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AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION

VOL. 15. TORONTO, DECEMBER 7, 1888. No. 11.

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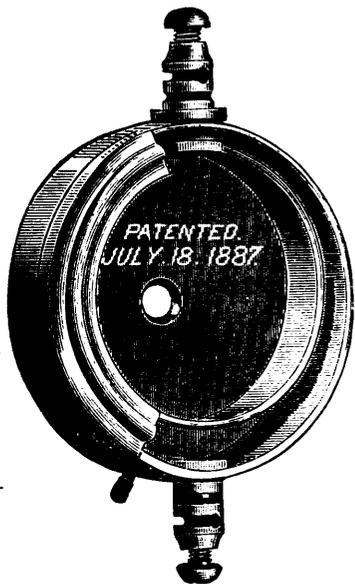
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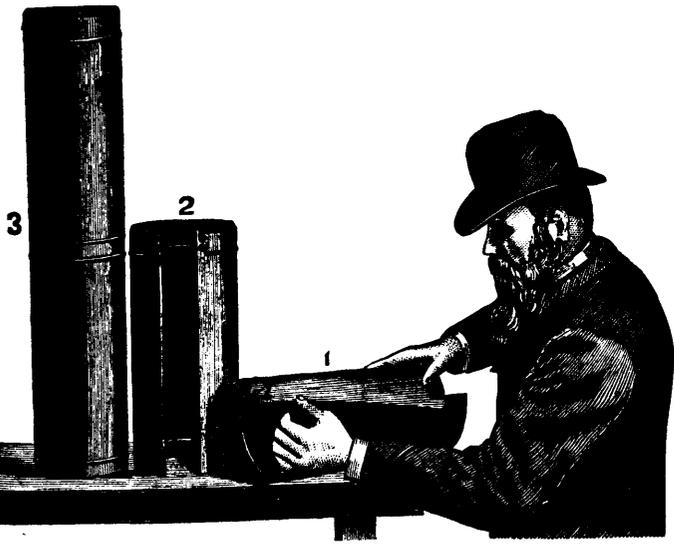
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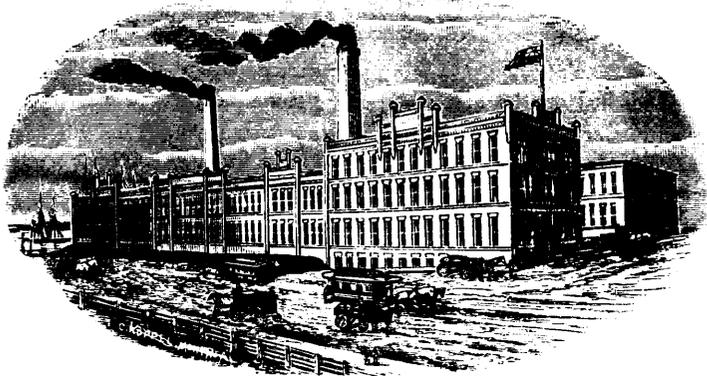
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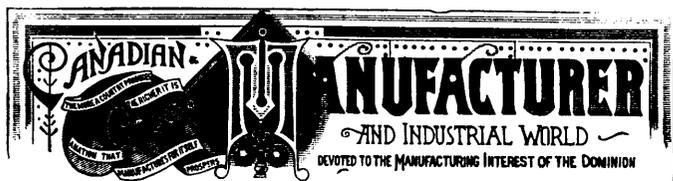
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Captains of Canadian Industry.

"THE nation that manufactures for itself, prospers." In the CANADIAN MANUFACTURER of June 1 we began the publication of a series of illustrated biographical sketches of "Captains of Canadian Industry." It was an entirely new departure in journalism, either in this or in any other country; and the very excellent artotype portraits of leading Canadian manufacturers which have been displayed in each successive issue of this journal have made it valuable as a pictorial album which must of necessity become a part of the history of the Dominion. The publication of these portraits and the biographical sketches of their originals will be continued indefinitely; the object being that when the publication in this journal is finally discontinued, to assemble and reproduce them in book form, which arrangement will be all the more valuable in that the matter which is now being extended through many months in the CANADIAN MANUFACTURER will all be brought into the compass of one attractive and convenient volume. To assist our readers in keeping in mind the names of the "captains" of this grand army whose portraits have already been published, we reproduce them here. They are as follows:—

PLATE I.—June 1.

W. H. Storey, Acton, Ont. Bennett Rosamond, Almonte, Ont.
Samuel May, Toronto. George Booth, Toronto.

PLATE II.—June 15.

Thomas Cowan, Galt, Ont. James Watson, Hamilton, Ont.
R. W. Elliot, Toronto. John F. Ellis, Toronto.

PLATE III.—July 6.

William Bell, Guelph, Ont. John R. Barber, Georgetown, Ont.
John Bertram, Dundas, Ont. Win. Chaplin, St. Catherines, Ont.

PLATE IV.—July 20.

William Doherty, Clinton, Ont. Alex. Gartshore, Hamilton, Ont.
John Fensom, Toronto. Charles Raymond, Guelph, Ont.

PLATE V.—August 3.

William Christie, Toronto. Henry Bickford, Dundas, Ont.
Robert Mitchell, Montreal. James Kendry, Peterboro, Ont.

PLATE VI.—August 17.

John Abell, Toronto. George W. Sadler, Montreal.
H. A. Massey, Toronto. John Taylor, Toronto.

PLATE VII.—September 7.

James Crossen, Cobourg, Ont. Thomas G. Mason, Toronto.
Vincent M. Risch, Toronto. Wellington Boulter, Picton, Ont.

PLATE VIII.—September 21.

D. R. Van Allen, Chatham, Ont. C. E. Britton, Gananoque, Ont.
Thomas Robertson, Toronto. James Hall, Brockville, Ont.

PLATE IX.—October 19.

James Goldie, Guelph, Ont. Charles Boeckh, Toronto.
Louis Côté, St. Hyacinthe, Que. John Schofield, Paris, Ont.

PLATE X.—December 7.

Herman Heintzman. Theodore Heintzman.
William F. Heintzman. George C. Heintzman.
Charles T. Heintzman.
All of Toronto.

HEINTZMAN AND COMPANY.

THE accompanying group of artotype portraits are of Mr. Theodore A. Heintzman, senior member of the piano manufacturing firm of Heintzman and Company, Toronto, and of his four sons, Messrs. Herman, William, George C., and Charles Heintzman.

The senior Mr. Heintzman was born in Berlin, Germany, in 1817, where he received a good common school education. His father was proprietor of a cabinet factory, in connection with which he also manufactured piano actions, keys, etc. His father died in 1828, and the business was continued by two of Theodore's brothers older than himself, and under whom he served an apprenticeship of four years. Having become thoroughly proficient in the business to which he had served so long a time, and his ambition impelling him to become a competent piano-maker, he went to work in a large piano factory in Berlin, where he remained sufficiently long to thoroughly master that business. His desire then was to construct a first-class piano; and having formed the acquaintance of director Cerf, of the Koenig Stadter theatre, Berlin, he was commissioned by him to build a peculiarly shaped piano, to be used in connection with the Italian opera subsequently sung in that theatre, the instrument giving entire satisfaction. This piano was built in one of a suite of small rooms which young Heintzman had rented, and in which he lived, being his own house-keeper. He was accumulating materials for the construction of other instruments, and anticipated doing a snug business. He was in love with the lady who afterwards became his wife; and one evening when he returned to his rooms from a pleasant visit to his fraulein, he discovered that burglars had been there and despoiled him of about every valuable he possessed, including his entire wardrobe, leaving him only his working tools. The money value of this loss was small, but it was all the young man had, and the sweeping away of his means of subsistence discouraged him. His ambition would not allow him to take a situation as a journey workman in any of the piano factories; but being a skilled workman, he was soon offered a position as pattern maker in the great Borzig machine works in Berlin. This was in 1842, and for two years he was steadily employed in making the most important patterns for the Sans



❧ Captains * of * Canadian * Industry. ❧

(SUPPLEMENT TO THE "CANADIAN MANUFACTURER.")

Souci water-works, which at that time was considered a great undertaking. He made himself of great value to his employers, and, having completed the water-works machinery patterns, he was advanced to the position of a master machinist, and as such assisted in the construction of the first railway locomotive ever built in Germany. The completion of this locomotive was considered such an important event, that when steam was applied when it was sent out to perform the duty for which it was constructed, it was profusely bedecked with wreaths of flowers, gay streamers and suggestive banners. Mr. Heintzman views this incident as a notable event of his life, and now, nearly fifty years after, he takes great pleasure in relating the details of it. He remained in this employ until 1849, and until after the one hundredth locomotive had been sent out of the works, which event was also celebrated with much *eclat*.

Meantime Mr. Heintzman had married Miss Grunow, in 1844, the young lady above alluded to. His wife's father was a manufacturer of optical instruments in Berlin, and two of his sons were in the United States, where they had gone to escape the military conscript service they would have had to perform if they had remained in Germany. Glowing accounts went to the old home in the Fatherland from these young men in the American Republic, and the elder Mr. Grunow determined to join them there. Father and daughter would not consent to be separated, and so Mr. Heintzman determined to join the party, and in May, 1850, he landed in New York city.

He was not long idle, for he soon found employment in the piano factory of Messrs. Light & Newton in that city. Having a thoroughly practical knowledge of the business, he quickly observed that the pianos that were being manufactured there were not fully up to standard in many important particulars, and the proprietors, quick to appreciate the ability of their new workman, allowed him to make changes and improvements in the construction of their instruments, which added greatly to their value. This service was rewarded by Mr. Heintzman being made foreman of the factory; and it was while holding this position that Mr. Henry Steinway, senior, the founder and head of what is now probably the largest and most important piano manufacturing concern in the United States, also arrived from Germany, and obtained a situation as sounding-board maker in the Light & Newton factory, under Mr. Heintzman.

In 1851, after having worked in the employ of Light & Newton for eighteen months, Mr. — Benson, who was at that time doing quite a large business in Buffalo, N.Y., as a piano manufacturer, induced Mr. Heintzman to accept a position in his works. The demand for his services was imperative, and, leaving his personal effects, tools, etc., to be sent on by his relatives in New York, and leaving his wife and children with friends in Rochester, he arrived in Buffalo the day after his employer, Mr. Benson, was declared a bankrupt. This was not all of the trouble which attended this move, for the car in which his goods were was destroyed in an accident on the road, and for the value of which not a cent was ever realized. This was a deplorable predicament for a stranger in a strange land; but there came a ray of sunshine through the dark cloud. There were quite a large number of unfinished pianos in the Benson factory when his crash came; and these were being finished up under the superintendence of the late foreman of

the works. Mr. Heintzman obtained a situation on this job at \$10 per week, but was employed on it but a few days when he was offered a situation with Messrs. J. & A. Kehoe, piano manufacturers of Buffalo, his duty being to remodel the scales and patterns of their instruments. A member of the firm of Smith & Nixon, large dealers in musical instruments in Cincinnati, Ohio, saw one of the first Kehoe pianos turned out under Mr. Heintzman's supervision, and immediately placed an order for what in those days was considered quite a large number of them.

Messrs. Housen & Company, of Buffalo, were at that time—1852—large manufacturers of pianos, but they wished to withdraw from that business for the purpose of engaging in the manufacture of pipe organs. They had a number of unfinished pianos on hand, and Mr. Heintzman became connected in business with Mr. F. N. Drew and Mr. H. T. Annowsky, under the name of the Western Piano Company, for the purpose of finishing up these Housen pianos, for which they had secured a contract, and also for the ultimate manufacture of pianos. Mr. Heintzman confined himself to the mechanical part of the business, which grew very rapidly. Instruments were manufactured in large numbers, and the business seemed to be going along swimmingly; but the financial and sales department had not been managed judiciously, and when the great panic of 1857 came on, the concern went to the wall, becoming hopelessly bankrupt. The unfinished stock of the company was bought by Mr. Ulysses Utley, who employed Mr. Heintzman to finish it up, and this kept him fairly busy for a couple of years.

In 1860 Mr. John Thomas, who was an organ builder in Toronto of considerable repute, desiring to include the manufacture of pianos, visited Buffalo in search of some one who thoroughly understood the business. He met Mr. Heintzman and secured his services, and in May of that year Mr. Heintzman took up his residence in Toronto, engaging in the manufacture of pianos, where he has lived ever since. His business connection with Mr. Thomas lasted until 1865, and in 1866 he entered into copartnership with Mr. Charles Bender, a son-in-law, under the firm name of Heintzman and Company, which name has never since been changed. Their first place of business was at No. 105 King street west, the place now occupied by Mr. H. E. Clarke as a salesroom of his trunk factory. This move was immediately signaled by an increase of one hundred per cent. in the output of pianos; and the business has increased steadily ever since. In 1868 the factory was removed to Nos. 115 and 117 on the same street, but this place is too small for the business, and the firm are now erecting what will probably be the largest piano factory in Canada.

Mr. Bender retired from the firm in 1875. Mr. Heintzman's four sons, whose portraits are shown with his in the plate, were raised in this business, and each having his assigned duties, now conduct it under the direction of their father. Three of these sons were born in Buffalo—Herman in 1852, William in 1856, and George in 1859; Charles, the youngest, having been born in Toronto in 1862. These young men are typical Canadians, full of enthusiasm and love of their business, and a grand success they are making of it. Mr. Theodore Heintzman, the father, has always been a close student of his business, a

result of which has been the invention of many important features in the construction of his pianos, which have added greatly to their value, and helped to place them in the very highest rank of the best makers of either Europe or America. And although this gentleman is now nearly seventy-two years of age, he spends much of his time studying the problem of how to make still greater improvements in the construction of instruments that are even now about as near perfection as such things have ever got to be.

The pianos manufactured by Messrs. Heintzman and Company have been awarded prizes, diplomas and medals in large numbers, not only at Canadian fairs and exhibitions, but also in Great Britain and the United States; and the firm take just pride in displaying these souvenirs, and also a number of letters from some of the most renowned musicians and artists in Europe attesting their value.

As is here stated, the new factory of this firm is probably the largest concern of the kind in the Dominion. It is at West Toronto Junction, a suburb of Toronto, the grounds facing 258 feet on Van Horne street, and extending along the line of the Canadian Pacific Railway 275 feet. The main factory building is a substantial brick structure with stone trimmings, four stories high, 200 feet long and 43 feet wide. A one story brick continuation includes the engine room, 24 by 12 feet; the boiler room, 30 by 30 feet, and a machine shop and wire working department, 42 by 20 feet. There is also a brick building constructed specially as a drying kiln, having four compartments, its capacity being to hold one hundred thousand feet of lumber. All these buildings are constructed of the very best materials throughout, and specially designed for the purposes to which they are devoted. The factory is provided with every comfort and convenience; and the fire apparatus, fire escapes, etc., come up to the fullest requirements. The equipment of tools, machinery, etc., is of the very best character. It is expected that these works will be completed and occupied early in the coming year. They will give employment to about 250 hands, and their capacity of production will be about thirty pianos per week.

