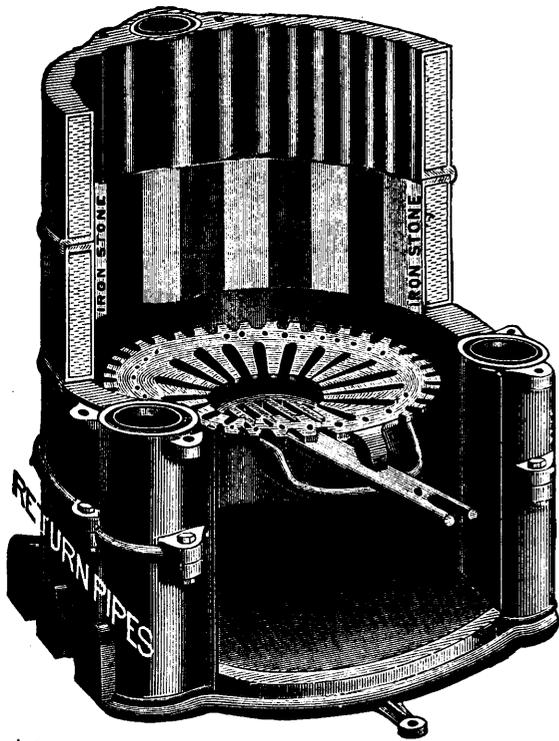
Any dealer who has not received our price list for 1888 will please advise us.

McClary Mfg Co.

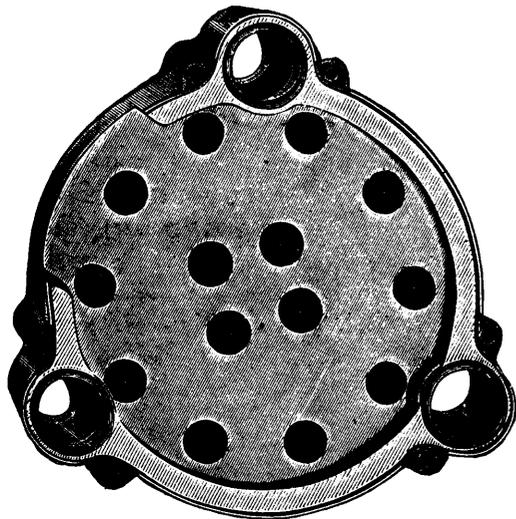
London, Toronto, Montreal and Winnipeg.

New Improved Gurney Hot Water Heater.

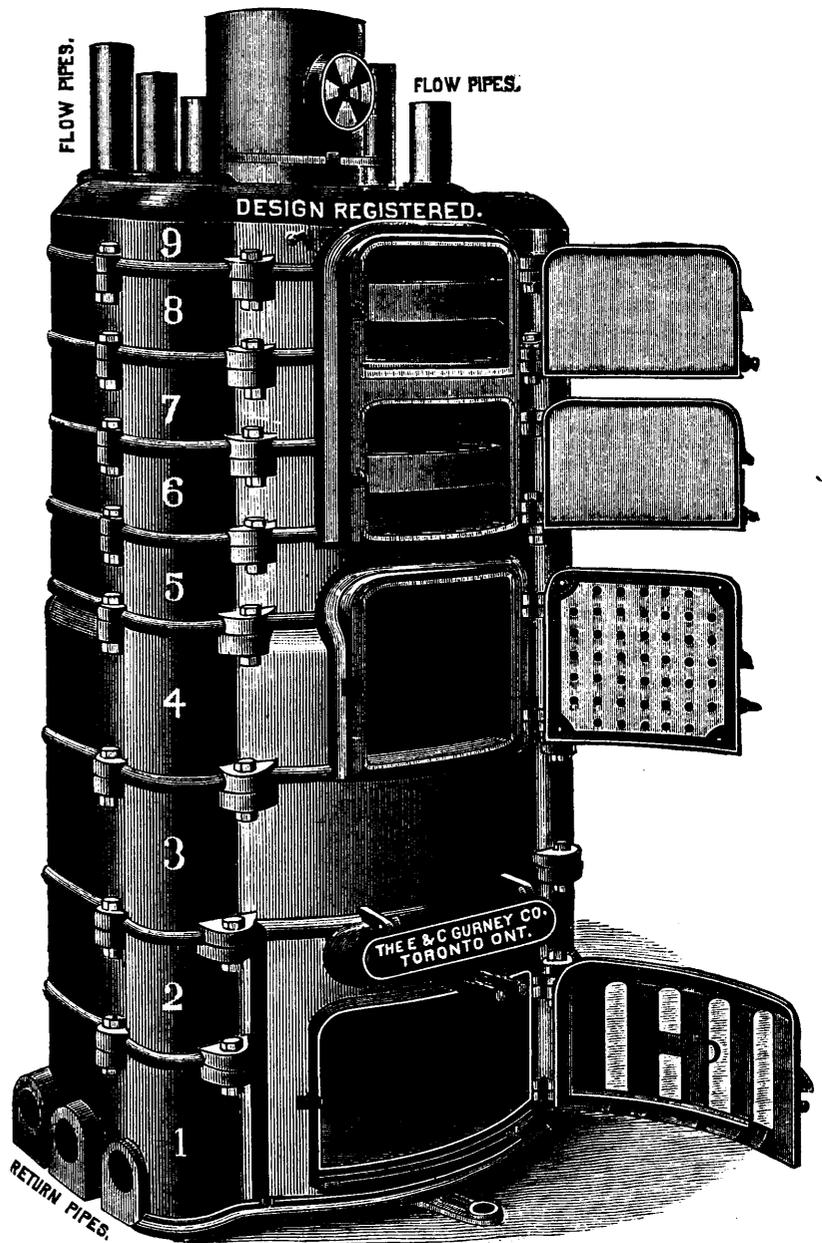
1888



Ash Pit, Grate, Fire Pot and Corrugated Section.



Top Radiator with Deflector.



Front and Side View.

SECURING INCREASED ECONOMY, DURABILITY, UTILITY.
 SEE IT OR SEND FOR OUR CIRCULAR.

MANUFACTURED BY

The E. & C. GURNEY CO.

TORONTO, WINNIPEG, HAMILTON, MONTREAL.

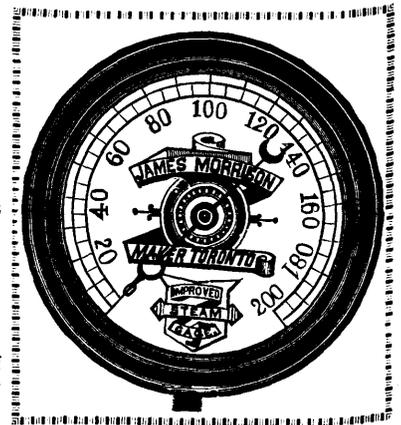
THE LAMB KNITTING MACHINE.

MR. J. M. STATEN, of Toronto, sole agent for the Dominion of Canada for the Lamb Knitting Machine Manufacturing Company, occupied his usual space on the north side of the west end of the Main Building, exhibiting a number of his machines, many of them being kept constantly in operation manufacturing hosiery and other knit goods. The operation is an exceedingly interesting one, and Mr. Staten effected sales for many of his machines to visitors who comprehended that they could make a large part of their own and their families' clothing just as well as not. The machine is simple, and in making different sizes of articles nothing is added to it or taken away. It is sold fully equipped with everything necessary to operate it. Besides socks and stockings, it makes mittens, scarfs, shirts, drawers, caps, cardigans, shawls, children's jersey suits and underclothing—in fact almost anything in knitted goods wanted by a family. It knits perfectly any size stocking or mitten from the smallest to the largest, the size being varied the same as in hand knitting by the number of stitches set up; and the number of stitches which can be set up on this machine extends from four to 160 stitches. Besides doing such work as is required in families, this machine is now largely used by manufacturers in making all the lines of goods above mentioned, and also many others; and many persons, men, women, and young people, who own their own machines, operate them at home manufacturing for the trade, and selling the goods to the wholesale and jobbing houses. Many owners pay for their machines out of their earnings with it, and always find it a sure source of moderate income and pin money. These machines are now made in about fifty different styles and sizes, adapted for every variety of work, to be operated by both hand and steam or water power; and no well regulated family can well afford to be without one.

GALT FOUNDRY, ENGINE AND MACHINE WORKS.

MESSRS. COWAN & Co., proprietors of the Galt Foundry, Engine and Machine Works, Galt, Ont., did not have their usual display of machinery, etc., at the Exhibition this year as usual, simply because they are and have for a long time been so overrun with orders, and those ordering have been so imperative in their demands for the immediate delivery of their machinery, that they could not possibly give any time to the manufacture of any specimens for exhibition purposes. This speaks well for the business of the concern, if not for the Exhibition; but this firm take the most unbounded interest in Toronto's Great Industrial Fair nevertheless, and will most probably have a very large exhibit next year. Regarding the lines of machinery manufactured by Messrs. Cowan & Co., their wood-working machines are all built with iron frames of sufficient weight, and are accurately and well fitted; and they embody every valuable improvement suggested by practical experience, many of which are secured to the firm by letters patent. To ensure entire satisfaction every machine is put in motion and thoroughly tested before leaving the works, which enables the shipment to even the most distant points with entire confidence of its success. The firm manufacture the Harris-Corliss steam engine, which they claim more than holds its own against all rivals as the simplest and best automatic cut-off engine yet built. For planing and saw mills they manufacture a good, substantial and simple slide-valve engine, so that they can supply an outfit complete, including engine, boiler, shafting, hangers, pulleys and all other necessary parts, at the shortest possible notice. Regarding boilers and their attachments, those manufactured by Messrs. Cowan & Co. have been placed in some of the largest mills and factories in the country, each boiler being subjected to a thorough hydrostatic test before being shipped. The firm have recently considerably extended their buildings and enlarged their plant and appliances, which enables them to fill orders with great promptness, guaranteeing entire satisfaction. Following is some of the work Messrs. Cowan & Co. have now in hand or have recently delivered, which gives an idea of why they did not show up at the Toronto Exhibition:—A 100 horse-power Harris-Corliss engine for Mr. J. H. Still's new wood-bending works, at St. Thomas, Ont.; a 70 horse-power Harris-Corliss engine and a 80 horse-power steel steam boiler for Messrs. Duclos & Pagan's tannery at Ste. Hyacinthe, Que.; a 75 horse-power steel boiler for Mr. David Maxwell's new agricultural implement works at St. Mary's, Ont.; a large planer and matcher for Mr. E. A. Charest, Ste. Barnabé, Que.; a lot of wood-working machinery for Messrs. Fader Bros., Vancouver, B.C.; an entire new outfit of saw and lumber mill machinery for Mr. A. Brinston, Brinston Corners, Ont.; an outfit of engine, boiler and machinery for the new Preston Carriage Company, Preston, Ont.; a full set of wood-working machinery for Mr. Lewis Hahn's new mills at New Hamburg, Ont.; and a Harris-Corliss engine to drive the electric light plant now being introduced by Mr. James Crossen into his car works at Cobourg, Ont.

