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THE

Canadian Manufacturer,

DEVOTED TO THE

MANUFACTURING AND MINING INDUSTRIES

OF THE

DOMINION OF CANADA.

VOLUME VI.

JANUARY—JUNE, 1887.

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TORONTO, JANUARY 7, 1887.

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THE CANADIAN MANUFACTURER

DEVOTED TO *
 THE
 MANUFACTURING & MINING INDUSTRIES,
 OF THE
 DOMINION. * AND INDUSTRIAL WORLD.

VOL. VI.

TORONTO, ONT., JANUARY 7, 1887.

No 1.

LOOKING NORTH.

THE remark has been made before that Canada can extend her boundaries in one direction only. Already she is limited by the Atlantic Ocean to the east, and by the Pacific to the west, while the boundary of the Great Republic marks her limits to the south. In one direction only, therefore, may Canada extend herself: she may reach out towards the North Pole as far as Nature will permit. What really useful and practical extensions of the country's limits may yet be made in this direction remain to be seen; but we do know that we can go much farther north, and that to much better purpose, than was deemed possible fifty years ago, twenty-five years, or even only ten years ago. Over two to three thousand miles of country from east to west the Canadian Pacific Railway has opened up a great main line, from which branches will shoot northward along every available avenue, and will penetrate wherever there is anything worth looking after. What this railway has done is to establish communication with the world and a base of supplies along the whole east and west line, good for both summer and winter, and always open. The venture is now fairly open to those who like to try, and we may look for it that men of enterprise will soon be found to push the venture for all it is worth.

Our present business is more particularly with the region of country lying north of Toronto and between here and Lake Nipissing, now recently opened up throughout by the completion of the Callander extension, giving connection with the Canadian Pacific main line. On the last day of the old year the *Toronto Globe* published a very full and interesting account of the towns and villages along this northern route, describing their progress, trade, and principal manufacturing establishments; and we now transfer to our columns a good deal of the information supplied concerning the latter. These are, of course, mostly in connection with lumber and manufactures of wood, although near to the city mixed manufactures of wood and iron, in the shape of agricultural implements and machinery, are carried on to a large extent. Up to as far as Gravenhurst the country has been opened up for years back, while the counties of York and Simcoe are old settled districts. What new interest there is attaches chiefly to the district just now opened up by the Callander extension, from Bracebridge to Thorncliffe, at the east end of Lake Nipissing, where it connects with the Canadian Pacific main line. Recommending our readers to what the *Globe* has to tell of what has been done as far as settlement has proceeded, we invite them to take a glance farther north, and to contemplate for a little the possibilities of what may be achieved by pushing at least as far as James' Bay,

which is the southern arm of Hudson's Bay, the great Mediterranean of the North.

Many descriptions of the natural characteristics of Old Canada have pretty well impressed upon our minds the fact that what geologists call the Laurentian formation underlies a vast region north of the great coast, with important extensions into the country south of it as well. Except in valleys here and there, and where it borders on newer formations, the Laurentian country is not an agricultural country, and never will be, though limited districts occur which are exceptionally well adapted for raising a superior quality of dairy produce. Timber in immense quantities exists, and the northern limits of practical iron-mining have never yet been determined, for the reason chiefly that there never has been any demand to speak of for the ore. In all probability most people, when glancing at the map, have promptly concluded that the vast *terra incognita* lying around the southern end of Hudson's Bay could be none other than another Labrador lying inland, what we may call an ultra-Laurentian country, where nothing but rocks and snow and ice were to be looked for. But this is a great mistake, so the scientific men of the Canadian Geological Survey assure us, and of late years they have been giving us new light on the subject.

Going north we come to the height of land which separates the waters flowing into Hudson's Bay from those flowing into the St. Lawrence. And now let us get hold of this important fact, and note it well, that as we get into the James' Bay region, we find ourselves not in a Laurentian country at all, but standing on geological formations of immensely later age—the Devonian, and, later still, the Carboniferous. This alters the case entirely, we have now to deal with quite another geological world, so to speak. Here we stand on the iron, also on the coal, most important of all. Professor Bell says in one of his reports:

"Around James' Bay and up the eastern side of Hudson Bay lie great deposits of iron and coal, so close together that, with the cheap water freights which the region may afford, the district along James Bay may yet become another Pennsylvania. And after referring to the soil, climate and forests, says: 'Minerals may, however, become in the future the greatest of the resources of Hudson Bay; large deposits of rich iron-stone on the Mattagami River, in 1877, have been found; inexhaustible supplies of good magnesian iron ore were discovered on the islands near the east main coast of James Bay, and promising quantities of galena, and also near Whale River, traces of gold, silver and copper. On the east main coast lignite was found,' etc., etc.

"Another explorer, referring to the great deposits of iron, coal and other minerals in the neighborhood of James Bay, says: 'I have no hesitation in pronouncing this district the

richest mineral region in the Dominion, perhaps on the continent. Anthracite and iron are found along the rivers south of James Bay. Again Mr. Borrón, Stipendiary Magistrate of Lake Nipissing District, who has made a great many trips between Lake Nipissing and James' Bay, reports to the Ontario Government: 'There are also in the neighborhood of James' Bay, north of the Heights of Land, enormous peat beds, perhaps the largest in the world, and which will average from eight to twenty feet in thickness; and in view of this prodigious quantity, the question of its economic uses and value will naturally suggest itself. Besides lignite or brown coal, kaolin or china clay and iron.'

"Lignite has been found in large quantities, three feet thick, both sides of the Abbittibe River, north of the Height of Land. We are therefore assured not only of the existence, in large and workable quantities, of lignite, iron ore, gypsum, etc., etc., but of inexhaustible beds of peat, and deposits of porcelain or china clay, of superior quality.' There are other reports made by several surveyors who have been employed in that district, and who corroborate all that is said by those quoted above."

Anthracite, lignite, and enormous peat beds, perhaps the largest in the world—these tell the story, that here we are on the carboniferous formation; where during a geological period of long ago, but yet recent as compared with older formations still—the sun's light and heat were stored up in the various forms of gas, oil, peat, lignite, and coal, and whence they can now be obtained for man's use in our own time. The presence of coal in the Hudson's Bay region is the great fact of all, which ought to make it worth our while to go north. Imagine the difference it would make to the people of Ontario, and to our manufacturers most of all, if abundant supplies of coal could be loaded on the cars at a point lying within our own territory, and distant from Toronto by rail only about fifty miles more than is the city of Quebec. And this is what is proposed to be effected by the building of the Lake Nipissing and James' Bay Railway, now one of the probabilities of the early future.

Here are the distances by rail as stated by Mr. John C. Bailey, Chief Engineer of the James' Bay Railway:—

	MILES.
Toronto to Gravenhurst, via Northern Railway.....	111.3
Gallander Junction, from Gravenhurst to Thorncliffe, on main line of C.P.R., now running.....	111.4
New line yet to be built—Thorncliffe to James' Bay.....	350

572.7

Say 575 miles.

The estimated cost of building the railway complete, equal in all respects to the Canadian Pacific Railway (but exclusive of rolling stock), is \$18,891 per mile. Say, however, \$20,000 per mile, the total cost would be seven million dollars. As there is a comparative lull in railway building in Canada now, the great transcontinental work being done, the contracts could probably be let at very reasonable figures. It is expected that the Legislatures of Quebec and Ontario will between them give a grant of \$4,000 per mile for the whole distance of 350 miles; also that the Dominion Parliament will grant at least 6,000 acres of land per mile, beginning at the Height of Land and going northwards, say for 150 miles. These grants, along with the stock and bonds, would be amply sufficient to complete the road. We submit that this would be "looking north" to some purpose. And we hope to see the manufacturers of

Ontario interesting themselves about this important project, informing themselves about it, and thereby giving a push forward to an enterprise which is calculated to bring benefits untold to this Province, and in a general way to the Dominion.

A GLANCE OVER 1886.

THE record of the year just closed has matter in it of deep interest to Canadian manufacturers, and in fact to our business men generally. First to be noted is the decided revival in nearly all branches of trade, which has been coming on during the year, and which is now making strong show of promise for the year to come. For the first time these few years past, manufacturers are pretty fully employed; and, instead of shops being left half idle for want of orders, as in 1885, customers are waiting for orders to be filled. Buyers recognize now that prices have touched bottom, and that there is no money in waiting to pick up bargains at lower figures. Whether the seller seeks the buyer or the buyer the seller, makes all the difference in the world; and the country's business is now decidedly on the up grade. Now ought to be the time for Canadian manufacturers to beware of that dangerous thing—the boom—and to take to heart those words of wisdom, which we have repeated elsewhere, in quoting from the closing review of 1886, issued in the *Bulletin* of the American Iron and Steel Association: "Of one thing we feel certain, Speaking generally, prices must stop where they are, or we shall have such an influx of foreign iron and steel in 1887 as we have rarely, if ever, experienced. We need not dwell on the consequences that are sure to follow." This counsel is quite as applicable to Canadian manufacturers as to American iron and steel men.

For beyond doubt the tendency to over-importation is showing itself again pretty strongly. At the Montreal custom house receipts for the six months ending December 31st were \$4,526,116, against \$3,516,507 for the corresponding six months of 1885, an increase of \$1,000,000 on the half year. For the calendar year 1886 the total customs collections at the same port footed up to \$8,362,618.94, against \$6,682,701.71, an increase of \$1,679,917.23. Doubtless the natural and healthy expansion of the country's wants will account for most of this increase; still our business men had much need to "beware of the boom."

A main factor in the country's development recently, perhaps the main factor of all during the present period, has been the completion and the vigorous operation of the Canadian Pacific Railway. The opening of the new route through to the Pacific ocean was quickly followed by the establishment of a line of tea ships in connection, by which cargoes have been carried for American as well as for Canadian merchants. This is a new trade, and bears the marks of a revolution. A Pacific ocean cable, established in the interests of Canada, will not be long delayed. And American papers assure us that, before the close of the year just begun, the completion of a direct line of railway from Minneapolis to Montreal will bring to Canada's chief seaport a new and perfectly enormous trade from the North-western States. The people of these States are eager and impatient for the opening of the new route, which will

give them what they have long been anxious to obtain—a *choice*. One fact will indicate the importance of what is coming—when the new Sault Ste. Marie road is completed, with its connections, Minneapolis will be as near to tide water as Chicago is now. Truly there are great changes in progress.

Of special interest to the people of Ontario is one certain development of the year—the opening up of the Pacific Junction Railway from Gravenhurst to Callander, which puts the whole railway system of this province in connection with the Canadian Pacific main line. In this issue the greater portion of our space is devoted to information concerning this new and most important connection.

Two separate considerations are to be noted. First—Ontario's improved communication with the Northwest and the Pacific coast, now secured for winter as well as for summer. And, next—the suggestion that immense stores of coal lie waiting Ontario enterprise to avail itself of them, at a distance from Toronto of only about fifty miles greater than is the city of Quebec. We urge upon both merchants and manufacturers in this province the importance of *looking north*, as elsewhere set forth. Nay, we hesitate not to say that herein lies by far the most necessary and the most promising problem of railway construction which they have before them to-day. And much more might be said, but space forbids. The importance of the subject to Ontario can hardly be exaggerated.

OUR CARD BASKET.

The following is a list of those who have favored us with a call since the date of our last issue:—

J. D. Dewar, metallurgist, Toronto; Geo. Booth, of Messrs. Geo. Booth & Son, Toronto; Samuel May, of Messrs. Saml. May & Co., billiard table manufacturers, Toronto; T. Northey, of Messrs. T. Northey & Co., steam pump manufacturers, Toronto; R. A. Patterson, of the Toronto Hardware Mfg. Co., Toronto; Wm. Christie, of Messrs. Christie, Brown & Co., biscuit manufacturers, Toronto; G. Smith, of Messrs. Smith & Co., woollen merchants, Toronto; Wm. Bell, of the Bell Organ Co., Guelph; L. Breithaupt, tanner, Berlin; D. W. Alexander, of Messrs. D. W. Alexander & Co., tanners, Toronto; H. Bickford, of Messrs. S. Lennard & Sons, hosiery goods manufacturers, Dundas; J. C. Dixon, of Messrs. J. C. Dixon & Bro., yarn spinners, Dundas; J. E. Knox, of Messrs. F. W. Newman & Co., manufacturers' agents, Toronto; Charles Knees, tanner, Milton; G. B. Fraser, manufacturers' agent, Toronto; Wm. Lawrason, oil merchant, London; Oliver Wilby, of the Weston woollen mills, Weston; B. Rosamond, of the Rosamond Woollen Manufacturing Co., Almonte; D. Morrice, of D. Morrice, Sons & Co., Montreal and Toronto; Wm. Angus, of Cantlie, Ewan & Co., Montreal and Toronto; James Lockhart, of Messrs. Lockhart & Co., Toronto; James Kendry, of Auburn Woollen Co., Peterboro'; — Fairgrieve, of Gemmell & Fairgrieve, woollen manufacturers, Port Elmsley; Geo. Pattinson, of Robinson, Howell & Co., woollen manufacturers, Preston; R. Wylie, of R. & W. J. Wylie, manufacturers' agents, Toronto; — Inglis, of Inglis & Armstrong, woollen manufacturers, Wingham; A. McInnes, manufacturers' agent, Toronto; W. Henderson, of Harvey & McQueen, woollen manufacturers, Hespeler; J. Ironsides Thompson, manufacturers' agent, Toronto; W. H. Storey, of W. H. Storey & Sons, glove manufacturers, Acton.

VICK'S FLORAL GUIDE

LOVERS of the beautiful in art and floriculture have in store a rich treat in the perusal of "Vick's Floral Guide" for the year 1887. Each succeeding year brings great improvement in this popular annual, and the present edition is far in advance of previous issues in beauty of exterior, number and elegance of floral and vegetable illustrations, and the large variety of subjects thoroughly and practically treated.

The title illustration, a bunch of pansies, and the page in colors of "Border and Bedding Plants," are triumphs of chromolithography which have probably never been excelled, while the hundreds of smaller illustrations are true to nature and thoroughly described.

The volume opens with a series of practical articles of great service to both amateur and professional gardeners, is followed by faithful illustrations showing the interior of the immense Seed House, and then by engravings of all the leading and rare varieties of flowers and vegetables, with directions for their culture.

No pains or expense have been spared in the production of this volume, and every effort has been made to render it worthy the reputation of its publisher, James Vick, Seedsman Rochester, N.Y.—*N.Y. Tribune, Dec. 22nd, 1886.*

ALDEN'S HANDY ATLAS OF THE WORLD.

GREAT CÆSAR, or whoever the great Roman was who first said it, might well have had in mind "Alden's Handy Atlas of the World," when he exclaimed "*Mulum in parvo!*"

It is a veritable *little Encyclopædia of Knowledge* concerning the earth, its population and products, and though it sells for twenty-five cents (postage four cents extra) it is guaranteed to contain a greater amount of really useful information than ever before to be found in any \$2.00 Atlas. In the publication of this volume *The Literary Revolution* enters a new field, and all will admit that it enters it triumphantly.

For instance, take KANSAS: You find a good full-page colored map, showing all towns of importance, and every mile of railroad at time of publication; also statistics, giving:—

Area,	Number Farms,
Length,	Farm Value,
Breadth,	Increase of leading Products,
Name Signification,	Latest Reported Crop,
Date Admitted,	Statistics of Manufactures,
No. Counties,	Population, classified,
Largest Rivers,	Legislative Facts,
Temperature,	Salaries of State Officers,
Rainfall,	Presidential P.O.'s,
Leading Cities,	Electoral Votes and Voters,
State Institutions,	Colleges, School Houses, Attendance, etc.
Railroad Mileage,	

Similarly you will find colored maps (often full-page) and statistics concerning States, Territories, and Countries of the World, as follows:—

Abyssinia,	Anam,	Arkansas,
Afghanistan,	Andorra,	Asia,
Africa,	Arabia,	Australasia,
Alabama,	Argentine Republic,	Australia,
Alaska,	Arizona,	Austro-Hungary,
Algeria,		

and so on through the alphabet. Besides all this there is a mass of information concerning the population, products (agricultural, mining, manufacturing, etc.), and commerce of the various countries of the world, with interesting comparisons graphically set forth by ingenious colored diagrams. All of this in a handsome cloth-bound volume of 192 pages, for the price of twenty-five cents, postage four cents. Address John B. Alden, Publisher, New York or Chicago, for a copy of the book or the sixty-four page *Revolution Catalogue of Standard Books*, which is sent free on request.

