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Vol. 15. TORONTO, OCTOBER 19, 1888. No. 8.

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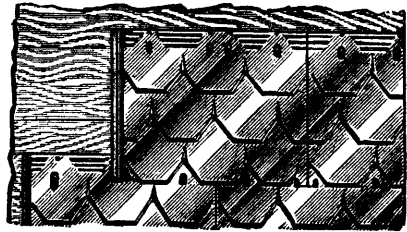
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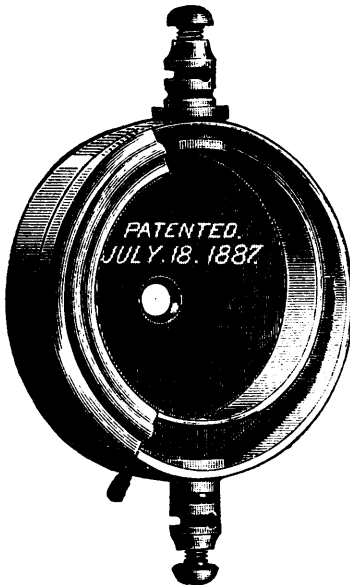
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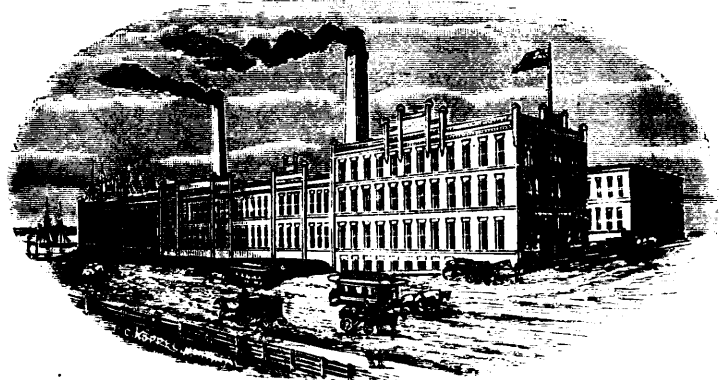
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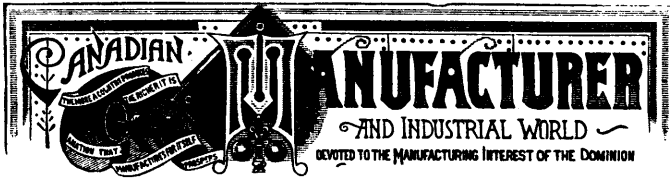
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## Captains of Canadian Industry.

"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. Wm. 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 Hendrey, 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.

## JAMES GOLDIE.

MR. JAMES GOLDIE, of Guelph, Ont., one of the leading flour manufacturers in Canada, was born in Ayrshire, on the banks of the Doon, Scotland, November 6, 1824. His early education was had in the schools of his native town, where he was grounded in the classics; and his first acquaintance with business was acquired while assisting his father, who was a botanist, florist, and nurseryman of considerable distinction. In 1842, when but eighteen years of age, young Goldie crossed the Atlantic and found his first employment in the city of New York. He had heard much of the possibilities of acquiring wealth on this side of the water, and when he arrived in New York it was with but a few shillings in his pocket and a strong desire to obtain work. His first job was as a newspaper carrier, and his remuneration amounted to but two dollars a week. His knowledge of botany, his skill as a florist, and his activity and energy, soon found him opportunities for situations in New York, where his services were appreciated, and which, later, obtained for him a lucrative and desirable situation with Mr. R. L. Holt, a wealthy and influential manufacturer of Patterson, New Jersey. Upon the death of Mr. Holt, Mr. Goldie was made manager of the large factories belonging to the estate; and this trust he discharged most acceptably until 1857, when he removed to Utica, New York, where he engaged in the flour and lumber trade in partnership with a brother-in-law.

In 1860 Mr. Goldie removed to Canada, settling in Guelph, where he built what was known as the Speedvale Flouring Mills. A few years later he sold this property and purchased the People's Mills, which he enlarged and improved, and which was the nucleus of his present extensive establishment. He was well adapted to the business he had chosen, and has been very successful in it, the products of the People's Mills being well known throughout Canada. These mills now have a capacity of 600 barrels of flour per day.

Mr. Goldie's tastes have ever led him along the quieter paths of life. Imbibing from his father a decided passion for botanical investigation, and devoting a great deal of his spare time in the practical study of botany, he finds no hour hang heavily on his hands. While he resided in the United States, particularly while living in New Jersey, he was thrown much in the society of some of the men who were prominent in political life there; under which influences he made a close study of the political economy of that country, and which led to his becoming an avowed and strong Protectionist. He was a tariff



1888



—❧ Captains \* of \* Canadian \* Industry. ❧—  
(SUPPLEMENT TO THE "CANADIAN MANUFACTURER.")  
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man of the Henry Clay style, and when he came to Canada he brought these convictions along with him. Believing that tariff protection would do for Canada what it had done for the United States, ever since he came to this country Mr. Goldie has advocated a similar policy here; and the strong tariff sentiment prevailing among so many of his friends and neighbors is due in large measure to his arguments and influence in that direction. He was at one time president of the Ontario Millers' Association, which is composed of the principal flour millers of this Province; he is now a director in several insurance companies of Guelph and Toronto, and is vice-president of the Millers' and Manufacturers' Insurance Company, of Toronto, one of the most influential concerns in Ontario. Recently he was first vice-president of the Canadian Manufacturers' Association, and he is now one of the executive committee of that association.

Mr. Goldie is exceedingly happy in his family relations. More than forty years ago he was married in New York to Miss Frances Owen, of Montgomeryshire, Wales, from which union eight children have been born; and of these, five sons are interested with their father in the milling business at Guelph. Two of these are practical millers who look after the manufacturing department of the mills, the others being engaged in other branches of the business.

This would not be a complete sketch of the life of James Goldie without some brief allusion to the life and services of his father, John Goldie, from whom the son inherited the taste and disposition which made the father well-known in botanical circles throughout the world.