ARCHITECTS VS. CANADIAN MANUFACTURERS.

WHY should architects doing business in Canada discriminate against articles of Canadian manufacture?

There is a business element in Canada closely connected with certain Canadian manufacturing industries, who are of that class who persistently think that no good can come out of Nazareth; that no prophet is entitled to honor in his own country, and that an article to be sufficiently good must be the product of a foreign factory. We refer to those architects doing business in Canada who usually mention that certain articles and materials which enter into consumption in the erection of buildings and their equipment must be of foreign production. We have knowledge that this is customary with many architects to demand in their specifications that such things as drain pipe, closets and their fixtures, heating apparatus, kitchen range boilers, etc., shall be of certain makes and styles that are not produced in Canada at all, frequently going so far as to specify that the articles in question must be the products of specifically named foreign manufacturers. Where this is done contractors

cannot exercise any discretion; nor have they the right or privilege to substitute articles of Canadian manufacture; the result being that domestic industries may languish and decay, as far as these architects care, while the money that Canadians are putting into residences, and which they would be glad to see disbursed among Canadian manufacturers, goes to enrich foreign producers.

If there were any good and substantial reasons for thus ignoring home interests, no objections would be raised; for those who desire to have their houses built and equipped in only the very best possible manner, and with only the very best materials, should have the privilege of doing so. Usually when architects are instructed to make plans and specifications for proposed buildings, it is left entirely with them to specifically mention just what materials and articles are to enter into the construction of the edifice. Perhaps the owner knows nothing regarding the relative merits of certain articles and supplies, the whole details of the business being left with the architects. These, in turn, having written their specifications, hand them over to the contractors, who are obliged to conform their work thereto in all respects, no choice or option being allowed them to substitute Canadian goods for those of foreign make. Thus, if American or Scotch drain pipe is called for, no Canadian pipe can be used, although the latter may be equally good or better. If a certain foreign heating apparatus is called for, no similar Canadian apparatus can be substituted therefor, although there may be no difference whatever in the intrinsic merits or cost of the two articles. In such a simple yet important article as a kitchen boiler, although there are none made anywhere else of any better quality, or more desirable in any respect than those made in Toronto and other places in Canada, it is of frequent occurrence that the specifications of the architects call for boilers made by foreign manufacturers, which of course, exclude the home product.

These conditions are due in a large degree to the unwise prejudices these architects entertain in favor of foreign and against home made goods. If the domestic were inferior in quality or effectiveness to the imported articles, this discrimination would be clearly justifiable. But generally they are not; and there is abundant evidence available to prove this fact. Is it, then, that many of the architects doing business in Canada are really not Canadians, but immigrants from foreign lands, who bring with them their old prejudices and predilections, and who are not identified with or care for the success of Canadian industries? It appears so. It is well that architects should specify that the materials and appliances to be used in the construction and equipment of buildings designed by them should conform to certain approved standards, but it is not necessary they should specifically call for articles of foreign manufacture to the exclusion of articles of home production.

COPYRIGHT.

THE approaching session of the Canadian Parliament will witness a remarkable contest. It will be over the copyright question, and between those who will contend that the operation of our National Policy shall extend to the manufacture of books in Canada, and those who desire to bring Canada within the terms of the Berne treaty. The one will represent the idea

of "Canada first" in the book publishing, as well as in all other manufacturing industries; and the other will represent chiefly British authors and British publishers.

As we have heretofore shown, the existing copyright law in Canada provides that the owner of a British copyright, to enjoy the benefit of it in this country, must actually manufacture his book here. If this is done the book is placed within the reach of Canadian readers at a moderate price. If it is not done by the owner within a specified time, any Canadian publisher may reproduce the book by complying with certain conditions, among which is the payment of a tax to the Canadian Government of $12\frac{1}{2}$ per cent. of the retail price of the book, for the benefit of the owner of the copyright. If the book is not published in Canada, then the booksellers are free to import it; and as there is no legal barrier preventing the publication of it in the United States, it may be imported from that country on the payment of 30 per cent. duty to the Government, and the further tax of $12\frac{1}{2}$ per cent. for the benefit of the owner of the copyright. And it is in this way that very cheap editions of English books can be bought in most Canadian bookstores. This is an advantage that Canadians enjoy, and which they do not seem to fully understand is to be wrested from them should the bill now pending in Parliament be made a law.

The following illustration will show the status as it now exists, but which could not possibly exist under the Berne law: But a few weeks ago a new and popular novel by a British author was published in England, the price of the work being the equivalent of \$7.50. To bring that book into Canada would imply the payment of the 30 per cent. duty, besides the freight, and the total cost here would place it far beyond the reach of all but people of large wealth, who could indulge in the extravagance. But at this time a cheap reprint of this same book, in handsome library binding, can be bought in Canadian bookstores for \$1.25, and a paper cover edition for forty cents. Under the operations of the proposed law no edition of this book could be bought in Canada except the expensive one published in England; and any attempt to import a cheap edition from the United States, or to manufacture it here, unauthorized, would result in seizure and destruction by the Canadian authorities.

The Berne bill should never be allowed to become operative in Canada.

THE UNITED STATES OF AMERICA.

DOUBTLESS immediately upon his inauguration, President Harrison will call for the assembling of the United States Congress, and lay before it the necessity for legislation on several important matters. It is not likely that any further attention will be paid to the tariff reform measures now pending in the present Congress. The present session will expire by limitation at the same time with Mr. Cleveland's term of office; and the demands of the country for tariff revision will be complied with by the new Congress. It was because of the difference of opinion between the Republican and Democratic parties that this revision was not effected years ago. For years before Mr. Cleveland became President, the Democrats had a majority in the House of Representatives; and their

aim at revision was in the direction of Free Trade; but a Republican Senate intervened to prevent any such legislation. The Senate was anxious to reduce the treasury surplus, having due consideration for the interests of American manufacturers, but no Senate tariff reform bill could be acceptable to the House; and no House Free Trade bill could possibly pass the Senate. Under the new order of things, however, the House having passed into the control of the Republicans, and there being a Republican President, there will be no difficulty in the Republicans formulating a revised tariff and internal revenue acts, which will effect the desired purpose. In other words, the revenue reform for so many years demanded by the country will now be effected by the friends of Protection, not its enemies.

Another matter that will receive the prompt attention of the new Republican Government will be that regarding the admission of several new States into the Union. Dakota will be divided and admitted as two States, and Washington and Montana Territories will also be admitted as States. These new States will be entitled to two Senators each, and their population will entitle them to one or more representatives each. All of these new States and statesmen will be adherents of the Republican party, and their presence in their respective branches of Congress will add so largely to the Republican majorities there as to place the hope of recapture by the Democrats many years away in the dim distant future. Heretofore the dividing line of the Republican and Democratic parties was shown by stakes from which floated the "bloody shirt." This solidified the South but not the North, and it was because some of the Northern States were willing to bury the ensanguined garment, that they assisted the South in placing the Democratic party, as represented by Mr. Cleveland, in power. Never forgetting the wrong—never learning the right—true to their Bourbon instincts—they signalized their advent to power by endeavoring to destroy that policy by which the Republicans had bought the nation from the dejection and depression caused by the Rebellion to the high plane of prosperity which it now enjoys. It was evident that unless the Republicans discovered some new and important issue, the Government must pass entirely into the hands of the Democrats and remain there. But the Democratic party can always be depended upon to furnish the occasion to its enemies, and this it did in their efforts to bring about Free Trade. The Republican party, always the protector of Protection, was quick to seize the opportunity, and the recent election has placed it more firmly in power than ever before, and on a most wholesome basis.

Besides the acquisition of the four Republican States here alluded to, it is probable that before Mr. Harrison's four year's term has expired a portion of the Indian Territory will be erected into the State of Oklahoma; that Texas will be cut up and made into one or more additional States, and that Wyoming will also become a State. It is not at all unlikely that Mormonism having been stamped out in Utah, that Territory will also be made a State; and that Arizona and New Mexico will have the same dignity conferred upon them, all within the years included in the forthcoming Harrison administration. These latter-named embryo States will probably all be Republican, and out of what will probably be fifty States comprising the American Union a few years hence, the Democratic Free

Trade Solid South will form but a very inconsiderable political portion—unless some of them wheel into the Protection column, as is not improbable.

THE CANADIAN SEWER-PIPE INDUSTRY.

In some localities in the "Sunny South" when a "nigger" is accused of crime, he is first immediately strung up by the neck to a tree or his body filled with buckshot, and afterwards public opinion pronounces upon his guilt. Of course this subsequent proceeding does not prove very interesting to the accused, but that is the idea those people have of "justice." Very similarly our esteemed contemporary, the *Canadian Architect and Builder*, attempts to dispose of the sewer-pipe industry of Canada. It receives a letter "from a gentleman in the United States" who desires some information regarding the business in this country, and immediately, upon *ex parte* statements from witnesses who deny the truthfulness of the language imputed to them, proceeds to demolish and ruin, as far as in its power lies, a domestic industry which has already assumed considerable importance, and which, we are glad to say, is abundantly appreciated by those who know a good thing when they see it. It does this by stating that the sewer-pipe factories in Canada "supply but a very small percentage of the sewer-pipe used in this country;" that "the largest proportion is imported either from Scotland or the United States," and "that such a large proportion has to be imported is due to the inferiority of the pipe at present manufactured in Canada as compared with the imported article."

This outrageous and unnecessary assault upon a meritorious Canadian industry called forth a rebuke from this journal, which in its last issue showed the injustice of the attack. We therein published the testimony of Mr. A. E. Carpenter, president of the Toronto and Hamilton Sewer-Pipe Company, of Hamilton, Ont., and of Mr. W. C. Trotter, president of the Standard Drain-Pipe Company, of St. John's, Que., to the effect that sewer-pipe of their manufacture were in use in a large number of cities and towns in the Dominion; that these were brought into fair competition with foreign made pipe, and that the general verdict was that the Canadian pipe was as good as any, and in some important instances better than that of foreign manufacture.

The *Architect and Builder* in its last issue is very restless and unhappy because of the *faux pas* it had committed, and attempts to palliate its silly offence. It tells that the information on which its offensive article was written, was obtained from Mr. Robert Carroll, a well-known dealer in sewer-pipe in Toronto, whose statements "were condemnatory of the quality of Canadian-manufactured pipe, and tended to show that a profitable opening existed in Canada for the establishment of a factory for the manufacture of a pipe more nearly equal in quality to the imported article." Mr. Carroll emphatically denies that he made any such statements, and as between that gentleman and the editor of the *Architect and Builder*, there seems to be an issue of veracity which they can settle to suit themselves.

A remarkable confession on the part of the *Architect and Builder* lies in the statement that "upon reading the denials of the Canadian sewer-pipe manufacturers"—published in this

journal—"we at once set to work to make a full investigation into the whole subject." This is really very funny, and reminds us of the southern method of disposing of the accused African. There was no qualification to the original derogatory statements concerning the inferior quality of Canadian sewer-pipe, although the editor of the *Architect and Builder*, having no personal knowledge of the matter, based his remarks on the statements of a gentleman who denies having made them. But our contemporary goes further and fares worse. It does not go in the direction of an effort to repair the grievous wrong which it had done by acknowledging its error, but it seeks to substantiate it by soliciting professional opinions from city engineers in certain Canadian cities, and following is the gist of their replies:—

From Mr. E. E. Perreault, City Engineer of Ottawa—"The corporation of the city of Ottawa does not permit the laying of any other brand but Scotch vitrified clay pipes." From Mr. Hurd Peters, City Engineer of St. John, N.B.—"All the sewer-pipe used here is imported from Scotland. Cement sewer-pipe is made at St. Stephen's, in this province, but I have no experience of its character." From Mr. J. O. Bolger, City Engineer, Kingston, Ont.—"We use Scotch sewer tile altogether. The city did put in some Canadian pipe before my time." From Mr. E. H. Keating, City Engineer, Halifax, N.S.—"The bulk of drain-pipe hitherto used in this city is of home manufacture. Smith & Kaye, of Enfield, N.S., were formerly the makers, but lately the work has been carried on by H. C. Preedy. Within the past year some pipe from St. John's, Que., has been used." From Mr. Thomas H. Tracy, City Engineer, London, Ont.—"We use Canadian and American pipe, and find the Canadian pipe quite equal to the American." From Mr. P. W. St. George, City Surveyor, Montreal—"This city has a contract with the Standard Drain-Pipe Company, of St. John's, Que., and I have found their pipe to be of good quality. I have made a great many tests, and it gives me pleasure to say that the Canadian pipe compares most favourably with any imported from Europe. The city contracts for sewer-pipe are open to competition to everybody; and, as the Standard Drain-Pipe Company of St. John's happened to be the lowest, it was given to them."

This is the evidence of all the witnesses the defendant has introduced, but it will be observed that none of them speak depreciatingly of Canadian sewer-pipe. In Ottawa and Kingston unaccountable prejudices prevent even the testing of Canadian pipe; while in St. John, N.B., the geographical situation seems to be in favor of Scotch pipe. In Halifax the bulk of the pipe used is of home manufacture; in London the Canadian pipe is declared to be quite equal to the American; and in Montreal, where the different products come into equalized competition, and where the article is placed entirely upon its merits, we are told the Canadian pipe compares most favorably with any imported from Europe.

We have before us several similar documents bearing upon this question. Under date of February 12, 1885, the City Engineer of Toronto furnishes a statement of the result of several tests made with Hamilton-made pipe and others, in which it is shown that a 12-inch Hamilton pipe stood an internal hydrostatic pressure of 60 lbs. to the square inch, without ooze or damage, while one 12-inch American pipe,

made at Toronto, Ohio, commenced to crack at a pressure of 14.92 lbs., and another pipe of same size and make broke through under a pressure of 17.22 lbs. per square inch. Mr. M. M. Buckley, Mayor of Niagara Falls, Ont., informs us that he has had considerable experience with Hamilton pipe: that it has given "entire satisfaction," and that it compares favorably with any imported pipe, being equal in usefulness and durability, and much cheaper." The Mayor of Owen Sound, Ont., says:—"We have used sewer-pipe of both Hamilton and St. John's make, and they have given entire satisfaction." Mr. William Craddock, Street Surveyor, Chatham, Ont., says:—"During the year 1887 we used 8000 feet of Hamilton pipe, and I unhesitatingly say I consider it superior to any American tile I have seen, both in appearance and strength."