PERMANENT EXHIBITION OF MANUFACTURES.

WE, this issue, present our readers with an engraving of the Permanent Exhibition of Manufactures, now in course of erection in this city. As its aims and objects are very clearly set forth in a recent circular published by Messrs. Nicholls & Howland, we re-produce it in these columns as being of material interest to manufacturers generally:

We have the pleasure of again addressing you by circular, to assure you that our efforts towards making the Permanent Exhibition of Manufactures a success—will be ceaseless and untiring. The encouragement we have thus far received on every hand has been very gratifying, and we append a list of those who have already made contracts for space, which list you will notice is considerably extended within the last fortnight, at which time our last circular was issued.

The Permanent Exhibition of Manufactures has as its primary object the permanent display of all kinds of manufactures, classified and arranged in such convenient shape as to be a practical help in increasing the sales of the exhibitor, and of valuable information and assistance to the consumer.

The advantages to the public of such an Exhibition are very great. It will be a valuable repository of information. It will be a place of usefulness to the buyer, as it will be a ready medium through which to reach desired articles. It will be educational on account of novelty, variety, and extent of exhibits. It will be a savor

of time as the patron may see under one roof, what would take him a day elsewhere to find. It will be a place of recreation and amusement. It will cost nothing to examine, as it is free to all.

Every means will be used to furnish attractions, which will insure the entertainment and interest of the public.

Extensive advertising will keep the Exhibition and its advantages fresh in the minds of the people.

Every facility will be offered to Manufacturers' Agents, Commission Merchants, Brokers, etc., to transact business in the building, and every effort will be used to accommodate them and make the Exchange of value.

Our building is situated in the centre of the business part of the City of Toronto, on Front street, nearly opposite the Queen's Hotel. It is easy of access from all railway stations and steamboat landings—in fact it is on the highway to these places. It is large and well lighted, built specially for the purpose, and furnished with every convenience to make it comfortable and useful.

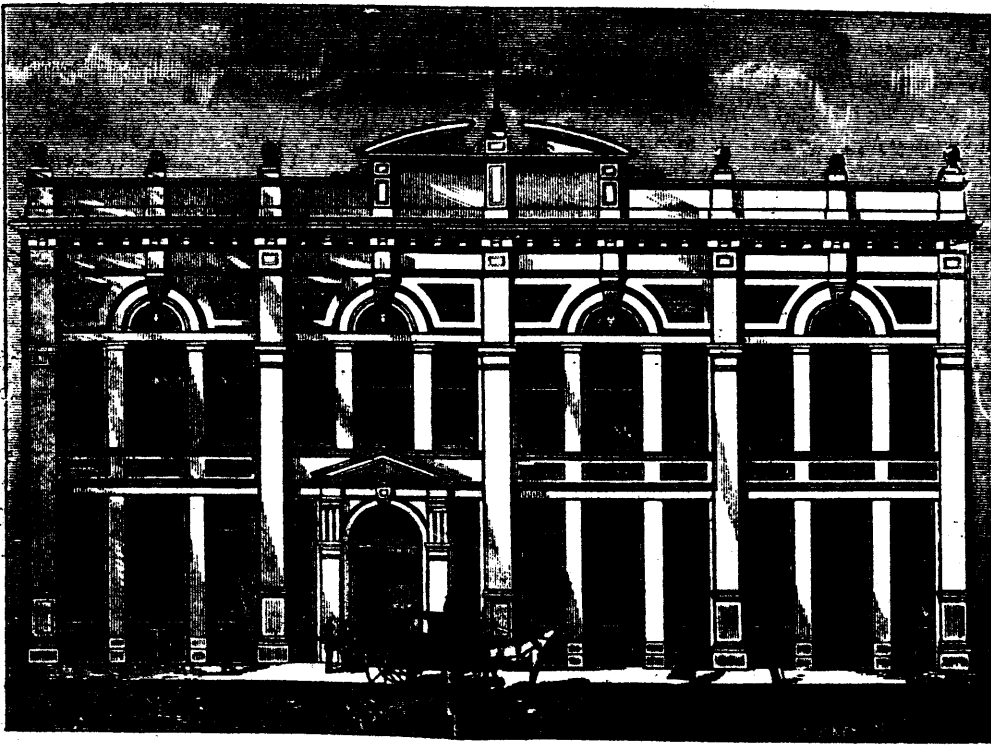
In the interval between now and the time when we will occupy our building, which is rapidly nearing completion,

Messrs. Nicholls & Howland will be very glad to have a call from any one while in the city, either at the office of Mr. Nicholls, the Canadian Manufacturers' Association, 6 Wellington street west, or Mr. Howland—H. S. H. & Co., 27 Front street west.

On the part of the exhibitor, it is valuable as an advertising medium, at a minimum cost. It places the actual goods before an observant public, from whom comes the demand for these goods. It reaches the public in a tangible way, which a printed circular or newspaper cannot. It reduces the cost of selling goods. It puts the goods before the people, who otherwise might be unacquainted with their existence. In brief the manufacturer will patronize the Exhibition to save money. The public will visit it to save trouble, and gain invaluable information.

The exhibits will be classified or arranged in departments, and surrounded by broad aisles.

The spaces for exhibits will be divided in depths of four feet and eight feet, respectively, and by such frontage as may be desired by the exhibitor. All exhibits are limited in height to eight feet, excepting those next the wall.



Instructed attendants will be in charge, and even if enquiries are made for articles not on Exhibition, information will be cheerfully given as to where they can be obtained—because it is desired that this Exhibition in all its branches be a practical aid to both the public and the exhibitor.

Message boys, telephone and telegraph office, with stamp and new stand, together with private offices and reading room, for the use of patrons, will insure all despatch in the transaction of business. It will be a Central Exchange.

A PITTSBURGH plumber and gas fitter in the centre of the city said: "Before we had natural gas I employed three men in our shop; now we have twenty-six, and therein hangs a standing advertisement for more. I believe this gas business has increased the number of gas fitters in this city from 300 to about 2,600. This boom will last at least a year. We have already orders that will run us to January 1st and are now refusing work."

In Dr. Venable's paper on the effect of zinc on water, so much quoted and discussed, the evidence cited is to some extent conflicting, showing, however, a very decided balance in favor of the view that such water is considerably injurious to health. Among the most important investigations bearing upon this subject have been those under the direction of the French Government, resulting in the prohibition by the marine authorities of galvanized iron tanks on board French men-of-war. In the analysis by Prof. Heaton of a spring water, with a further analysis of the same water after it had travelled through half a mile of galvanized iron pipe, it appears that the water had taken up 6.41 grams of zinc carbonate per gallon. In another instance, spring water which had passed through 200 yards of galvanized iron pipes to a house was found to have taken up 4.29 grains of zinc carbonate per gallon.

THE
Canadian Manufacturer
AND INDUSTRIAL WORLD.

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

ANNUAL SUBSCRIPTION, IN ADVANCE, \$2.00.

CARD OF ADVERTISING RATES SENT ON APPLICATION.

EDITOR: FREDERIC NICHOLLS,
Secretary Canadian Manufacturers' Association.

This Journal has won for itself an acknowledged position amongst Trade Journals and is recognized as the representative industrial paper of Canada. All the various industries of the country are represented in its columns, and it has been for years the fearless and consistent advocate of those reforms which were indispensable to the success of the Manufacturers. It now reaches nearly every mill and factory in the Dominion, and its influence is constantly increasing.

As a medium for advertisements of machinery, steam appliances, mill and factory supplies, etc., it is unequalled, and our rates will be furnished on application.

Communications from Manufacturers, Exporters, and others, are respectfully invited.

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Editorial Notes.

This week rumors have been flying thick and fast to the effect that now the Dominion elections are coming off directly; and the fifth of next month has been named as the date. There is a remarkable agreement in the reports from different quarters to this effect, but so far the papers usually best informed as to the intentions of the powers that be have given no confirmation.

ONE pound of coal, according to recent Franklin Institute tests, will yield an amount of light averaging 150 candles with the electric arc light (about 60 per cent. of this if glass shades are used), 20 candles with incandescent lamps, and 14 to 17 candles with gas. In this estimate it is assumed that steam coal is burned under a good boiler for the electric lights, and that the gas is obtained from a bituminous coal.

It seems, says the *American Manufacturer*, that one of the causes that led to the breaking up of the European steel rail pool was the demand of the English rail manufacturers that all contracts for India should go to them. It is this that now stands in the way of the renewal of the syndicate. India has been too valuable a preserve for English manufacturers for them to allow any poaching. The people of India, however, have not been heard from.

THE increase in Dominion revenue at the Port of Montreal this year has been large. The receipts for December alone show an increase of nearly \$300,000 compared with the same month of last year. In the last six months there has been an increase of over \$1,000,000 compared with last year. The receipts for 1886 were \$8,362,619 against \$6,682,702 in 1885; an increase of \$1,679,917 for this year. The inland revenue receipts also show an increase of \$235,067, the receipts for 1886 being \$1,844,016, and for 1885 \$1,609,949.

OVER the border our neighbors are not so much interested in present legislation, for its own sake, as in laying plans for the great campaign of 1888. It is quite within the mark to say that the Presidential contest to be decided next year has virtually begun, though about a year and a half must elapse ere the candidates be formally chosen. In the Nation, and in the several States, administration, appointments, and legislation will be mostly shaped with a view to their bearing on the great struggle of all—the political Olympiad of the Republic.

THE *Boston Manufacturers' Gazette* says that the silver and gold certificates are the most popular currency the United States now has, and their success possibly answers the question as to what shall be done for paper money after the payment of the public debt knocks out the underpinning from the national bank circulation. The people will have a paper currency, and will never return to the methods of years ago, when carrying heavy loads of the precious metal was the only means of transporting money from one part of the country to another.

All Manufacturers are invited to become members of this Association. Full particulars will be furnished on application to the Secretary.

CANADA appears to be carrying over more than the usual amount of politics to the square mile these days. In Quebec the Provincial parties have scarcely succeeded yet in squaring their positions since the recent elections, and possibly may not be able to make up their minds how they stand until the event of the Dominion elections shall have decided for them some points which, apparently, they cannot decide for themselves. In Ontario the agony is over, and Mr. Mowat is elected to stay where he is, with a majority larger than before—twenty-five or thereabouts, it is estimated.

In England a Cabinet crisis has been "on" for now two or three weeks, owing to the sudden resignation of Lord Randolph Churchill. His place as Chancellor of the Exchequer has been accepted by Mr. Goschen, who has heretofore acted with the Liberals, although his convictions are known to be prevalingly on the Conservative side. He demands that he be joined in the Cabinet by two Liberal leaders of mark, and Lord Lansdowne, our Governor-General, has been mentioned as one. Up to yesterday the opposition of the old line "stalwart" Tories appeared to place the success of the proposed reconstruction still in doubt.

The year opens with ominous presage of war in Europe. Yesterday it appeared as if Russia and Austria were about to fight for control in South-Eastern Europe: to-day the prevailing rumor is that instead of that, France and Germany are to be the combatants, and that the gigantic struggle of sixteen years ago is to be tried over again. We are getting plenty of warnings to this effect—that, when the next great European war does come, England will have to be a party to it, whether she likes or not. The continental powers have apparently reached this consensus of determination, that England cannot this time be allowed the satisfaction of being a spectator merely, and making money out of wars and fighting among other nations, but that she must be forced into the very forefront of the battle.

We are indebted to the *Hamilton Spectator* for the following:—It is pleasant to learn from time to time that successful business men are not forgetful of those in their employ. Among those who, in the most kindly manner, remembered their employees at Christmas time were Messrs. W. E. Sanford & Co., who not only remembered every person working for them, but gave each a Christmas present. At the same time the thing was done so unostentatiously that we are indebted to the *Toronto Mail* for information respecting it. That paper says: "Every employee of the great wholesale clothing house of W. E. Sanford & Co., Hamilton, received on Christmas day a letter of congratulation from the principal, at the conclusion of a most successful business year. Accompanying each letter was an amount in cash varying from a few dollars up to hundreds, aggregating nearly four thousand dollars. The firm's sales this year are over two hundred thousand dollars in excess of the preceding year." Surely no business man will suffer because of kindly remembrance of and consideration for the people through whose industry the operations of the house are carried on.

AMERICAN PATENTS TO CANADIAN INVENTORS.

Under date of Dec. 21st, 1886:—

Anderson, Alexander, Toronto, Ont., non-interfering street-box for fire alarm telegraph systems	354,761
Hughes, F. G., Galt, Ont., dental forceps	354,863
Hunter, John, Kingston, Ont., watch-maker's lathe	354,601
Jones, W. H., Montreal, Que. pocket-rule	354,865
Lash, J. F., Toronto, Ont., paper-cutting machine (3 puts.)	354,641
Morris, G. W., Brantford, Ont., threshing-machine	354,803
Sandford, Charles, Fenelon Falls, Ont., horse power	354,842
Sullivan, C. A., Windsor, Ont., lace-fastening for shoes	354,874

Under date of Dec. 28th 1886:—

Glazebrook, H. G. T., Woodhouse, Ont., wagon-rack	355,262
Hersey, Randolph, Montreal, Que., nail-plate feeder	354,980
Togells, A. G., Granby, Que., centrifugal dish-washer	355,088
Jones, H. A., Winnipeg, Manitoba, car coupling	355,174
Macnider, Quintin, Belleville, Ont., step-ladder	355,095
Potts, J. H., Toronto, Ont., water-closet indicator	355,099
Romaine, Robert, Ottawa, Ont., ice-breaking vessel	355,214
Rousseau, E. H., Granby, Que., buckboard wagon	355,215
Stuart, Alex. Jr., Hamilton, Ont., washing machine	354,948

Under date of Jan. 4th, 1887:—

Davidson, George, Paris, Ont., stop-motion mechanism for circular knitting machines	355,596
Norris, William, Toronto, Ont., hop trellis	355,410
Windsor, Elijah, Oil City, Ont., hoop-planer knife	355,580

BLACKLISTING.

SAYS the *American Manufacturer*. There is an immense amount of that most uncommon thing, common sense, in the following brief editorial from the *American Glass Worker*, a Pittsburg journal published in the interest of the glass workers of the country. It is an appeal for fair play from a workman that should not go unheeded:—

"Mr. Powderly complains bitterly in his recent secret circular about the tyranny of capital and the un-Christian and un-American procedure of employers who refuse to allow men and women to work without severing their connection with labor organizations. We quite agree with him in his denunciation, but we go a step further. We cannot see any difference between the above-described act of an employer and labor unions refusing to allow a man to 'earn his bread by the sweat of his brow' because he has not given his 'pledge of honor' at a K. of L. altar. To us one seems as un-Christian and as un-American as the other. Mr. Powderly's 'Noble Order' does these things every day, and he knows it and allows it. It's not right, Terry."

Blacklisting is a most disreputable proceeding, and its character does not change a whit because the blacklister in one case is a workman and in the other an employer. Indeed, of the two, we are inclined to believe that for a union to blacklist a man because he does not choose to join a union is a greater tyranny than for an employer to blacklist a workman because he belongs to a trade organization.