John Goldie, the naturalist, was born at Kirkoswold, Ayrshire, Scotland, March 21, 1793. In early life he became connected with the Botanic Gardens at Glasgow, Scotland, then under the charge of the late Sir William Hooker, with whom he studied botany. Among his fellow-students was Mr. Douglass, after whom the "Douglass Pine" was named, and who travelled extensively in British Columbia and Oregon. Mr. Goldie was married in 1815 to Margaret Dunlop Smith, a daughter of Mr. James Smith, of Ayrshire, a prominent botanist and nurseryman. During the same year the British Government, having determined on sending an expedition to the coast of Africa to explore the Congo river, Mr. Goldie, after passing a strict examination, was selected to accompany the expedition as botanist; but at the last moment was superseded, a circumstance to which he no doubt owed his life, as the person selected to take his place, as well as a great many of the officers and crew, died of the coast fever. In 1817, at the instance of Sir Wm. Hooker, Mr. Goldie visited the American continent and travelled in Canada and the United States, making extensive collections of the botanical treasures of both countries. As the result of this visit he introduced into Europe many new and rare plants, amongst others the fern "*Aspidium Goldianum*," which was named after him. Mr. Goldie returned to England the next year, but he visited Canada again in 1819, and made further explorations, during which he travelled on foot from Montreal to Pittsburg, Pa., making a thorough examination of the botanical productions of the country through which he passed. A journal which he kept during this expedition, in which he fully describes the country, is very interesting. Having spent

two years in these explorations he returned to England, about which time the Emperor of Russia, having caused a botanical garden to be established at St Petersburg, Mr. Goldie was employed to make a collection of plants for it. During his residence in Russia he made extensive explorations and introduced many plants and trees into cultivation which had been before unknown to science. About the year 1830 he again proceeded to Russia, and travelled extensively in Siberia, following his favorite pursuit. Professor Fischer, the curator of the gardens at St. Petersburg, was an old college friend of Mr. Goldie, through whom he was enabled to introduce many rare and valuable plants into England. Having formed a favorable opinion of Canada as a place of residence while on his visits to this country in 1817 and 1819, he brought his family here in 1844, and settled near the village of Ayr, Ontario, where he continued to reside until his death, a couple of years ago, at the ripe old age of ninety-four years. During his lifetime he maintained correspondence with many prominent botanists in different parts of the world, more particularly with his friend Sir Wm. Hooker. Mr. Goldie left three sons and two daughters to survive him, viz., Mr. John Goldie, of the firm of Goldie & McCullough, of Galt; Mr. Jas. Goldie, of Guelph, hereinbefore alluded to; Mr. David Goldie, of Ayr; Margaret, wife of Rev. Principal Caven, of Toronto; and Mary, wife of Mr. A. McIlwraith, of Galt.

#### LOUIS CÔTÉ.

ST. HYACINTHE is one of the most flourishing cities in the Province of Quebec, and probably also its greatest manufacturing centre. Its tanneries and its manufactories for boots and shoes, of woolen and knitted goods, of machinery, etc., are not only numerous, but important and thriving establishments. These great industries impart to the local trade an extraordinary amount of activity, which is further enhanced by the well known fertility of the surrounding agricultural region. The buildings of the city are noted for the good taste shown in their construction, and the place bears the stamp of activity, enterprise and progress. Although founded nearly eighty years ago, it is only about twenty years since St. Hyacinthe entered upon its present era of extraordinary development. Previous to that time the magnificent water-power of the Yamaska river was only utilized to operate a couple of grist mills and a cordage factory, the remainder of the power running to waste. A few years before this, Mr. Louis Côté and his brother, in partnership with Mr. Guillaume Bresse, had introduced into Quebec the boot and shoe industry, which has since developed to such an extraordinary extent in that city. The Messrs. Côté had been born and reared in the environs of St. Hyacinthe, and their native city had naturally a warm place in their regard. They had long been sensible of the adaptability of its advantages to manufacturing industry, and only an occasion was needed to induce them to turn them to account. Mr. Bourgeois, now judge of the Superior Court at Three Rivers, was then a practicing lawyer at St. Hyacinthe, where he wielded an amount of influence as extensive as it was well deserved. A gentleman of broad and patriotic views, sincerely anxious for the progress of the town, he believed it had all the requirements of a manufacturing centre, and, as a relative and intimate

friend of Louis Côté, he pressed the point upon his attention, and urged him to establish himself in St. Hyacinthe, convinced that, with the assistance of so intelligent and enterprising a man, the place could not fail to fulfil its manifest destiny. The proposition was favorably entertained by Louis Côté, for whom Judge Bourgeois also found a partner with some capital, in the person of Mr. Victor Côté. Leaving Mr. Bresse at Quebec, Louis Côté removed to St. Hyacinthe in 1863, and in partnership with his brother George, and Victor Côté, he established the enterprise which marked St. Hyacinthe's first step towards manufacturing eminence.

The success of this establishment, now one of the largest in the country, is too well known to be dwelt upon. But it is not alone as a successful business man that Louis Côté has distinguished himself. He is also famous as an inventor, and the boot and shoe industry of the world is indebted to his ingenuity for several machines invented by him, which have contributed largely to its development. Most of his inventions have, in fact, become so indispensable to the trade, that no one dreams of manufacturing shoes without them any more than of driving nails without a hammer. Among the more important of these machines are his heel trimmer, heel counter and edge trimmer, which have created a revolution in the business, both in Canada, the United States, and elsewhere; and the highest courts of the United States and of the Province of Quebec have uniformly upheld his inventions against all kinds of piracies committed by unscrupulous pretended inventors. Attempts have frequently been made to infringe Mr. Côté's patents, and in vindicating his rights he has even battled for them in the Supreme Court of the United States, where he was victorious, and to-day his machines are deservedly regarded as the *ne plus ultra* of perfection. His inventions are now in use in all the great boot and shoe factories of Canada, the United States, England, Germany, and France.