Crown Water Closet.
Inodoro Water Closet.
Perfect Water Closet.
Denning's Valve Closet.
Demarest Valve Closet.
Alexander Valve Closet.
A full stock of Wash-basins, Urinals, etc.
Also, complete stock of Wrought Iron Pipe and Fittings.
Brass and Iron Valves.
Plumbers' and Steamfitters Brass Work.
Rubber Hose, Belting, Packing, etc.
Sole Canadian representative of the Celebrated Hancock Inspirator.

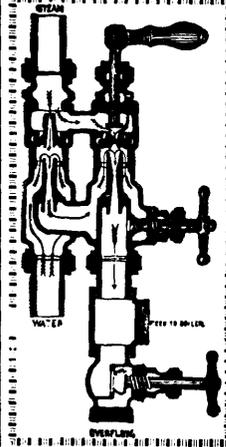


JAMES MORRISON,

IMPORTER AND MANUFACTURER OF

Steamfitters' and Plumbers' Supplies

75 & 77 ADELAIDE ST. WEST, TORONTO.



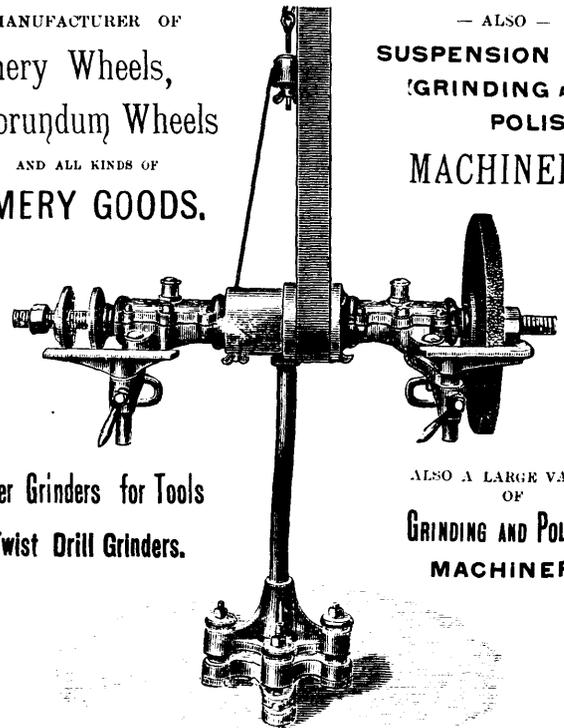
SANITARY EARTHENWARE Now in Stock; Morrison's Washout Hoppe National Water Closet.

PRESCOTT EMERY WHEEL CO.

PRESCOTT, ONT.

MANUFACTURER OF
Emery Wheels,
Corundum Wheels
AND ALL KINDS OF
EMERY GOODS.

— ALSO —
SUSPENSION
'GRINDING AND
POLISHING
MACHINERY



Water Grinders for Tools
Twist Drill Grinders.

ALSO A LARGE VARIETY OF
GRINDING AND POLISHING
MACHINERY

Discounts and Price Lists on application.

BARREL TRUCK

FOR MOVING BARRELS WITH HEADS IN OR OUT.

WILL CARRY FROM 700 LB. BARRELS DOWN TO A NAIL KEG. (WILSON'S PATENT. 1887.)



These Trucks are now ready for the market. Nothing to equal them for the purpose designed. Send order early.

Read the following Testimonial for the first Truck purchased from the Inventor.

Office of THE MORSE SOAP CO'Y.

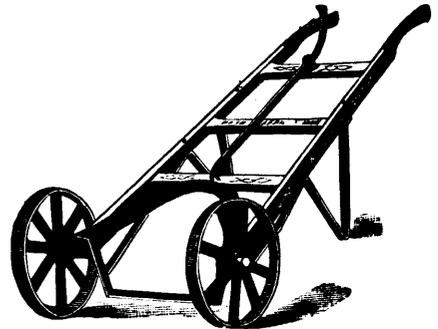
JOHN TAYLOR & Co., Proprietors.

TORONTO, April 25th, 1887.

We have pleasure in saying, that the Barrel Truck we bought from George Wilson, for moving liquids unheaded is quite a success, and has already saved us much labor and material, on account of its convenience.

Respectfully,

[Signed], MORSE SOAP CO.



Manufactured only by GURNEYS & WARE SCALE COMPANY, HAMILTON, ONT.



SAULT Ste. MARIE CANAL.

Notice to Contractors.

SEALED TENDERS addressed to the undersigned and endorsed "Tenders for the Sault Ste. Marie Canal," will be received at this office until the arrival of the eastern and western mails on TUESDAY, the 23rd day of October, next, for the formation and construction of a Canal on the Canadian side of the river, through the island of St. Mary.

The works will be let in two sections, one of which will embrace the formation of the canal through the island; the construction of locks, etc. The other, the deepening and widening of the channel-way at both ends of the canal, construction of piers, etc.

A map of the locality, together with plans and specifications of the works, can be seen at this office on and after TUESDAY, the 9th day of October, next, where printed forms of tender can also be obtained. A like class of information, relative to the works, can be seen at the office of the Local Officer in the Town of Sault Ste. Marie, Ont.

Intending contractors are requested to bear in mind that tenders will not be considered unless made strictly in accordance with the printed forms and be accompanied by a letter stating that the person or persons tendering have carefully examined the locality and the nature of the material found in the trial pits.

In the case of firms, there must be attached the actual signatures of the full name, the nature of the occupation and residence of each member of the same; and further, a bank deposit receipt for the sum of \$20,000 must accompany the tender for the canal and locks; and a bank deposit receipt for the sum of \$7,500 must accompany the tender for the deepening and widening of the channel way at both ends, piers, etc.

The respective deposit receipts—cheques will not be accepted—must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for the works, at the rates and on the terms stated in the offer submitted.

The deposit receipt thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tenders.

By order,

A. P. BRADLEY,

Secretary.

Department of Railways and Canals, }
Ottawa, 8th August, 1888. }



ST. LAWRENCE CANALS.

Notice to Contractors.

SEALED TENDERS, addressed to the undersigned and endorsed "Tender for the St. Lawrence Canals," will be received at this office until the arrival of the eastern and western mails on Tuesday, the 25th day of September next, for the construction of two locks and the deepening and enlargement of the upper entrance of the Galops Canal. And for the deepening and enlargement of the summit level of the Cornwall Canal. The construction of a new lock at each of the three interior lock stations on the Cornwall Canal between the Town of Cornwall and Maple Grove; the deepening and widening the channel way of the canal; construction of bridges, etc.

A map of each of the localities, together with plans and specifications of the respective works, can be seen on and after Tuesday, the 11th day of September next, at this office, for all the works, and for the respective works at the following mentioned places:—

For the works at Galops, at the Lock-keeper's House, Galops. For deepening the summit level of the Cornwall Canal, at Dickenson's Landing; and for the new locks, etc., at lock-stations Nos. 18, 19 and 20, at the town of Cornwall. Printed forms of tender can be obtained for the respective works at the places mentioned.

In the case of firms there must be attached the actual signatures of the full name the nature of the occupation and residence of each member of the same, and further, a bank deposit receipt for the sum of \$5,000 must accompany the tender for the Galops Canal Works, and a bank deposit receipt for the sum of \$2,000 for each section of the works on the summit level of the Cornwall Canal; and for each of the lock sections on the Cornwall Canal a bank deposit receipt for the sum of \$4,000.

The respective deposit receipts—cheques will not be accepted—must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for the works at the rates and on the terms stated in the offer submitted. The deposit receipts thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,

A. P. BRADLEY,

Secretary

Department of Railways and Canals, }
Ottawa, 8th August, 1888. }

NEW BRUNSWICK CORDAGE WORKS,

THOS. CONNOR & SONS,

MANUFACTURERS OF ALL KINDS OF

HEMP and MANILLA CORDAGE,

BINDER TWINE, ETC. ETC.

VESSELS' OUTFITS A SPECIALTY.

BINDER TWINE,

MANILLA CORDAGE,

CLOTHES LINES,

LATH AND PALING TIES,

LOBSTER MARLINE,

RATLINE,

LANYARD ROPE

PORTLAND, N.B.

To Manufacturers!

THE LAND SECURITY COMPANY

OF TORONTO

Offer for sale or to lease a number of very desirable sites suitable for manufacturing purposes, among which they mention one lot containing $1\frac{1}{2}$ acres, and one lot containing $1\frac{3}{4}$ acres on King Street west, on Subway, and on line of Grand Trunk. Toronto Grey & Bruce, and Canadian Pacific Railways. Also the contiguous property, containing about 3 acres, known as the Dominion Bridge Co's Works, having switches connecting with all the Railways entering Toronto. The Shops, Forges, Steam Power and Shafting are all in capital working order.

The Company have also lands where the main lines of the Grand Trunk (Northern) and Canadian Pacific Railways cross at Davenport. Switches are obtainable from either or both roads, and abundant space can be afforded for very extensive works; and for the erection of all dwellings that may be required by workmen.

Portions of these lands are in York Township whence suburban and street car services will give frequent access to the city.

WM. I. MACKENZIE,

COMPANY'S OFFICES IN TORONTO,
No. 7 VICTORIA STREET.

Manager.