Our opinion of unions is no secret. We believe in them. We believe that strong, well-managed unions are a benefit alike to both employer and employed. We believe that they are in accordance with the spirit of the age and with public policy, and with the enlightened political economy of the hour; but we do not agree with all unions, nor do we believe in the right of a union to exercise the petty tyranny of blacklisting because a workman does not choose to cast his lot with a union. We believe that the Church is all and more than we have asserted the unions to be, and yet no man has a right to endeavor to compel another to join a church, nor to cast him out and boycott him if he does not. Such a course will injure a church more than it will any man. So these petty, indefensible tyrannies that unions exercise will, in the long run, injure. Fair play, gentlemen. Give every workman the same right of choice that you exercised when you entered the union.

F. E. DIXON & Co.

MANUFACTURERS OF

Patent Lap-Joint, Star Rivet

Leather Belting

SOLE AGENTS FOR

PHOENIX BELT OIL

The Only Perfect Belt Dressing.



IT will make the leather more durable.
 It will effectually prevent the slipping of the belt.
 It does not affect the cement which holds the laps together.
 It does not increase the stretching of the belt and thus render it narrower.
 It makes the leather perfectly water-proof. Belts dressed with this oil can be and are run in places where the temperature reaches 160 to 175 degrees, while in the other extreme, we have endorsements from owners who run their belts in ice houses. Indoors or out, in any kind of weather, wet or dry hot or cold; belts thoroughly dressed with Phoenix Oil will always run satisfactorily.

SEND FOR PRICE LIST AND CIRCULARS.

And our Latest Pamphlet on Belting.

F. E. DIXON & CO.

70 KING STREET EAST.
TORONTO.

SEND FOR CATALOGUE and PRICES.

The DODGE "INDEPENDENCE" WOOD SPLIT PULLEYS



WITH PATENT BUSHING SYSTEM

Best Belt Surface, Lightest, Strongest, Best Balanced, and Most Convenient Pulley in the World.

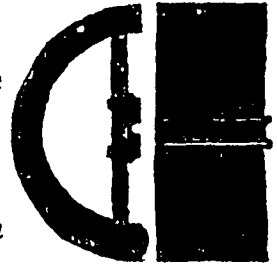
EVERY PULLEY A SPLIT PULLEY.

The hole in every pulley can be readily bushed to fit any sized shaft. Bushings furnished with each pulley. Guaranteed to give from

30 TO 60 PER CENT MORE POWER THAN ANY IRON PULLEY.

Strong enough for any power required. Made in any size and width, from twelve inches to sixteen feet diameter.

EVERY PULLEY WARRANTED.



We will furnish a Pulley for any service for 30 days free of charge, if it does not meet the warranty. Prices as low as any other good Pulley. Send for Catalogue, Price List & Guarantee

70 PER CENT. LIGHTER THAN CAST IRON

And 50 per cent. Lighter than Wrought Iron or Steel Pulleys.



READ THE FOLLOWING.

NORTHWESTERN MANUFACTURING & CAR COMPANY,
SHATTO & DENNIS, MINNEAPOLIS, MINN. STILLWATER, MINN., August 13, 1884.
Gentlemen: You ask why we use the Dodge Patent Pulley. I answer because we consider them the cheapest, most convenient and satisfactory in all particulars.
Yours truly,
S. R. STIMSON, General Manager.

OFFICE OF NEWTON WAGON CO.,
CHICAGO, ILL. HATAVIA, ILL., Feb. 17, 1885.
Dear Sir: Replying to your favor, will say that after using the Dodge Wood Split Pulley for a year or more we are satisfied they are a good thing, if not the best Pulley made, and shall use them hereafter in preference to any other we know of.
Yours truly,
NEWTON WAGON CO.

We have sold these pulleys for one year, and they have been put to every kind of service, and their popularity is wonderful. We refer to the following users for proof of the above statements: Pillsbury & Hulbert Elevator Co., Minneapolis; K. M. Pratt & Co., Elevators; Northern Pacific Elevator Co.; The Pacific Elevator Co.; Minneapolis Harvester Works; Minneapolis School Furniture Co.; M. & St. L. R. R. Co.; Willford & Northway; Washburn, Crosby & Co.; St. Paul Electric Light Co.; St. Paul Roller Mill Co.; Minneapolis Brick Co.; N. W. Mfg. & Car Co., Stillwater, Minn., and very many others.
SHATTO & DENNIS, MINNEAPOLIS, MINN.

THE WORLD'S INDUSTRIAL AND COTTON CENTENNIAL EXPOSITION,
NEW ORLEANS, March 19, 1885.
Dear Sir: I have a number of your Patent Wood Split Pulleys in use here at the World's Fair and Cotton Centennial Exposition, driving Dynamos for Electric Lighting. They are doing heavy work, and are held upon the shaft by the compression of wood on iron. They hold firmly, and do not slip. I have watched with a great deal of interest the many Pulleys of your make running at this Exposition; and I think them the best Pulley I have ever seen. I believe them to possess the following points of merit over any other Pulley: All Pulleys being split or in halves; best belt surface; best shaft fastening; best method of utilizing Pulleys to shafts of different sizes; best balance; lightest on the shaft; strong, and I believe durable. I heartily recommend them.
Yours very truly,
S. H. GILMAN,
Chief Consulting Engineer.

Waste of Power.

According to the best scientific authority it costs one horse power to keep in motion one ton of metal or weight; thus for every unnecessary 2,000 pounds weight on your line shaft, cost you one horse power. To maintain a horse power costs from \$25 to \$125 per year. Any manufacturer who will take the pains to investigate the unnecessary weight by Heavy Iron Pulleys, too tight belts, etc., will be surprised to find the enormous waste of power consumed in this manner. 60,000 Dodge Patent Wood Split Pulleys now in use. Our capacity being now equal to 100 Pulleys per day, we shall hereafter keep in stock for immediate shipment all sizes.

Send for Illustrated Circular and Reference List.

THE DODGE WOOD SPLIT PULLEY CO.,

81 to 89 Adelaide Street, West, TORONTO, CANADA.

TAKE NOTICE:---Our List of Prices for the DODGE PATENT WOOD SPLIT PULLEYS is for ALL SPLIT-PULLEYS.

We beg you will note this fact when comparing our List with others which are for SOLID RIM, and NOT for Pulleys in HALVES.

Business Notes.

H. DUBÉAN, milliner, of Montreal, has failed owing \$3,200.

P. FARRELL, an Ottawa shoe dealer, is offering his creditors 60c. on the dollar.

THE sheriff has seized the stock of Phelan Bros., fancy goods dealers of Winnipeg.

W. W. MORROW, general dealer of Robinson, Que., has assigned in trust, owing \$5,000.

N. M. OSTBOM, general dealer of Frankford, has called a meeting of creditors for the 14th inst.

THE Gibb Wire and Iron Co., of Montreal, finding that the concern was going behind, have assigned in trust.

THE estate of J. Hocken, shoe dealer, Hensall, has been closed out by creditors. The stock realized 73c. on the dollar.

JOHN BARRETT, general supplies, Spaniards Bay, Newfoundland, has been declared insolvent. The liabilities are heavy.

ELIAS VINEBERG, general storekeeper at Dacre, is offering his creditors 40c. on the dollar. Liabilities \$3,700, assets \$2,800.

JOHN MERRILL, hotel keeper at Port Arthur, has failed, owing \$2,400. The assets are very small. He was burned out recently.

THE sheriff is in possession of the drug store of Parker & Co., Winnipeg. The business had a similar experience a few months ago.

JOHN SIMPSON, a hardware merchant at Streetsville, has been going steadily behind and now shows assets of \$3,500 and liabilities \$5,000.

W. O. WHITING, billiard table manufacturer of this city, owes \$2,900. His assets amount to \$1,500. An assignment has been made.

CREDITORS have taken possession of the stock of Bird & Co., hardware dealers at Killarney, Man. The firm failed some time ago at Emerson.

J. L. MACK & Co., general dealers, Mill Village, N.S., and Wm. H. Carey in the same business at North Kingston, have assigned in trust.

A DEMAND of assignment has been made upon J. F. O'Gorman, stationer, Montreal. A demand has also been made upon J. B. L. Roland, shoe dealer, of the same city.

A MEETING of the creditors of J. C. Mahoney, shoe dealer, Hamilton, was held recently and a resolution was carried to close out the estate. The liabilities amount to \$3,500.

IN Montreal, E. Davis & Co., tobacco dealers, have made way for the bailiff. A. Grundler, tailor, is offering 15c. on the dollar, Joseph Page, undertaker, has assigned, and the International Hoop Skirt Co., have been closed out by auction.

COTE & Co., shoe manufacturers, of St. John, Que., have abandoned their estate, and the manager of the Merchants' Bank at St. John is guardian *pro tem*. The assets are valued at \$3,000.

VALLEYFIELD'S WATERWORKS.

YESTERDAY the new waterworks were inaugurated in the thriving village of Valleyfield. Heretofore it obtained its water from the Beauharnois canal; but both the quality and quantity of the water from that source, together with the expense of labor and capital at which it was obtained, had long since caused loud dissatisfaction. A company was organized under the name of the Valleyfield Water-works Company. It is composed of Messrs. L. Despocas, M. Plante, Z. Boyer, O. Cosette, J. A. Bourassa, M. E. Venice and M. R. Joron. Last June the work was begun and was completed a few days ago. A reservoir was dug out of the solid rock and the supply of pure cold water seems to be inexhaustible. A modest brick building has been purchased for the engine house and was fitted out with pumps from the George F. Blake Manufacturing Company of Boston. It consists of two duplex power pumps, which are capable of supplying a million and a quarter gallons per day. Six miles of pipe, of 690 pounds pressure, are already laid and 45 two-hose hydrants are distributed through the village. The pressure required by the council was 52 pounds, and the new water-works are found to give 140 pounds. The works were yesterday inspected and the event was celebrated by a banquet, at which many visitors from Montreal and Ottawa partook. — *Montreal Star*.

ST. HYACINTHE AND ITS WATERWORKS.

THE new and improved fire and water appliances of the city of St. Hyacinthe may be considered as among the most compact and efficient organizations in the province. The building containing the machinery is built of stone and brick. It is situated on the bank of the river at the western end of the city. On Thursday last the engine and pump were tested under the supervision of Mr. Perry, the inspector of the Fire Underwriters' Association, and in presence of a number of spectators, including Maycr Desaulles and the Councillors, Chief Engineer Plamandru and Mr. Wm. Perry, Jr., representing R. H. Buchanan & Co., the constructors, J. Naud, Secretary-Treasurer of the Waterworks Co., and others.

The following is the size and description of pumps in the pump-house:—One compound condensing duplex, double acting steam-pump, with high pressure steam cylinders 10 inches, long pressure cylinders 22 inches, water cylinders 10 inches, and all 18-inch stroke. For reserve, one 14 x 7 x 12 and one 14 x 8 x 12. These pumps are all from the establishment of the George F. Blake Manufacturing Co., Boston.

Each pump is connected with separate suction and discharge, and run to one 10" main pipe. The suction pipe to the large pump is 600 feet long, and was put into the river in two pieces and connected. In the boiler house are two boilers, 54-inch drain and 12 feet long, and are connected with all the latest and best improvements. They are supplied with a pony pump that runs at a given speed continually, and water is put into the boilers at 200°. The pumps, when running at 75 feet piston speed per minute do excellent work, and there is no vibration, and supply from the same to the town is not to be surpassed in Canada.

Alarm was sounded 6 p.m.; in 2½ minutes one stream was throwing over the market; in four minutes four streams were playing at different places. The water pressure was 60 lbs.; size of nozzle, three 1-inch and one 1½.

The water mains are principally 12, 10 and 8 inch, having 19 hydrants. The water was projected 145 feet each from four run of hose, 1-inch nozzle, at the same time. The pump, engine and building cost \$20,000. — *Montreal Herald*.

In 1850 Chicago had less than 30,000 people, Philadelphia 340,000, and New York 515,000; in 1880 Chicago had 603,000, Philadelphia 847,000, and New York 1,206,000. In other words, Chicago, notwithstanding its enormous growth, had not added as many thousands as either of the older cities.

Iron and Machinery.

VICTORIA, B.C.

ANOTHER NEW INDUSTRY ON THE PACIFIC COAST MR. JOHN WEILER'S NEW FURNITURE FACTORY THE MACHINERY ORDERED FROM THE GALT (ONT.) FOUNDRY AND MACHINE WORKS.

(From the Victoria Daily Times, Nov. 26th.)

THE MACHINERY.

Mr. A. B. Cowan, of the firm of Cowan & Co., of the Galt Foundry and Machine Works, has closed a contract with our enterprising citizen, Mr. John Weiler, for supplying that gentleman with the motive power and machinery for his new furniture factory, to be erected on Humboldt street in this city. The boiler will be an ordinary return tubular boiler; the engine will be an improved one, on a Corliss frame. The wood working machinery will be so thorough and complete that the establishment will be the best equipped in Canada west of Toronto. The outfit will embrace the most modern labor-saving machinery, such as planers, jointers, moulders, band saws, rip saws, carriage cutoff saws, tenoning machines, mortising machines, shapers, cutoff saws, polishers, and a number of other useful and necessary machines in a first class establishment. The contract embraces the supplying of shafting, hangers, pulleys and counter shafts. Mr. Weiler furnishes his own belting. The outfit will be pushed to completion rapidly so as to enable Mr. Weiler to have his factory in full running order early in the incoming spring.

THE FACTORY

will be 65 x 35 and four stories high. The boiler room will be separate from the main factory, in which will be constructed an improved drying kiln. When in full blast Mr. Weiler will give employment to about fifty men more than he has at present.

Enterprises of this nature are of great value to Victoria. In fact the exact importance of such concerns cannot be over-estimated. Mr. John Weiler is one of our most estimable of citizens. As a business man his reputation, for honesty and probity, is a household word throughout the province. He has been eminently successful in establishing a business on a permanent solid basis, in which his sons are now leading spirits. These gentlemen possess many of the traits of character of their respected father. In this new enterprise these talents will be brought into play, and, we believe, with satisfactory results.

THE GALT FOUNDRY.

as many of our readers from the east are aware, is one of the oldest manufacturing concerns in Ontario. The business of this firm has gradually increased until it has assumed great proportions. Recently an addition of 200 x 50 had to be added to the previously extensive concern. Constant employment is given to a large number of men. The company employ no travelers, or agents. They rest their reputation on the work turned out, and as each machine helps to sell another they prefer that system of doing business.

THE MANCHESTER OF CANADA.

Galt is commonly known as the Manchester of Canada. It is a solid, stone, Scotch town, of about 8,000 inhabitants, beautifully situated on the banks of the Grand River, from which it derives very valuable water-power in propelling its numberless factories. It is well supplied with railway service, having the Grand Trunk and the Canadian Pacific, with all their connection, giving the manufacturers an outlet to all parts of the continent. Within a radius of thirty miles is to be found such cities as Guelph, Brantford and Stratford, the towns of Berlin, Waterloo, Paris, Woodstock, Ayr, Preston, Hespeler, Fergus and Elora, all of which are important centers, and feeders to Galt's machine shops, and her thousands of industrial artisans, fully entitling her to the claim of being Canada's Manchester.

IRON AND STEEL IN 1886.

The Bulletin of the American Iron and Steel Association, published at Philadelphia on New Year's Day, contains a review of the iron and steel industries of the United States during the year 1886, which shows some surprising results. It says:

Our iron and steel industries were especially active during 1886, and this activity was fairly distributed throughout the year. An improvement in the condition of most of these industries had commenced in 1885, and when the new year opened, and the temporary discouragement produced by the Connellsville strike had disappeared, the certainty of a much more active year than 1885 had become assured. Orders became more abundant, and, except in one or two branches they have since continued to bear a most favorable relation to our producing capacity. Our production in 1886 of pig iron, Bessemer steel and steel rails, open hearth steel, structural iron and steel, and some other products has accordingly been much larger than in 1885, and our production of pig iron, Bessemer steel, Bessemer steel rails, and open-hearth steel has been such the largest in our history. We estimate the production of these four leading products in 1886 to have been as follows, compared with the production in 1885 (gross tons):

	1886	1885
Pig iron	5,600,000	4,011,526
Bessemer steel ingots	2,000,000	1,519,430
Bessemer steel rails	1,500,000	959,471
Open hearth steel	200,000	133,375

The figures for 1886 have been estimated with care, and, we believe will be fully verified by the official returns, which we are now collecting from the manufacturers. They are marvelous in their mere magnitude, but more marvellous still in showing our progress as iron and steel producers in one year. Our production of iron ore in 1886 was about 10,000,000 tons, and we imported about 1,000,000. Notwithstanding the steady increase in the demand for iron and steel during 1886, it is remarkable that prices advanced so slightly. Such advance as was established came gradually, and in some instances, as in the case of bar-iron, too slowly to meet the increased cost of production. The price of nails during the year actually declined, although the consumption increased. In this case the producing capacity of the country is much beyond its wants.