It will be easily understood that so intelligent and enterprising a man as Mr. Côté could not fail to exercise a marked influence in the progress of the city which had the advantage of counting him among its population, and the still more direct advantage of having him as its mayor during a number of years. In concert with Judge Bourgeois, who was also for many years a councillor and mayor of St. Hyacinthe, he always favored and stimulated industrial progress and the encouragement of promising branches of manufacture. His own example, his prosperity, and the ever-increasing success of his own establishment, were the means by which St. Hyacinthe was raised to the pinnacle of manufacturing importance on which it stands to-day, and on which it rests its claims to the dignity of being the greatest industrial centre, in proportion to population, not only of the Province of Quebec, but of the Dominion of Canada.

But Mr. Côté's beneficial influence was not alone felt in commercial and industrial affairs. As a member of the city council, and especially as mayor, he did much towards endowing St. Hyacinthe with improvements which are usually found only in the more populous and advanced cities. The superb water-works which supplies the city with water, was built by a company of which Mr. Côté was the initiator, and of which he is the principal stockholder and president. In the work of reform of the local school system Mr. Côté labored with a zeal and devotion which

entitle him to the lasting gratitude of his fellow-citizens. He inspired, and was, to a large extent, the author of all the measures adopted to make the place one of the most prosperous and attractive manufacturing centres, not only in the Province of Quebec, but in all Canada, outside of the larger cities.

The brilliant and fruitful career of this good man furnishes a striking illustration of what can be accomplished by energy, intelligence, industry, good conduct, and love of country. He started out in life without education or pecuniary resources. After learning his trade in the United States he returned to Montreal, where he soon secured a position as foreman in one of the great shoe factories in that city. There he devoted all his leisure time to study, and saved his earnings, in order to procure for himself a good education. He followed the courses of the Jacques Cartier Normal School, and, thanks to the kindly interest taken in him by the Abbé Verrault, principal of that institution, he completed his studies there, leaving it with that superior education in which so many great manufacturers and mechanics are deficient. Since then he has continued to instruct himself, and his library to-day affords him a rich source of information upon which he draws constantly. The money which he saved by his self-denial not only furnished him with education, but with a small capital, which enabled him to start business on his own account, and to conquer fortune. By his intelligence and good conduct he has also given to the great question of capital and labor the only practical solution of which it is susceptible—the acquirement of capital by labor. Mr. Côté is one of the wealthiest manufacturers in his line. He enjoys in the fullest measure the esteem and gratitude of his fellow-citizens. Although a Liberal in politics, the Dominion Government paid homage to his merits and abilities by appointing him a member of its Labor Commission. He is still a comparatively young man, being only fifty years old, so that if his life is spared, there is a bright career of usefulness yet before him.

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#### CHARLES BOECKH.

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Mr. CHARLES BOECKH, senior member of the firm of Messrs. Charles Boeckh & Sons, manufacturers of brushes, brooms, woodenware, etc., Toronto, was born in the famous old city of Strasburg, Alsace, in 1817. His early business education was in the line which he has ever since followed, his father and ancestors having been for many years engaged very extensively in the manufacture of brushes at Strasburg. Having acquired an intimate and practical knowledge of the business, and desiring to carve out his own fortune in new fields, in 1849 Mr. Boeckh went to the city of New York, where he at once engaged in the manufacture of paint brushes. His experience enabled him to produce a strictly first-class article, which soon obtained a deservedly high reputation, the goods at once springing into great favor with the paint and varnish trade, and in 1855 he occupied extensive premises in Franklin Square, that city, adjoining the Harper & Brothers' printing establishment. About that time Mr. Boeckh invented a device by which the manufacture of paint brushes was greatly simplified and the article vastly improved; and this invention is now in general use by all first-class brush makers in the United States.



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In the course of his business Mr. Boeckh frequently visited some of his customers in Canada, and two of the largest firms—one engaged in the wholesale drug and the other in the wholesale hardware business in Toronto—used their influence to have him establish a brush factory in this city. Investigation showed that there was an excellent opening for such an enterprise, and that it would enjoy the protection afforded by Canada's National Policy; and in 1859 the New York business was transferred to Toronto.

The beginning of this industry in Toronto was comparatively small, but, as was the case previously in New York, Mr. Boeckh soon won for his goods a deservedly high reputation with the trade; and the demand has increased so rapidly that they are now well-known throughout Canada, from Halifax to Vancouver. The quantity of bristles used in the manufacture of their brushes is enormous, the supplies being drawn from Russia, France, Germany and China, nearly all of which are imported direct by the firm; as are also Mexican fibre, Italian rice-root, etc. Mr. Boeckh, in a recent trip to Europe, visited the principal bristle markets, such as Leipsic, Hamburg, Frankfort, London, etc., where he effected important business arrangements and connections which will enable his firm to manufacture this line of goods of the very best quality and at the very lowest possible prices.

About ten years ago Mr. Boeckh associated his sons Emil and Charles with him in the management of the business, and the manufacture of brooms, woodenware, etc., was added to the brush business. The combination of the long and valuable experience of the father, and the vim, energy and intelligence of the sons, has gone far in making this Canadian enterprise a most gratifying success; and within the past two years the output of the factories of the firm has increased ten-fold. In the broom department the consumption of broom corn amounts to nearly four hundred thousand pounds a year, and the output about three hundred dozen brooms a week; and these goods, the woodenware, and the Boeckh's Standard brushes are well known throughout every city, town, village and hamlet in the Dominion. In addition to their extensive warehouse on York Street, they have recently erected a large five-story brick factory on Adelaide Street, which covers an area 128 by 80 feet, besides suitable outbuildings. This factory is thoroughly equipped with every machine and appliance essential to the successful conduct of the business.

Mr. Boeckh possesses the respect and esteem of all who know him, and his successes in life afford to him the ease and enjoyment he so richly deserves. He is a strong and influential supporter of that governmental policy which has made Canada a great manufacturing community; and a member of the executive committee of the Canadian Manufacturers' Association.