Corliss Engines

STATIONARY and MARINE ENGINES and BOILERS

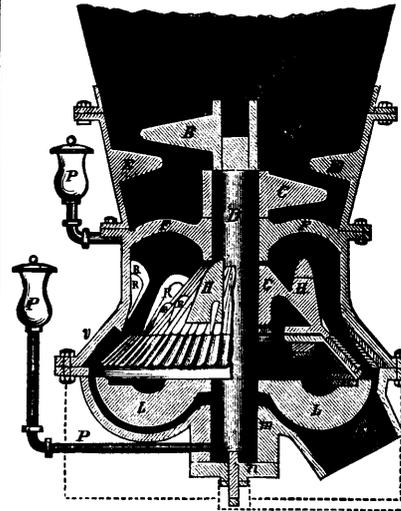
High Economy and Superior Work Guaranteed.

FLOUR MILL MACHINERY,
CASE'S IMPROVED SYSTEM.

CYCLONE DUST & SHAVINGS COLLECTORS.

INCLIS & HUNTER,

TORONTO.



Important to Tanners.

SEGMENT BARK MILL.

For grinding any hard substance
SUCH AS

Cement, Plaster, Bones, Bats,
Ores, Paint, etc. It is also
used to grind Liquorice
and Sarsaparilla roots.
Also as a Corn
Breaker.

The Segments will retain
their cutting edges longer than
those of any other Mill, and
when dull can be quickly and
cheaply renewed.

It has the following good
qualities, viz.:—Fast grinding;
evenly prepared bark; is easily
erected and small power re-
quired to drive it.

It works with ease in damp
or frozen bark, and break-
ages are prevented by safety
coupling.

PAXTON, TATE & CO.
PORT PERRY, ONT.

Notice to Shippers to South America.

D. M. RENNIE,

Formerly of this City, now in Buenos
Ayres, South America,

Is prepared to accept Agencies for the Argentine Republic and Uruguay from the Manufacturers and Shippers of Canada. Particulars as to Customs Tariff, Shipment of Samples, etc., may be obtained at the office of **NICHOI KINGSMILL, ESQ.,** Toronto, Consul for the Argentine Republic.

REFERENCES BY PERMISSION.—Simon Jones, Dominion Commissioner to the Argentine Republic, St. John, N.B.; Nichol Kingsmill Consul to the Argentine Republic, Toronto; W. B. Hamilton (of W. B. Hamilton, Son & Co.); Hon. Frank Smith (of Frank Smith & Co.); W. R. Brock & Co.; Wyld, Grasset & Darling; Smith & Keighley; Eby, Blain & Co., Toronto; Hon. James Turner (of James Turner & Co.), Lieut.-Col. J. M. Gibson, M.P.P., Hamilton; Wm. Darling & Co., Montreal.

Barnum Wire & Iron Works,

WINDSOR, ONT.

Bank and Office Railing, in Brass, Iron, Steel, Bronze or Plated.
Church Metal Work, Altar and Pulpit Rails, Lecterns, etc.
Architectural Iron Work of all kinds. Stairs, Gates,
Fences, Stable Fixtures, Elevator Cabs and En-
closures, Grates, Fire Places, Andirons,
Fenders, Fire Screens, Hall and Newel
Lights. Fine Brass Castings, Fine
Forging, Nickle, Brass and Copper
Plating, Spinning, Artistic
Metal Work.

DESIGNS AND ESTIMATES SUBMITTED. SEND FOR CATALOGUES.

TORONTO AGENT:

H. W. BOOTH, - 65 Front St. West.

For Specimen of Work, see Bank of Montreal, Toronto.

THIS SPACE IS RESERVED FOR
JOHN ABELL,

MANUFACTURER OF STEAM ENGINES
AND BOILERS AND AGRICULTURAL
AND OTHER MACHINERY.

Toronto, - Ont.

CANADA JUTE COMPANY,
MONTREAL.

MANUFACTURERS OF

Cotton and Jute Bags

IN ALL SIZES AND QUALITIES.

STARK BROS., AGENTS,
TORONTO.



EVERY REPUTABLE DEALER KEEPS
THEM.

Insist on having the Genuine, and see
that they bear our name.

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

TORONTO LITHOGRAPHING CO.

Globe Building, Toronto

MAKE A SPECIALTY OF
Fine Color Work

CHROMO ADVERTISING

CARDS and NOVELTIES

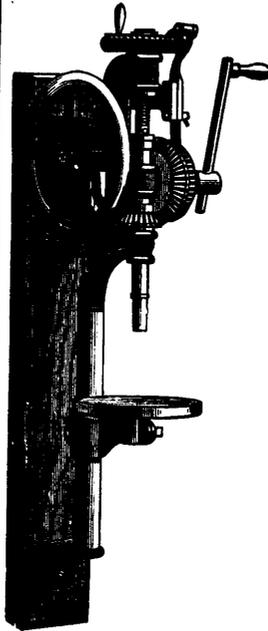
also do a Superior Class of Wood Engraving

Butterfield & Co.

ROCK ISLAND, P.Q.

MANUFACTURERS OF

UPRIGHT DRILLS



**FOOT VISES AND
BOLT HEADERS.**

STOCKS, DIES AND TAPS

FOR

*Blacksmiths', Machinists', Carriage
Makers' and Gas-Fitters' Use.*

**Send for New Illustrated Catalogue
AND PRICE LIST.**

NAME THIS PAPER.

CLARRY & CO.

Wool and Cotton Dealers,

AND

COMMISSION MERCHANTS.

ALSO SOLE AGENTS FOR

HAMILTON COTTON CO'S COTTON WARPS,

WHICH HAVE NO EQUAL.

Don't forget the place, "Manufacturers' Headquarters,"

No. 63 FRONT ST. WEST, - TORONTO.
In Permanent Exhibition Building,

Our motto shall be "Small Profits and Quick Returns."

To Prevent Boiler Explosions

And other accidents to Steam Boilers and to secure economy
in their working, insure with

**THE BOILER INSPECTION AND INSURANCE CO.
OF CANADA.**

Consulting Engineers and Solicitors of Patents.

SIR ALEXANDER CAMPBELL, K.C.M.G.,

Lieut-Governor of Ontario, PRESIDENT.

JOHN L. BLAIKIE, ESQ., VICE-PRESIDENT.

GEO. C. ROBB, CHIEF ENGINEER. ALEX. FRASER, SEC'Y-TREAS.

Head Office: 2 Toronto St., TORONTO.

GALT MACHINE KNIFE WORKS.

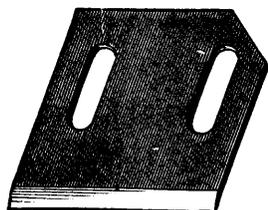
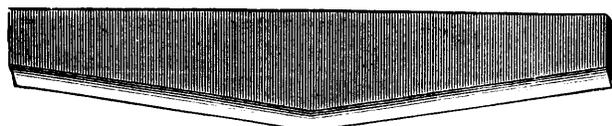
PLANING MACHINE
KNIVES.



STAVE CUTTER KNIVES.



STAVE JOINTER 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. SEND FOR PRICE LIST. ALL WORK WARRANTED.

PETER HAY, - - - GALT, ONT.

THE

Dartmouth Ropework Co.

Halifax, Nova Scotia.

MANUFACTURERS OF

MANILLA, SISAL and

Tarred Russia Cordage,

MARLINE, HOUSELINE,

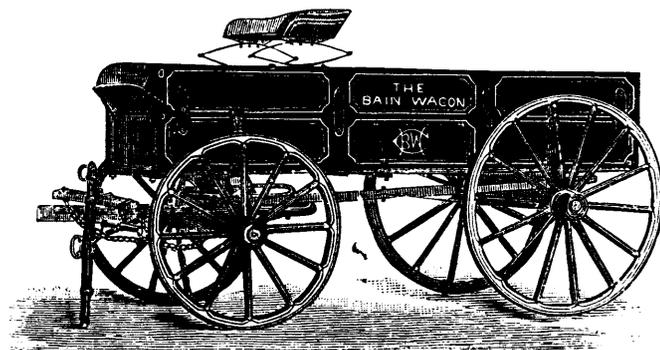
HAMBROLINE, SPUN YARN AND OAKUM.

SPECIAL ATTENTION GIVEN TO

BINDER TWINE.

Bain Wagon Co.

— MANUFACTURERS OF —



LIGHT RUNNING

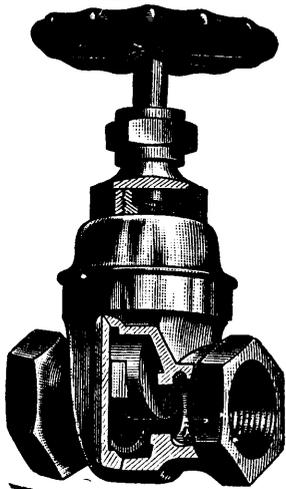
FARM, SPRING AND FREIGHT WAGONS

Also Heavy Sleighs and Steel Skein Log Trucks.

SEND FOR PRICES TO

BAIN WAGON CO.

Woodstock, Ont.



**WEBER'S PATENT
Straightway Valves**

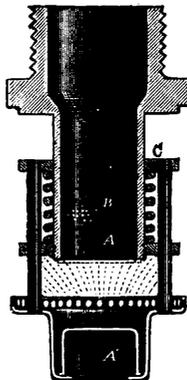
FOR
STEAM, WATER AND GAS,
Best Value in the Market.

KERR BROS.
Walkerville, Ont.

Sole right to manufacture in the Dominion.
Send for Price Lists.

Also manufacturers of COMPOUND MARINE
AND STATIONARY ENGINES.

FIRE PROTECTION.



BUILDINGS EQUIPPED
WITH

**AUTOMATIC
SPRINKLERS**

BY

ROBERT MITCHELL & CO.

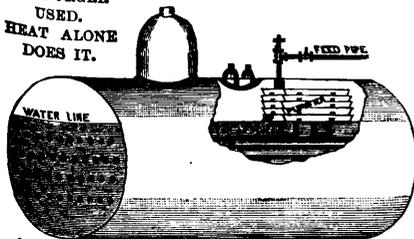
MONTREAL BRASS WORKS,

Write for estimates.

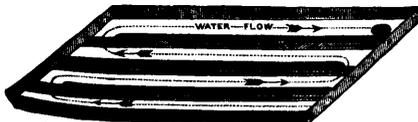
MONTREAL

PATENT BOILER WATER PURIFIER.

NO PURGER
USED.
HEAT ALONE
DOES IT.



SHOWING POSITION OF PURIFIER IN BOILER.



SHOWING ONE OF THE PANS OF PURIFIER.