After comparing prices, the review proceeds:

It may be said of the present prices for pig iron and steel rails that they have only recently been established, and that in the case of steel rails large contracts for delivery in 1887 have been made at \$34 and \$35. Our importations of iron and steel during 1886 have been very heavy and much in excess of the importations of 1885. In 1886 we imported about 400,000 tons of pig iron, about 75,000 tons of old iron, over 100,000 tons of steel blooms and billets, nearly 250,000 tin plates, fully 125,000 tons of wire rods, and about 50,000 tons of steels. Our total importations of iron and steel in 1886 will amount to 1,000,000 tons. The stocks of unsold pig iron in this country at the close of 1886 were probably no larger than at the close of 1885, when they amounted to 371,688 gross tons, which was a very small surplus when the pig iron wants of the country are considered.

The general business outlook for 1887 is very favorable, and for our iron and steel industry it is especially so. Railroad building promises to be even more active in 1887 than in 1886, but none of us know what a day or month may bring forth in the stock market or in the financial or tariff legislation of congress, or in the condition of the country's crop.

Of one thing we feel certain. Speaking generally, prices must stop where they are or we will have such an influx of foreign iron and steel in 1887 as we have rarely, if ever, experienced. We need not dwell on the consequences which would be sure to follow.

Textiles.

AUSTRIAN WAGES IN THE TEXTILE TRADES.

(Textile Recorder, Manchester, December 15th, 1886.)

THE following information respecting the wages of operatives in Austria is taken from the report of the United States Consul at Vienna:—

DAILY WAGES IN THE DISTRICT COMPRISING PRAGUE AND OTHER CITIES OF BOHEMIA.

	s.	d.	s.	d.
Textile Goods Factories—				
Cotton Spinners.....	—	—	2	11
Female Spinners.....	—	—	1	10
Female Day Laborers.....	—	—	1	1
Smiths.....	—	—	2	10
Machine Tenders.....	—	—	3	4
Firemen.....	—	—	2	8
Grinders.....	—	—	2	8
Boys.....	—	—	0	10
Girls.....	—	—	0	8
Weaving Establishments—				
Weavers.....	—	—	3	0
Shearers.....	—	—	3	4
Machine Tenders.....	—	—	4	0
Balance of Male Laborers.....	2	0	to	3 4
Female Laborers.....	—	—	1	7
Boys.....	—	—	1	1
Girls.....	—	—	0	8
Cotton Spinning Establishments—				
Male Laborers.....	1	0	to	1 10
Yarn Packers.....	1	7	"	2 0
Spinners.....	1	5	"	2 2
Dye Works—				
Male Laborers.....	1	7	to	2 0
Flax and Hemp Spinners—				
Male Laborers.....	0	10	"	2 5
Female Reelers.....	1	5	"	1 7
Wool Spinners—				
Male Laborers.....	0	11	"	2 3

DAILY WAGES IN THE DISTRICT COMPRISING MORAVIA AND SILESIA.

	s.	d.	s.	d.
Cotton Spinning and Weaving Establishments—				
Male Laborers.....	1	5	to	2 7
Female Laborers.....	0	5	"	1 4
Minors.....	0	4	"	0 5
Clothing Factories—				
Male Laborers.....	1	2	"	2 5
Female Laborers.....	0	5	"	1 8
Minors.....	0	5	"	0 10

SILK CRISIS IN GREAT BRITAIN.

We (Philadelphia Industrial Review) quote as follows from a foreign exchange:—

Recently the Chamber of Commerce, Macclesfield, Eng., received an official communication from the Government of India respecting the cultivation of silk. The result, thus far, is that the Prime Minister, Lord Salisbury, has become much interested in the present crisis of the British silk industry. Looking towards endeavors to remedy the unfortunate condition of that business, he has requested the Chamber of Commerce of Macclesfield to come to some understanding with the Government, as to what means should be adopted.

The President thereupon promised the co-operation of the Chamber of Commerce of Macclesfield, a committee from which a few months since made a most interesting deposition before the English Royal Committee of Inquiry, respecting a possible alteration of laws affecting duties. In fact, it demanded protection against the importation of silk goods. We mention this as a significant fact of the times in free-trade England.

At Buenos Ayres new wools are now coming very fast to market, and command good prices. It is estimated that the clip this year will be 30,000 bales less than that of last year. The pastoral industry is steadily increasing.

A SEAT in the New York Stock Exchange was sold recently for \$27,500, Mr. Fred. T. Adams being the purchaser.

RELICS of an extinct race of Indians who were the aboriginal inhabitants of Newfoundland were recently discovered on Pilley's Island, Notre Dame Bay.

THE San Francisco mint employs at present 300 hands. It is the largest in the world, having a coinage capacity twice that of Philadelphia and thrice that of the English mint.

PROBABLY the largest zinc works in the world are those located near Seraing, Belgium, which produce annually about 50,000 tons of the metal, nearly one-sixth of the world's annual supply.

EMPEROR WILLIAM of Germany has three physicians always watching him. Whenever his majesty is indisposed these three hold a consultation. The iron constitution of the greatest of the Hohenzollerns can withstand anything. But three is a lucky number.

THE water falling over Niagara has a power of 100,000,000 tons per hour moving through 150 feet. This force is equal to the consumption of 260,000,000 tons of coal, the amount annually burned by the entire population of the world. If one-half the fuel burned is used in drying machinery, then the power of Niagara would drive all the machinery of the world, with 50 per cent. to lose in transmitting.

An English device for preventing down draught in chimneys consists of a number of grooved rings of metal or clay placed over each other, with spaces between. The grooves are so shaped that when the wind strikes them it is deflected upward, thus effectually preventing any down draught. An equally effective and simpler plan for accomplishing that object is the one suggested by A. J. Downing, namely, building up with a single row of brick at the back of the fireplace to a point a few inches above the top of the opening. The wind, which in descending always follows the surface of the outer wall of the flue, strikes the shelf thus formed and is deflected upward as in the other case.

THE Russian production of petroleum is increasing enormously. Last month a fountain began playing at Baku, which is spouting nearly 500 tons an hour, or more than 11,000 tons of oil a day. Its height is 224 feet, and it is the greatest "gusher" ever known. Up to that time the greatest petroleum fountain known was the "Droobja," which, in 1883, spouted to the height of 200 or 300 feet at the rate of nearly 3,300 tons of oil a day. Of this well Mr. Charles Marvin, who was on the spot, wrote: "This single well is spouting more oil than all the 25,000 wells in America yield together." At a rough estimate the quantity of oil spouted from it would have realized in America about a million sterling, but it ruined its owner, for the shoals of sand which were thrown from it before it was got under control, poured upon the buildings and streets of the town, five versts away, and led to claims for damages which amounted to more than the returns for the small quantity of oil which was caught and stored. There is now a glut in the Russian market, and most of the oil from the new well is going to waste. An effort will probably be made to plug the opening in order to save the oil for future use.

Mining.

COAL PROSPECTS FOR 1887.

THE Buffalo correspondent of the *Coal Trade Journal* thus writes, under date of December 27th, 1886 :

We are upon the door-steps of another year and the business world seems to have taken a momentary pause before the opening of the door and the grand rush for places. The coal business feels the effect a little, but the fact is coal is so scarce here that there has not been any necessity for a pause, there is and has been for six or eight weeks several purchasers ready for every car of coal on its arrival. What will 1887 bring? As the doors are not opened any fellow's eyes are as good as the next fellow's in that direction, but an ordinary Yankee can make a fair guess on some things which it will not bring for instance. The dealers in the West will not be likely to wait until late in the summer before ordering their winter's supply of Anthracite coal. The railroads will not go on losing immense quantities of freight without ordering sufficient rolling stock to take care of it. The Buffalo, Rochester and Pittsburgh, and the Buffalo, New York and Philadelphia Railways will probably not resort to the same tactics that they did in 1886. They will be more likely to submit their grievances and patch up some sort of a platform to stand upon even if the platform should not be large enough to hold the "Erie" road also. It looks as though the latter road is now virtually out of the race for the soft coal tonnage of this market. She has withheld the product of her mines from here for sometime and yet we get along. The scarcity is not on account of a short supply of coal, but on account of a scarcity of cars to ship in. It is not likely that the Erie will be able to get a large share of the tonnage in 1887, even if she wants it; no matter what she does, coal will not be sold very cheap in 1887. The mistakes of 1886 will not be repeated in 1887. There are many other things which will not be, but it may be better to reserve further guessing until we see what we shall see.

SPLENDID SHOWING OF LAKE CARRIERS.

(*Buffalo Commercial Advertiser.*)

Few people have any correct conception of the great improvement made of late years in the speed and carrying capacity of first-class lake vessels. A few years ago a vessel was regarded as doing very well if she made one round trip a month; from the progress recently made in shipbuilding it looks as if steamers would soon be in commission, which with good dispatch at terminals, would make the round trip in a trifle over a week. The flyers of the lake fleet show the following splendid record for the past season :

	<i>Round Trips.</i>
Propeller Albany, Western Transit Line.....	18
Propeller Jewett, Union Steamboat Line.....	17½
Propeller Boston, Western Transit Line.....	17½
Propeller Syracuse, Western Transit Line.....	17
Propeller Tioga, Union Steamboat Line.....	16½

Navigation opened April 26th, and closed practically the first week in December, so that the above record was made inside of seven and a half months. The work of the Albany, Capt. Frank Williams commanding, which seems to have won the pennant this season, is deserving of special comment. As shown above she made sixteen round trips between Buffalo and Chicago; every run but one from port to port was made in three days; her average consumption of coal was 141 1-6 tons to the round trip, and she delivered at Buffalo 45,000 tons of freight during the season. This does not include her heavy up business.

In view of such results as these it is evident that the possibilities of the lake route have hardly been approached as yet.

Milling.

NOTES.

(*From the Millstone.*)

OH, for a bran packer! The packing of bran into a compact form so that it could be shipped abroad would be one help toward running some of our mills which are now inoperative. The bran which now finds a poor market could find a good one in Europe if it were possible to ship it in a compact form. It seems strange that no satisfactory machine for this purpose has yet been invented. There are many mills abroad which realize their whole profit from the sale of offal. If we could ship our bran to those countries we would cut down their milling capacity and open a market for our (American) flours.

UNIFORM low grade is impracticable. A miller who attempts to keep his low grade flour at a fixed standard is making a mistake. It is impossible to have an even feed, uniform high grades of flour, and at the same time keep the low grades always uniform. There is some place in the mill where the inequalities in the wheat ground must show, and the place where this will be most apparent and least expensive is in the low-grade flour. It is a losing, expensive movement to attempt to keep the low-grade flour uniform.

LADY MILES, who has figured so prominently in the Colin-Campbell case, and promises to figure somewhat unpleasantly again, as the case now stands, is, like Lady Colin Campbell, of whom she is a cousin, an Irishwoman, the daughter of Sir David Roche of Carrass, in the County of Limerick, and is 56 years old. Her father, "David Roche," as he was familiarly styled, was a miller and made a large fortune in the milling trade.

CHARLES A. PILLSBURY, the Minneapolis miller, speaking to a reporter recently, said that the demand for flour was better than he had ever known at this season of the year. Usually about the close of navigation the millers shut down or store most of the flour, as it will not stand advanced rates, but none of the millers or their correspondents in America or Europe have any stock of flour, and consequently all mills are running as far as their water power or steam adjuncts will permit; and instead of there being an immense stock of flour on hand, as is usual at this time of year, he didn't think there was a miller in Minneapolis who had not more orders on his books than he had flour.

THE average December price of wheat in the United States is sixty-nine cents, a reduction of eight cents from the average value of the last crop, and 4½ cents above the prices of 1884. The average in New York is eighty-four cents, twelve cents lower than last year. The reduction is still greater in several Western States. The value of hay averages about \$8 through the country. Rye averages fifty-three cents, against fifty-seven cents last year. Buck-wheat is fifty-four cents and potatoes forty-six cents per bushel this year (1886).

A BILL is now before Congress designed to prevent frauds upon American manufacturers by foreigners, and it ought to pass, so says the *Manufacturers' Gazette* (Boston). The hardware stores and cutlery shops in our cities are largely stocked with German goods branded with American names, yet one rarely hears of their being sold as other than of American manufacture. According to official reports there is not a single American citizen abroad engaged in exporting cutlery to this country; yet foreigners, by smuggling, under-valuation and the fraudulent use of American names and trade-marks are rapidly ruining an important American industry. Millions of dollars are invested in it, and thousands of workmen and their families depend upon it for their daily bread.

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Exhibition of Manufactures.

Toronto.

NICHOLLS & HOWLAND.

THE undersigned are now prepared to receive applications for space in the PERMANENT EXHIBITION OF MANUFACTURES

Some of the advantages likely to accrue to manufacturers exhibiting may be briefly summed up as follows:

1. The Exhibition will be free to all and open through out the year.
2. It will afford all the advantages of a Toronto branch establishment at a very moderate cost.
3. Exhibits will be seen by large numbers of business men who would not be apt to visit a private branch office unless on special business.
4. The Exhibition will be extensively advertised and made very attractive, and as almost every variety of machinery and manufactured goods will be on view under the same roof, it will certainly become an important mercantile exchange.
5. Competent salesmen will be in charge for the purpose of explaining the merits of each exhibit to interested visitors.
6. Exhibitors can have printed on their office stationery "When in Toronto call and see sample of our goods at PERMANENT EXHIBITION OF MANUFACTURES." This may afford prospective purchasers an opportunity of personally inspecting goods, who would not be apt to visit outside towns for that purpose.
7. Exhibitors can appoint us selling agents, or can have their own representatives in charge. In the former case, every endeavor will be made to establish profitable trade.
8. Machinery can be shown in motion, as shafting and power will be provided.
9. Office accommodation will be provided for the convenience of exhibitors and their agents.

The following list contains the names of those having already secured space in the building.