Mr. Robert Carroll, who is one of the largest dealers in sewer-pipe and similar goods in Toronto, and who has a large experience in the business, says:—"My experience as regards the relative merits of Scotch pipe and that manufactured by the Standard Drain-Pipe Company of St. John's, Que., is that the Canadian article is much to be preferred to the imported article. Comparing the relative thickness of the two, it will be observed that in the construction of the Standard pipe the thickness is governed by the size. Thus a 12-inch pipe is 1 inch thick, a 9-inch pipe is $\frac{3}{4}$ -inch thick, and a 15-inch pipe $1\frac{1}{4}$ inches thick, always having extra heavy sockets and double thick shoulders. The sockets are always wide enough to easily receive the fitting pipe, leaving abundant space for the cement. They are well-burned, vitrified and glazed, and well-finished; while such Scotch pipe as is now being used in Toronto is of inferior quality, under the scale as regards thickness, of coarse texture, very porous, poorly glazed on the outside, and devoid of glaze on the inside where most needed to resist the action of sewer acids, and deceptive in having the inside smeared with a useless coloring in weak imitation of glaze."

All this testimony is clearly in favor of Canadian pipe—certainly not against it; and the discussion of the matter has elicited the fact from a large number of experts in different parts of the country, that Canadian pipe is the equal of any ever brought into the country.

Letters bearing on this matter from Mr. Trotter, of the Standard Drain-Pipe Company, and Mr. Carroll, of Toronto, in another page, explain themselves.

TWENTY-TWO YEARS UNDER PROTECTION.

THE railroad system of the United States, as developed under the operations of the protective tariff of that country, is an interesting study in which Canada is interested. Mr. Henry V. Poor, editor of *Poor's Manual of Railroads of the United States*, who is accepted authority on railroad matters, has recently published a pamphlet entitled, "Twenty-two Years of Protection," which is a very exhaustive review of the financial history of the United States, in which is demonstrated the fact that the remarkable industrial progress there during the last twenty-two years has been chiefly the result of the protective policy which has prevailed during that period. The introduction is a historical sketch of the efforts of the British North American colonies to create manufacturing industries to supply their wants and render themselves indus-

trially independent of the mother country, and of the persistent efforts of the English Government to destroy such industries by prohibitory laws. The great cause that led to their rupture with England was the determination of the Colonists to establish an industrial as well as a political independence, the former being the essential condition to the enjoyment of any considerable degree of prosperity.

Part I. covers a period of forty years, extending from the formation of the national Government. The first act of the new Government, to carry out the great object of its formation, was for "the encouragement and protection of manufacturers." This act, as a precedent, was carefully followed for forty years, the sum of all legislation of the kind during such period being to give full and complete effect to it. Throughout this period the North and South acted in entire harmony. General Jackson, when in the Senate of the United States, was a high-tariff man, voting for the act of 1824, and ran as such for the Presidency. He was also a warm advocate of internal improvements.

Part II., extending from the end of the first period to the close of the war of the rebellion, covers that in which the work of the fathers was overthrown, the assault upon it being followed by one upon the national government itself. The first assault was directed against the tariff, on the ground that the South, which blindfolded labor, could derive no advantage therefrom. It was against the Tariff Act of 1832 that South Carolina directed her first ordinance of secession, to take effect unless the United States speedily modified the tariff laws by large reductions in the rates of duties. Had not the nation then retired before a State armed to the teeth, the second assault upon it—this time prompted wholly by slavery—would never have been ventured upon. The right of secession was virtually established by the Compromise Act of 1833. Free trade, or secession, as the alternative, became the dogma of the South. The party embodying one, or both, was the Democratic party, which was first heard of, and first organized in 1832. From its origin this party was incessant in its declaration of the right of any State, upon its own motion, to secede from the Union. The period of its domination was consequently the most disastrous in the history of the country. Every person entering upon any enterprise or industry had to take the chance of an assault upon the Government for the purpose of its overthrow, that assault being made a second time upon the election of Mr. Lincoln in 1860.

Part III. covers the period from the final overthrow of the rebellion to the present time. The most important result of the war was the vindication of the paramount power of the national Government—an attribute always denied to it by the Democracy. The first act of the new nation, as it may be called, was to restore the work of the fathers, among which was the establishment of a rigid system of protection. Under the new Government the people could embark upon any enterprise or industry, certain at least that they were living under a permanent form of government, and under the rule of laws not subject to sudden or violent change; that their flank and rear were well guarded, so that if one failed of success in any undertaking it was his own fault. The result is the most wonderful progress made in the world's history. In a period of twenty-two years the amount of the internal commerce of the country in-

creased 700 per cent., the rate of increase being ten-fold greater than that of the population of the country. The number of tons of merchandise moved on the railroads of the United States increased from 70,000,000 tons in 1865 to 552,000,000 tons in 1887, such increase measuring the degree of increase of the products of the country. The value of the tonnage moved in 1865 equalled \$2,213,400,000; in 1887, \$13,043,250,000. The increase in the number of tons moved in 1887 over that moved in 1886 equalled 70,000,000 tons, the value of the increase in a single year being \$1,660,000,000—the increase for a single year equalling a sum nearly two and a half times greater than the exports of the country for the same year. With the enormous increase in quantity, the price of every saleable article but that of labor has greatly fallen. That alone has risen in value and risen greatly.

The question to be decided at the late Presidential election was, whether the present happy *regime* was to be continued, or whether the country was again to be committed to the old Democracy, at war with every instinct of progress and freedom, and which, if again restored to power, would be certain to repeat the disasters of its rule from 1832 to 1860, and place all the manufacturing industries of the country under the control of a section which has always persistently sought their overthrow.

WOMAN'S WORK.

In her report to the Knights of Labor at their recent annual convention at Indianapolis, Ind., Mrs. L. M. Barry, general investigator of women's work, in giving a detailed account of her work in different parts of the United States, speaking of the work done and wages received by women and girls, and the disadvantages under which they work, says:

"But of one of two classes of toilers I would like to speak in the hope that the Knights of Labor may devise some way to overcome, prohibit, or restrict by legislation one of the most oppressive, pernicious, and damaging systems to public good that afflicts our country to-day. I speak of the contract-sweating middlemen, or slop shop plan, which works ruin, misery, sin, and shame to toilers, and death or failure to the legitimate or regularly established industry with which it competes. Instance the following: Men's pants, that retail at prices from \$1 to \$7 per pair, are taken by the contractor at 15 cents per pair. Operatives are then employed and huddled together in a close, stifling back room, where the machine operatives furnish their own machines and in most cases thread, and do all the machine work on pants, without basting, for 5 cents a pair. They are then passed over to the finisher, who puts on the buttons, makes button-holes, and puts on buckles for 5 cents a pair. Six pairs are an average day's work. Supposing five operatives to be employed, and there are oftener more than less, the contractor makes 30 cents a head, which nets him or her \$1.50 per day, while his or her victim gets 30 cents per day. Men's vests are contracted out at 10 cents each, the machine operatives receiving 2½ cents and the finisher 2½ cents, making 5 cents a vest for completion. Twenty vests are a day's work. Here, again, with the five operatives, he or she nets \$1 per day for doing nothing, while the unfortunate victim has 50 cents for eleven or twelve hours of her life's energies. The women are required by society to meet all the requirements of nature in an honest woman. Think of their ability to do so under such opportunities. Oh, brothers of the Knights of Labor, I implore you, by your love for mothers, sisters, wives, and daughters, those sweet

little innocent girls who to-day gladden your heart and brighten your hearthstone, to unite on some course that will have a tendency to remove this curse of our fair land, this blot upon our American liberty and independence, ere the tender feet of your loved ones are compelled to press this life path-way of thorns. And in the manufacture of women's underwear this hellish method is carried on with equal force."

The charges that Mrs. Barry makes are indeed terrible; and, it is to be feared, not overdrawn or mis-stated. And if they are not, it is of the greatest importance that a public sentiment should be immediately worked up in the United States that will effectually put a stop to the evils which she so graphically describes. More—if such things exist in Canada they should be suppressed at the shortest possible notice. Only human brutes could so cruelly oppress women and children.

SPECIAL ADVERTISEMENTS.

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

LATHE WANTED.—A good second-hand turning lathe, fourteen feet between centres. Must be in good order. Give name of maker, swing, etc., with lowest price. Address P.O. Drawer 1946, Montreal.

A RETIRED dispenser of a H. M. Indian Troop-ships, owning the recipe for a valuable specific against "sea-sickness," wants partner with some capital to aid in developing business. Or will sell recipe. A fortune to be made. J. Watson, Ottawa.

KNITTING **CREELMAN BROS.** **MACHINES.**
Georgetown, Ont.

EDITORIAL NOTES.

THE Almonte, Ont., *Gazette* gives an editorial synopsis of what Mr. W. H. Priest, of Notre Dame de Stanbridge, Que., says about free trade. The *Gazette* does not "catch on" to the idea advanced by Mr. Priest. It seems to think that that gentleman desires free trade, pure and simple, with all the world, while his desire is really only free trade with the United States.

In the manufacturing city of Leeds, England, which has a population of 320,000 souls, according to the evidence of its chief of police, not one labouring man or mechanic owns his own home. Leeds is in Free Trade England. In the manufacturing city of Philadelphia, where the industries are "protected" by the tariff, there are 170,000 homes owned by working people. These facts are significant.

Farm Machinery, of St Louis, complains of the persistency with which a certain paper cribs its matter. Our valued contemporary should remember that "imitation is the sincerest flattery." Of course, "Eli gets there"—usually first, and equally of course, the other fellows get there subsequently. Belated travelers, it should remember, do not always have time to appear in their own raiment, neither are they always particular as to whose raiment they wear. This is spoken from the depth of our own experience.

Mr. James M. Swank, editor of the *Bulletin* of the American Iron and Steel Association, and managing director of that concern, is to be substantially rewarded by the incoming Harrison administration for his great help in the cause of Protection. Probably there is no man in the United States who is better informed on this subject than Mr. Swank, nor who did more effective work for Protection during the recent campaign. In addition to this proposed Government appointment, it is said that a number of American manufacturers will make a personal testimonial of their appreciation of Mr. Swank by presenting him with a residence which will cost \$10,000.

THE *Monetary Times* is sometimes given to perpetrating funny jokes, but it does not seem to comprehend that they are usually like Paddy's gun that shoots both ways. In a recent issue it reproduced a paragraph from the *Detroit Sun* which told of the explosion of a gasoline stove in that city. The diagram accompanying the joke called attention to the danger connected with the use of gasoline stoves. On the same day that this item was published the Toronto fire brigade were called to extinguish a fire in a church, caused by the carelessness of workmen in leaving a lighted candle which set fire to a pile of shavings; and on the same day to another fire in a factory, caused by a workman allowing a lighted candle to fall among some combustible material. Our contemporary keeps humorously quiet about these two events. If the *Monetary Times* is desirous of making some money, we can put it in communication with parties who will pay liberally for the production of credible evidence that the Detroit gasoline stove, or any other gasoline stove, ever really "exploded." It should substantiate its jokes or cease firing them off so unguardedly.

SIR GEORGE BADEN POWELL, in a letter to the *London Times* on Canada and the fisheries dispute, says:—

"A week ago a well-known Canadian statesman pitifully described to me the present attitude of the United States towards Canada as that of a big boy at school saying to a little boy, 'Give me all your pocket money and your marbles, and then we will be great friends.' We in England are confident Canada would reply, 'My pocket money and my marbles I'm going to keep for my own, and you can be great friends or not as you please, because I'm already great friends with all my big brothers!' Canada would be right. Her big brothers, the other provinces of the wide British empire, are her firm friends, and do not ask for her marbles or her pocket money; but, then, neither do they see why she should give them up to any one else. They are proud to see Canada, with such quiet dignity, assert the sanctity of international agreements, and uphold the wise course of determining international disputes by the means of international negotiations and treaties. When Canada refuses to negotiate or to abide by treaties, then will be the time for such animadversions as those detailed by Mr. Hurlburt. That day has not yet arrived; and, according to my knowledge of Canadian men and Canadian character, I roundly assert that that day never will arrive."

THE person who will elaborate and practically demonstrate the following idea, and patent it, will make big money for himself and supply "a long felt want." Let there be a heating arrangement adapted to cabs, carriages, sleighs, street cars and similar vehicles which will make them comfortably warm in cold weather. The heating can be effected by the use of gasoline fuel, the combustion being by means of burners similar to

those used in gasoline stoves. The fuel tank can be placed at the top of the vehicle, or in any elevated position, and a suitable valve within the reach of the driver or occupant can regulate the flow. A system of small iron or copper pipes may be coiled under foot and at the back of the seats, through which hot water circulates, the water being heated by the gasoline flame, the burner being placed beneath the bottom of the vehicle. In an ordinary carriage or sleigh the weight of the entire apparatus, including burner, fuel tank and fuel, hot water pipes and the contained water, would probably not exceed fifty or sixty pounds. There would be no danger, and the comfort and convenience of the arrangement would be of great value, especially to persons in ill health.

MESSRS. WILLIAM BELL & COMPANY, of Guelph, Ont., have just completed and shipped 150 organs to Japan. The goods go via an American port and the Suez Canal. Preference would have been given to the route via the Canadian Pacific Railroad and the Pacific Steamer from Vancouver, but a large difference in the freight charges diverted the business via the Suez route. The order for these organs came through an American mercantile house, the preference being given to Messrs. Bell & Co. simply because they offered a superior article at lower prices than could possibly be obtained in the United States. The transaction reflects great credit upon Messrs. Bell & Co. as Canadian manufacturers who, under the protecting aegis of the N. P., have built up an industry which gives large employment to capital and labor. As has heretofore been shown in these pages, this concern do a large export business to all parts of the world. In England there are four large establishments for the manufacture of just such goods as Messrs. Bell & Co. produce—two in London, one in Bristol, and one in Birmingham—yet this particular Canadian firm sell more organs in England every year than any two of these English factories produce. This trade is not the effect of lower prices, for both labor and much of the materials are cheaper there than in Canada, but only because of the more excellent quality of the goods.

The *Dominion Illustrated* of 1st inst., contains twelve large photographic reproductions illustrative of the official inauguration of the 27½-foot channel in the St. Lawrence River on November 7, the text giving an account of the occasion and a concise history of the work. The publishers allude to these pictures as specimens of the completeness and accuracy with which they can illustrate current events of interest. There are over a hundred perfect portraits in the pictures, which form a complete record of the celebration.