#### JOHN SCHOFIELD.

An account of the life of John Schofield, like that of many other men perhaps better known in history, who rose like him from obscurity and through unfavorable surroundings, would be intensely interesting were it written in detail. A brief sketch of that man's life, however, is all that is proposed to be given here; but from it may be learned the lesson that

"Honor and fame from no condition rise,"

and that to him who resolutely determines to ascend, no obstacles are insurmountable.

John Schofield, of Paris, Ont., was born at Rochdale, Lancashire, England, in 1829, within a mile of the place that gave birth to John Bright. His parents were poor, and their condition in life required that even the smallest of their children should contribute to the support of the family just as soon as they were able to render any assistance in that direction. Therefore when but six years of age this child was put to labor in one of the large calico printing works in Lancashire, where he was employed as tear or color boy, his remuneration being eighteen pence per week. He remained at that employment about eighteen months, when he went to the town of Heyward, near Manchester, where he obtained work in a cotton factory. Here he worked twelve hours a day for over a year for eighteen pence per week wages; and where he developed considerable skill in the performance of the duty assigned him. As his services became more valuable his wages were increased, until when eighteen years of age his salary was ten shillings per week.

It was while working in this Heyward cotton factory that young Schofield obtained his rudimentary education, the circumstances being such that would have discouraged any boy with less ambition. A broken and discarded school slate without a frame, attached to the factory wall near a loom where young Schofield worked, and a stub pencil, afforded him the opportunity to learn to make figures and letters, which, as time passed, became enlarged and developed into simple problems in mathematics and words and connected sentences; and when an arithmetic and a dictionary—old and dilapidated school text-books—came into his possession, he felt rich and on the highway to the attainment of his ambitious hopes; for with these important aids he could and did master the intricacies of simple mathematics, and spell and write his words correctly, knowing their exact definitions.

It was in 1851, while in this factory under the circumstances here alluded to, and while receiving but ten shillings per week for his services, that this young man, at the age of twenty-two years, married the maid of his choice—a factory girl who worked for her living. In the hope of bettering his fortune, in 1854 Mr. Schofield emigrated from England to the United States, leaving his little family behind. But he did not succeed there as well as he had hoped for, and in the following year he returned to England, obtaining a situation in a cotton factory in Edenfield, Lancashire, at eleven shillings fourpence per week wages. Here he made himself very valuable to his employers, and soon he was advanced to the charge of the spinning-room of the factory, for which he was paid twenty-four shillings per week, soon after being still further advanced by being put in charge of the entire factory at a salary of four pounds sterling per week.

In 1860 he again came to America, this time to Toronto, but not finding any satisfactory employment here he went to the United States, where he remained till 1863, when he again returned to Canada, this time to Hespeler, Ont., where he obtained a position as weaver in Mr. Jacob Hespeler's woolen factory, remaining there about two years.

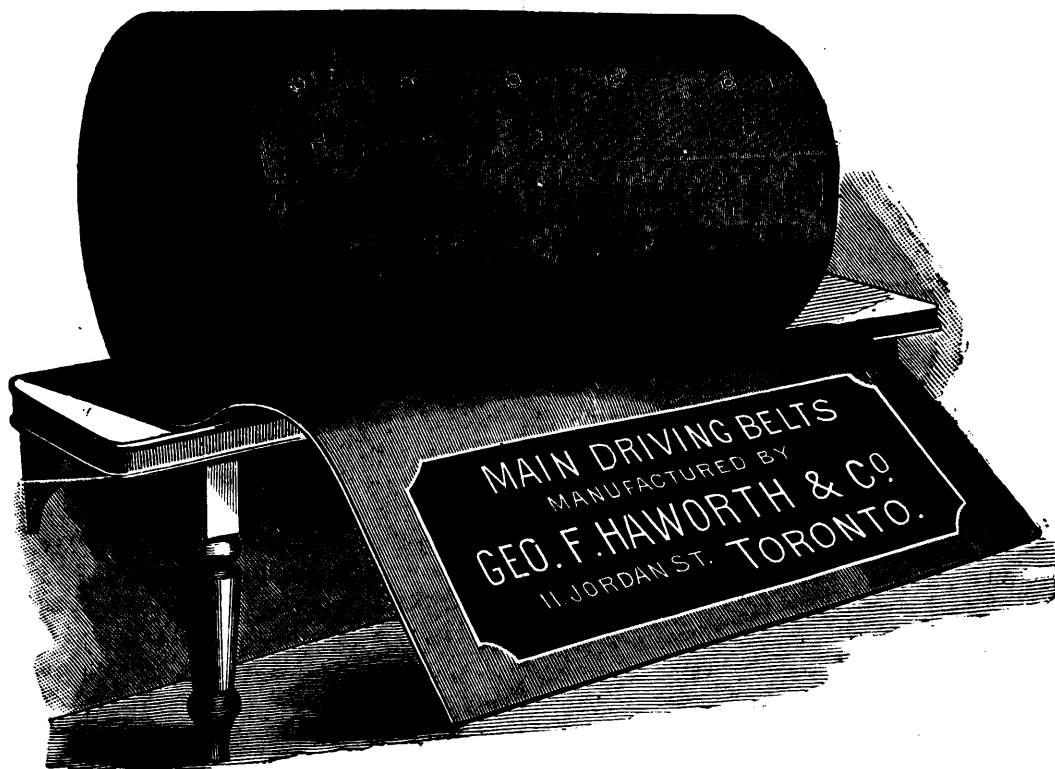
In 1865 John Schofield was driving an old blind horse attached to a pedlar's wagon over the hills of Brant county.