Armstrong J. A. & Co. Guelph, Ont., Carpets.	Kerr Bros., Walkerville, Ont., Water, Steam and Gas Valves
Blake, Geo., F. Manufacturing Co., Boston, Mass., Steam Power Pumping Machinery.	King, B. W. & Co., Georgetown, Ont., Power Knitting Machinery
Brush, Geo., Eagle Foundry, Montreal, P. Q., Blake Stone Crusher.	Leslie, James, Montreal, P. Q., Woollen and Cotton Mill Supplies.
Breithaupt & Co., Berlin, Ont., Leather.	McCaskill, D. A. & Co., Montreal, P. Q., Varnishes and Japan
Clare Bros. & Co., Preston, Ont., Stoves and Furnaces.	McKechnie & Bertram, Dundas, Ont., Iron Working Machinery
Cowan & Co., Galt, Ont., Woodworking Machinery, Engines and Boilers.	Miller Bros. & Mitchell, Montreal, P. Q., Machinery and Laundry's Steam Hammer
Croftman Bros., Georgetown, Ont., World's Star Knitting Machines.	Morris, A. W. & Bro., Montreal, P. Q., Cordage and Binder Twine.
Valley, F. P. & Co., Hamilton, Ont., Extracts, Essences and Grocers' Sundries.	Munderloh & Co., Montreal, P. Q., Watchmen's Clocks.
Dominion Baby Carriage Co., London, Ont., Baby Carriages and Rattan Furniture	Nortley & Co., Toronto, Ont., Steam Pumping Machinery
Dominion Hat Co., Hamilton, Ont., Fe's Hats.	Northumberland Paper Co., Campbellford, Ont., Straw Board and Tanned Paper.
Donald Produce Co., Norwich, Ont., Evaporated Fruits.	Ontario Bolt Co., Toronto, Ont., Bolts, Nuts, Spikes, etc.
Fenwick & Scater, Montreal, P. Q., Files and Mill Supplies.	Oshawa Stove Co., Oshawa, Ont., Cooking and Heating Stoves, etc.
Globe Tobacco Co., Windsor, Ont., and Detroit, Mich., Tobacco	Paris Manufacturing, Paris, Ont., Knit Goods.
Goldie, James, Guelph, Ont., Flour.	Pepper, T. & Co., Guelph, Ont., Carriage and Wagon Axles.
Goodhue & Co., Danville, P. Q., Leather Belting and Lace Leather	Pillow, Hersey & Co., Montreal, P. Q., (Geo. A. Mac Ag., Western Representative, Toronto.) Nails, Tacks, Bolts, etc.
Grand River Knitting Mills Co., Paris, Ont., Smyrna Bines and Knit Goods	Ramsay A. & Son, Montreal, P. Q., Plate and Stained Glass, Paints, Oils, etc.
Grand & Toy, Toronto, Ont., Tucker Automatic Letter and Document Files.	Robin & Suller, Montreal, P. Q. and Toronto, Ont., Leather Belting and Linc. Leather.
Grain Sugar Refining Co., Walkerville, Ont., Syrups and Glucose.	Rumpel, Geo., Berlin, Ont., Felt Boots and Shoes.
Hamilton Industrial Works Co., Hamilton, Ont., Wringers, Mangles, etc.	Simpson & Co., Berlin, Ont., Furniture
Hamilton Rolling Mills Co., Hamilton, Ont., Bar Iron, etc.	Smith's Falls Malleable Iron Co., Smith's Falls, Ont., Malleable Castings and Carriage Hardware.
Hamilton, J. S. & Co., Brantford, Ont., Native Wines.	Smith, R. H. & Co., St. Catharines, Ont., Every Description of Saws.
Hart Emery Wheel Co., Hamilton, Ont., Emery Wheels and Emery Wheel Machinery.	Stahlschmidt & Co., Preston, Ont., Office Furniture.
Hay, Peter, Galt, Ont., Machine Knives.	Storey, W. H. & Son, Acton, Ont., Gloves.
Hearle, J. G., Montreal, P. Q., Toilet Soaps and Perfumery.	Walker, James, Hamilton, Ont., Household Soaps.
Howland, H. S., Sons & Co., Toronto, Ont., Hardware Specialties	Watts, A. & Co., Brantford, Ont., Household Soaps.
Howland, H. S., Kleinburg, Ont., Flour.	
Hemming Bros., Toronto, Ont., Fancy Goods and Jewellers' Cases.	
Ives, H. R. & Co., Montreal, P. Q., Stoves and Hardware Novelties.	

Further information will be promptly furnished.

NICHOLLS & HOWLAND,

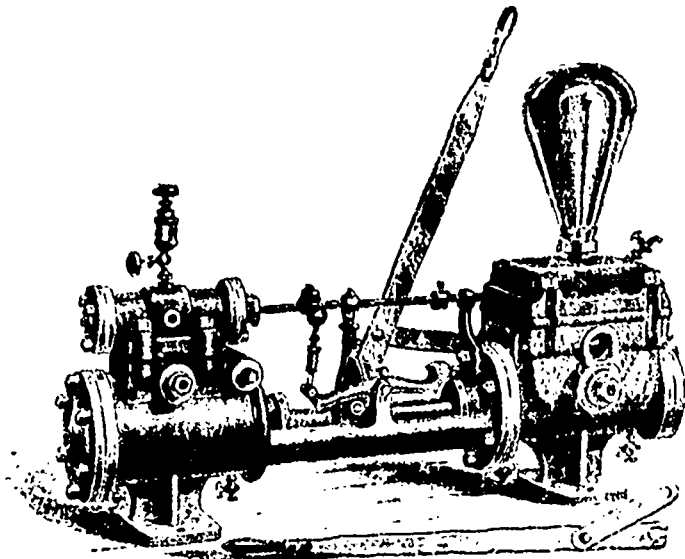
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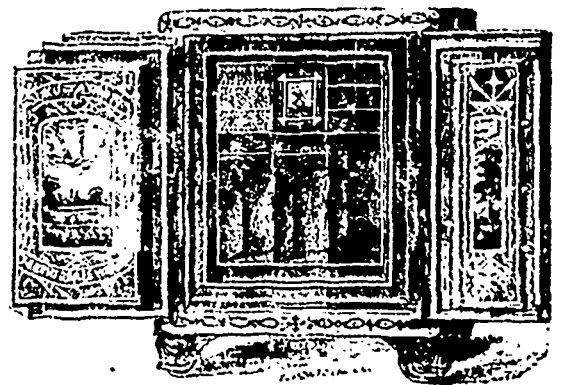
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Manufacturers of all kinds of Fire and Burglar Proof Safes.

PRISON LOCKS AND JAIL WORK A SPECIALTY.

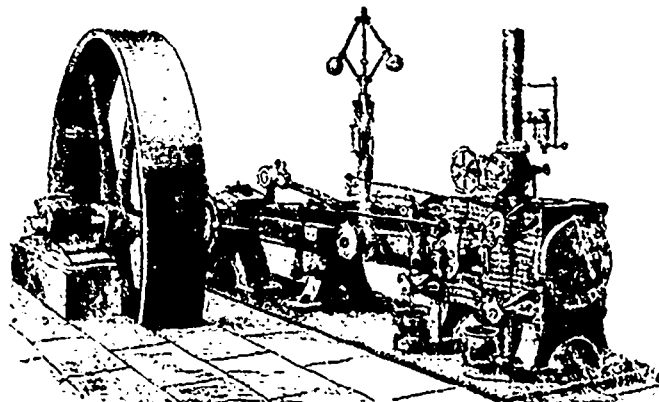
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MANUFACTURES ALONG THE RAILWAYS NORTH OF TORONTO.

ALONG THE NORTHERN RAILWAY—THE NORTHERN AND NORTH-WESTERN—AND THE CALLANDER EXTENSION.

(From the Toronto Globe, Dec. 31, 1886.)

PATTERSON.

BETWEEN Richmond Hill and Maple is the post village of Patterson, which is situated in the township of Vaughan, and contains a population of about three hundred souls, and has Methodist and Presbyterian churches and a public school. The village was settled in 1845, and has a large foundry and agricultural implement works belonging to the firm of

PATTERSON AND BROTHER.

The first agricultural implement manufactory ever started in Canada was that of Patterson & Brother, whose name is now a household word in every farm-house in Canada. The works were first started in 1850 at Richmond Hill by Messrs. A. S. and Peter Patterson, who still carry on the business. At first the only implements made were fanning mills, and the factory was in a building but little better than a barn, and it was then only intended to build for the local demand. Three years after the founding of the firm the property on which the village of Patterson is built was purchased, partly for its water privileges and partly for its pine timber. The site was then in the bush, which was almost unbroken, but on that property they erected a factory which has become one of the largest in Canada. As the country became developed and the land was cleared up, the demand for agricultural implements became greater and greater, and the business of Patterson & Brother increased with the growth of the country. Now it has probably the largest business, in its own line, of any firm in the Dominion. Its implements may be found on the coast of Cape Breton, on the east, and on the west as far as the Pacific slope, and the far-off island of Vancouver. At all principal places in Canada agencies of the company can be found, and every agency does a large business. From simply building fanning mills in 1850 the varieties of the firm's products have increased, till they now cover every kind of agricultural implement needed for working the ground or for harvesting. Among the varieties of manufacture at Patterson are reapers, mowers, horse-rakes, ploughs, spring-tooth cultivators, spring-tooth harrows, but the special products are the celebrated Patterson light binder which they claim is the only genuine two-horse binder made, and one they can guarantee is as light as any other on the market. By an ingenious, but simple device, the machine can be narrowed so as to pass through a ten-foot-six gate. Another speciality is the celebrated spring-tooth harrow, for which this firm hold the patent rights for the Dominion of Canada, and of which alone they manufacture five thousand every year. They also have a large spring steel business, in which about two hundred tons of the finest quality of spring steel is used every year. They make all kinds of springs that require high grades of steel tempering. In 1882 the business had outgrown the capacity of the works at Patterson, and a branch factory was opened in the town of Whitby, which has proved a thorough success. At this place they manufacture grinders, ploughs, gang-ploughs, and cutting-boxes, but make a speciality of the well-known Raymond Grinding Mill, which can be adapted for anything from a coarse grade of flour to sifting peas or corn. At their two factories there are constantly employed about two hundred men, and their factories are among the mammoth establishments of Canada. A *Globe* reporter who visited the works recently was struck by the large number of medals and diplomas which he saw in the office, and which have been granted by the largest agricultural societies in the Dominion.

In connection with the above, the *Globe* of Saturday publishes the following:

"Friday's *Globe* contained a descriptive notice of Patterson & Brother's agricultural implement works, in which the state-

ment was made that the establishment was the oldest of the kind in Canada, dating back to 1850. To this the Massey Manufacturing Company of this city demur, they claim to date back to 1847. Both firms are of the highest standing, and there was no intention of making invidious distinctions."

AURORA.

This is the largest village in the County of York, and indeed lacks but a few of the number of inhabitants necessary for its incorporation as a town. The census of 1881 gave the population as 1,540, but a municipal census, taken during the present year, gave it about 1,900 inhabitants, and as it has grown considerably since then there is little doubt that before long it will develop into a full-fledged town, with its own mayor and corporation.

THE WILKINSON PLOUGH CO. (LIMITED).

Aurora has about the largest plough factory in the Dominion. The Wilkinson ploughs are well-known throughout Canada, and, indeed, all over the world. Mr. Geo. Wilkinson first began the manufacture of ploughs in Aurora about fifteen years ago and since then his business has increased year by year. He is credited with being the pioneer plough manufacturer of the Dominion. Six years ago he took in as partner Mr. W. H. Perran, manager of the Federal Bank, and in 1883 Mr. R. St. B. Young, of Montreal, joined them. The capacity of the works is now twelve thousand ploughs and two thousand scrapers a year. They have a warehouse and office in Montreal, 102 Foundling street, with Mr. J. Pool as manager, and do a very large business in the Province of Quebec. They sell a large number of ploughs in Nova Scotia and New Brunswick, and do an extensive business in Manitoba and British Columbia. They make the only solid pressed steel road scraper in Canada and supply over three hundred townships in the Province of Ontario alone. Mr. Wilkinson takes a prominent part in municipal matters and was a member of the Council for a number of years. The company have a large exhibit at the Colonial Exhibition in London, England, and have sold a number of ploughs this year to go to Australia and other colonies.

THE BEAVER TANNERY.

Few businesses require the personal supervision and thorough knowledge of the whole process that are necessary for a successful tanner and currier. Aurora is fortunate in having one such in her midst. The tannery of Mr. Frank T. Daville was started twenty-five years ago by Mr. J. T. Gurnett, from whose hands it passed to those of Messrs. Edward Pease & Sons, who carried on the business for about ten years. In 1877 the present proprietor bought out the concern and has been running it ever since. When he obtained possession there were only seven or eight men employed, but he soon increased the capacity of the tannery till now it employs thirty men. Mr. Daville, immediately after he had leased the place, commenced to make alterations and improvements which cost him more than the original property. The machinery is about the finest in the Province of Ontario, and is being constantly added to. Among the improvements he early made, was the placing in the tannery Winters' measuring machine, at a cost of \$260. This one was the second or third machine of the kind in Ontario, and the principle of the machine is so perfect that the accurate measurement of a side of leather is instantaneously registered on a dial, and from the measurement made there can be no appeal. It is always exact. Another machine he purchased at a cost of \$1,500 is Barton's Boston belt-knife leather-splitting machine, which leaves a side of leather exactly even and at a much lower cost does the work in a manner which cannot be approached by handicraft. There are also two of the latest improved glassing machines in the tannery, and the whole outfit is simply perfect. The re-arrangement of the premises by Mr. Daville has had the effect of vastly improving the facilities for work and has tended to improve the quality of the output. The speciality of the tannery is "Buff"

leather of the Beaver brand, and Mr. Daville has secured for himself and his tannery a reputation which is second to none in the country for general excellence of work and for perfection of finish. The tannery puts out every week about 350 sides of leather, and is one of the largest manufacturing establishments in North York.

AURORA AGRICULTURAL WORKS.

The old proverb, "Large trees from little acorns grow," was never better exemplified than in the case of the Aurora Agricultural Works. Mr. Joseph Fleury, the founder, in 1859 began the manufacture of cast iron beam ploughs in Aurora. His establishment was very small at first, his only power being a single horse, but he continued adding year by year to his facilities and increasing his business till at the end of seven years he was able to add to his plough business the manufacturing of straw cutters, root cutters, and grain crushers. Three years later, in 1869, he began to make the mowers and reapers which have made his name so well-known throughout Canada. During the whole period of his business career he enjoyed a well-earned prosperity, the secret of which was that he always avoided debt, paid cash for everything he purchased and if he had not the cash he went without. All the profits made from the business were carefully invested in increasing his capacity for manufacture. His fellow citizens honored him by electing him reeve of the village for nine successive terms, and in 1879 he served a term as Warden of the County of York. In September, 1880, Mr. Fleury died, after a short illness, since which time, until very recently, the business was managed by his executors in the same careful but enterprising manner that had distinguished Mr. Fleury's management, and they added to the business the well-known Fleury Cord Binder, and opened up a larger business connection. In steel ploughs particularly, they have done a very large trade from Prince Edward Island to British Columbia. Mr. Yule, one of the executors, is now reeve of the municipality, and is serving his fourth term in that capacity, having been elected as successor to his late employer. In September last the business, which had been managed by the executors under the name of the Fleury estates, was transferred to the two sons, and the firm is now known as J. Fleury's Sons, and promises to be as successful as the old one. Their premises here are large and extensive and furnish employment to nearly one hundred men.

NEWMARKET.

WM. CANE & SONS' MANUFACTURING CO. (LIMITED).

The town of Newmarket owes much to her manufacturers, of whom Mr. Cane was one of the first. Mr. Cane had been the owner of a sawmill in the township of East Gwillimbury, but in 1875 he moved into Newmarket, and commenced the manufacture of lumber, lath, shingles, sash, blinds, mouldings, doors, and in fact all kinds and descriptions of housebuilding materials, in addition to ordinary lumber. This business grew to large proportions, and with it grew Mr. Cane's capital, and he commenced the manufacture of all kinds of wooden ware, such as pails, tubs, washboards, and clothes pins. This business has grown also, and there are now made at the works no less than forty-two different kinds of ordinary pails. At the late Industrial Exhibition many of these were shown and a silver medal was granted for the general excellence of the exhibit. But the articles in that exhibit which attracted the most attention were the impervious wooden packages made by the firm, such as oil cans, pickle packages, etc. To such perfection has the manufacture of these goods been brought by this firm, that they can make wooden packages convenient to handle which will hold any substance, no matter how volatile or penetrating, and their oil can will hold gasoline as safely as any tank. The extent of the business may be gathered from the fact that the company employs 120 men the year round, besides woodsmen, and use over two million feet of lumber, and two thousand

yards of stove-bolts in the factory in the manufacture of their various products. In 1885, after ten years' successful operation, the firm was changed into an incorporated company, under the style of Wm. Cane & Sons' Manufacturing Co. (Limited). The citizens of Newmarket have, since they have been incorporated as a town, had but one Mayor, Mr. Wm. Cane, the head of the firm, and are not likely soon to change. This one fact is sufficient to show that Mr. Cane is not only a large employer of labor, but also an extremely popular and public-spirited man.