THIS PURIFIER ENTIRELY PREVENTS THE FORMATION OF SCALE UPON SHELL AND FLUES OF ANY BOILER IN WHICH IT IS USED. ALL IMPURITIES ARE EXTRACTED FROM THE WATER BEFORE IT REACHES THE WATER LINE, AND ARE DEPOSITED IN THE PANS OF THE PURIFIER.

THESE PANS CAN BE REMOVED, CLEANED AND REPLACED WITH VERY LITTLE TROUBLE, AND IN A VERY SHORT TIME, WITHOUT EMPTYING THE BOILER OF HOT WATER, WHICH MEANS A SAVING OF TIME, LABOR AND FUEL.

FOR PARTICULARS AND PRICES ADDRESS

J. W. HERMAN, 114 1/2 King St. West, Toronto, Ont.

NAPANEE CEMENT CO'Y

(LIMITED.)

NAPANEE MILLS, - ONTARIO.

MANUFACTURERS OF

ROACH LIME

HYDRAULIC CEMENT

Capacity, 400 Barrels per day. Warranted equal to any Hydraulic Cement manufactured in this country.

PARTICULARLY ADAPTED FOR

DAMS, SMOKE STACKS, FOUNDATIONS, CULVERTS, CISTERNS, CELLARS, ETC.

ENDORSED BY LEADING RAILWAYS AND CONTRACTORS.

THE CHATHAM MANUFACTURING CO. (Ltd.)

MANUFACTURERS OF

HARDWOOD LUMBER,



SHIP PLANK AND

FREE PRESS CO. LONDON. ON1

THE CHATHAM WAGON, Of which wagon the above is a faithful cut, and which the Government of the Dominion of Canada has adopted as the STANDARD WAGON.

We simply ask intending purchasers, in their own interests, to send to us for particulars of the Chatham Wagon, or if there is one convenient closely examine it before purchasing any other.

We also make Railway Platform Baggage Trucks, Farm and other Dump Carts, the Celebrated Main Bch Sleigh, the Patent Champion Hay Rack, etc., etc.

CORRESPONDENCE SOLICITED

CHATHAM MANUFACTURING CO. (LIMITED)

The "Empire" Nursery Chair AND PARK CARRIAGE

THE MOST COMPLETE AND USEFUL CARRIAGE
CHAIR EVER INVENTED.

Useful in Winter and Summer,



Every Baby Should Have One.

The "Empire" in Carriage position.

Patented in Canada June 20th, 1887.

We have secured THE EXCLUSIVE RIGHT to manufacture and sell this Chair in the Dominion of Canada, and we are now prepared to fill orders. We will be pleased to send a sample order. They can be shipped K.D. in pairs.

UPPER CANADA FURNITURE CO'Y,
BOWMANVILLE ONT.

Canadian Rubber Co.

Cor. Front & Yonge Sts., Toronto.

MANUFACTURERS OF

RUBBER SHOES & FELT BOOTS,

Patent Pressed Double Strip Rubber Belting,

RUBBER
ENGINE,
HYDRANT,
SUCTION,
STEAM,
BREWERS'
and FIRE
HOSE.
HORSE
CLOTHING
STEAM
PACKING.



RUBBER
VALVES.
CAR
SPRINGS.
WRINGER
ROLLS.
CARRIAGE
CLOTHS
BLANKETS.
STOPPLES
etc., etc.

Mould Goods of Every Description.

LADIES' & GENTLEMEN'S TWEED and GOSSAMER CLOTHING

OUR RUBBER GARDEN HOSE IS THE
BEST IN THE MARKET.

J. H. WALKER, - Manager.

Every Instrument
Warranted.

" BELL "

ESTABLISHED
25 Years.

UPRIGHT PIANOS

CABINET ORGANS

We have just commenced the manufacture of Pianos—which contain all the best known practical improvements. In quality, the best that can be produced with first-class material and skilled labor.

Have a universal reputation as being strictly first-class, and are recommended by Highest Musical Authorities. In tone, design and workmanship unsurpassed.

SEND FOR CATALOGUE TO

W. BELL & CO. HEAD OFFICE AND FACTORIES, GUELPH, CANADA.

Branch Warerooms at Toronto, Hamilton, St. Thomas, Winnipeg, London, Eng. and Sydney, N.S.W.

HAMILTON COTTON COMPANY,

MANUFACTURERS OF

THE STAR BRAND

COTTONADES, DENIMS, TICKINGS

Star Brand—BEAM WARP.

- ” HOSIERY YARN
- ” BUNDLE YARN.
- ” CARPET WARP.
- ” BALLED KNITTING YARN.

First Prize, Silver Medals, for Beam Warps and Denims,
Toronto, 1881.

General Agents,—

F. McELDERY & CO.,

204 MCGILL STREET, MONTREAL.
22 & 24 COLBORNE ST. TORONTO.

Millers' and Manufacturers' INSURANCE COMPANY.

STOCK AND MUTUAL.

OBJECTS.

1. To prevent by all possible means the occurrence of avoidable fires.
2. To obviate heavy losses from the fires that are unavoidable by the nature of the work done in mills and factories.
3. To reduce the cost of insurance to the lowest point consistent with the safe conduct of the business.

METHODS.

All risks will be inspected by a competent officer of the company, who will make such suggestions as to improvements required for safety against fires, as may be for the mutual interests of all concerned.

Much dependence will be placed upon the obligation of members to keep up such a system of discipline, order, and cleanliness in the premises insured as will conduce to safety.

As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are so apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

The most perfect method of insurance must, in the nature of things, be one in which the self-interest of the insured and the underwriters are identical, and this has been the object aimed at by the organizers of this company.

W. H. HOWLAND, Vice-President. **JAMES GOLDIE,** President.
HUGH SCOTT, Managing Director.

Applicants for Insurance and other information desired, please address **MILLERS' AND MANUFACTURERS' INSURANCE COMPANY**
No. 24 Church Street, Toronto.

New Brunswick Cotton Mills

Saint John Cotton Mills,

WM. PARKS & SON, Ltd.

SAINT JOHN, N.B.

Cotton Spinners, Bleachers, Dyers and
Manufacturers.

Cotton Yarns, Nos. 5 to 10, White & Colored.
Cotton Carpet Warp, White & Colored.
Ball Knitting Cotton, in all numbers and colors.

Cotton Hosiery Yarn, suitable for manufacturers
of Hosiery.

Grey Cottons, in a variety of grades.

Fancy Wove Shirtings, in several grades and new
patterns.

Seersuckers, in Stripes and Fancy Checks.

Cottonades, in Plain, Mixed and Fancy Patterns.

AGENTS,

DUNCAN BELL, Montreal and Quebec.
WM. HEWETT, Toronto.

Authorized Capital and other Assets over
\$5,000,000.

MANUFACTURERS' LIFE INSURANCE COMPANY

— AND —

Manufacturers' Accident Insurance Company

ISSUE ALL KINDS OF LIFE AND ACCIDENT POLICIES
AT THE LOWEST POSSIBLE RATES.

Special advantages are given Manufacturers to indemnify
themselves against the

“Workmen's Compensation for Injuries Act.”

SIR JOHN A. MACDONALD, P.C., G.C.B. - - PRESIDENT.

SIR ALEX. CAMPBELL, K.C.M.G. }
GEORGE GOODERHAM, Esq. } - VICE-PRESIDENTS.
WILLIAM BELL, Esq. }

J. B. CARLISLE,
Managing Director.

38 KING STREET EAST
TORONTO, ONT.

43RD
**PROVINCIAL
EXHIBITION**

OF THE

**Agricultural and Arts Association
OF ONTARIO,**

FROM

**Sept. 10th to 15th, '88
CITY OF KINGSTON.**

For Prize Lists and Posters, address

HENRY WADE,*Secretary, Toronto.***IRA MORGAN, ESQ.,***President, Medcalfe.*

1835-1888.

Phoenix Foundry

AND

LOCOMOTIVE WORKS,

POND ST., ST. JOHN, N.B.

JAMES FLEMING

Successor to GEO. FLEMING & SONS,

MANUFACTURER OF

LOCOMOTIVES,

Marine and Stationary Steam Engines,

STEAM BOILERS, SHIP TANKS, AND

Machinery of every Description.

**MACHINE
BRUSHES.**

All kinds, Made to Order.

Highest Quality of Work Guaranteed.

Send full particulars of Dimensions and Quality when ordering.

Old Rollers or Blocks Re-filled with special Care.

**CHAS. BOECKH & SONS,
MANUFACTURERS.**

*Office and Warerooms: 80 York St.**Factory: 142 to 150 Adelaide St. W.*

TORONTO, CANADA.

S. Lennard, Sons, & Bickford,

DUNDAS, ONT.,

PATENTEES OF THE "ELYSIAN" SEAMLESS HOSIERY,

**Manufacturers of Plain and Fancy
Hosiery, Caps, Tuques, Sashes,
etc., etc., etc.,**

To the Wholesale Trade only.

Represented in Eastern Ontario, Que-
bec, Nova Scotia and New Brunswick,
by

DUNCAN BELL,

MONTREAL.

In British Columbia by

E. G. ANDERSON,

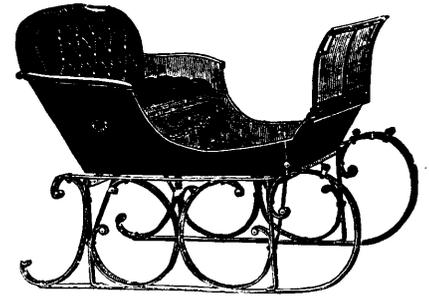
VICTORIA, B. C.

In Western Ontario by

S. LENNARD,

Senior Member of the Firm.

**ARMSTRONG'S
Tempered Steel
Cutter Gears.**



Electro shows Portland Cutter finished on above gear. Neat appearance and lightness combined with greatest possible strength and durability are secured in these. All parts are TEMPERED UNDER OUR PATENT PROCESS, securing a STRENGTH THREE HUNDRED PER CENT. GREATER, WEARING POWERS SIX TIMES LONGER, and DRIFT ONE-HALF EASIER than raw steel. THESE RESULTS SURPASS, BUT ARE FROM ACTUAL TESTS. Prices right. BOSSLEIGHS made in two sizes also as above with same advantages. Send for Circular. Every Carriage Maker should handle.

J. B. ARMSTRONG M'FG CO. (LD.)

GUELPH, CANADA.