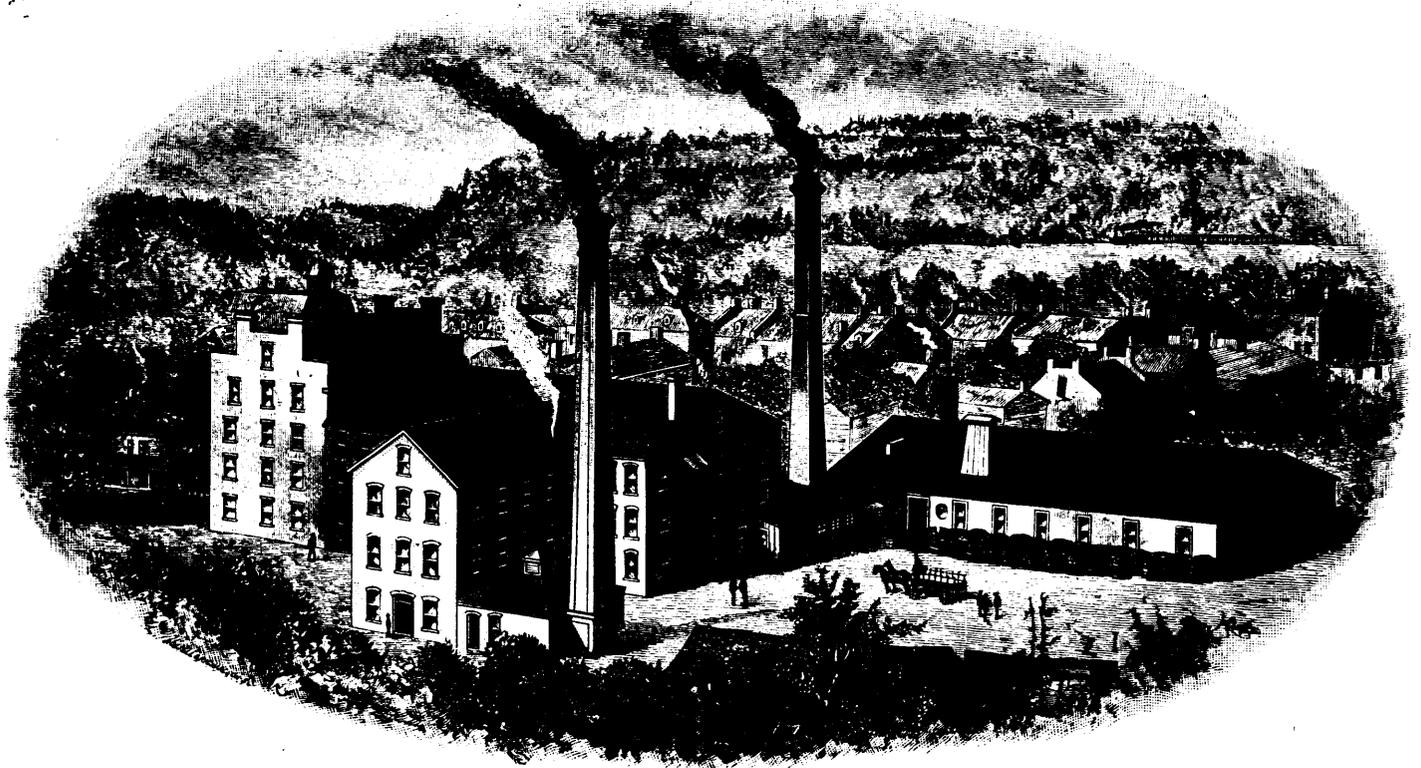
THE Practical Publishing Company, 21 Park Row, New York, have sent us an advance copy of their "Steam Boiler Catechism," which seems to be entirely complete, correct, practical up to date, and of a character readily to be understood by any intelligent reader. The book is of the series written by Mr. Robert Grimshaw, M. E., in which is included "Steam Engine Catechism," "Pump Catechism," etc., published by this company, and well known to most practical mechanics. The price of the Steam Boiler Catechism is \$2, post paid to any address.

THE Humboldt Publishing Company, 24 East Fourth Street, New York, have sent us "Ultimate Finance; a True Theory of Co-Operation," by William Nelson Black. Price, fifteen cents. It is an exposition of the method of organization by which persons without accumulated capital, through the resources of a fund derived from a reserved per centage of their income, may obtain the means of paying for a home, and insurance against the financial embarrassments caused by sickness, casualty and death. "Utopian!" the reader will doubtless exclaim. But he would better suspend judgment till he has read Mr. Black's clever little volume. It is published as No. 102 of the "Humboldt Library of Science."

TO MANUFACTURERS !

A splendid opportunity to lease, with the privilege of purchasing on very favorable terms, one of the

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Having 33,000 feet of floor surface; well lighted; heated by direct steam; has highly economical steam plant, consisting of 150 horse-power Brown Automatic Cut-off Engine with two Horizontal Tubular Boilers of 80 horse-power each, with Heaters, Pumps, Injectors, etc., situated in one of the best manufacturing towns in Canada, and possessing valuable privileges from the town that can be transferred to the lessee or purchaser.

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TO MILL OWNERS
And Manufacturers.

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

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

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70 KING STREET EAST,
TORONTO.

MILL OWNERS !

NOTE THIS.

On February 26th, 1888, Mr. James Shearer's Saw and Planing Mill in Montreal, was destroyed by fire. The Main Driving Belt in this mill was of "HOYT'S" make, and had been in constant use for 33 years.



(REGISTERED.)

HIGHEST PREMIUMS RECEIVED WHEREVER EXHIBITED.

- " Special Award," Highest Premium American Institute Fair.....New York, 1872.
- Award continued for "Maintained Superiority," 1873, '74, '75, '76, '77, '78, '79, '80, '81, '82, '83, '84, '85, '86.
- First Prize Medal, World's Exhibition.....Vienna, 1873.
- " " " Cincinnati Industrial Exposition.....Cincinnati, 1874.
- " " " Centennial Exhibition.....Philadelphia, 1876.
- " " " Leather Manufacturers' Exhibition.....Berlin, 1877.
- " " " Universal Exposition.....Paris, 1878.
- " " " Melbourne International Exhibition.....Melbourne, Australia, 1880.
- " " " Leather Manufacturers' Exposition.....Frankfort on the Main, 1881.
- " " " International Cotton Exhibition.....Atlanta, Ga., 1881.
- " " " World's Industrial Exhibition.....New Orleans, La., 1885.

GEO. F. HAWORTH & CO.
TORONTO.

CORRESPONDENCE.

Editor CANADIAN MANUFACTURER :

SIR,—Regarding the attack upon me by Mr. C. H. Mortimer, editor of the *Architect and Builder*, it is clear he is ashamed of the position he took respecting the sewer pipe manufacture. He will find out that his want of thoroughness in obtaining information on the subject cannot be palliated by attempting to shift the responsibility to the shoulders of others, or by seeking some knot-hole in which he may hide. His statements about my denying having given him the information on which he built his remarkable story are utterly false, although he seems to think his own word needs backing up with his own affidavit. He said in the presence of Mr. Trotter that he made notes of our conversation at the time; but when the production of these notes was demanded they were not forthcoming, for the simple reason that he could not produce what he never possessed. He was vainly catching at straws. I took Mr. Mortimer to Mr. Mutton's office and introduced him to that gentleman, retiring immediately. I afterwards advised Mr. Carpenter to investigate the merits of Mr. Mutton's clay bank, as it was in the vicinity of his works in Hamilton, with a view to securing it if he thought proper to do so. Mr. Carpenter will bear me out in this statement. Mr. Mortimer stated that he had obtained his information concerning the inferiority of Canadian sewer pipes from several dealers in this city, but he subsequently modified this to one dealer, meaning me, and puts words into my mouth that I never uttered.

I thank you for this opportunity to deny Mr. Mortimer's statement, in which I am involved.

ROBERT CARROLL.

TORONTO, Nov. 26, 1888.

Editor CANADIAN MANUFACTURER :

DEAR SIR.—The *Canadian Architect and Builder* publishes some letters from city engineers regarding the sewer pipe question in its recent issue. He of Ottawa says: "The corporation of the city of Ottawa does not permit the laying of any other brand but Scotch." What an admission! Here we have the capital of the Dominion boycotting every make of pipe, irrespective of quality, simply because it is made in Canada and not imported from Scotland.

We do not admit Mr. Terry's criticism that our pipe is roughly finished, or that the output is not even in quality. Mr. Terry writes in the past tense and says "was roughly finished" and "was uneven." We take it he refers to the past, and we admit that some pipes made by us at first starting were not as well finished or as "even" as those we now turn out. We were a new concern then, and had a lot to learn and many difficulties to overcome; but we now turn out goods of very even quality, well finished, a good, sound, serviceable article, equal to any imported. Mr. Terry takes a liberal and patriotic position when he says the Canadian manufacturers are quite competent to turn out a proper grade of pipe. They certainly have that aim constantly before them; and they will always welcome friendly criticism. We are always willing to meet in public competition any brand of imported pipes, and to submit to competitive tests as to strength, resistance of acids, absorption, and perfect vitrification, these being the prime requirements in a good salt-glazed sewer pipe. If our pipes do not stand what is required of them, let them be condemned, and we do not fear the issue; but it is not fair to condemn them untried, nor to boycott them because they are Canadian.

W. C. TROTTER, President,
ST. JOHN'S, QUE, Nov. 24, 1888. Standard Drain Pipe Co.

INDUSTRIAL EDUCATION.

THE Department of Education has issued the following circular relative to industrial education in Ontario:

DEAR SIR,—I purpose submitting to the Legislative Assembly, at its next session, a scheme for establishing, in the School of Practical Science, full courses of instruction in applied chemistry, applied mechanics and architecture.

While in the interests of the industrial classes it is necessary that the course of instruction should be thoroughly practical, and at the same time educational, it is also necessary that the special wants of the industries of the country should be kept in view. It occurred to me, therefore, if I only could consult those employing skilled labor of various kinds, that I should be able to provide this special training with more certainty and satisfaction to both manufacturer and artisan.

I have accordingly decided to invite a number of manufacturers, skilled mechanics and others having interests of a similar character, to meet me at the Education Department on Wednesday, the 19th instant, at 2.30 p.m., in order that I may ascertain, if possible, on what particular lines instructions such as I have above indicated could be made most useful.

The attention of the meeting will be mainly directed: (1) To a consideration of the various kinds of skilled labor now required to carry on the industries of the country and the best means of rendering it more productive and therefore more valuable; (2) to a consideration of what courses of instruction would be necessary to provide such skilled labor at home as is now supplied from abroad, and (3) to inquire what industries (if any) not yet established in Ontario could be made productive, provided we could supply them with skilled labor.

I shall be gratified if you can make it convenient to attend at the time above mentioned and aid with your counsel and experience.

Yours truly,
GEO. W. ROSS,
Minister of Education.

TORONTO, December 3, 1888.

THE export duty on pine logs has been raised from \$2 per thousand feet to \$3, on the recommendation of the Minister of Customs. It was found that the \$2 duty did not deter Michigan lumbermen from floating great quantities of logs across the lakes, and manufacturing them into boards in the United States mills. The duty, of course is intended to be prohibitory, and as it was found not to be, it has been raised in consequence. Quite recently the Government learned that one American firm alone, doing business on the upper lakes, proposed to cut over sixty million feet this winter on Canadian limits. Acting on the strength of this information, and realizing that the operations of other American firms also in the same business were increasing, the Cabinet took the action stated above. The amount realized from this impost last year was \$309,447. The action is indorsed by Canadian lumber firms, and as it is professedly taken in the interest of Canadian labor, it would seem as everybody must be pleased except the firms who have to pay the duty.

Leeds Foundry and Machine Works.

E. E. ABBOTT,

MANUFACTURER OF

Vertical Drills, Shears,

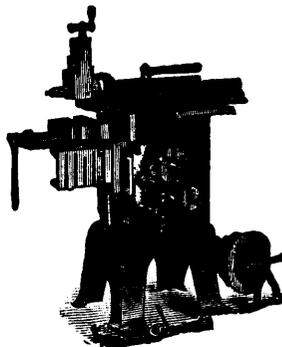
IRON PLANERS,

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IRON AND WOOD.



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HENRY PORTER,

MANUFACTURER OF

LEATHER

BELTING

432 to 442 Visitation Street, Montreal, Que.

AND

36 FRONT STREET EAST, TORONTO.

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

Manufacturing.

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

THE woolen mill of Messrs. R. & G. Strickland, at Lakefield, Ont., was destroyed by fire November 13.

THE capital stock of the Lake of the Woods Milling Company has been increased from \$300,000 to \$500,000.

THE Standard Drain Pipe Company, St. Johns, Que., will increase their capital stock from \$50,000 to \$150,000.

THE Plattville, Ont., Milling Company have been incorporated with \$15,000 capital stock, and will build a flouring mill.

MR. S. C. MARTIN, of the Speedsville, Ont., Woolen Mills, is adding machinery for the manufacture of union, all wool and rag carpets.

THE town of Levis, Que., will grant a \$3,000 bonus for the establishment of a shoe factory there which will give employment to forty or more hands.

THE Amherst Shoe Factory, Amherst, N.S., of which Mr. M. D. Pride is manager, employ 185 hands, and will turn out this year \$380,000 worth of goods.

THE contract for building the Missiquash bridge between New Brunswick and Nova Scotia has been awarded to Messrs. J. A. Killam & Co., of Petitcodiac, N.B.

THE Brantford Cordage Company's factory at Brantford has been equipped with electric light machinery manufactured by the Reliance Electric Company, Waterford, Ont.

THE Yorkville and Carlton Brick Company, Toronto, have sent a carload of Canadian-made bricks to Mr. J. Andrews, Norwalk, California, via the Canadian Pacific Railway.

MESSRS. COWAN & Co., proprietors of the Galt Foundry, Galt, Ont., have just placed a new steel boiler in the shoe factory of Messrs. W. D. Hepburn & Co., Preston, Ont.

A FIRE in Montreal November 23, destroyed J. S. Hearl's soap works, and the roof of the Reinhardt Company's factory, the loss in the former case being \$7,000, and in the latter \$600.

THE Chatham Manufacturing Company, Chatham, Ont., are filling a contract for 250,000 feet of ship plank for the New England Company, who have an extensive ship yard at Bath, Maine.

THE Albion Iron Works, Victoria, B.C., are building the machinery, boilers, etc., for the new steam tug being built in that city for Hon. Robert Dunsmuir. The vessel will be 154 feet long.

THE Williams, Green & Rome Company, manufacturers of collars, cuffs, etc., whose factories are at Toronto and Berlin, Ont., have increased their capital stock from \$60,000 to \$150,000.

THE saw mill, stave and heading factory at Teeswater, Ont., which was destroyed by fire November 16, was owned by Mr. W. R. Thompson, and operated by Messrs. Thompson, Fessant & Co.

MESSRS. BANNERMAN & PEDLOW, proprietors of the Vulcan Iron Works, Ottawa, are manufacturing the gasometer to be erected in connection with the fuel gas works now being built at Almonte, Ont.

WORK has been commenced on the construction of the bolt and nut works of Mr. John White, in London, Ont., heretofore alluded to in these pages. They are expected to be in operation in January.

MR. S. H. PHIPPEN, owner of the quarries at Point Ann, near Belleville, Ont., has contracted to furnish 2,000,000 cubic yards of building stone to the contractors for the St. Lawrence canals enlargements.

A BEAUTIFUL specimen of white mica, 16 inches square, mined near North Bay, Ont., was on exhibition there a few days ago. It is said that large quantities of this first quality mica are to be had at that place.

THE quarries at Owen Sound are likely to boom this winter and next summer. It is understood that the massive blocks of stone required for the Canadian canal at Sault Ste. Marie will be taken from the Owen Sound quarries.

THE Calabogie Iron Company have made an offer of their iron mines to a German company organized by Captain Moore. If the sale is carried out, the mines will be worked on an extensive scale. ---Perth, Ont., *Expositor*.