THE ALLAN PLOUGH WORKS.

An important industry at Newmarket is the foundry and plough manufactory of Mr. James Allan, situated on Timothy street. Mr. Allan has carried on the foundry business for thirty-five years, but only commenced the manufacture of ploughs about twenty years ago, when he formed a partnership with Mr. Thomas Hendry, who retired a few years ago, leaving Mr. Allan the sole control of the business, since which time he has done a large and constantly increasing trade, and his celebrated ploughs are in great demand in the County of York and surrounding counties, where the statement that they are favorites is proved by the fact that he secures nearly all the first prizes at the county fairs where he exhibits, awarded by the farmers themselves, and they are sometimes more competent to judge of the merits of agricultural implements than mere theorists. In addition to the manufacture of ploughs he does a large repairing business.

THE NEWMARKET MILLS.

The flour milling industry is well represented in Newmarket. Without any exception the finest mill north of Toronto is situated here. This mill is a comparatively new building of white brick, 45 x 50 feet, five storeys high, with a storehouse attached, 32 x 60, capable of storing 30,000 to 40,000 bushels wheat. The power is water, with steam auxiliary, and has a capacity of 200 barrels per diem. The mill is just now being re-modelled to the full Hungarian process; the bolting will be done on an entirely new system, there being none like it in Canada. The machines are built especially for this system of working, and are much more economical and efficient, and take up much less room than the old style of bolt. The proprietor, Mr. B. F. Reesor, claims that when completed the mill will be equal to any in the United States and second to none in the Dominion. The trade will be principally in strong flours, for bakers' and family use.

BARRIE.

THE KEMPENFELDT TANNERY.

For over forty years Barrie has had a tannery, and this tannery has seen many changes. The original proprietor was Mr. Graham, who still resides in Barrie. From his hands it passed some years ago, into those of the late Mr. Shortreed, whose melancholy death on the Esplanade last year will be remembered by the readers of the *Globe*. Mr. Shortreed spent a considerable sum of money in fixing up the tannery, making many important improvements. In November, 1882, the tannery was purchased by the present proprietors, Messrs. Wm. H. Cross & Co., who have still further added to the facilities of the establishment. Mr. Wm. H. Cross is a practical tanner, the son of a tanner, having learned the business in his father's tannery at Stewarton, and has brought business principles and tact, as well as a thorough knowledge of his work, into the place, and has made a great success here, in spite of many serious difficulties. The special features of the tannery are harness leathers, upper leather, buff and lace leather; and, in addition to this, there is a factory for making boot uppers. The business has prospered so much under the present able management that it has been found necessary to move the closed uppers factory to premises on Dunlop street, west of the post-office, in which is also kept a full line of shoemakers' find-

ings and supplies—including all lines of native and foreign leathers. The tannery now employs about 25 men the year round, and the upper factory finds work for three more. The uppers made here have acquired a good reputation, and are sought for in all parts of Western Ontario, and as far east as Peterborough. The basement is devoted to the vats, back-mill, leech-house, and engine room, which have good drainage to the bay, and the ground floor is occupied by the drying and currying room. The upper floors are used for currying. The building in front is a three-storey brick, with two-storey frame in the rear, which was the original building. The capacity of the tannery now is between six and seven thousand hides per annum, and it is probable that its capacity will be increased in the near future. A 35-horse-power engine, with a 60-horse-power boiler, furnishes the power to run the machinery, which is complete in every respect. One of the features of the warehouse is the Winter measuring machine, which, by an ingenious contrivance of pins, registers on a dial instantaneously and accurately the exact number of square feet in a hide of leather. Mr. Cross had only been in Barrie two years, when his fellow-citizens recognized his ability, and insisted on his running for the position of town councillor, knowing that the man who manages his own business well is the best man to have charge of the affairs of the community at large, and in the following year they elected him triumphantly to the reeveship, a position he has filled with honour and credit alike to himself and his adopted town. At the last session of the Dominion Parliament Mr. Cross accompanied a large delegation who waited on the Government to urge upon them the desirability of completing the Trent Valley Canal, and was selected as the chairman of the delegation. His statement of the case then was very clear, and lucid, and was listened too with great attention.

BARRIE FOUNDRY AND ENGINE WORKS.

In the year 1864, when Barrie was but a small place, and the country around was comparatively unsettled, Mr. Henry Sewrey started a small repair shop for sawmill machinery. At first he had but two men employed, but the excellence of the work brought more and more business, and year by year saw an increase in the number of workmen and an increase in the work turned out. After a short time Mr. Sewrey launched out into the manufacture of saw-mill and other machinery, and invented a large number of machines especially adapted for lumbermen. The popularity of the machinery invented by himself became so great that he gave up the manufacture of all other machines, and devoted himself to the manufacture of the machines he himself had designed. These are well known throughout the whole of Northern Ontario, and are everywhere the favorite when tested. Among the manufactures turned out of this foundry are steam engines and boilers the acme of economy, grist and saw-mill machinery of all kinds, gang lath mills, shingle mills, double and single edgers, mill gearing, and in fact every article of machinery needed for the lumberman or the miller. From two men in 1864, the number employed has increased to forty in 1886, and the small premises which sufficed in 1864 have been increased till the building now occupied has a frontage on Ross and Bayfield streets of 300 feet, and is two storeys in height. Mr. Sewrey's abilities as a business man were recognized by his fellow-townsmen very early in his career, and for the past twenty years he has served in the Municipal Council without cessation. He was first elected Councillor and afterwards Deputy-Reeve, filling those positions with such credit as to be elected Reeve of the town, and for the past five years has held the responsible position of Mayor of the largest town on the Northern system, a position in which he has always displayed those qualities which first gave him the confidence of his fellow-citizens, and have since enabled him to retain it.

PHELPSTON'S INDUSTRY.

Where the thriving village of Phelpsston now stands, seventeen years ago was nothing but an unbroken wilderness.

About that time the firm of N. & O. J. Phelps, of St. Catharines, who had purchased a timber limit at this point, erected what is now the best and most complete circular saw-mill in Northern Ontario. The building of the mill brought, of course, a large number of men who were employed by the firm, and a little village sprang up around the property. This village has become each year more and more thriving, and at the present time there are located there a number of handsome stores and spacious grain warehouses, from the latter of which an immense quantity of grain, purchased from the farmers in the neighborhood, is annually shipped to Toronto. Phelpsston is not on the direct line of railway to the North-West, but all its shipments have to be sent through Allendale, where the great junction of the Northern and North-Western system is situated. Although the mill will have to be removed in about two years, owing to the supply of lumber being nearly exhausted, the prosperity of the village will still go on. The business enterprise of N. & O. J. Phelps has made the place, and the firm has always been deservedly popular. The sawmill has a capacity of from forty to fifty thousand feet of lumber per day, and is one of the features of the northern district of Ontario. Mr. O. J. Phelps has served one term in the Local Legislature, with credit to himself and satisfaction to his constituents, by whom he is universally esteemed. Among the benefits which have been derived from Mr. O. J. Phelps' connection with municipal matters the township of Flos, of which he was Reeve for fourteen years, has to thank him for the railway which now passes through her borders.

ORILLIA.

THE ORILLIA WOOLLEN MILLS.

At the corner of Mississauga and Matchedash streets stands a new brick building three storeys high, fifty-six feet long and thirty-six feet front. This is the new factory of Mr. A. K. McKay, who was burnt out some months ago. Mr. McKay commenced business on the site of the present building ten years ago, but was burnt out in 1878, and the building he then erected was destroyed by fire during the month of September in the present year. He determined then to put up such a building as would be as nearly fireproof as possible, and called in the services of one of the best architects to prepare the plans, keeping that end carefully in view. The new building is now completed, and the factory will shortly be re-opened. The machinery inside will consist of one set of manufacturing cards, one set of roll cards, four looms, and two hundred spindles. All kinds of woollen goods, blankets, tweeds, fulled cloths, yarns and flannels are to be manufactured in the new factory as in the old one, and the reputation Mr. McKay acquired in the past, for the manufacture of superior goods, will stand him in good stead in the future. Already, indeed, he has orders to a large amount booked, and waiting to be filled. The business of the mill has extended as far north as the Maganetawan River, and throughout the Parry Sound District, and the products of the mill have been handled and eagerly sought for by the best houses in Toronto and Montreal. There is little room for doubt that, now Mr. McKay has seen the last of his fiery ordeals, as he has so well protected his factory, that this industry, which is of great value to Orillia, will continue to prosper.

E. U. WHIFFEN'S MILLS.

Among the best known and most enterprising of the residents of Orillia, Mr. E. U. Whiffen deserves a prominent place. Mr. Whiffen was superintendent of Becher & Sullivan's mills, at Bell Ewart, for many years, until in 1880 the mill was burnt down, when he moved north and ran the British Canadian Lumber Co.'s mill at Midland, under contract for one year, and in the year following he purchased a mill at Fesserton, the point where the Midland Railway first strikes the Georgian Bay. The mill has a capacity of from three to four million feet of lumber per annum, and is a complete circular mill with ample power. Around the mill are some of the best piling grounds in the country, well laid out, and with plenty of railway switches run-

ning through. Parry Island, in the Georgian Bay, is this year furnishing the mill with its stock of timber. A general assortment of lumber is sawn, including pine, oak, ash, spruce, tamarac and birch. This is sold chiefly in the Canadian market, and handled by Toronto firms, but some of the choicest finds a market in Oswego. The mill is about sixteen miles from Orillia, on the Midland Railway, and as it has good dockage on the Georgian Bay, there are ample facilities for shipping the products of the mill at reasonable rates. Mr. Whiffen is a native of Utica, N.Y., but has for several years past lived on Peter street, in the town of Orillia.

THE ORILLIA STEAM CARRIAGE WORKS.

The present extensive carriage factory belonging to the firm of W. Tudhope & Sons was established by Mr. W. Tudhope in 1855, and was gradually extended, until now it is one of the features not only of Orillia, but of the Province of Ontario. In 1876 Mr. J. B. Tudhope was taken into partnership with his father, and in 1884 two other sons, John and W. H., were added to the firm. There are five more sons waiting till they are old enough to be taken in. Some idea of the extent of the business may be gathered from the fact they every year there are over 600 vehicles of all kinds built at the works, and some of these are of special design. Among the specialties are the Buffalo road waggon and the Porter side-spring buckboard, but besides these, all styles of carriages, phaetons, buggies, farm waggons, sleighs, and cutters are manufactured on the premises. These are all warranted to give satisfaction, and a written guarantee is given with every vehicle. This, however, is now but a matter of form, as every vehicle not only is warranted to, but actually does, give satisfaction. The works comprise four large buildings having a flooring of 33,600 square feet. A powerful engine is used to run the machinery, which is of latest and most improved make, and which shows for itself that no expense has been spared to make the factory what it really is, a model carriage works. The firm employs about thirty men the year through, and all the sons work at some part of the business in addition to this. The character of the work turned out is attested by all who have been customers of the firm, and has won for them a large number of medals and diplomas whenever they have exhibited. One of the most important branches of the business is the painting and finishing, and to this the firm has paid special attention, and none but the most skilful mechanics are employed in this department, or indeed in any other.

J. R. EATON'S PLANING MILL.

A town growing as rapidly as Orillia does needs a good planing mill and sash factory as well as a practical building contractor. Mr. J. R. Eaton, who has been favorably known in Orillia for some years, and has been engaged in building and contracting for some time, commenced his planing mill and sash factory about a year ago. This he filled with a valuable outfit of the best machinery, which is run by a 20 horse-power engine and boiler. During the past year Mr. Eaton has erected about a dozen houses in Orillia, at a cost of about twenty thousand dollars. This fact alone is sufficient to prove not only how Orillia is growing, but that Mr. Eaton has already built up a successful business.

LONGFORD MILLS

is situated in the Township of Rama, County of Ontario, between Lakes Couchiching and St John. The Northern and Northwestern Railway runs through to Callander past the mills, and in the summer steamers from Orillia call regularly, and of late years the village has been crowded somewhat frequently by visitors and pleasure-seekers. The village was founded by the late Jno. Thomson, about eighteen years ago, and has been gradually added to until now. At present, the village consists of about fifty dwellings, a nice comfortable church, general store, post-office, telegraph and express offices,

and ere long it is expected to be connected by telephone with Orillia. The population of the village is about 250.

THE LONGFORD LUMBER COMPANY AND RAMA TIMBER TRANSPORT COMPANY.

The principal business carried on is the manufacture of lumber, lath, shingles and lime. The most important industry is carried on by the Longford Lumber Company, who have two fine large steam sawmills, with capacity of eighteen to nineteen million feet in six months. This company have very extensive limits in the townships of Rama, Digby, Dalton, Carden, and Anson, and they are also sole owners of the township of Longford, which has an extensive and abundant supply of pine, hemlock, and other valuable woods sufficient for their mills for many years to come. The output of their mills this season was eighteen and a-half million feet and two million lath and about ten million of shingles. Their manufactured goods are shipped over the N. & N. W. Railway, principally to Toronto and thence by vessel to Ogdensburg, Oswego, and other lake ports. In addition to their large saw-mill interest they have extensive farms connected, where they have a fine herd of Shorthorn cattle, Southdown sheep, and Berkshire pigs. This company employ in the cutting season at the mills about 150 men, and in the winter season from 300 to 400 men. The next business of importance is conducted by the Rama Timber Transport Company, under the same management. It was formed for the purpose of taking logs through the canal from Black River into Lake St. John, and from Lake St. John to Lake Couchiching by machinery composed of a tramway about ninety rods long, operated by a large engine and boiler, driving a multitude of short shafts and cog-wheels with rollers attached, where the logs are put on and propelled across at the rate of about 1,500 to 2,000 pieces per day. About forty men have been employed at the works for about four months in the year. There is also on their premises a large shingle mill, with a capacity of eight million in the six months, and the company also operate a magnificent farm in connection. This company has done a large business for the past few years.

IN THE HOLD OF AN OCEAN STEAMER.

"How long do stokers live?" asked a New York *Tribune* reporter of an engineer of one of the swiftest ocean racers that ply between this country and England.

"As long as anybody," was the unexpected reply.

"How do they like their work?"

"If they don't like their work they get out; there are plenty willing to take their places," was the answer. But it is hard to persuade the average landsman that the stoker's life is not shortened by constant exposure to the extremes of temperature. Transatlantic passengers who have braved the intense heat of the furnaces and visited the fire room, wonder how men can endure such a life even for a voyage. The stokers work four hours at a stretch, hemmed in between two long lines of furnaces that keep the temperature ordinarily at 120 degrees, sometimes sending it as high as 160. The space between the furnaces is so narrow that when the men throw in coal they must take care when they swing back their shovels, lest they should burn their arms on the furnaces behind them. The only means of ventilation is one large air pipe that reaches down into the center of the stokers' quarters, and on a big steamer the men have to take the air in batches. On a great ocean steamer like the *Umbria*, the men come on in gangs of eighteen stokers and twelve coal passers, and the "watch" lasts four hours. The *Umbria* has 72 furnaces, which require nearly 350 tons of coal a day, at a cost of about \$20,000 per voyage. One hundred and four men are employed to man the furnaces, and they have enough to do. They include the chief engineer, his three assistants, and ninety stokers and coal passers.

STEAM as compared with water occupies 1728 times as much space. A cubic inch of water will make 1728 cubic inches of steam at atmospheric pressure. Now if this steam is compressed into half the space it occupies at atmospheric pressure, it will be double that pressure, or fifteen pounds above the atmosphere, it will then occupy only 864 cubic inches. If reduced again to half its volume it will occupy 432 cubic inches and will have thirty pounds pressure. Reduced again to half the volume the steam will occupy 216 cubic inches, and will have sixty pounds pressure to the square inch. We can go on reducing in this way until we find that a cubic inch of water turned into steam and compressed into a space of three cubic inches will have the enormous pressure of 3,840 pounds to the square inch.