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He was selling merchandise on his own account, his stock consisting of the heterogeneous assortment usually carried by pedlars. He was ready for any trading transaction whereby he could be profited, but his gains were small and his living precarious. He found in his travels that a good demand existed for homespun woolen goods, and that this was a good line for him to handle. These he obtained from the neighboring factories, but his knowledge of weaving, and of the cost of manufacturing, showed him that it might be well if he could engage in the manufacture of the goods himself. In one of his peddling journeys, one of his assets was a violoncello. He remembered that one of his customers owned an old hand-loom which had been brought from the old country and that, being fond of music, he believed himself a musician. The violoncello was traded for the hand-loom, and John Schofield saw his way clear to become a Canadian manufacturer of woolen cloth.

When this remarkable man settled in Brant county he acquired a very modest residence in which to lodge his family. He had but a few dollars in ready money, and a large portion of it—six dollars—went to pay for a cook-stove and a few utensils. All the family's personal effects were contained in a trunk, a packing box and a barrel. Without a carpet on the floor and without bedstead, chairs or table, the Canadian life was begun. But there was a wealth of love in the family, and a strong determination to succeed; and while the husband peddled over the country with the old blind horse, the wife remained at home and did her full share in the struggle of life.

About this time a sister of Mr. Schofield's wife came over from the Lancashire hills and became a member of the family. Mr. Schofield had set up his hand-loom, and there was an accumulation of wool; and this newcomer into this Canadian home knew just what to do under the circumstances. She could card, spin and weave, for that had been an important part of her education over the sea, and soon the warps had been wound, the shuttle filled, and the factory in operation. Remembering his early services in the Rochdale print works, Mr. Schofield, when at home from his peddling, prepared his dyes and colored his yarns, and soon his "fruit of the loom" was widely and favorably known and much sought after. The venture was profitable, and soon another loom was added. The products of these two looms were more than the pedlar could dispose of to his farmer customers: the merchants in the neighboring towns soon began to have the goods in their stores, and the reputation for excellence of the Schofield flannels became established.

Mr. Schofield had many offers of assistance from wealthy and influential men to establish himself in a larger business, and these he declined for a long time, but in 1868 Mr. Robert Forbes, of Hespeler, offered Mr. Schofield the management of a one-set mill which he proposed to build there. The proposition was accepted, and the mill built and put in operation. The business, though small, was lucrative, and the wealth for which Mr. Schofield had been striving so long began to accumulate. In 1871 Mr. Schofield and Mr. Forbes leased the Star woolen mills at Hespeler, Mr. Schofield having the management and control; and in 1874 these gentlemen bought these mills outright. The business was remarkably successful and the Star mills made money rapidly for the new owners; but in 1880,

on account of ill health, Mr. Schofield disposed of his interest to Mr. Forbes, for which he received large and satisfactory remuneration.

After this Mr. Schofield was interested in the Harvey & McQuesten Mills, at Hespeler; and later, still being in very impaired health, he became connected with the Paris Manufacturing Company, who were operating large woolen mills at Paris, Ont. In 1886, having recovered his health, Mr. Schofield assumed the management of these mills, which he has retained ever since—the manager of one of the most important and prosperous woolen mills in Canada.

Since he settled in Canada, Mr. Schofield has frequently visited England, and his old home in Lancashire. Though nearly sixty years of age, and though he has been a great sufferer from impaired health, his mind is active and his life one of continual push and energy, by which he is enabled, Midas-like, to make money in any business venture in which he may engage.

#### AS TO COPPER.

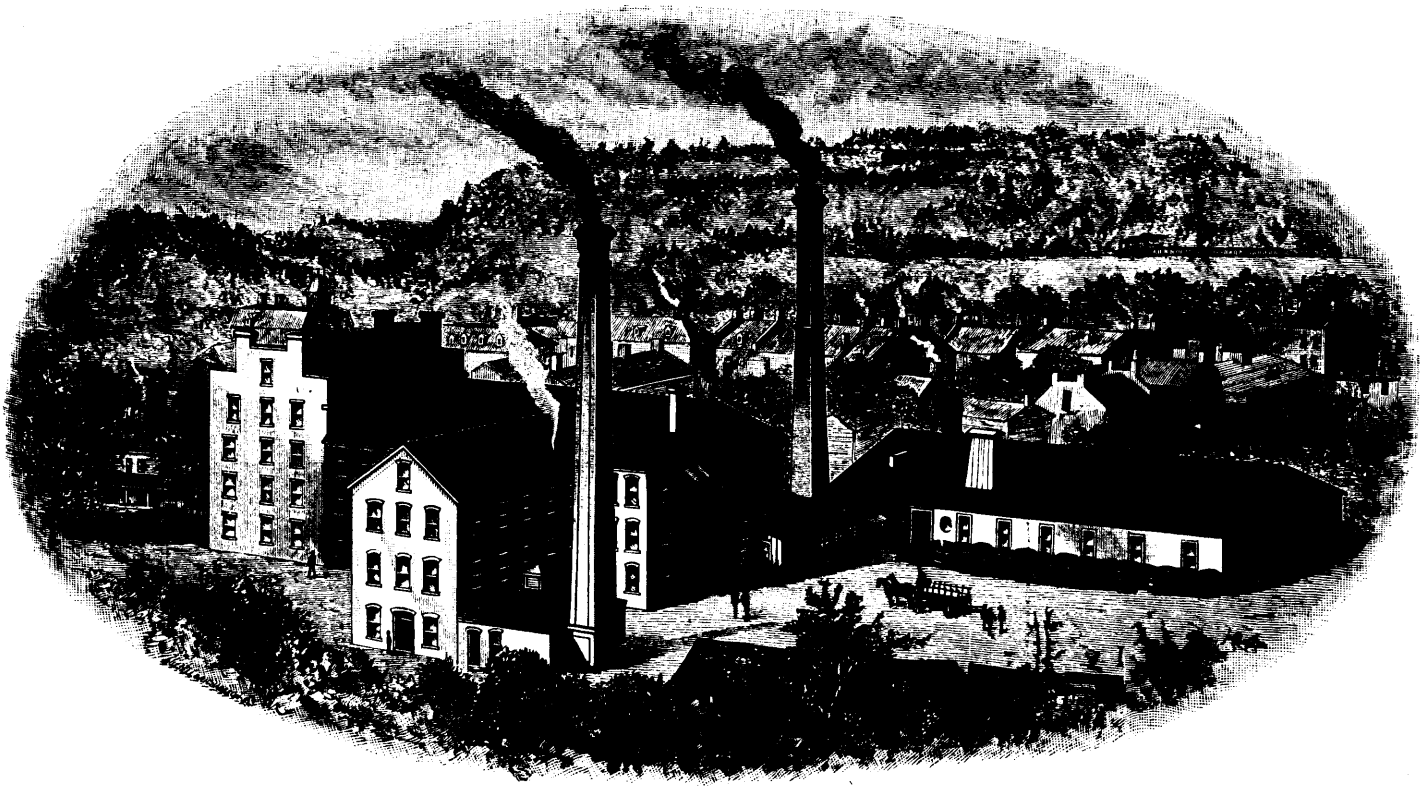
RECENTLY the pessimistic *Mail*, in an editorial headed "As to Copper," imputed inability to "comprehend the simplest economic principle" on the part of Canadian Protectionists regarding the vast deposits of copper ore in Canada. It said:—"Were there no American tariff obstructing the exportation of that ore to the United States, we might sell larger quantities of it than at present in the American market. Were there no tariff against fine copper, and were our own tariff low enough to enable us to compete with copper producers elsewhere, we might erect copper works, extract the metal, and sell it abroad. But the conditions are all against us. We are obstructed with imposts when we undertake to export the ore; and there are still heavier imposts upon the pure metal. In addition, all the necessary machinery and tools necessary to the establishment of copper works are subject to duty if imported into this country. The restrictionist press favors this condition of affairs. \* \* They imagine that the Canadian manufacturer, though weighted down with taxes upon his machinery and tariffs against his finished products, can compete successfully with the foreign producer whose industry is relatively free. But still more ridiculous is the proposition that we ought to produce the little copper we use instead of importing it in the manufactured state. If our requirements were large enough to warrant the establishment of copper works, and if the works could be profitably operated, there can be no doubt that capital would enter into the industry. But we do not use sufficient copper to induce capital to produce it. For the fiscal year ending June 30, 1886, we used just twenty-six and a half tons of copper in the pig. \* \* To those who understand the natural law governing the cost of production, it must be apparent that we could not produce copper for our sole use, even were the machinery untaxed, at anything like the price at which our neighbors can, with their vast output. \* \* If we want to develop the copper industry our policy is not to handicap it with tariffs, but to set it free."