MR. FAIRALL, late of Orillia, Ont., has broken ground at Russel Station for an extensive brewery, where English and Scotch ales will be manufactured. The building will be 60x48, two stories in height.—Victoria, B.C., *Colonist*.

A TORONTO syndicate, composed principally of wholesale boot and shoe men, with a capital of \$100,000, are said to have secured the Ontario Rubber Works at Port Dalhousie, Ont., and that the business will be pushed with great vigor.

MESSRS. H. & G. DAKIN, Galt, Ont., manufacturers of steam heating apparatus, etc., have recently thoroughly equipped the immense saw works of Messrs. Shurly & Dietrich, that city, with apparatus for heating by exhaust steam.

THE annual meeting of the Moncton Manufacturing Company was held at the company's offices in Moncton, N.B., a few days ago. At a subsequent meeting of the newly-elected board of directors, Mr. J. L. Harris was re-elected president.

MR. BEATTY, formerly of Messrs. Beatty & Henderson, Merriton, Ont., and Mr. Canfield, lately with the Thorold Knitting Company, Thorold, Ont., are negotiating for the knitting mill at Merriton, now in the possession of the Bank of Toronto.

MR. W. W. CLAY, formerly of Paris, Ont., has formed the Clay Manufacturing Company at Lincoln, Nebraska, for the purpose of manufacturing knit goods. A number of his old Paris hands have gone to Lincoln and taken service with the new concern.

MESSRS. PEARSON BROS., of Toronto, propose erecting a large flouring and gristing mill in Brampton, Ont., on condition that the town grant them a free site and exemption from taxation for ten years. The machinery and building will cost about \$15,000.

THE Westminster Woolen Mills, the only factory of the kind in British Columbia, has lately arranged to sell its entire make of blankets, for an unlimited period, to a wholesale firm in Victoria. It is the intention to add one or more blanket machines next year.

THE new elevator built for the Canadian Pacific Railroad at Fort William, Ont., is 300 feet long, 75 feet wide and 136 feet high. The capacity will be to hold about 5,000,000 bushels of grain, including the new annex recently built to the old elevator at that place.

AN Order-in-Council has been passed placing felloes of hickory wood, sawn to shape only, and not smoothed or otherwise manufactured, when imported for use in the manufacture of carriage and cart wheels, on the list of articles that may be imported free of customs duties.

THE wool pulling factory of Messrs. John M. Johnston & Co., St. John, N.B., was destroyed by fire November 26; loss about \$10,000. This factory was almost entirely new, and was one of the best equipped in Canada. The erection of new works on the old site has been begun.

MESSRS. MURRAY & CLEVELAND, of St. Catharines, Ont., who were recently awarded the Galops contract, are arranging to push the work with great energy. They have let the contract for a new tug to Messrs. Abbey Bros., Port Dalhousie, to be ready for use at the work in the spring.

THE Charles Stark Company, Toronto, has been incorporated with \$200,000 capital stock for the business heretofore conducted by Mr. Charles Stark. There are five distinct departments of this business, in which is included the manufacture of silver watch cases, the output of which is about 1,000 per month.

MESSRS. DAY BROTHERS have arranged to start their factory soon and they expect to be running next month. They intend putting up a new building and will employ about thirty-five hands. The Jacques Patent Steel Range that they will manufacture is a very economical stove.—St. Johns, Que., *News*.

THE Osborne-Killey Manufacturing Company, of Hamilton, a part of whose works was recently destroyed by fire, as related in another place in this paper, have obtained the temporary use of the Victor Engine Works, which will be used as their machine shops until their new shops are ready to be occupied.

MESSRS. C. J. & F. W. ODELL are building a brewery in Sherbrooke, Que., which will be three and a half stories high, and cover an area 50x40 feet, with stock and store room 70x40 feet, two stories high. The plant and machinery will be of the most approved description, and will be driven by water power.

A FIRE which broke out in a five-story brick building in Montreal, on November 22, occupied by A. Bolt & Co., manufacturing jewelers; Sewab & Co., watch case manufacturers; Lewis Davis, silk manufacturer, and other smaller concerns, burned up a good deal of property. The damage is estimated at \$15,000.

THE building for the new bolt works which are being established in London, Ont., by Mr. John White, will be completed in a few days. It is a substantial frame structure 40 feet by 120, and will be fitted with the latest machinery for the manufacture of bolts and nuts. It will commence running shortly after New Year's.

THE Standard Drain Pipe Company of St. Johns, Que., have received a large order for pipes from the corporation of St. Henri, Montreal. The excellency of these pipes and their superiority to imported Scotch pipes being now recognized, the Standard Company are taxed to their utmost capacity to keep pace with their orders.

THE Thomas Organ Company, Woodstock, Ont., have introduced the McIlvane system of manufacturing gas for lighting their works. The cost of the gas will not exceed fifty cents per thousand feet. The entire cost, including shop right, was \$300. Amongst others about to adopt this system are Messrs. Cowan & Co., of the Galt Foundry.

MESSRS. GOLDIE & McCULLOCH, Galt, Ont., will build the steam engine, boiler, and all the machinery required for the new factory in Brantford, Ont., being built by the Cortland Wagon Company. Messrs. Goldie & McCulloch are also building a Wheelock engine for the corporation of Goderich, to be used in running their electric light dynamos.

THE St. Jacob's tannery, at Berlin, Ont., has gone out of existence. It was owned by Mr. I. E. Bowman, M.P. for North Waterloo, and was at one time one of the largest tanneries in Ontario, and did an immense business both in Canada and the United States. The premises have been purchased by Mr. C. Dohiel, who intends to turn it into a glue factory.

THE contract for the construction of the ship canal at Sault Ste. Marie, Ont., has been awarded to Messrs. Hugh and John Ryan, of Toronto, and Mr. M. J. Haney. The contractors propose getting all the necessary machinery on the ground, erecting buildings, etc., during the present winter, having everything in readiness for prosecuting the work on the opening of spring.

H. P. ROBERTSON, the builder of the Joggins raft, visited Moose river on Tuesday and was greatly struck with the facilities which that place affords for the storage and shipment of lumber. He has offered M. L. Tucker \$10,000 in cash for his mill property there, and if this offer is accepted, he will build two rafts a year, similar to the Joggins' raft at Moose river.—Parrsboro', N.B., *Leader*.

MESSRS. MARK H. IRISH and WM. C. PRICE, of Toronto, have been granted a patent on a mat invented by them which is described as consisting of a bar, or bars, set on edge, and bent zig-zag so as to form a series of substantially diamond-shaped openings, the said bar, or bars, being rivetted or tied together at the angles of the diamond-shaped openings, in combination with a frame secured to and surrounding the said mat.

THE Sault Ste. Marie, Ont., *Pioneer* says that the Heisler Electric Light Company, of St. Louis, Mo., will establish their Canadian works at the Sault on the conditions of the donation of a suitable lot of land upon which to build, and exemption from municipal taxation for ten years. If this new industry is started at that place the motive power will probably be drawn from the new power canal which is about being cut there.

MESSRS. RUSHTON & MITCHELL will establish a boiler works at Paris, Ont. A suitable building will be erected for them on a free lot; free water will be supplied them, and they will be exempt from municipal taxation for ten years. Mr. Rushton is the inventor of the indispensable water purifier and boiler cleaner, and it is proposed to manufacture this and also boilers, giving employment at first to about ten or a dozen hands.

THE announcement was made some time ago by the Donald, B.C., *Truth* that good slate had been found near Golden. Specimens thereof have since been brought to Donald. They are blue-black in color, smooth of surface, and of good grain, an excellent roofing slate or for beds for billiard tables, mantels, flagging, etc. The ledge is located near the C. P. R. track, $6\frac{1}{2}$ miles east of Golden, and is owned by Mr. Walter Hogg of that place.

THE Irondale Smelting Works, adjacent to Port Townsend, on Puget Sound, in Washington Territory, now make on an average thirty-four tons of pig iron per day. This material commands the highest price in the San Francisco markets, and its quality is excellent. The furnace is now employing over two hundred men, and a steamer is kept busy continually plying between the British Columbian Island of Texada and Irondale, transporting the ore.

THAT old and reliable Canadian company, the Guarantee Company of North America, have appointed Messrs. Medland and Jones, well-known insurance men, their agents for Toronto. The company does considerable business here, and it is expected that under their new agents the business will be increased rapidly. The company issue bonds for officers of all corporate institutions. Medland & Jones' office is in Equity Chambers, cor. Victoria and Adelaide streets.

GANONG's candy and confectionery factory, at St. Stephen, N.B., was entirely destroyed by fire Nov. 22. The building was of brick, only a few years old, and the business carried on was one of the largest of the kind in the Dominion. The loss on building and stock is estimated to be \$50,000. The establishment gave employment to 100 hands. The Ganong firm have plenty of enterprise and will no doubt rebuild and continue to expand their growing business.

THE town of Owen Sound, Ont., proposes to vote a bonus of \$15,000 to the Polson Iron Works Company, to assist them in enlarging their dry docks and shipyard works at that place. It is understood that the company have a large contract on hand for lengthening a steel steamer, and that work will commence as soon as the dock can be secured. The steamer Cambria, which is now on the dry dock, will be lengthened thirty-six feet and overhauled generally.

MR. W. B. UNDERHILL, late of the Brantford, Ont., Cordage Factory, is working up a project for the formation of a similar company in that place. He proposes to operate with \$57,000 capital in shares of \$20 each, redeemable in binding twine from the factory at the rate of 150 pounds of twine for each \$20 share. Mr. Underhill thinks the labor would cost very little, requiring only one expert man with two good hands, boys and girls proving amply sufficient for the rest.

THE Hamilton Steamboat Company have contracted for the construction of a new steamer to run on the route between Toronto and Hamilton, in the place of the "Macassa," a new steamer put on last season, but which proved unsuitable for the business. The new steamer will be built by Messrs. Napier, Shanks & Co., Glasgow, Scotland, the contract calling for a vessel 185 feet long and 30 feet breadth of beam, with a guaranteed speed of fifteen miles per hour. She will probably be on the route in May.

THE Norfolk Knitting Mills, at Port Dover, Ont., of which Mr. Jonathan Ellis is the owner, which were destroyed by fire about a year ago, have been rebuilt in a very substantial manner and are now in full operation. The new building is 90 x 50 feet, four stories high, with attic and tower. At the top of the tower is a tank of some 4,000 gallons capacity. The building is supplied with an automatic sprinkler, is heated by steam and lighted by electricity. The machinery was made in Massachusetts.

AN estimate of the cut at the Chaudiere mills, near Ottawa, for the season just closed, places the total at 480,000,000 feet board measure, made up as follows:—Bronson & Weston, 60,000,000 feet; Perley & Pattee, 50,000,000 feet; J. R. Booth, 65,000,000 feet; Pierce & Co., 45,000,000 feet; James McLaren, 35,000,000 feet; Gilmour & Co., 60,000,000 feet; W. C. Edwards & Co., 50,000,000 feet; W. & J. Conroy, 30,000,000 feet; R. Hurdman & Co., 40,000,000 feet; E. B. Eddy & Co., 45,000,000 feet.

THE Batten Fire Escape and Stand Pipe Manufacturing Company, of Pittsburg, Pa., have completed and put in position one of their balcony fire escapes on the *Mail* building, connecting the telephone flat with the ground. This is the same fire escape as the one in use on the Barber & Ellis Company's new building, on which a number of the female employees made a descent a few days since to test its workings, finding it altogether satisfactory. The company have placed two of their escapes on the lunatic asylum in this city.

A RECENT change in the tariff will be of considerable benefit to one of our Galt industries. An Order-in-Council has been passed placing upon the free list hickory felloes, sawn to shape, but not further manufactured. As it has been difficult to get this class of wood in Canada of late years, manufacturers of carriage woodwork have pressed this change upon the Government. The Victoria Works have six carloads of hickory now on the way from North Carolina, and in consequence of the change will order more.—Galt, Ont., *Informer*.

AMONG the machinery jamaged at the recent fire in the works of the Osborne-Killey Manufacturing Company, Hamilton, Ont., was the new compound two-cylinder engine which was being built for the Dodge Wood Split Pulley Company of Toronto. We are informed, however, that the engine will be completed in contract time, and that there will be no delay in getting the Dodge Pulley Company's works into operation at the expected time. This new engine will, it is claimed, be one of the finest steam engines ever manufactured in Canada.

RESPECTING the notice of assignment of the Ontario Cotton Mills Company, which appeared in some of the papers recently, on enquiry it was found that the company which assigned was the old company, which practically went into liquidation in June last, at which date a new company, under the name of the "Ontario Cotton Company," was organized, who purchased all the stock on hand of the old company, leased the mill and continued the business. The new company have a number of wealthy shareholders, and is in a strong financial position.

THE long-pending deal between the Westinghouse Electric Company, of Pittsburgh, Pa., and the owners of the Waterhouse patents has been consummated, which gives the Westinghouse company the exclusive control of an arc-light system. Heretofore they have only had incandescent lights, but this purchase makes their patent complete. The Waterhouse patents were held by a company in Hartford, Conn. The Westinghouse Company have lost a great many contracts for electric light plants in the past because it had no arc light to offer.

MR S. DAVISON, Toronto, Canadian agent for Messrs. Dunbar, McMaster & Co., of Gilford, Ireland, shows some unusually fine specimens of goods produced by that firm. They manufacture, besides ordinary household threads of fine quality, an almost endless variety of tailors', carpet, book-binders', shoemakers', lace, gilling, machine, floss, and netting threads in every shade and color, made from Irish, Italian, German and Russian flax; and they also make threads for the most delicate and costly laces to the coarsest thread used by carpet-weavers and fishermen.

MR. LOUIS WEITHEIM, of Weitheim & Co., of Frankfort, Germany, a millionaire dealer in asbestos and phosphates, who was in the Buckingham mining districts for several weeks a short time ago inspecting phosphate and asbestos properties, has purchased the phosphate property of Mr. James Reid, in Ottawa county, the price paid being \$40,000 down. The property is considered one of the best in the county, and the German firm intend next spring to get out large quantities of the phosphate, which will be shipped to Frankfort, where it will be prepared for the German market.

MESSRS. McDUGALL & Co. are having placed in position in their new building a twenty horse-power Wheelock engine from the Goldie & McCulloch works. This engine is a very popular one, as may be judged by the number turned out. Since commencing the manufacture of this engine, some four years ago, Goldie & McCulloch have turned out from their works over 200 of them, and they are located all over the Dominion, the farthest one east being in the Woolen Mill Company's works at Charlottetown, P. E. I., and the farthest west in the C. P. R. works at Vancouver, B. C.—Galt, Ont., *Reformer*.

THE McClary Manufacturing Company, London, Ont., suffered the destruction by fire of a portion of their extensive works on November 30, entailing a loss of about \$20,000. The building destroyed had a frontage of sixty feet, extending back 160 feet, and was four stories high. It contained the tinware factory, japanning room, etc., in which were a large quantity of valuable machinery, materials, etc. The property destroyed did not comprise one-quarter of the company's immense establishment, and as the office books, etc., were saved, there is no great

interruption to business. It is understood that the burned building will be re-erected immediately.