Established 1872.

○ **THE ACCIDENT** ○
INSURANCE CO. OF NORTH AMERICA.

NEW FEATURE,

JOINT INSURANCE**FOR PARTNERSHIPS**

IMPORTANT TO MANUFACTURING FIRMS.

MEDLAND & JONES,

GENERAL AGENTS,

Corner Adelaide and Victoria Streets,

TORONTO.

Engines and Boilers Toronto Bag Works.

NEW DESIGN OF PLAIN SLIDE VALVE

SAW MILL ENGINES

Leonard-Ball Automatic Cut-Off Engines

AND STEEL BOILERS

A SPECIALTY.

WE HAVE A QUANTITY OF SECOND-HAND COMMON
ENGINES AND BOILERS FOR SALE CHEAP.

E. LEONARD & SONS, London, Can.

JUTE & **BAGS** COTTON

MANUFACTURED FOR ALL PURPOSES.

BAG PRINTING A SPECIALTY.

DICK, RIDOUT & CO., Props.

TORONTO.

**Industrial and Trade
DIRECTORY.**

Acids and Aniline Dyes.

THEO. H. EATON & SON, Windsor, Ont.; Detroit, U.S.A.—Importers of every Description **Pure Aniline Dyes** for Cotton and Woollen Manufacturers. **Dyed Samples** furnished on application. Address all correspondence to Head Office, Detroit, Mich.

DOMINION DYEWOOD AND CHEMICAL CO., Toronto.—Importers and Manufacturers. Chemicals for Cotton, Woollen, Paper and Leather Manufacturers.

MCARTHUR, CORNEILLE & CO. (successors to John McArthur & Son), Montreal.—Supply of best quality at closest prices. Every description of coloring materials required by manufacturers of woollens, cottons, silks, paper, leather, &c. Are sole agents in Canada for the celebrated aniline dyes of A. Porrier, Paris.

Agricultural Implements and Parts.

A. S. WHITING MANUFACTURING CO., Cedar Dale, Ont.—Manufacturers of scythes, forks, hoes, etc.

WELLAND VALE MANUFACTURING CO.—Lock No. 2, St. Catharines, Ont., Canada—Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

THE WHITMAN & BARNES MANUFACTURING CO., St. Catharines, Ont.—Manufacturers of mowing and reaping machine knives, sections, guard plates, cutting apparatus complete, spring keys and cotters, etc.

Bobbins and Spools

THOMPSON & CO., Sherbrooke, P. Q.—Manufacturers of all kinds of Bobbins and Spools for Cotton and Woollen Mills—Special patterns made to order from sample.

Bridge Builders.

DOMINION BRIDGE CO. (Limited),—Shops at Toronto, Ontario, and Lachine, Quebec. Builders of Steel and Iron Railway and Highway Bridges.

Chemicals and Dye Stuffs.

MCARTHUR, CORNEILLE & CO. (successors to John McArthur & Son), Montreal.—Offer at closest figures chemicals required by soap-boilers, oil refiners, paper-makers, and by manufacturers of woollens, cottons, leather, &c.

THEO. H. EATON & SON, Windsor, Ont.; Detroit, U. S. A.—Carry full line of Pure Dyeing Drugs, Dye Woods and Extracts adapted for the requirements of Woollen and Cotton Manufacturers. **Paper Makers' Anilines** and Chemicals Address the Detroit Office.

DOMINION DYEWOOD AND CHEMICAL CO., Manufacturers.—Pure Dyewoods, Dyeing Drugs. Sole Agents. English, German, and French Aniline Dyes, for Woollen, Silk, Paper, and Leather manufactures.

Edge Tools, Saws and Hardware.

WELLAND VALE MANUFACTURING CO.—Lock No. 2, St. Catharines, Ontario, Canada.—Manufacturers of axes, scythes, forks, hoes, rakes and edge tools.

R. H. SMITH & CO., St. Catharines.—Manufacturers of all kinds of saws, plastering trowels, straw knives, etc. Sole manufacturers for the Dominion of Canada of the celebrated "Simond's Saw."

H. R. IVES & CO., Montreal.—Hardware manufacturers and founders; iron railing and ornamental iron work a specialty.

Emery Wheels.

HART EMERY WHEEL CO., Hamilton.—Manufacturers of every description of Emery Wheels and Emery Wheel machinery.

PRESCOTT EMERY WHEEL CO., Prescott, Ont.—Manufacturers of emery wheels, grinding and polishing machinery with patent improved cushioned journal bearings, 100l grinders with water, twist drill grinders, and other emery wheel machinery.

Gloves.

W. H. STOREY & SON, Acton, Ont.—Manufacturers of fine gloves and mitts in every variety and style.

Hoists and Elevators.

LEITCH & TURNBULL, Canada Elevator Works, cor. Queen and Peter Streets, Hamilton, Ont.—Patent Safety Hydraulic, Hand, and Power Elevators. Telephone connection.

Hubs, Spokes, Handles, Etc.

F. W. HORE & SON, Hamilton, Ont.—Manufacturers of wheels, wheel material, shafts, poles, etc.

COWAN & CO., Galt.—Manufacturers of every description of wood working machinery.

THE DOMINION SNATH COMPANY Sherbrooke, Que.—Manufacturers of Patent Swing Socket, and every variety of Scythe snath.

Machine Tools.

JOHN BERTRAM & SONS, Dundas.—Machine tools and wood working machinery. Toronto wareroom, 58 Yonge St. Agents—The Polson Iron Works Co. Montreal wareroom, Craig St. Agents for Quebec—The Machinery Supply Association, Montreal.

Malleable Iron.

THE OSHAWA MALLEABLE IRON CO., Oshawa, Ont.—Manufacturers of malleable iron castings, to order, for all kinds of Agricultural Implements and miscellaneous purposes.

SMITH'S FALLS MALLEABLE IRON WORKS, Smith's Falls, Ont. Manufac.

turers to order of refined malleable iron castings. Agricultural and other castings a specialty. Carriage castings in stock.

Knit Goods.

S. LENNARD, SONS & BICKFORD, Dundas.—Manufacturers of plain and fancy hosiery

Oils.

MCARTHUR, CORNEILLE & Co (successors to John McArthur & Son), Montreal.—Afford best value in pure olive and lard oils, also in all other leading lines of vegetable, animal, and mineral oils for factory use. Invite special attention to their celebrated crown diamond "engine" and "machinery" oils.

Paper Manufacturers.

WM. BARBER & BROS., Georgetown—Manufacturer of book and fine papers.

THE TORONTO PAPER MANUFACTURING CO., Cornwall, Ont.—Manufacturers of engine sized superfine papers, white and tinted book papers, blue and cream laid and wove foolscaps, account book, envelope and lithographic papers, etc., etc.

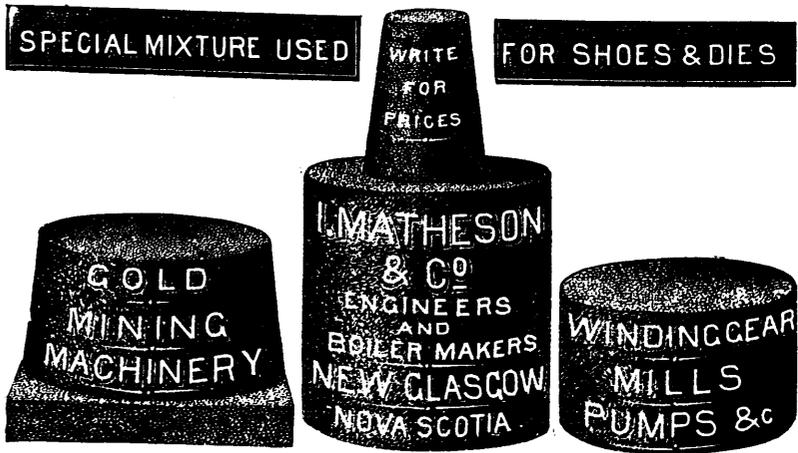
Tanners' Supplies.

THEO. H. EATON & SON, Windsor, Ont.; Detroit, U.S.A.—Supply at lowest prices all Chemicals used by Tanners and Wool Pullers. Special Anilines for Sheep Skin Dyers, Wool Mat Manufacturers, etc., etc. Address correspondence to Head Office, Detroit, Mich.

Wire Works

B. GREENING & CO., Hamilton, Ont.—Manufacturers of wire ropes, cloth and general wire workers.

TIMOTHY GREENING & SONS, Dundas Ont.—Manufacturers of the strongest description of steel wire cloth, malt kiln floors and general wire weavers. Telephone connection.



CANTLIE, EWAN & CO.

GENERAL MERCHANTS
AND

Manufacturers' Agents.

BLEACHED SHIRTINGS,
GREY SHEETINGS, TICKINGS,
WHITE, GREY AND
COLORED BLANKETS,
FINE AND MEDIUM
TWEEDS, KNITTED GOODS,
PLAIN AND FANCY FLANNEL,
LOW TWFEDS, ETOFFES, ETC.

Wholesale Trade Only Supplied.

15 VICTORIA SQUARE, MONTREAL,
20 WELLINGTON ST. E., TORONTO.

TERRA COTTA
FIREPROOFING

FOR USE IN NEW AND OLD BUILDINGS.

The best thing made. Endorsed by leading Architects. Absolutely Fire-proof, and "brimfull" of other good qualities. Address,

The Rathbun Company,
DESERONTO, ONT.

 We are offering Cedar Oil for cleaning boilers. Our own manufacture, Unexcelled.

St. Catharines Saw Works,

R. H. SMITH & CO., St. Catharines, Ont.
Sole Proprietors, in Canada, of the
"Simonds" Saws at Greatly Reduced Prices.



All our Goods are manufactured by the "Simonds" process. Our Circular Saws are unequalled. We manufacture the Genuine Hanlan, Lance Tooth, Diamond, New Improved Champion, and all other kinds of Cross-Cut Saws. Our Hand Saws are the best in the market, and as cheap as the cheapest. Ask your Hardware Dealer for the St. Catharines make of Saws.
The Largest Saw Works in the Dominion.

THOMAS C. KELLOGG,

SKANEATELES, N.Y., U.S.A.

DEALER IN AND GROWER OF

AMERICAN TEASELS

Clipped and Packed to any desired size.