By a singular concatenation of events, on the very day on which the *Mail* published this depressing view of what should and probably soon will be an important industry in Canada, a

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press telegram sent out from Montreal was published in all the daily papers announcing that negotiations were then being arranged in that city for the sale of the Harvey Hill copper mine, in the county of Megantic, Province of Quebec, to the Excelsior Copper Company, of London, England. This property is represented as having great value and susceptible of giving a large output, the ore assaying eighty per cent. of pure copper, said to be the highest grade in America. This is one of the vast deposits of copper ore alluded to by the *Mail*, the object of the transfer of this mine being to facilitate the mining of it; and it is reasonably certain that the English capitalists constituting the Excelsior Copper Company would not have invested their money in it without the hope and expectation of reaping a rich reward.

This, however, the *Mail* does not desire to see, and it argues that "the conditions are all against it." These conditions are the duties which the United States impose upon both ore and refined metal, and the duty Canada imposes upon machinery and tools necessary in mining and manufacturing. Of course with the first we have nothing whatever to do, as our Yankee neighbors frame their tariff to suit themselves; but to the second the answer is that Canada can manufacture all the tools and machinery necessary in the business, upon which there is no duty; therefore the Canadian manufacturer or producer of copper ore or copper metal, not being weighted down with taxes upon his machinery, and protected by our tariff in favor of his finished product, can and ought to compete successfully with the Yankee producer whose industry is subjected to restrictions similar to those prevailing in Canada.

The efforts that are being made to develop the copper industry in Canada are not "ridiculous"; and even if the quantity of copper that is consumed here is "little," we should not despise the day of small things, but endeavor to build up the industry. We take it that our requirements are large enough to warrant the establishment of copper works, and that such works could be profitably operated; and that "capital, ever ready to seek employment," is even now seeking it is evidenced by the fact here alluded to.

The *Mail* cites the fact that the Calumet and Hecla mines, in Michigan, will shortly produce three thousand tons of copper a month; that as the consumption of pig copper in Canada for the fiscal year ending June 30, 1886, was just twenty-six and a half tons, and therefore these two mines turn out in two and a half hours sufficient copper to represent all the pig copper we use in a year. This is an unfortunate allusion; for the copper ring in the United States, to which the owners of these mines belong, is one of the most oppressive monopolies that oppress that monopoly-oppressed country. The *Mail* seems to have forgotten that but about two years ago this ring forced about every copper smelter in the United States not owned or controlled by them, to shut down, by selling copper for several cents per pound less than the cost of production; and then, when the weaker concerns had been forced to the wall, raising the price abnormally high; thus recouping their loss. It has certainly failed to tell that for years this ring has never allowed a pound of copper to be sold in the United States in excess of the current demand, and on which they fixed prices to suit themselves. When the production was in excess of the demand, the excess was slaughtered in Europe,

never in the home market; and it is with the tendency if not with the object of subjecting copper consumers in Canada to the domination of this monopoly that the *Mail* argues.

The value of the importations of copper and copper goods into Canada during the year ending June 30, 1887, was as follows:—

Bars, rods, bolts and ingots.....	\$ 85,842
Old scrap.....	1,003
Pig.....	1,504
Tubing.....	16,849
Wire cloth.....	2,637
All other.....	28,468
Total.....	\$136,303

The duty on these importations was, on the first four items, ten per cent.; on the wire cloth, twenty per cent.; and on the last item thirty per cent.; the total amount of duties paid being \$19,621.73. The exports of copper ore from the Dominion during the year amounted to 5,267 tons, valued at \$181,545.