MESSRS. COWAN & Co., proprietors of the Galt foundry, Galt, Ont., inform us that they are now putting apparatus into their works for the manufacture of illuminating gas for their own use, which will cost them considerably less than fifty cents per thousand feet. The apparatus is known as the McIlvaine gas generator, and the gas will be manufactured from wood with a small addition of crude petroleum. Mr. Thomas Cowan states that he thinks the gas will be of the very best illuminating quality. A number of others in Galt will adopt the McIlvaine method if the experiment being made by Messrs. Cowan & Co. proves entirely successful.

THE improvements in the building and alterations in the motive power at the Brodie mills at Hespeler, Ont., are now rapidly approaching completion, and when finished will make this one of the best, if not the banner woolen mill of Canada. The new water wheels which are being placed in position are the "New American," and are guaranteed to give the best results. That of the two wheels which are being set in the cotton mill is of a combined power of 130, while the one in the woolen mill is of ninety-six horse-power, thus giving a total of 220 horse-power, which will be augmented by that of the engines, which are upwards of 100 horse-power.—Galt, Ont., *Reformer*.

A RECENT invention is a machine for riveting stovepipe. In the old way each of the six or nine rivets in a piece of pipe was drawn and driven separately. By the use of this riveting machine all the rivets are drawn by one drop of the hammer, and all of them are set by one drop of the hammer. One man with this machine can turn out from 600 to 1,000 joints of pipe per day. The pipe is formed on a cylinder connected with the riveting machine, and this makes it uniform in size and leaves the lap smooth and free from buckles. There is, we believe, no machine of this description in the market, and it is said the invention will mark a new era in the manufacture of stovepipe. It is easily operated, there is no complicated machinery about it, and it does the work perfectly.

THE scheme to connect the United States and Canada at Detroit by means of a tunnel under the Detroit river has assumed tangible form, to the extent that a corporation has been organized for that purpose. The Detroit Railroad and Tunnel Company have filed articles of association and started upon an existence that is authorized to continue for 999 years. The capital stock is \$1,500,000, which is said to be more than half the estimated cost of the tunnel and the necessary tracks to connect it with the railroad systems on either end. The construction of the tunnel will begin early next spring on the Detroit side of the river and carried to the centre of the stream. Meanwhile the company will be incorporated under the Canadian law, a terminus secured on this side, and the other half completed to the meeting point on the international boundary line.

A PART of the Osborne-Killey Machine Works, at Hamilton, Ont., were destroyed by fire, Nov. 23; loss about \$60,000. The machine, pattern, boiler and blacksmith shops were burned, but while the moulding shop escaped, great damage was done. Patterns were destroyed which took nineteen years to collect, and some of which

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cannot be replaced. The machinery and tools were also of the most valuable description. There was a large quantity of machinery in course of construction in the building. Parts of the second set of pumps for the Hamilton waterworks, a pump for the asylum, and a set for the city of Kingston were almost entirely ruined; and an engine for the Dodge Split Pulley Company, Toronto, badly damaged. The workmen lost all their tools. The work of rebuilding will be commenced at once. In the meantime other premises have been secured and work has been resumed.

A GOOD story is told at the expense of one of our local manufacturing firms which recalls the old saw, "Far off fields are greener than those at home." It seems that this firm some weeks ago had considerable outside painting to do, and seeing the advertisement of a superior mineral paint for sale by a prominent Philadelphia dealer, decided to secure the required quantity from him. Several barrels of the paint were ordered, the freight and duty paid thereon, but our readers may judge of the surprise experienced when it was found that the barrel heads gave this information: "Manufactured by James Newton, Limehouse, Ont." The paint was manufactured by Mr. James Newton, of Limehouse, three miles from Acton, and we don't believe the above firm found it to be a whit better than if it hadn't travelled sixteen hundred miles and cost twenty per cent. duty to bring it home again.—Acton, Ont., *Free Press*.

A FACTORY for the manufacture of nails is being opened in the city in the rear of 57 Adelaide street west by T. D. Graham, late of Cleveland, Ohio, the plant having been transferred from that city here. No imported steel will be used. A specialty will be made of lath, shingle and barrel nails, and the output at the start will be a ton a day. This is an outcome of Sir Charles Tupper's iron protection policy. The duty on nails is as follows: Composition nails and spikes, 20 per cent; cut nails and spikes, 1c. per lb; nails and spikes, wrought and pressed, 1½ c. per lb., but not less than 35 per cent. The American firm could not compete in the face of this duty and consequently the works have been removed to Toronto.—*The Empire*, November 23. A full account of this matter was published in these pages several months ago. The daily press, to be better informed than what they are on manufacturing matters, should study our "Manufacturing" department, and remember what they learn there.

ISLE AU HERON is a small island in the St. Lawrence river, near the centre of the Lachine Rapids, which has been purchased by a number of Montreal and other capitalists for the purpose of developing and utilizing the immense water power there, and for furnishing electric power for the lighting of the city and island of Montreal. A great deal of work and expenditure of money will be necessary to carry out the promoters' ideas, but the capital at their back is a sure guarantee that the scheme will be brought to a successful issue. The syndicate is formed of Mr. R. McLennan, representing a Toronto syndicate; Mr. James Conmee, of Port Arthur, representing a Western syndicate; Mr. R. K. Thomas, representing a Montreal syndicate; Mr. James Ligget, representing English capital; and Mr. D. Ban, representing a New York company. Work is to be commenced at once upon the necessary dams, bridges, etc., and these improvements are expected to cost at least five hundred thousand dollars.

MESSRS. McARTHUR, CORNEILLE & Co., Montreal, have sent us a copy of a circular which they have just issued relative to some new patented products just introduced by the St. Dennis Dyestuff Company of Paris, France, and for which Messrs. McArthur, Corneille & Co. are sole agents in Canada. It is represented that these dyes are of great interest to consumers, as up to this time no absolutely fast indigo blue shade aniline has been produced, while the new shades of scarlet can be entered boiling without fear of unevenness. Archil substitute is also an important line, producing the same results as archil at a saving of 60 per cent. in cost of dyeing. This is also in powder form, highly concentrated, and more particularly suited to our Canadian climate than the liquid, which is liable to freeze. The acid black will, it is claimed, supersede logwood to a large degree. All these dyes are sold at very moderate prices, and samples and full information will be cheerfully given on application. Recently Mr. J. S. N. Dougall, of Messrs. McArthur, Corneille & Co., in company with Mr. Muller, an expert direct from the St. Dennis establishment, made an extended Canadian tour specially for the purpose of discussing the merits of these new dyes with Canadian textile manufacturers, and met with such success as to influence the firm to take hold of and push the goods.

THE construction of the new locks of the Cornwall Canal on the St. Lawrence river will give employment to a large number of hands. From eighty to a hundred men will be employed in

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

stripping the quarries and in getting out the stone. There will be about 300 stone-cutters and other workers of various kinds, which will bring the total up to 500 or more this winter. When the work is in full running order next summer it is estimated that the pay roll will include from 1,500 to 2,000 men. The teaming of the stone from the quarries will take a great many horses, so that there is every prospect of good work in abundance for the farmers in the neighbourhood. The excavation of the pits for the new locks will be commenced this season, should the weather prove favourable. The building of the locks must commence by the 15th June, 1889, under the contract, and the whole work be completed by the 21st April, 1891. It is estimated that each lock will take about 7,000 yards of stonework, and the waste weirs 10,000 yards each. The total stonework on the contract is roughly figured at 45,000 yards. Between the excavations for the locks, the dredging of the canal and heightening the banks, it is expected that about one million yards of earth will have to be moved. The housing and feeding of so many men will be no light matter. Boarding-houses will be erected at the quarries and on the canal bank. These buildings will be put up at once, and Mr. L. A. Ross, Cornwall, has been awarded this contract.

MR. THOMAS D. WARDLAW, "le directeur gerant" of the River-side Worsted Company, whose works are at the city of Quebec, has sent us a copy of *L'Electeur* of that city, in which a lengthy notice is given of the company's works. The company, under the new management, have abandoned all their old machinery and substituted that which is new and of the most modern and approved styles. They have also modifié considérablement le genre de transactions et de production. Ainsi, autrefois on ne fais-ait que des dissus en lame. Anjourd'hui, on s'est fait une spécialité de fabriquer de la lame à tricoter (worsted), et on en produit des quantités considérables. The product of the company include different qualities and styles of woolen dress goods, of which those manufactured from Australian wool are specially to be admired. Chose bien remarquable, la main-d'œuvre a été réduite à sa plus expression. The automatic machines employed in the factory perform their work with remarkable precision, producing goods which could not be equalled by even the most skilled hand labor. The machinery is new, choice and perfect; which elle est en grand partie importée de l'Angleterre. The factory gives employment to 150 hands, the male workmen receiving an average of \$1 per day, and the females from thirty-five to sixty cents per day, the company refusing to employ young children. The motive power of the establishment includes a steam engine of 300 horse-power, and a compound engine grâce à une combinaison ingénieuse, on utilise, on épuise toute la force que la vapeur est susceptible de donner. The lately deceased Honorable Senator James Ross, of Quebec, was president of the company, and les autres membres du bureau d'administration sont MM. G. R. Renfrew et Robert Brodie.

THE Manufacturers' Life Insurance Company, of Toronto, of which Mr. J. B. Carlile is managing director, have appointed Mr. J. L. Kerr secretary and treasurer of their company. Mr. Kerr was for nearly ten years office manager for the Confederation Life Association, in Toronto, and brings to his new position a ripe experience and wide acquaintance which are of the greatest value.

THE Rosamond Woolen Company, Almonte, Ont., have sent us a beautiful lithograph view of their extensive mills at that place, including a portion of the town of Almonte. The picture is printed on fine cardboard, 22½x14 inches, and was gotten up by the Canada Bank Note Company, Montreal, the same concern who reproduce the artotype portraits of "Captains of Canadian Industry," published in this journal.

MR. JAMES M. SWANK, general manager of the American Iron and Steel Association, Philadelphia, has sent us advance copies of two statistical pamphlets recently published by his Association. One contains the statistics of American production and imports of iron and steel in 1887 and the first half of 1888; and the other a complete collection of the statistics of American iron and steel and coal industries for many years, down to the close of 1887, embracing both production and prices; also valuable tables showing the production of iron ore, coal, pig iron and steel in Great Britain and other countries in late years; also statistics of immigration into the United States, railroad construction, etc., for many years. The last mentioned pamphlet is perhaps the most valuable statistical publication that has ever emanated from the Association.