TEASELS ARE GROWN, CURED AND PACKED ON OWN PREMISES.

T. H. EATON & SON,
WINDSOR, ONT., AND DETROIT, MICH.,
Agents for Ontario.

New York Office, 100 & 102 Reade St.
A. H. KELLOGG, Manager.

Correspondence Solicited. Samples sent by Mail upon Application.

 WRITE FOR PRICE LIST NO. 71.

BELDING,
PAUL & CO.
SILK

MANUFACTURERS,
MONTREAL.

Organzines, Trams,
Spun Silk Yarns,

And all Threads for Manufacturing Purposes made to order.

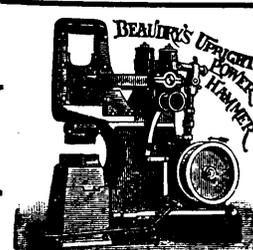
CORRESPONDENCE SOLICITED.



SIMPLE,



PRACTICAL



AND BEST.

BEAUDRY UPRIGHT CUSHIONED POWER HAMMER

The most handy, compact, and above all, the most efficient tool ever invented for Manufacturers of all descriptions, Railroad Shops, Steel and Machine Forgers, File and Vice Makers, Knife and Cutlery Makers, Axle, Edge Tool and Agricultural Implement Manufacturers, Carriage Builders and, in fact, all others who need a first-class Hammer, and one of extraordinary capacity and adaptability. Correspondence solicited. Can be seen at Permanent Exhibition, Toronto.

MILLER BROS. & MITCHELL, Sole Makers for Canada, **MONTREAL.**

**THE BELL
Telephone Co'y**

OF CANADA.

—Manufacturers and Dealers in—

Telegraph & Electrical

INSTRUMENTS,

Electro-Medical Apparatus,

Fire Alarm Apparatus,

Magnets for Mills

Electrical Gas Lighting Apparatus,

Burglar Alarms,

Hotel and House Annunciators,

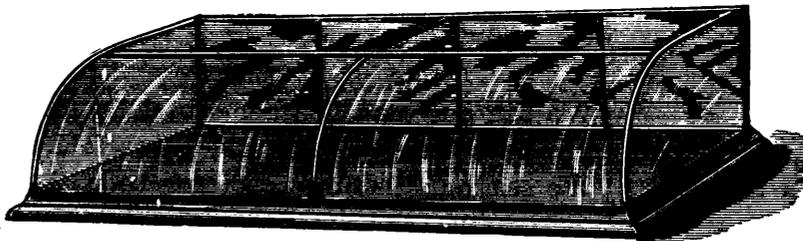
Electric Call Bells, &c., &c.

For further particulars apply to

No. 12 HOSPITAL STREET,
MONTREAL.

Dominion Showcase Works,
WAGNER, ZEIDLER & CO.

(Formerly DOMINION SHOWCASE CO.)



Showcases, Store-Fittings, Tables, Office Cabinets, Desks Mantles, &c

HIGHEST AWARDS WHEREVER EXHIBITED

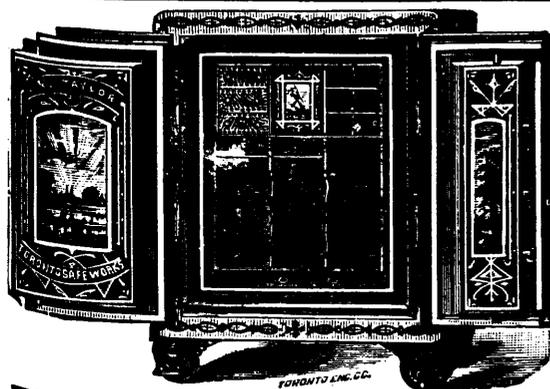
Factory and Head Office :

Toronto Office and Show Rooms

WEST TORONTO JUNCTION.

40 YONGE STREET.

Send for Catalogue and Price List, and address all communications to Head Office.



J. & J. TAYLOR'S

Double Tongue
and Groove
FIRE-PROOF

SAFES

(Patented
January 14th,
1886.)

Established 33 years.

All our new style Fire-proof Safes are fitted with TWO COMPLETE TONGUES AND TWO GROOVES on both the door and door frames, which effectually prevent the heat from passing between the door and frame into the interior of the safe.

They are also fitted with CHILLED CHROME STEEL PLATES under the Lock and Bolt Spindles to prevent drilling; and have DRY AIR-CHAMBER inside to prevent dampness to papers.

See Catalogues and Prices on application.

J. & J. TAYLOR, Toronto Safe Works.

The Intercolonial

RAILWAY OF CANADA.

The Royal Mail, Passenger and Freight
Route between Canada and
Great Britain,

AND

Direct Route between the West and all points on the
Lower St. Lawrence and Baie de Chaleur; also
New Brunswick, Nova Scotia, Prince Edward
Island, Cape Breton, Newfoundland,
Bermuda and Jamaica.

New and elegant Buffet Sleeping and Day Cars run on Through
Express Trains.

Passengers for Great Britain or the Continent by leaving Toronto
per 8.30 a.m. train Thursday, will join outward Mail Steamer at
Halifax a.m. Saturday.

Superior Elevator, Warehouse and Dock accommodations at Halifax
for shipment of grain and general merchandise.

Years of experience have proved the Intercolonial, in connection
with Steamship lines to and from London, Liverpool and Glasgow to
Halifax, to be the quickest Freight route between Canada and Great
Britain.

Information as to Passenger and Freight Rates can be had on
application to

ROBERT B. MOODIE,

Western Freight and Passenger Agent, 93 Rossin House Block,
York Street, TORONTO.

D. POTTINGER,

Chief Superintendent.

JAMES LESLIE

MANUFACTURER OF

MACHINE CARD CLOTHING AND LOOM REEDS.

LEATHER
BELTING
LACE
LEATHER
HOSE



COTTON
AND
WOOLEN
MILL
SUPPLIES

COTTON LOOM HARNESS AND REEDS

OFFICE AND FACTORY

JUNCTION OF CRAIG AND ST. ANTOINE STREETS.

MONTREAL.

TO USERS OF LEATHER BELTING

SOME PERTINENT SUGGESTIONS.

FIRST { We tan our own Leather especially for Belting.
 We have increased our trade threefold during the last few years.
 We sell our Belting according to a list that is 25% to 30% lower than the American list, which some sell by in Canada.

BUT { We have heard some consumers who are N.P. manufacturers say that they cannot get good Belting made in Canada.

NOW { **WE HAVE CUSTOMERS** { To whom we have sold 3,000 to 40,000 Dollars worth of Belting.
 AMONG THE { One firm alone buying from us last year to the amount of \$10,000 for their Mill.
BEST MILLS IN CANADA.

CAN YOU { *HARMONIZE THESE FACTS WITH* { 1st. That our PRICES are RIGHT?
ANY OTHER THEORY THAN { 2nd. That our LEATHER is GOOD?
 { 3rd. That our BELTS are WELL MADE?

IF NOT { Send us a Sample Order and see if we cannot please you.

ROBIN & SADLER,
 MANUFACTURERS,

129 Bay St., TORONTO.

Notre Dame St., MONTREAL.

C. C. CLEVELAND

J. L. GOODHUE & CO.

G. F. CLEVELAND.

MANUFACTURERS OF

LEATHER BELTING

Canadian Leather,
 Canadian Made,
 Canadian Price List.

Thoroughly Stretched,
 Carefully Made,
 Runs Straight.

— AND —

LACE LEATHER,
DANVILLE, - QUE.

OUR BELTING IS MADE FROM

CANADIAN TANNED LEATHER

Tanned in the most careful manner expressly for Belting in our own Tannery. We warrant it equal to any imported, either American or English, or any made from imported American or English Oak Leather. All widths, single or double, for any duty Saw Mills, Cotton Mills, Woollen Mills, Electric Light, etc., etc.

Canadian Manufacturers should use Canadian Belting.

Specimens of these goods are to be seen at the Permanent Exhibition of Manufactures 63 to 69 Front Street West, Toronto.

Transmitting Power by Ropes and Grooved Wood Pulleys.

The purpose of this cut is to illustrate the possibility of carrying power upwards to great heights by the patented **Dodge System of Power Transmission by Manilla Ropes and Grooved Wood Pulleys.** This system will make available many water powers now unutilized.



Every railroad which crosses a mountain divide avails itself of the precipitous sides of streams to find practicable grades to and from the summit levels. These streams often have considerable volume and rapid fall. The railroad is frequently at an elevation of several hundred feet above the water, with mountains behind, capable of furnishing inexhaustible supplies of raw material, mineral or vegetable.

Heretofore the utilization of such material near the place of supply has generally been impracticable because of the impossibility to transmit the power

of the stream up the mountain side to the howlthhood of the means for transportation. In such a case as that represented, however abundant may be the raw material, the cost of sending it down to a lower level, and returning the manufactured article to the level of the rail road, might easily so handicap the product as to exclude it from the market.

The Dodge system, however, renders it possible to laugh at difficulties such as this. To this Transmission a few hundred feet more or less is of no moment. A rope suspended in the air will break near the upper support when the gross weight of the suspended portion exceeds the tensile strength of the rope. The tensile strength of Firmus rope, one inch in diameter, is 9000 lbs., i.e. it will break only when the suspended load amounts to 9000 lbs. The weight of 1000 feet Firmus rope having that diameter is 283 lbs., and therefore a vertical elevation of 1000 feet might be overcome without taxing the rope by its own weight more than a trifle over 3 per cent. of its strength, and as the general practice of Dodge Manufacturing Company is to limit the power transmitted to about 5 per cent. of the breaking strain, it is evident that even a thousand feet elevation would not raise the strain to the vicinity of the danger limit, and an elevation which would put *all other modes of transmission out of the question* would really not make a difference with *this transmission* worth noticing at all.

And while this rope transmission has the wonderful adaptability shown in the illustrations heretofore published, another powerful recommendation is its economy. Its first cost is a tithe of the cost of any other Transmission, and after being put to service there is no loss. By the patent system of Dodge Manufacturing Company, the rope runs *without slip*. This means a transmission of all the power of the motor, and from 20 to 50 per cent. more than can be secured by *any other system of Transmission*.

It is these qualities which impress every power user, and which have caused many large establishments to discard all other modes and adopt the Dodge system with Manilla Rope.