#### GASOLINE AS A MOTIVE POWER.

A FEW weeks ago *Chambers' Journal* published an interesting article in which was described "a novel method of propelling ships," as applied to a vessel called the *Zephyr*, the second of its kind which had been constructed from the designs of Mr. A. F. Yarrow, of Messrs. Yarrow & Company, the well-known torpedo-boat builders of London. The construction of the vessel, we are told, differed very little from that of steam launches, except that the machinery was placed far aft in the stern, while the fuel was carried in a tank in the bow, the intervening space being reserved for passengers, cargo, etc. It was in connection with the propulsion of the vessel that the new departure was taken, the fuel being described as "a highly volatile hydro-carbon—one of the early products of the distillation of petroleum, having a specific gravity of .725 to .73 degrees"—in other words, gasoline. The *Zephyr* was thirty-six feet long and six feet wide, built of steel, and the propelling machinery was of the type ordinarily used in such craft; but it was in the mode of feeding and actuating the engine that embraced the novelty. It was fed by a vapor-generator situated aft of the engine. Unlike other gas engines, the power was not obtained by exploding the gas, but the gasoline was vaporized and impregnated with atmospheric air by means of air pumps, and confined in the generator under a pressure sufficiently great to operate the engine in the usual manner. The exhaust gas from the engine was discharged into a condenser, where it was restored to its original form as gasoline, and returned by a pump into the fountain tank at the bow of the vessel, the only loss sustained being the quantity of gasoline burned in generating the gas. The time required to put the vessel under full speed from the time of first lighting up did not exceed five minutes, and the consumption of gasoline was only about five quarts per hour.

About the time of the appearance in London of the *Zephyr*, a similar vessel, named the *Surprise*, attracted considerable attention in Cincinnati. She was thirty-five feet long by seven and a half feet wide. The stern was boxed up with sheet iron, in the centre of which was the engine; while there

was a tank in the bow capable of containing 100 gallons of gasoline. The engine was substantially like that of the *Zephyr*, the consumption of gasoline being about two gallons per hour.

And still another similar vessel appeared about the same time in New York harbor, which was described as follows :

In the bow of the boat a bulkhead is perforated to admit seawater, which circulates around a copper tank fitted with a tap-screw. In this magazine liquid naphtha is stored, and from the reservoir a feed and two exhaust pipes lead to a retort aft, and to another bulkhead, which contains the mechanism. The engine and boiler consist of a series of spiral coils, beneath which is the steam chest, vertical cylinders and piston rods. Forward of the retort is an injector which feeds naphtha vapor to the furnace, and a damper admitting fresh oxygen to aid consumption. By this arrangement the pressure of gas is increased or diminished, and the speed regulated. At the lower end of the retort is the combustion chamber which admits the vapor. When ignited the flame reaches every part of the spiral, boils the naphtha, and generates a pressure of sixty pounds per square inch in a few minutes. Only about six per cent. of the gas generated is consumed as fuel, the remainder, after being utilized, being condensed in the exhaust-pipes and enters the reservoir again as liquid naphtha. The engine, after being once started, runs itself as long as there is a supply of naphtha in the tank, and as soon as the feed fails to supply the liquid the fire goes out automatically, and there can be no explosion. The launch on which the test was made was thirty feet long, and designed to develop six horse-power. At a pressure of sixty pounds a speed was gained a little under eight knots. The boat consumed about two gallons of naphtha an hour, which at the market value to-day is a cost of twenty cents. Any person can learn to run one of these engines and to steer at the same time. The entire engine and fittings are less than one fifth the weight of others of the same power, and occupy a comparatively small space. Besides this, there are no cinders or ashes. The invention is said to be that of a Swede, and at the works near New York there are now ninety-six such boats under construction.

#### CANADA VS. UTOPIA.

A RECENTLY appointed Grand Lecturer of the Knights of Labor is amusing his audiences by propounding a proposition admirably well suited for the climate and people of Utopia, whatever his Canadian hearers may think of it. The distinguished lecturer, speaking to the laboring classes, tells them that in making their purchases of the every-day necessities of life, they should not buy any goods offered at what is known as "cheap" prices, but should take those that cost more money. The argument is that "cheap" goods indicate "cheap" labor ; and if laboring people desire to obtain the highest possible wages for their services, they should extend their philanthropy to all other laboring people by paying good prices for whatever they produce, or are employed in the production of. "Low prices," he says, "are the result of low wages ; and if laboring people wish to maintain or elevate the standard of their own wages, they should make their purchases at prices that would indicate good wages for the producers of the goods which they buy." For instance, a laboring man, whether in receipt of what he or the distinguished lecturer might call "good" wages or not, desiring to buy blankets, shoes or shirts, should not take his money to a "cheap" store, because the goods, being cheap, indicate "cheap" labor ; but he should go to another store and pay probably fifty per cent. more for precisely similar goods, because the higher prices indicate

higher wages for the workmen employed in their production. In other words, if the laboring man requires three blankets or three pairs of shoes, and has only enough money to buy them at the "cheap" store, he should sacrifice his comfort and buy only two blankets and two pairs of shoes at the higher priced store, hoping thereby to benefit the thousands of blanket weavers and shoemakers throughout the country whom he knows nothing about whatever. By the same process of reasoning the distinguished lecturer would have the laboring man in want of a pair of shoes to go to a shoemaker who will not work for less than the highest wages, paying say two dollars for them, while he could go into another place and purchase factory-made shoes, equally good, for a dollar and a half. Philanthropy is a good thing, and Utopia, so it is surmised, is a delightful country to which all such chimerical visionaries as the distinguished lecturer alluded to ought to go sooner or later, but in this cool climate of Canada the people don't take ravenously to paying three dollars for an article that two dollars will buy.