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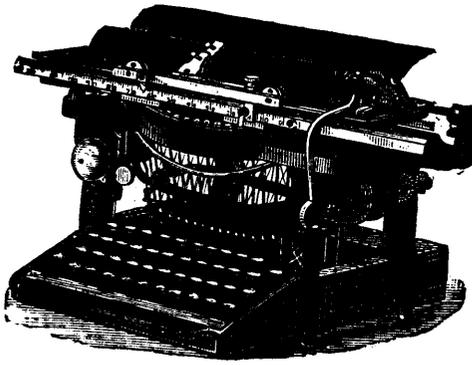
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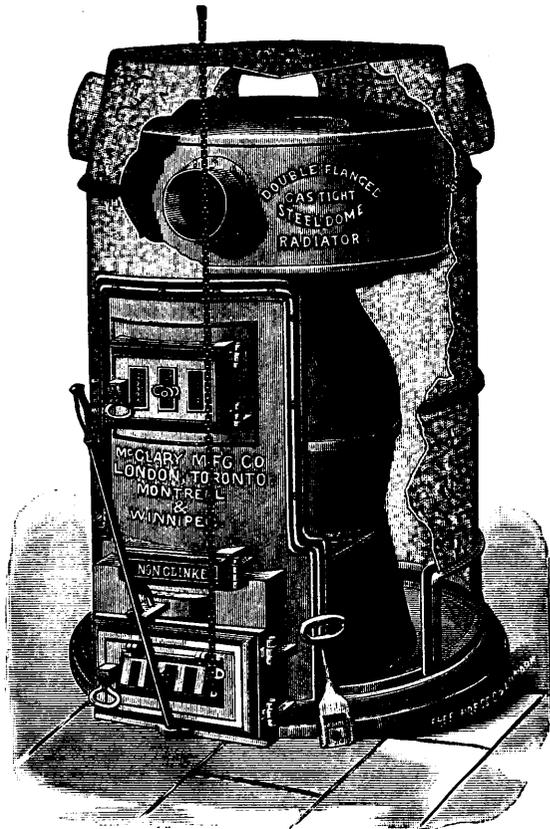
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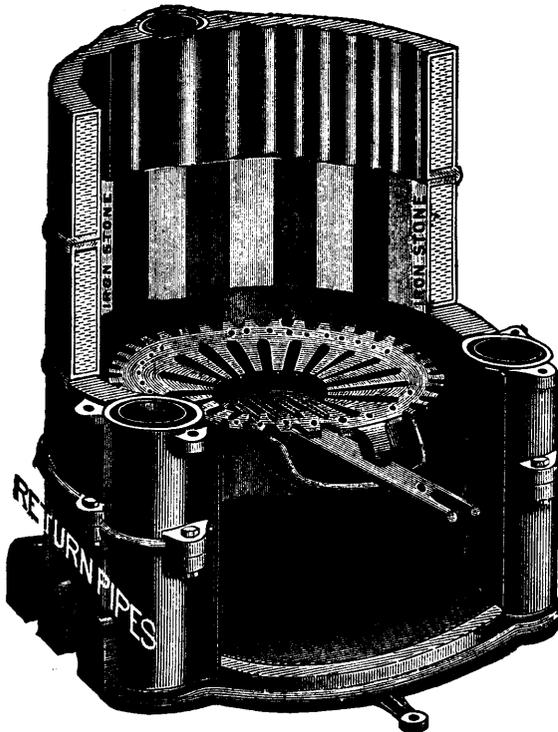
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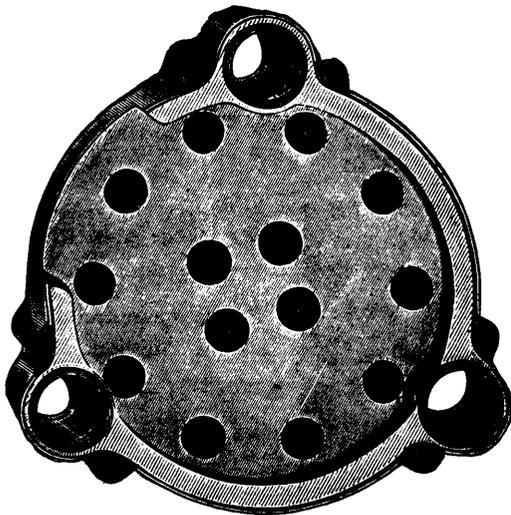
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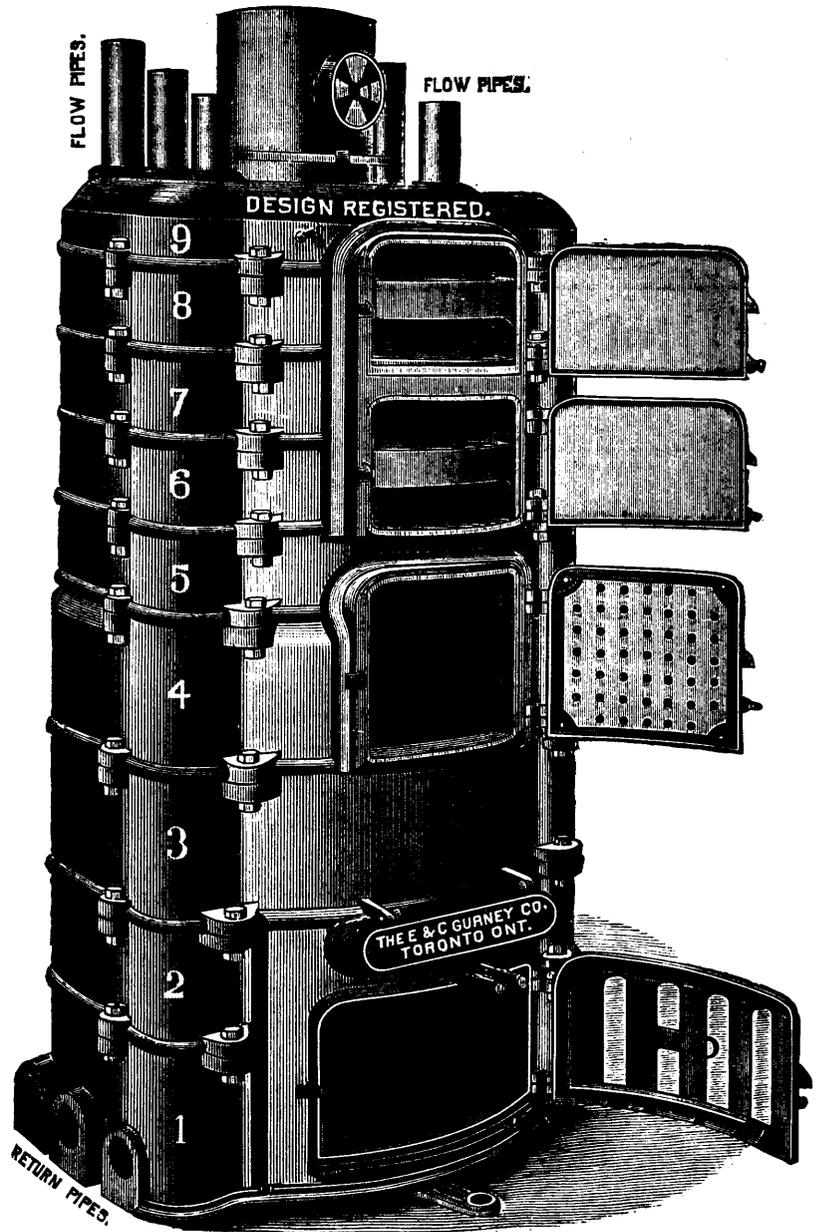
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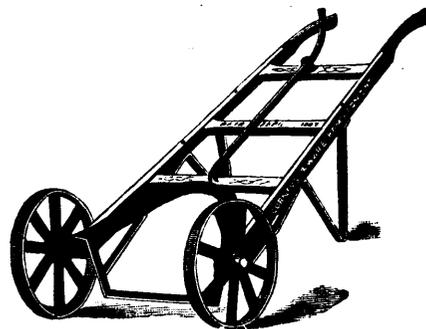
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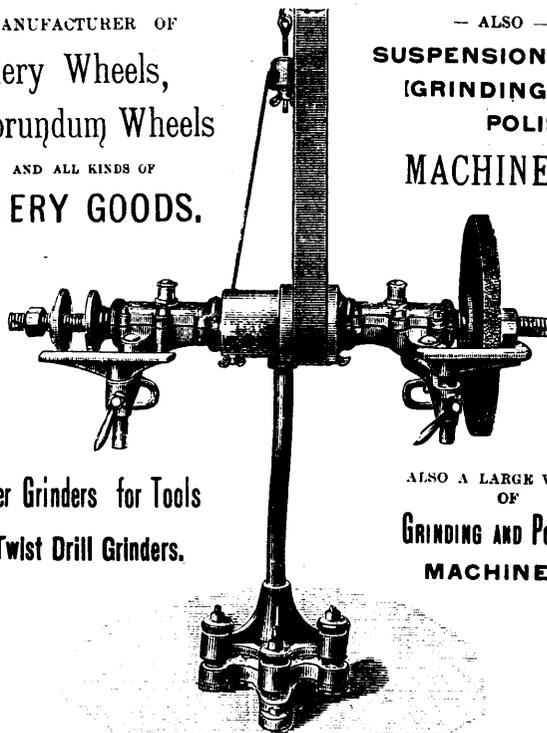
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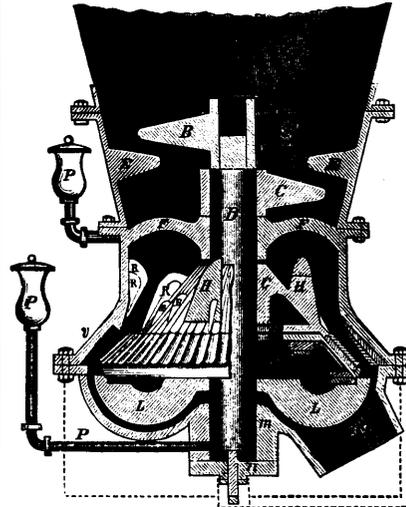
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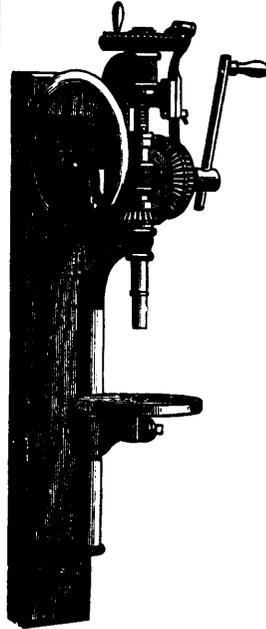
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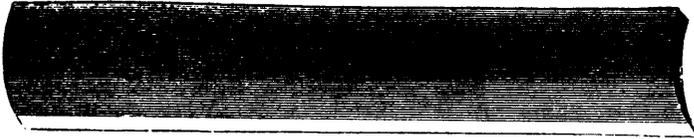
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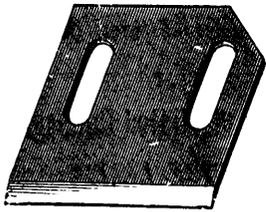
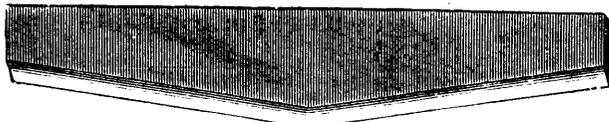
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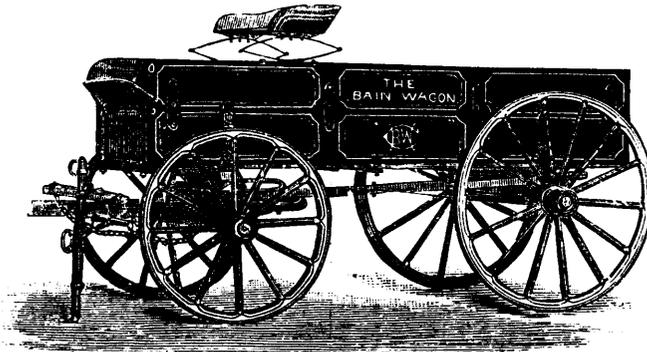
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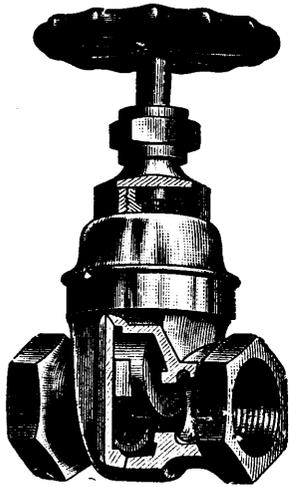
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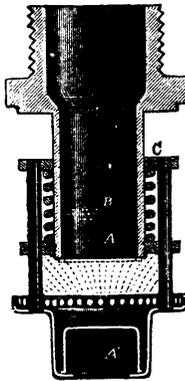
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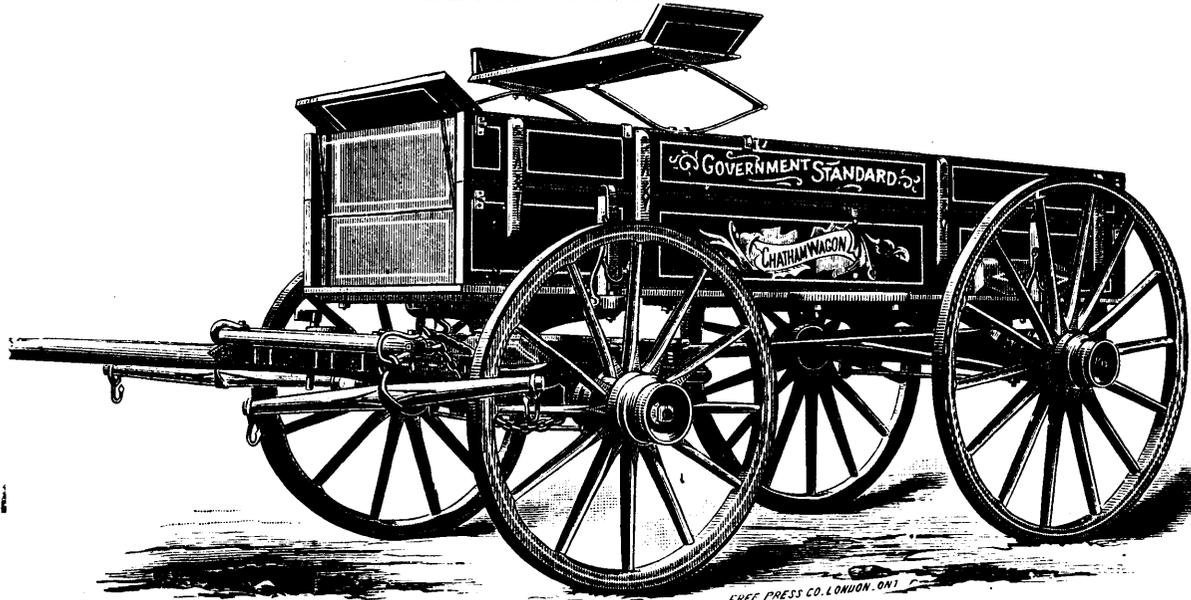
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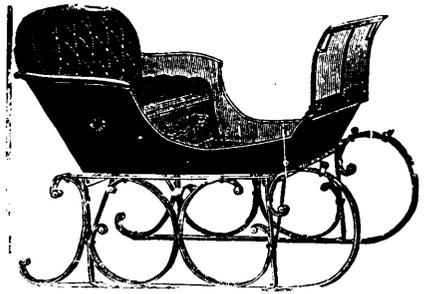
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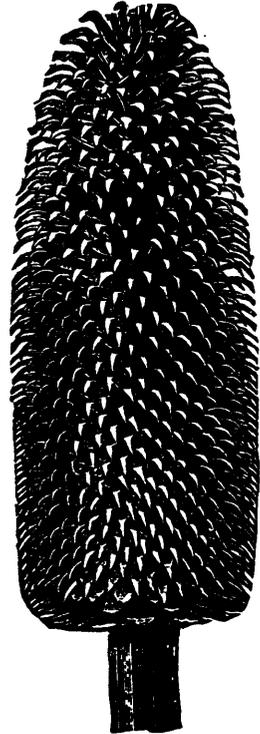
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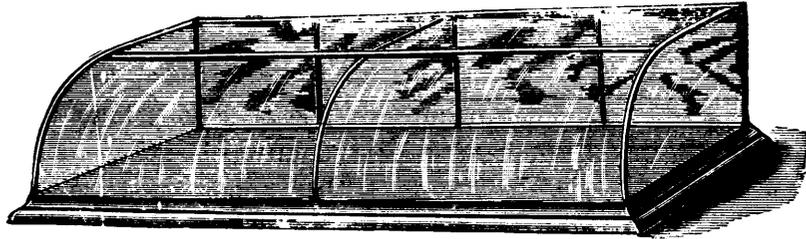
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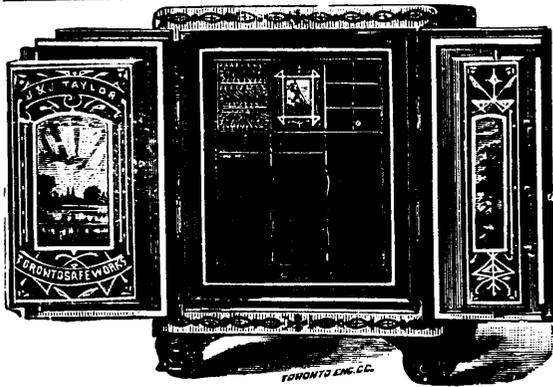
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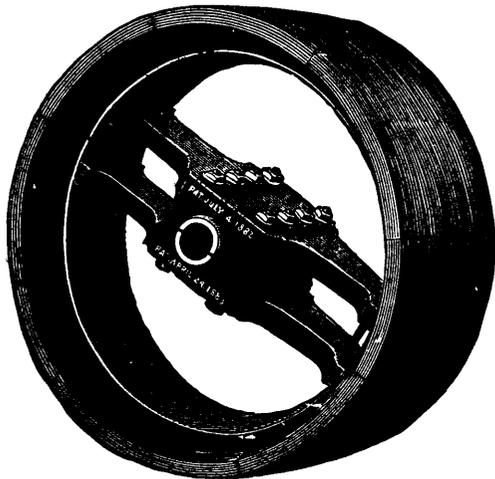
Tanned in the most careful manner expressly for Belting in our own Tannery. We warrant it equal to any imported, either American or English, or any made from imported American or English Oak Leather. All widths, single or double, for any duty Saw Mills, Cotton Mills, Woollen Mills, Electric Light, etc.,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

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WITH PATENT BUSHING SYSTEM

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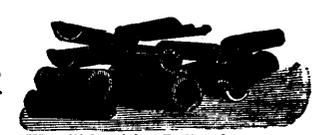
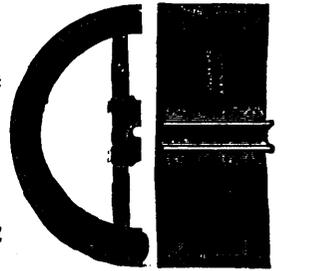
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The hole in every pulley can be readily bushed to fit any sized shaft. Bushings furnished with each pulley. Guaranteed to give from

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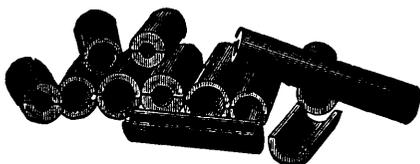
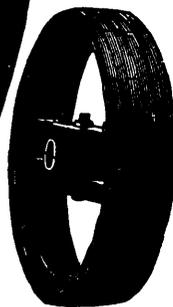
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And 50 per cent. Lighter than Wrought Iron or Steel Pulleys.