The Dodge Patent System of transmitting power by ropes is cheaper and superior to belts in many cases, such as where the driven shaft is at right angles to the driver, also where the drive is perpendicular, particularly when it is quarter twist and perpendicular; also where the driver and driven are close together; also for long drives, such as across a street, or a stream, etc.

For transmitting power from an engine to the line shaft this system is unequalled; steady all the time, not like a heavy belt, which is always more or less flapping, jerking and stretching, then slipping and losing power. It is safe to say that an engine hitched up by the Dodge Rope System will do 25 per cent. more work on the same consumption of fuel than the same engine would do with a belt. The advantages of connecting up large engines in this manner

cannot be too highly recommended. In the first place, the expense of leather is enormous—\$500 is no unusual sum for an engine of three or four hundred horse power, and the pulleys do not have to be very far between centres either; in the second place, the noise at high pressure is terrific, and is the worst feature about our otherwise best plants; thirdly, their weight is quite a factor; fourth, they require attention that a rope does not; fifth, it requires a man in the business to put one on right, and sometimes they don't always do it right; sixth, any deviation out of line of the shafting affects the belt, while it has no effect on a rope.

The above points, to say nothing of the first cost, which would be about one thirtieth part of leather, are enough to banish the leather belt for main driving into everlasting oblivion, especially in the minds of those that have had experience with large leather belts.

The fact alone that by raising the tension wheel the engine can be turned around by hand for repair or adjustment, is enough to endorse it in the minds of those who have had to do a little pulling on a fly wheel, with the entire shop hitched on.

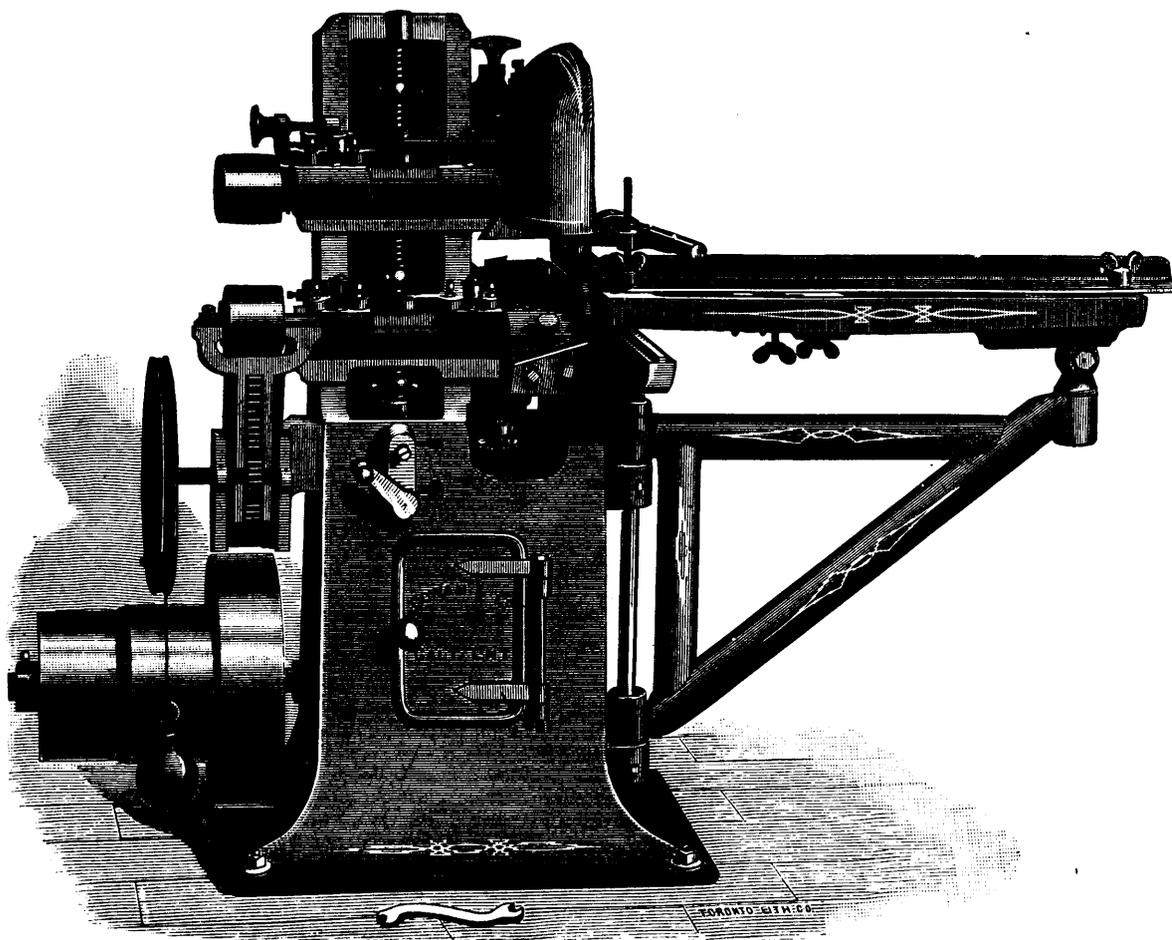
For estimates of cost and all information relating to this system of transmitting power by ropes, apply to the undersigned, who also manufacture the best belt pulleys in the world.

DODGE WOOD SPLIT PULLEY CO.

89 ADELAIDE STREET WEST,

TORONTO.

NEW AND IMPROVED
Pedestal Tenon Machine.



This is an entirely new style of Tenon Machine. The frame is cast in one piece, and the working parts stand solidly on a pedestal, avoiding all vibration.

The Cutter and Cope Heads are connected and are moved all together, or separately, as required. The Upper Head and Boxes also adjust horizontally to suit shoulder of tenon, the Cope Knives moving with the Heads to prevent re-adjustment.

A special feature in this machine is the Bed, or Carriage, which is at once light and strong. The outer end works on rollers and is moved very easily.

In cutting the tenon the Bed and Carriage move entirely past the Heads and Cutters, the operator having full control of the work. It has also the advantage of leaving the Heads and Cope Knives clear, and of ready access by the operator.

The Carriage is so arranged that it cannot tip over the Slides nor be thrown into the Cutters, and is also supplied with extension bar for long tuff, as in all Tenoning Machines.

This Machine is supplied with single or double Copes, as ordered, and for furniture work it is without Copes, and with an adjustable cut-off Saw.

COWAN & CO.

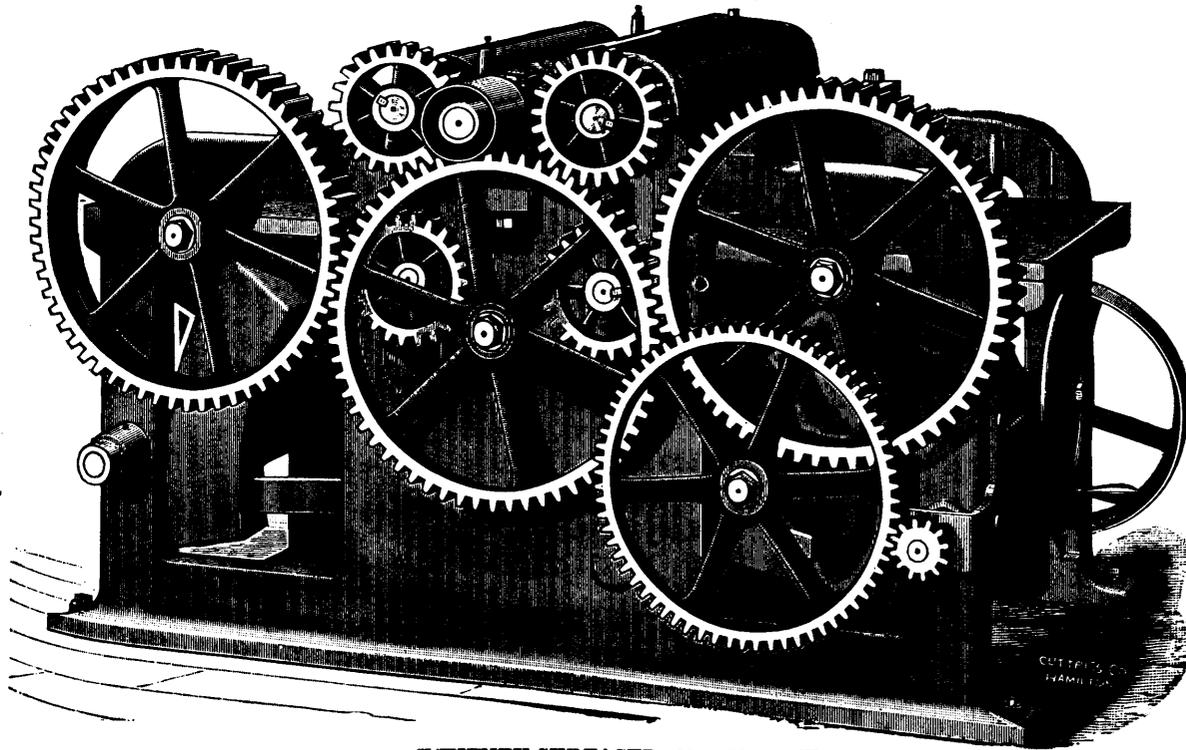
'Galt Foundry' Engine and Machine Works, GALT, ONTARIO, CANADA.

Corliss and Slide Valve Engines, Boilers, and Wood-Working Machinery, all kinds, New Patterns, Highly Finished.

Canada Tool Works,

JOHN BERTRAM & SONS

DUNDAS, ONT.



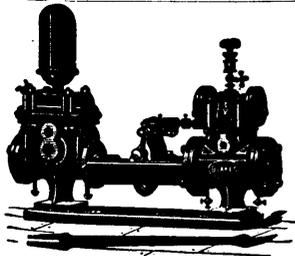
WHITNEY SURFACER, 26 & 30 in. Weight, 4,500 lbs.

Manufacturers of
Machinists' Tools
and
Woodworking
Machinery.

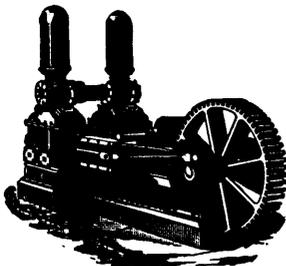
LATHES,
PLANERS,
DRILLS,
MILLING
MACHINES,
PUNCHES,
SHEARS,
BOLT
CUTTERS
SLOTTING
MACHINES,
MATCHERS
MOULDERS,
TENONERS,
BAND SAWS,
MORTICERS,
SAW BENCHES

Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.
Warerooms: Permanent Exhibition, Toronto; Polson Engine Co, 38 Yonge St.; Machinery Supply Ass'n, Montreal.