Dissolution of Co-Partnership

NOTICE IS HEREBY GIVEN

That the partnership heretofore existing between the undersigned, under the name, style and firm of McKECHNIE & BERTRAM, Manufacturers of Machine Tools and Wood Working Machinery, at the Canada Tool Works, in the Town of Dundas, in the Dominion of Canada, was, on the 1st day of the present month, November, DISSOLVED by mutual agreement.

All debts due to the late firm are to be paid to Mr. John Bertram, who is to pay all debts and liabilities of the same, and to perform all contracts entered into, and fill all orders heretofore received by the said firm.

Dated at Dundas, Ont., this 24th day of November, A.D., 1886.

Witness:
R. McKECHNIE
JOHN BERTRAM
H. H. Robertson, as to signature of R. McKechnie.
J. V. Tetzels, as to signature of John Bertram.

WITH REFERENCE TO THE ABOVE, we the undersigned, beg to notify the numerous patrons of the late firm of McKechnie & Bertram, and the public generally, that we have entered into co-partnership under the name and firm of John Bertram and Sons, for the purpose of continuing the business of the late firm, at the premises heretofore occupied by them, at the town of Dundas, and are prepared to FILL ORDERS ON SHORT-EST NOTICE for all kinds of Machine Tools and Wood Working Machinery.

JOHN BERTRAM.
ALEX. BERTRAM.
HENRY BERTRAM

D. MORRICE, SONS & CO.,

General Merchants, etc.

MONTREAL & TORONTO. HOGHELAGA COTTONS.

Brown Cottons and Sheetings, Bleached Sheetings, Canton Fancies, Yarns, Bags, Ducks, etc.

ST. CROIX COTTON MILL.

Ticking, Denims, Apron Checks, Fine Fancy Checks, Glaghams, Wide Sheetings, Fine Brown Cottons, etc.

ST. ANNE SPINNING CO. (Hochelaga)

Heavy Heavy Cotton and Sheetings, Tweeds, Knitted Goods, Flannels, Shawls, Woollen Yarns, Blankets, etc.

The Wholesale Trade only supplied

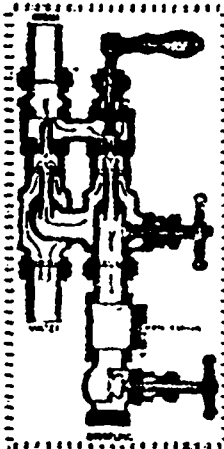
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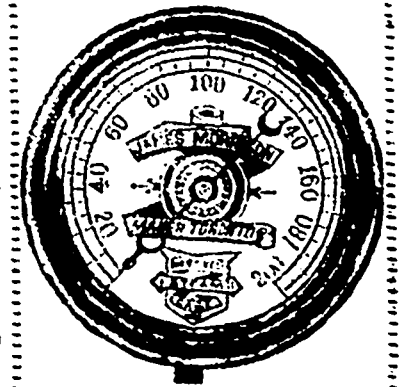
ENGINEER AND MANUFACTURER
OF

Steamfitters' and
Plumbers' Supplies

75 & 77 ADELAIDE ST. WEST,
TORONTO.

SANITARY EARTHENWARE NOW IN STOCK: Morrison's Wash-out Hopper, National Water Closet.

Crown Water Closet.
Modern Water Closet.
Perfect Water Closet.
Jenning's Valve Closet.
Demarest Valve Closet.
Alexander Valve Closet.
A full stock of Wash-outs, 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 Separator



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FOR WOOLLEN, COTTON AND ROPE MILLS.

For Woolen, Cotton and Rope Mills.
Extra facilities for supplying new mills and filling large orders.

CORRESPONDENCE SOLICITED
ORDERS PROMPTLY FILLED.

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All kinds, Made to Order.

Highest Quality of Work Guaranteed.

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"Art"

The
Champion
of all
PARLOR
STOVES.

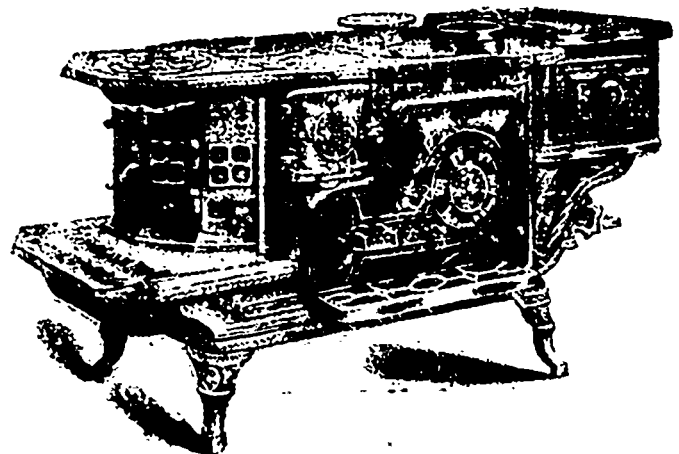


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Positively
the
Handsomest.
Heaviest.
Best Made.

NEW COMBINATION

FOR COAL OR WOOD.



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McCLARY MFG. CO.

DEAR SIRS, I have used your Combination Cook stove for nearly two years, and am very much pleased with it. It has given entire satisfaction both as a coal and wood stove, and I find it so handy I burn coal to wood or vice versa without trouble. Used as a coal stove, the fire can be kept at all night as readily as a self fed hall stove. It is just the stove for the climate.

Yours truly

J. H. BROCK (of Cambridge & Brock)

THREE SIZES PARLOR
No. 30, No. 40, No. 50

TWO SIZES WITH OVEN
No. 60, No. 70

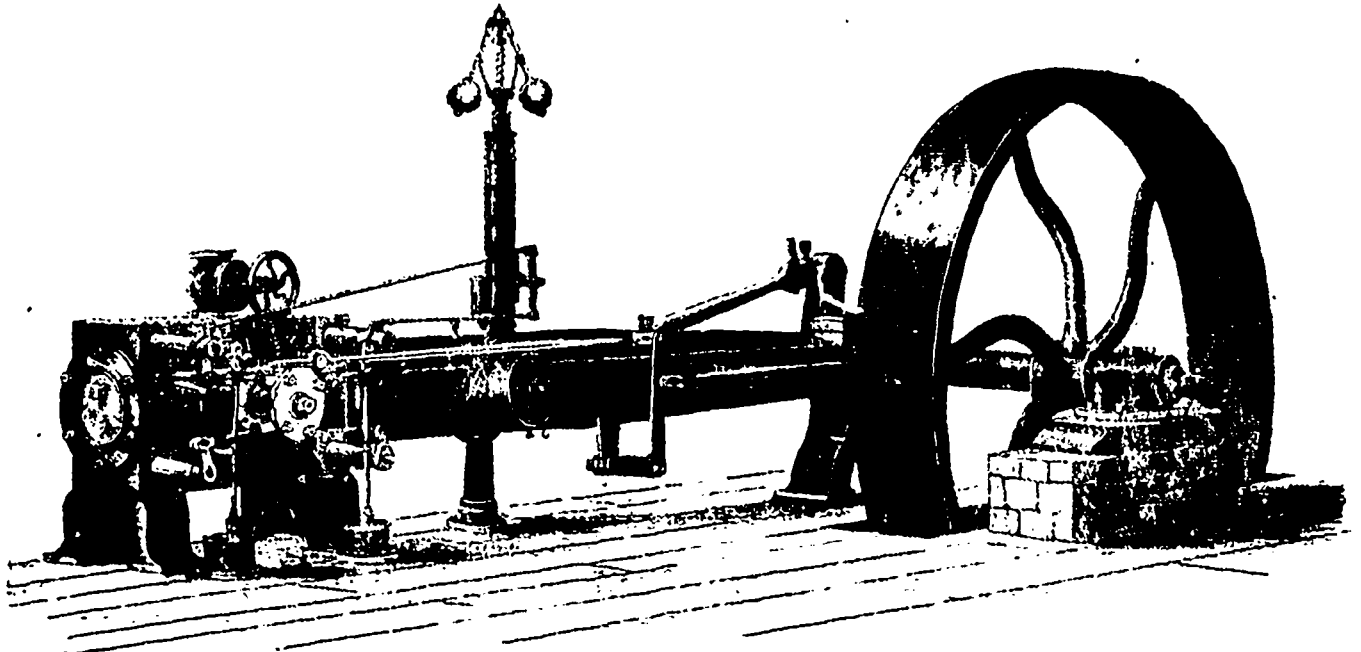
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McClary Mfg. Co'y.

London, Toronto, Montreal and Winnipeg.

THE GALT FOUNDRY,

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THE HARRIS-CORLISS STEAM ENGINE

Is the most perfect Cut-off Engine made. For Economy of Fuel. Regulating of Speed. Accessibility of all its Parts, it has many Imitators, but no Equals, and is Unsurpassed.

While many Engines of the same class have been invented, built, tried and abandoned, the Harris-Corliss has steadily gained in public favor, and is now

Without a Successful Rival.

PLEASE NOTICE SOME OF THE ADVANTAGES OF THE HARRIS-CORLISS ENGINE:

- 1st- **The Steam is admitted at Boiler pressure** to the piston by the main valve and is cut off at the same point, the load returning through the regulator, when the supply of steam shall be cut off. This is the only Engine that thus admits steam at full boiler pressure.
- 2nd- **The success of the Harris-Corliss Engine** lies in the simplicity and precision of the governing elements, **the Governor** is an independent mechanism, with no extraneous load, and free to resist the impulse of all variations in the angular velocity of rotating parts.
- 3rd- **No parts of the regulating medium enter the steam chest** and therefore be out of sight of the engineer, and subject to the corrosive action of steam and the oil used for lubricating the valves and piston.
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- 5th- **Recessed Valve Seats** which are free of liability of wearing shoulders on them.
- 6th- **Stop Motion on Regulator** of Engine which immediately stops the Engine whenever the regulator by any means fails to perform its work, thus preventing the Engine from running away.
- 7th- **Having four Valves** either can be adjusted independently of the other with the greatest ease.
- 8th- **The increased amount of power** it develops.

We would draw special attention to our new and improved **Adjustable Pillow Block**, which is pronounced by all practical men who have seen it, to be the very best in Canada.

COWAN & CO.,

Galt, Ont., Canada.

Manufacturers of Engines, Boilers and Wood-Working Machinery - all kinds, new Patterns, highly finished.

Steam Pumps
AND
Hydraulic
Machinery
of
All Descriptions.

NORTHEY & COMPANY

HYDRAULIC ENGINEERS.

SPECIALTY:
Northey's
PATENT
STEAM
PUMPS.

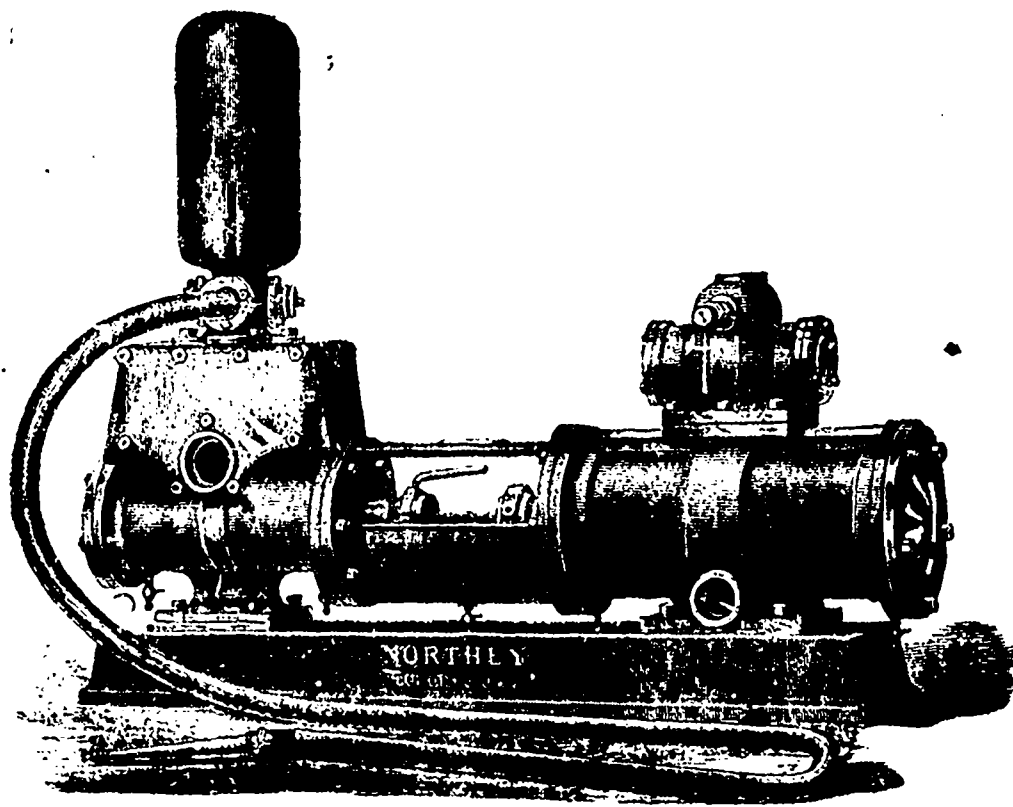
Works and Office: Corner Front and Parliament Streets, Toronto, Ont.

The NORTHEY PUMP

IS THE

Simplest and Most Durable Pump in the Market!

PUMPS FOR ALL DUTIES OF LATEST AND BEST DESIGN.



Ordinary Pattern Boiler Feed or Fire Pump. For Pumping Water against Heavy Pressure. Simple Compact Powerful.

Complete Waterworks Plant for Towns, Villages, &c.,

—A SPECIALTY.

CORRESPONDENCE INVITED.

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- TANK PUMPS
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- MASH PUMPS
- MINING PUMPS
- POWER PUMPS
- HYDRAULIC PRESS PUMPS

- BOILER FEED PUMP
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Price List

ALL
WORK
Abolutely
GUARANTEED

NEW WATERLOO

All Cast Self-Feeding Furnace.

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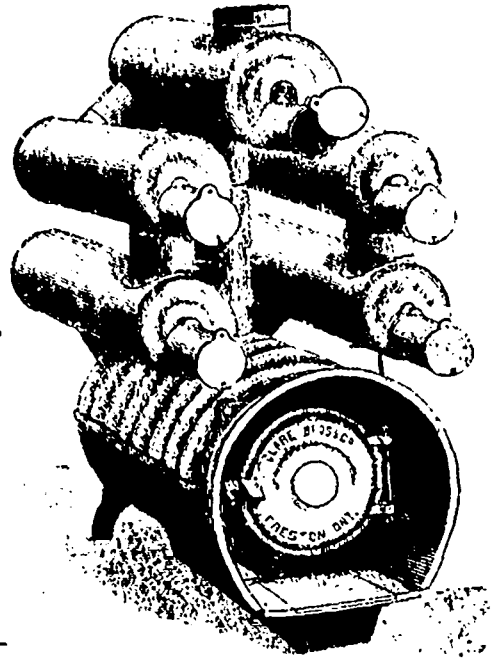
Hot Air Wood Burning Furnace.



CLARE BROS. & CO.

PRESTON.

Write for Illustrated Catalogue and Price List of the most complete line of Coal and Wood Hot Air Furnaces and Radiators manufactured in Canada.



Years in advance of all others. The most economical, durable and powerful gas-tight Furnace made. Can be operated as self-feeding or fed through the front door. Is fitted with New Dock Ash Gear Grate, the best grate known, a simple turning cover absolutely clearing the fire surface of all ashes and clinkers. Has large Ash-Pan, Sectional Fire Pot, a deep sand joint at the hottest part, allowing for expansion, renders this the most durable pot made. The Radiator presents five times as much surface as the action of the fire as ordinary furnaces, and can be more easily cleaned. This Furnace is fitted up in the best manner, with bronze fittings and knobs, dust etc., and is undoubtedly the most economical furnace made.