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SHATTO & DENNIS, MINNEAPOLIS, MINN. STILLWATER, MINN., August 15, 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., }
C. L. RICE, AGENT, CHICAGO, ILL. BATAVIA, 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; R. M. }
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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. }
W. H. DODGE, PREST. NEW ORLEANS, March 19, 1885. }
DODGE MFG. CO., MISHAWAKA, IND. }
Dear Sir: I have a number of your Patent Wood Split Pulleys in use here at }
the Worlds 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.

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Wood Split Pulleys now in use. Our capacity being now equal to 100 Pulleys per }
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Send for Illustrated Circular and Reference List.

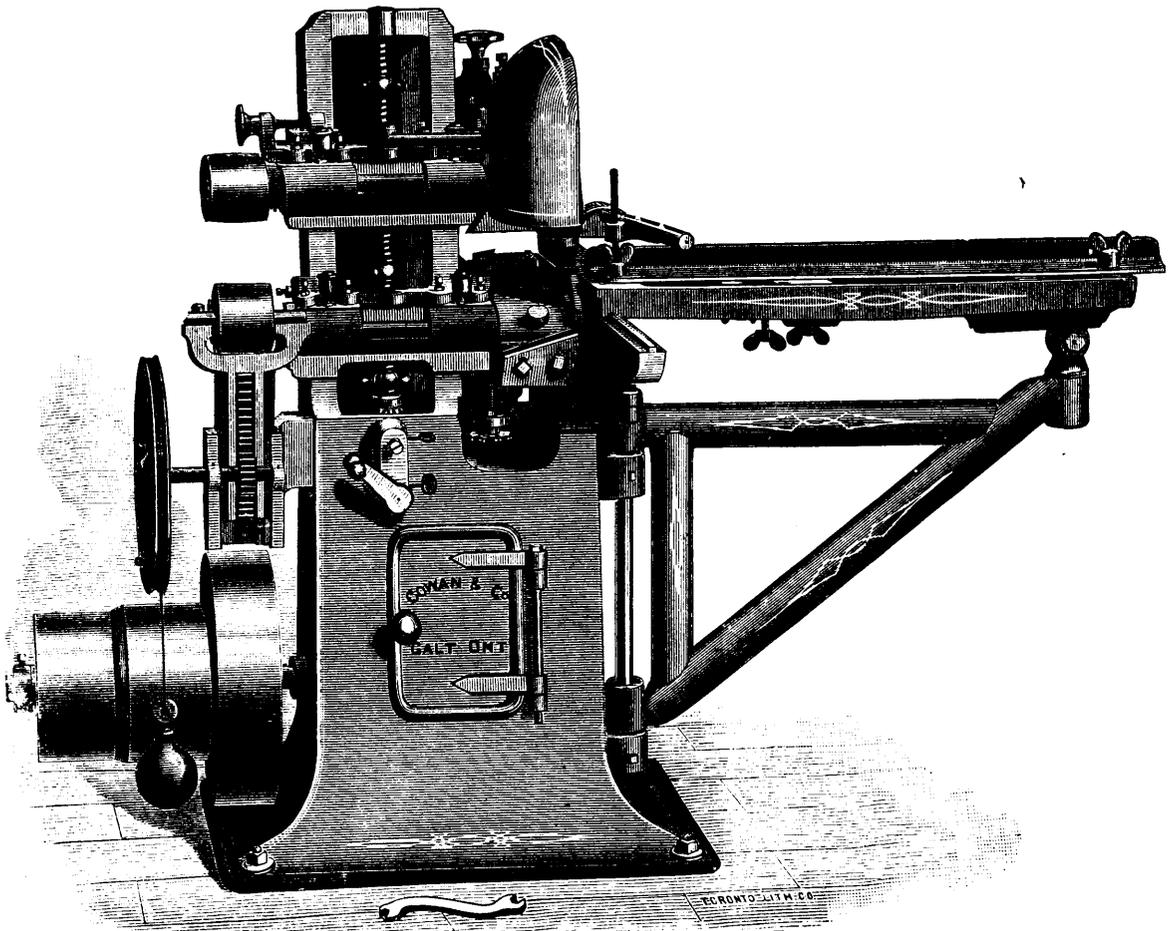
THE DODGE WOOD SPLIT PULLEY CO.,

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.

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

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

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

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

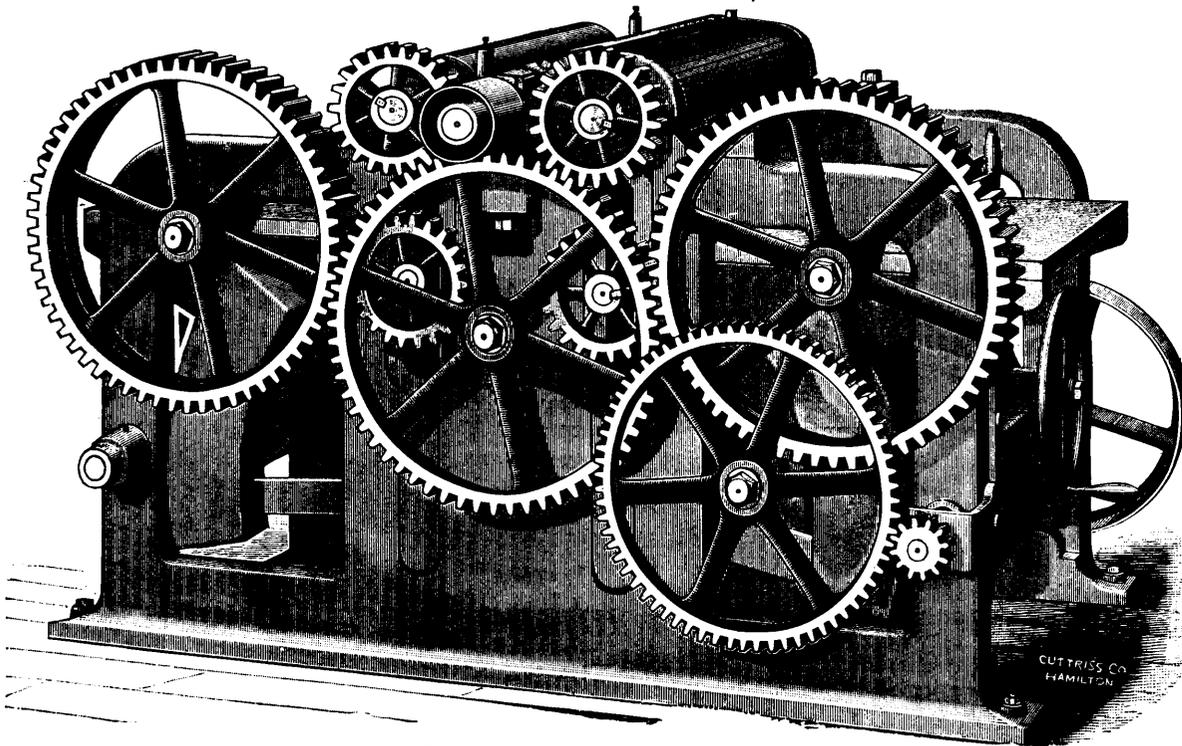
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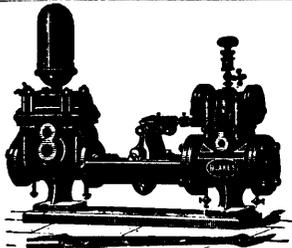
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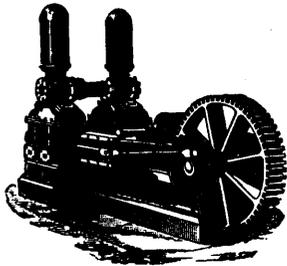
Locomotive and Car Machinery, Special Machinery, Price List and Photographs on application.

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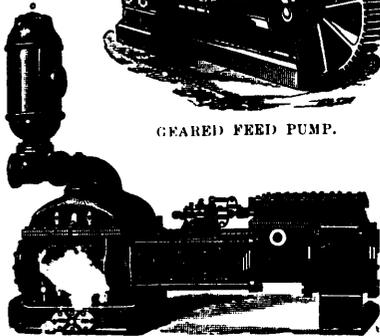
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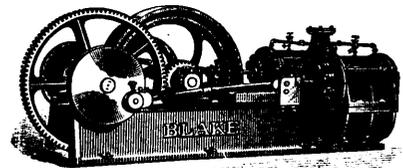
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NEW YORK,

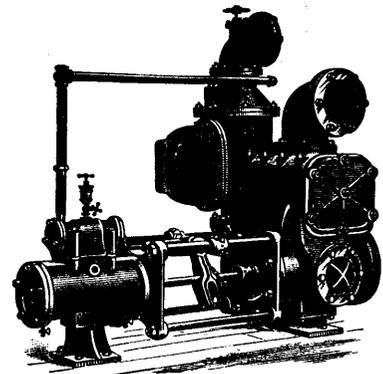
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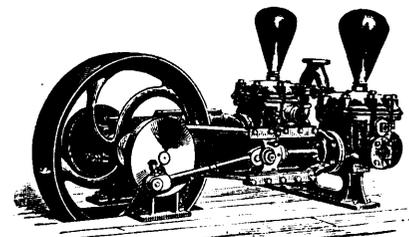
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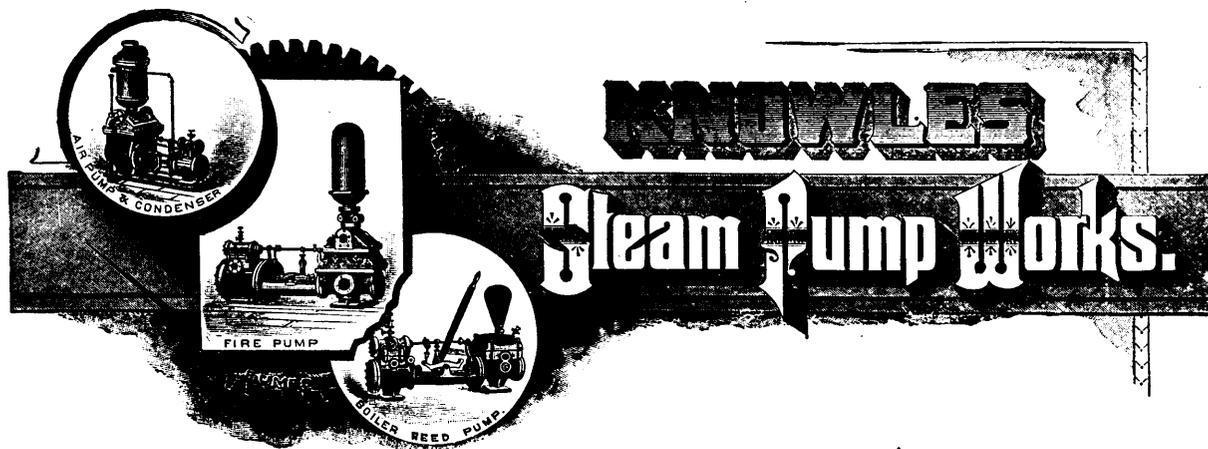
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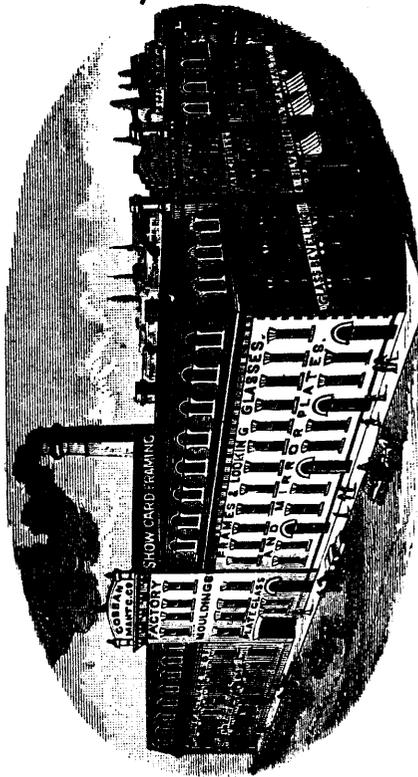
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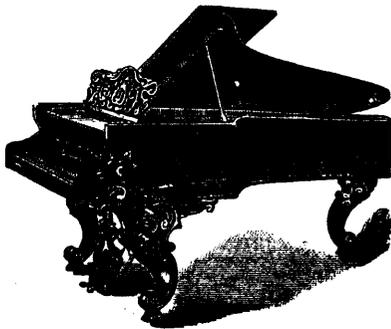
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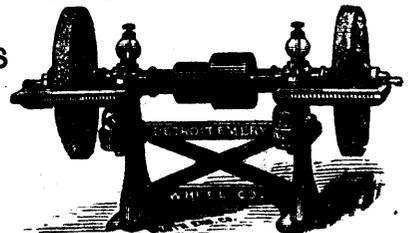
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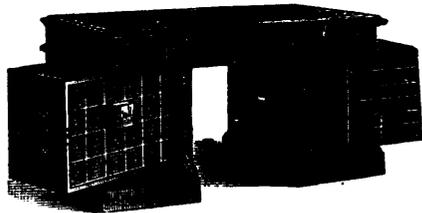
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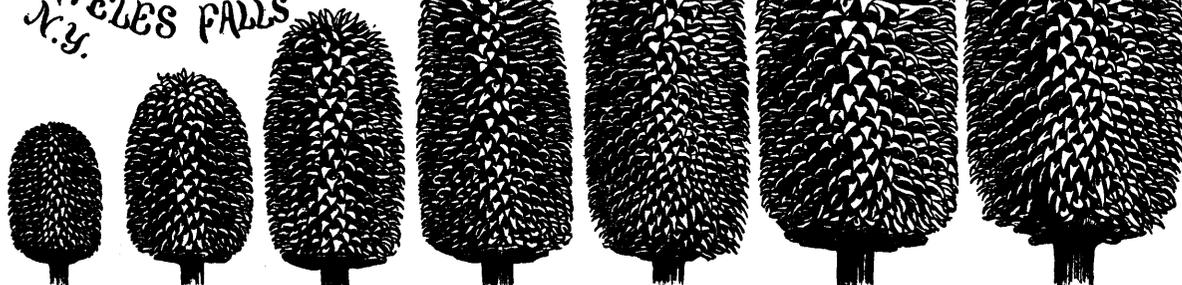
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