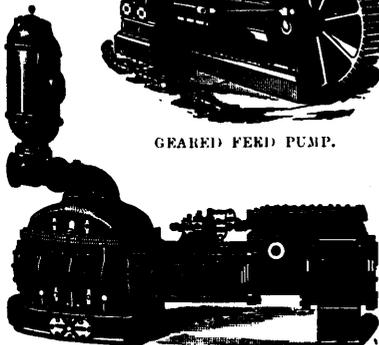
Geo. F. Blake Manufacturing Co.,



BOILER FEED PUMP.



GEARED FEED PUMP.



DUPLEX COMPOUND ENGINE

BUILDERS OF

SINGLE AND DUPLEX

Steam and Power

Pumping Machinery



BOSTON,

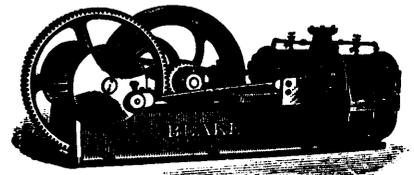
111 FEDERAL STREET.

NEW YORK,

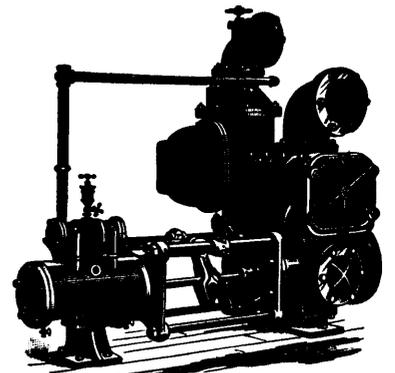
95 & 97 LIBERTY STREET.

SEND FOR ILLUSTRATED CATALOGUE.

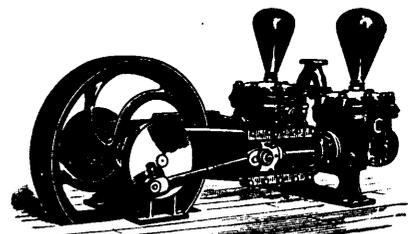
These goods may be seen at the Permanent Exhibition 63 to 69 Front Street West, Toronto.



AIR COMPRESSOR.



AIR PUMP AND CONDENSOR.



BELT PUMP

Nova Scotia Steel Co., Limited,

NEW GLASGOW, NOVA SCOTIA

(Only Steel Works in Canada),

MANUFACTURERS OF

Hammered *and* Rolled Steel

MADE BY THE

SIEMENS-MARTIN (OPEN HEARTH) PROCESS.

ROUND MACHINERY STEEL for Shafting, Spindles, etc. MILD STEEL for Rivets, Bolts
Thresher Teeth and many purposes where Norway Iron is now used.

SPECIAL SECTION PLOW BEAMS, MILD STEEL CENTRE AND SOLID MOULD BOARDS,
COULTER STEEL HARROW DISCS,
AGRICULTURAL STEEL CUT TO PATTERN, SPRING, SLEIGH SHOE, TYRE, TOE CALK AND CROSS BAR STEEL
STEEL NAIL PLATE.

 *Binder Bars, Z and other Special Sections.*

STEEL MOWER BARS.

Particular attention given to the manufacture of Rake, Cultivator and Harrow Teeth, and other
Agricultural Spring Steel Forgings.



113 FEDERAL STREET, BOSTON.

93 Liberty St., New York.

Warren, Mass.

FOR SALE BY THE

Polson Iron Works Company, 38 Yonge Street, Toronto, Ontario,

WHERE MANY SIZES MAY BE SEEN IN STOCK.

SEND FOR ILLUSTRATED CATALOGUE.

Cobban Manufacturing Co'y Factory & Head Office: Toronto.
 Branch: 455 St. Paul Street, Montreal.



MANUFACTURERS OF
 Mantles, Over Mantles and Mirrors in Finest Hardwoods. Mouldings, Picture
 Frames and Looking Glasses. Mirror Plates: British, French, German,
 Shocks. Plate Glass Beveling and Silvering a Speciality
CLOSE PRICES. LIBERAL TERMS.

TORONTO.
MONTREAL.

THE J. A. CONVERSE
MANUFACTURING CO'Y

A. W. MORRIS & BRO., Proprietors,
MONTREAL.

Manilla, Sisal, Russian and Jute Cordage, Bed Cords, Lathies, Etc.	Red Cap Brand Manilla Binder Twine is always uniform.	Jute and Cotton Bags, Hessians Hop Sacking, Etc., Etc.	Calced and Land Plaster, Portland Cement, Cod Oil all Brands.
--	--	--	--

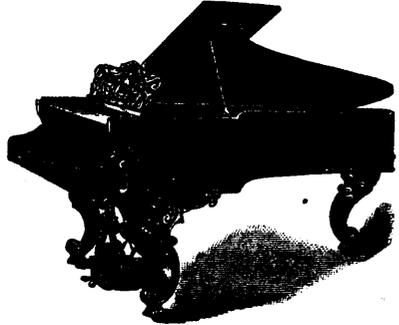
AHEAD OF ALL COMPETITORS IN CORDAGE!
 OF ALL COMPETITORS IN BINDER TWINE
 OF ALL COMPETITORS IN PLASTER!

And we open our NEW BAG WORKS early in 1888 with strong expectations of being

AHEAD OF ALL COMPETITORS IN BAGS.

HEINTZMAN & CO.

MANUFACTURERS OF



**GRAND,
 SQUARE,
 AND UPRIGHT
 PIANOFORTES.**

SEND FOR ILLUSTRATED CATALOGUE.

Warerooms, - 117 King St. West,
TORONTO.

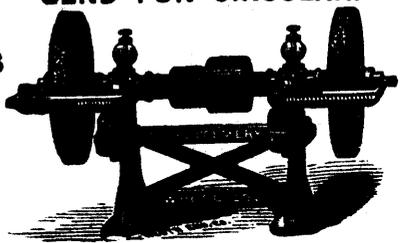


HART
Emery Wheel
COMPANY
 (LIMITED),
 Hamilton, Canada.

MANUFACTURERS OF
EMERY WHEELS

FOR
**FOUNDRIES,
 SAW MILLS,
 MACHINE SHOPS,
 & PLANING MILLS.**
 SEND FOR CIRCULAR.

Also
 MANUFACTURERS
 OF
**EMERY WHEEL
 MACHINERY.**

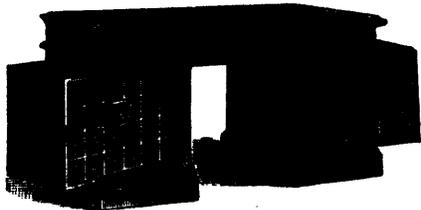


Illustrated Price List sent on Application.

W. STAHLSCHMIDT & CO.

PRESTON, ONT.

MANUFACTURERS OF
School, Office, Church and Lodge
Furniture.



ROTARY DESK

No. 50.

Send for Circulars and Price List. Name this paper.

See our exhibit in the Annex at the Industrial Exhibition.

Young & Son,

MANUFACTURERS AND IMPORTERS
OF DYE STUFFS.

Black and Yellow Dyes,
Cutchine and Sakta a Specialty.

21 and 23 De BRESOLES St., - MONTREAL.

Mills, Port Neuf, Que.

J. Brooks Young. Harrison B. Young.

New England Paper Co.

—MANUFACTURERS OF—
NEWS, WRAPPING AND MANILLA PAPERS.

ALL SIZES AND WEIGHTS

MADE TO ORDER.

21 and 23 De BRESOLES St., Montreal.

J. Brooks Young, President.
Harrison B. Young, Treasurer.

ESTABLISHED 1820.

EAGLE FOUNDRY.

GEORGE BRUSH,

14 TO 84 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,
HAND AND POWER HOISTS FOR
WAREHOUSES, &c., &c.,
and Agent for

"Water's" Perfect Steam Engine Governor, and
"Heald & Sisco's" Centrifugal Pumps.

SMITH'S FALLS

MALLEABLE IRON WORKS,

WM. H. FROST,

MANUFACTURER TO ORDER OF

Malleable Iron Castings

FOR

Agricultural Implements
AND OTHER PURPOSE.

Also CARRIAGE HARDWARE.

SMITH'S FALLS,

Ontario, Canada.



THE OSHAWA

Malleable Iron Co.

MANUFACTURERS OF

MALLEABLE IRON

CASTINGS TO ORDER

FOR ALL KINDS OF

Agricultural Implements

AND

MISCELLANEOUS PURPOSES.

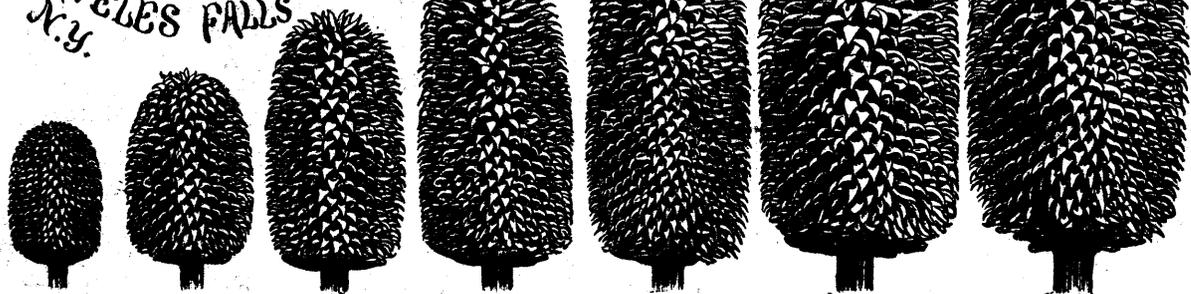
Oshawa, Canada.

McLAUGHLIN BROS,

CROWERS,
MERCHANTS,
AND EXPORTERS OF

SHINEATELES FALLS
N.Y.

AMERICAN TEASELS.



A. H. McKEE, SOLE AGENT FOR CANADA.

210 ST. JAMES STREET, MONTREAL.

LOWEST PRICES WILL BE FURNISHED ON APPLICATION.