This Furnace, made in six sizes, is unequalled for efficiency, economy, ease of management, durability. Is corrugated and made very heavy. The Drums are of heavy sheet steel (with cast iron ends and collar connections), well riveted together, so as to prevent the leakage of gas and smoke from unequal expansion and contraction. It has been largely in use for several years, and has never failed to give a most perfect satisfaction to purchasers, thus differing and entirely surpassing all other wood burning Furnaces hitherto made. Farmers who have a surplus of wood until for the market will find therein a great relief from the vexation and annoyances of pulling down and setting up ordinary heating stoves and pipes, wood boxes, etc. We furnish the four larger sizes with either round doors, as shown on cut, or with extra large square doors.

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NEW GLASGOW, NOVA SCOTIA.

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Hammered and Rolled Steel

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

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Iron and Steel

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(PATENTED JUNE 8th, 1882.)

FOR Banks, Vaults, Elevators, Public Buildings, Asylums, Factories, Houses, Driveways, Stores, Theatres, Stables, Baggage, Express, Postal and Sleeping Cars, Express and Delivery Wagons, Windows, Doors, &c.

THE Ontario Folding Iron Gate and Guard Co.

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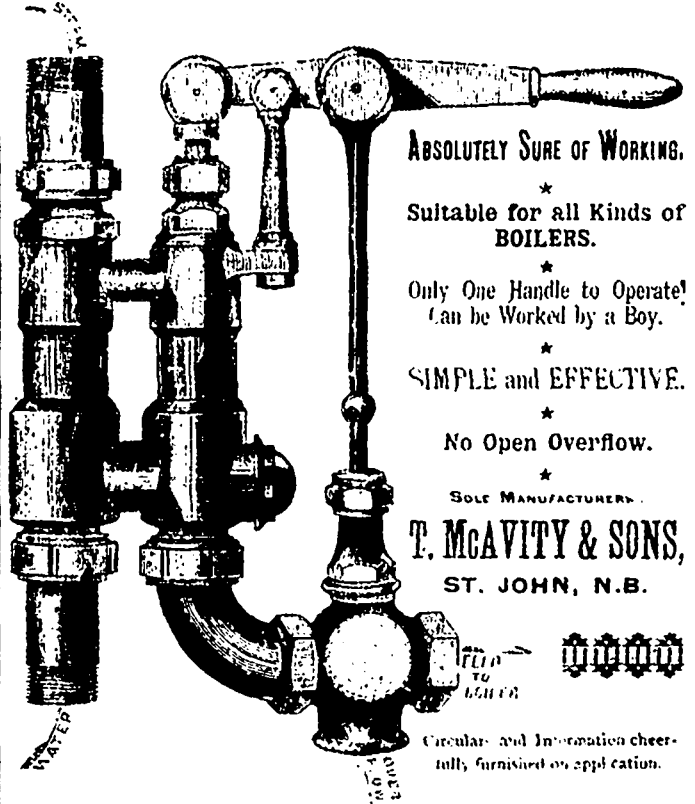
THE FENSOM ELEVATOR WORKS.

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* THE * IMPROVED Boiler Feeder

WITH McAVITY'S PATENT IMPROVEMENT



ABSOLUTELY SURE OF WORKING.

Suitable for all kinds of BOILERS.

Only One Handle to Operate! Can be Worked by a Boy.

SIMPLE and EFFECTIVE.

No Open Overflow.

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GENUINE EMERY

Oakey's Flexible Twilled Emery Cloth. Oakey's Flint Paper and Glass Paper. Oakey's Emery Paper, Black Lead, &c., &c.

PRIZE MEDAL AND HIGHEST AWARD PHILADELPHIA 1876 For Superiority of Quality, Skillful Manufacture, Sharpness, Durability, and Uniformity of Grain.

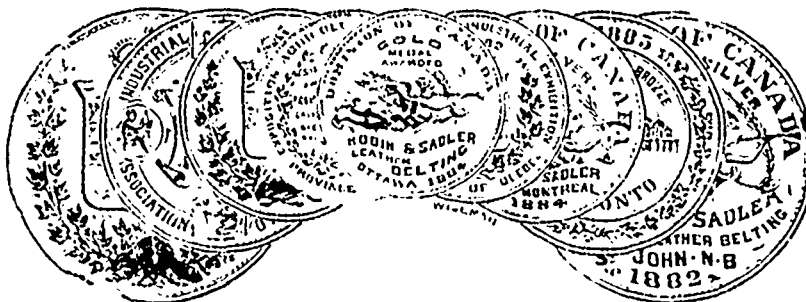
Manufacturers: JOHN OAKEY & SONS, Wellington Mills, WIMBORNE BRIDGE ROAD, LONDON, ENGLAND

Enquiries should be addressed to JOHN FORMAN, 467, ST. PAUL ST., MONTREAL.

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LEATHER BELTING

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Mill Owners in the West will find it to their advantage to order their BELTING from our Toronto House.

We guarantee their orders well and promptly filled, for we keep on hand all sizes from 2 to 16 inch, **SINGLE AND DOUBLE**; also: Lace Leather, Belt Hooks, Belt Punches, etc., etc.

J. L. JONES
WOOD ENGRAVER
 10 KING ST. EAST
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 SEND FOR PRICES

W. H. BANFIELD,
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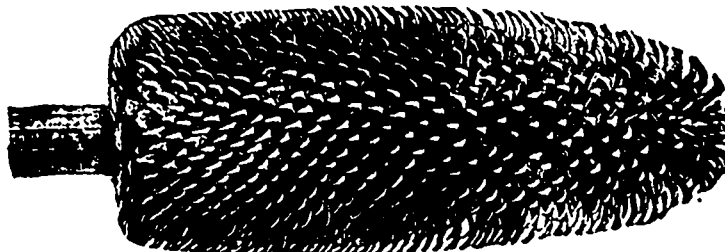
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CUTTING AND STAMPING TO ORDER FOR THE TRADE.

Special Attention paid to Repairing Factory Machinery.
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THOMAS C. KELLOGG,
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DEALERS IN
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INSTRUMENTS,

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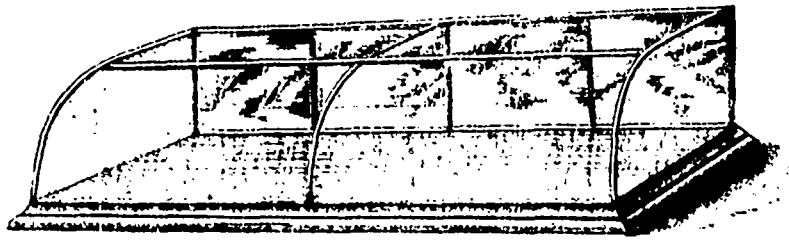
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Toronto Exhibition, 1876

FIRST PRIZE
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HARDWOOD STORE FITTINGS, METAL SASH BARS, ETC.

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CANADA TOOL WORKS,
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Manufacturers of all kinds of Machine Tools and Wood Working Machinery. Our Tools are all made from new and improved patterns and with the latest improvements. A large stock always kept on hand, and those not in stock made at shortest notice. In our list will be found the following

- Lathes,
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- Slotting Machines,
- Milling Machines,
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- Surface Planers,
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- etc., etc., etc.
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- Complete sets of Ma-
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The Canada Tool Works.

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Awarded the Only "Gold Medal" Given at the Toronto Exhibition of 1885, for Cotton Goods.

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FAST COLORS, - - - FULL WEIGHTS.

Quality always Equal to Samples sent out.

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Our celebrated line of Lansdowne Tweeds, the best value, for least cost, of any made in Canada.

BALL KNITTING COTTONS.

Better Spun, Twisted, Bleached and Dyed than any other in the Market. For Sale by all Wholesale Houses.

No Goods Genuine Without Our Name Upon Them.

NO PRIVATE BRANDS.

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Steel and Iron Plates,

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PATENT DIFFERENTIAL AND EPICYCLOIDAL

PULLEY BLOCKS.



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Steam Engines, Boilers, Turbine Water Wheels, Flour Mill Machinery, Wool Machinery, Wood Working, Shingle and Barrel Machinery, Safes, Vault Doors, Etc., Etc.

* SPECIALTIES *

The Wheelock Automatic Cut-off Engine, Chilled Iron Roller Mills, Wheat Cleaning and Flour Dressing Machinery of every description.

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Special Price Lists and Illustrated Catalogues of our various Departments furnished on application.

All orders will receive prompt attention.

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COTTON COMPANY

MANUFACTURERS OF

THE STAR BRAND

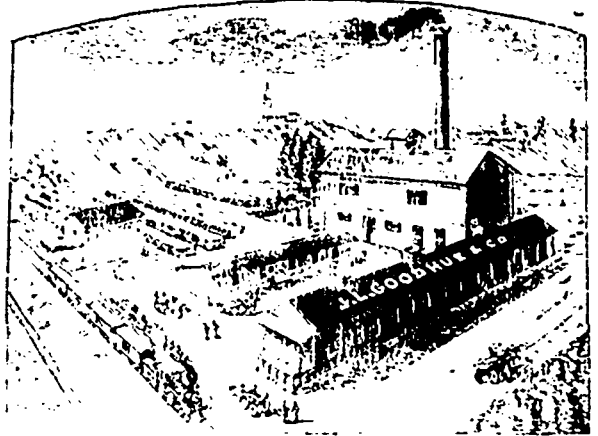
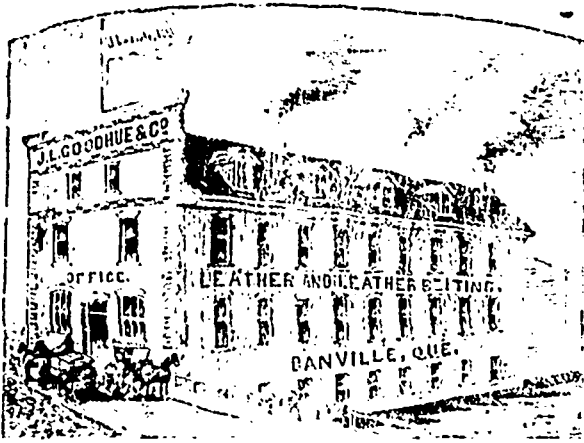
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- Star Brand--BEAM WARP.
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PROMPTLY
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LEATHER BELTING

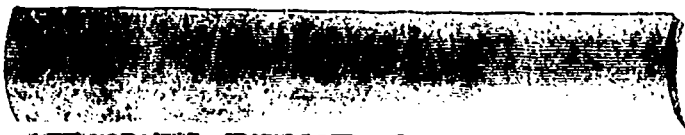
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PLANING MACHINE
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STAVE CUTTER KNIVES



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.

Millers' and Manufacturers' INSURANCE COMPANY.

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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.

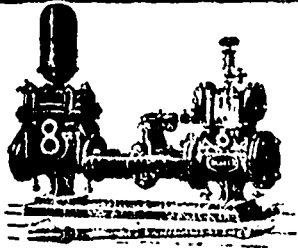
As no agents are employed and the company deals only with the principals of the establishments insured by it, conditions and exceptions which are apt to mislead the insured and promote controversy and litigation in the settlement of losses will thus be avoided.

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

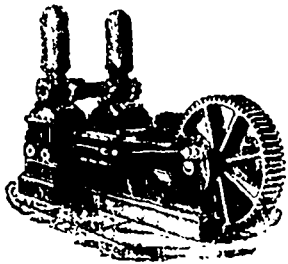
W. H. HOWLAND, Vice-President.
JAMES GOLDIE, President.
HUGH SCOTT, Managing Director.

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

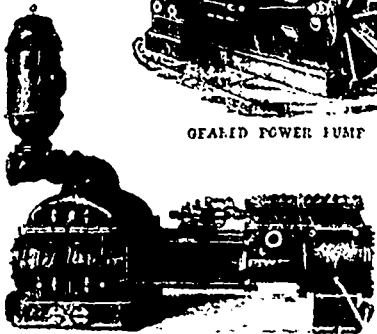
Geo. F. Blake Manufacturing Co.,



BOILER FEED PUMP



GEARED POWER PUMP

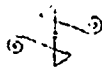


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BUILDERS OF
SINGLE AND DUPLEX

Steam and Power

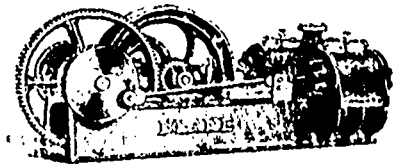
Pumping Machinery



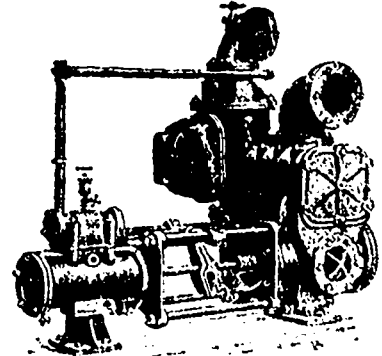
BOSTON,
44 WASHINGTON STREET.

NEW YORK,
93 LIBERTY STREET.

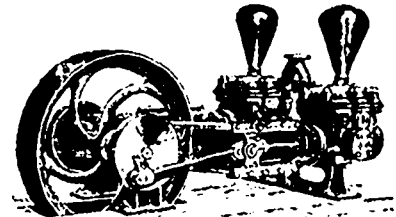
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AIR COMPRESSOR



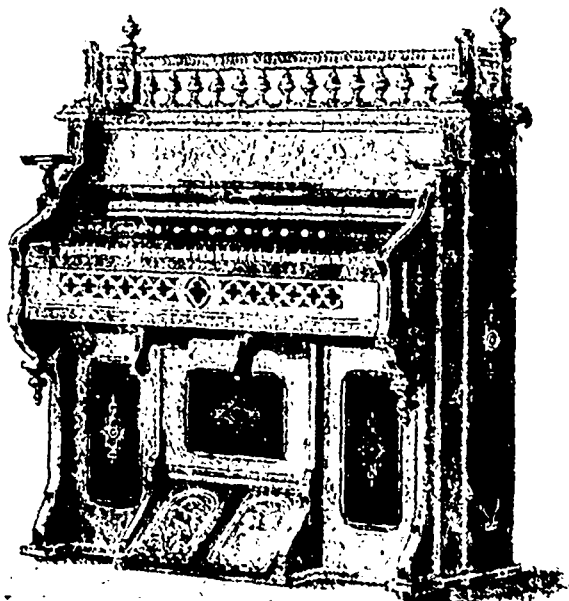
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BELT PUMP

BELL ORGANS

FOR
Chapel,
Church,
Lodge,
Parlor.



ARE THE BEST

OUR Large Double and Single Manual Organs
are the best in the Market, and
Musicians will see them before
buying elsewhere.

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SENT ON APPLICATION

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Industrial and Trade DIRECTORY.

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

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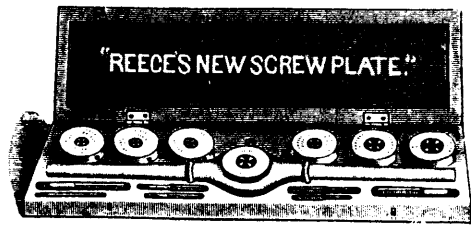
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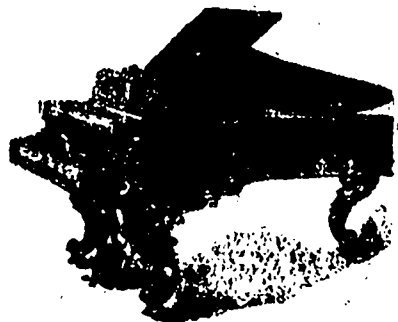
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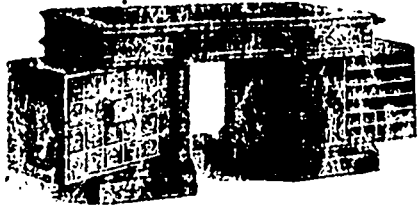
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