#### MUSIC AND MANUFACTURES.

MESSRS. NICHOLLS & HOWLAND, proprietors of the Permanent Exhibition of Manufactures, Toronto, have made a unique departure in advertising their business. Commencing with Monday last, they have inaugurated a series of evening entertainments which are to extend through the week ; and we are informed that these "At Homes" are to be continued at frequent intervals through the season. The attraction this week is the Archduke Joseph's celebrated Hungarian Gypsy Band, and the concerts already given have proven a grand success. The programmes rendered are very choice and embrace selections from the finest and most artistic music ; the accommodations are all that could be desired, and the entertainments delightfully charming and refreshing.

The Permanent Exhibition building, though erected for far different uses, is admirably adapted for concert purposes, as is fully proven by the entertainments now being given there ; for large as the building is, there is no portion of it in which even the most delicate and softest sounds of the music cannot be distinctly heard. The band stand is in the west gallery, on which floor there is ample room to comfortably seat a thousand people, while the broad aisles among the exhibits on the main floor afford accommodation for several hundred more. On both the main floor and gallery are numerous and attractive exhibits of a great variety of manufactures, classified and arranged in appropriate departments, which feature is exceedingly interesting and instructive to visitors. During the intermissions of the music, and before and after the concerts, these exhibits excite a great deal of attention, and this is one of the objects aimed at by Messrs. Nicholls & Howland in inaugurating these entertainments—to bring their Permanent Exhibition, and the displays of manufactures contained therein, prominently to the attention of the public.

#### 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.

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

#### EDITORIAL NOTES.

ONE of the great necessities of Canadian farming is a machine that will pull flax as satisfactorily as it can be done by hand. A fortune awaits the man who invents the machine.

“THE town of Paris, Ont., has voted a bonus of \$5,000 to Mr. F. Wylie, to establish a wincey mill there.”—*CANADIAN MANUFACTURER*. This is only a brief item, but appearing in such a newspaper it is a notification to the manufacturing world that one town is still alive and kicking. As such it is a good advt.—Paris, Ont., *Review*.

On the wrapper in which the Brampton, Ont., *Conservator* visits our office every week is the following:—

“Brampton, 21 miles west of Toronto, at junction of the Canadian Pacific and Grand Trunk Railway; population 4,000; has a magnificent system of waterworks; large engine and agricultural implement shops; planing factories, electric and gas lights; two banks, three newspapers, telephone connection; High and Public Schools; several magnificent Churches, and is the business centre of a rich agricultural district.”

It is evident that the manager of the *Conservator* knows the importance of advertising the advantages of his town. And this is not only on the wrapper of his newspaper, for our “Manufacturing” department frequently contains items concerning the industries of that thriving little town which are obtained from its local columns.

THE Port Hope *Guide* tells a queer story of how Mayor Randall of that town was endeavoring to realize a few ducats out of his “influence” in having a bonus awarded to Messrs. A. W. Morris & Brother, of Montreal, as an inducement to locate their new cordage factory there. It states that his worship claimed that he ought to be reimbursed for the time he had spent in talking up the matter among his constituents, and so called upon Mr. A. W. Morris and made a pitiable appeal to the generosity of that gentleman, who, to get rid of the importunities of the impecunious mayor, “wrote out a cheque for upwards of fifty dollars.” If the facts are as related by the *Guide*, the matter is a most scandalous one, yet we do not learn that the more decent and respectable citizens of Port Hope have held an indignation meeting, denouncing the conduct of their mayor, and demanding his resignation. Why don't the *Guide* lead off in this direction?

A LARGE manufacturing concern in St. Louis have substituted crude oil burning apparatus for coal-burning furnaces in their works. The use of oil for fuel for manufacturing purposes is not now an experiment, and the adoption of it is only a question of cost. In most establishments using this

fuel, suitable storage tanks are erected at safe distances from the works, with which they are connected by pipes, through which the flow into the furnace is readily controlled by valves; the principle by which the oil is prepared for burning being similar to that by which gasoline stoves are operated. In the St. Louis factory the cost of the oil delivered is only \$1.66 per hundred gallons, 120 gallons producing as much heat as 2,000 pounds of anthracite coal; there being a further saving of 20 to 25 per cent. in the expense of handling. It is said that the Standard Oil Company will construct a pipe line from their main western line at Huntington, Ind., to St. Louis, provided a sufficiently large demand arises there for the oil.

At a recent meeting of the Embro Mechanics' Institute, the advisability of discontinuing all American newspapers and periodicals was discussed. The prevailing opinion was that all American publications should be stopped as soon as their subscriptions expire, and the money thus saved expended in purchasing more Canadian literature. “Canada and Canada's money for Canadians” was the watchword of those present.—Stratford, Ont., *Herald*.

“Not that I love Cæsar less, but Rome more.”

If our Stratford friends have been subscribing for American newspapers, and found pleasure and profit in reading them, even if the views expressed in them are distasteful, we would suggest that the antidote should go with the poison, even as a bottle of soothing syrup or pain killer should be found in the pocket of every boy who eats green apples. Let the antidote consist in the *CANADIAN MANUFACTURER* and other good, wholesome Canadian journals which inculcate the idea of “Canada First” all the time. At any rate, “purchase more Canadian literature.”

FACTORY and other property owners in cities and towns are interested in the final outcome of a case now pending in the civil courts at St. Louis, Mo. In June last, while the Democratic convention was in session there, there was a night parade at which fireworks were let off, and from which the large flouring mills of the Kaufman Milling Company were burned. The parade and fireworks were authorized and permitted by the city authorities, and now the Kaufman Milling Company have entered suit against the city for the recovery of \$150,000 value of their property, claiming that the authorities had no right to allow the display of fireworks. The plaintiffs are a wealthy corporation, who no doubt have the best legal advisers in the matter, and no matter which way the case goes in the lower courts, it will probably be stubbornly contested to the highest courts in the land. Railway and steamboat companies have frequently had to pay for property destroyed by fire caused from sparks from passing locomotives and steamboats; and the question arises why towns and cities, where displays of fireworks are allowed, should not also be compelled to pay for any destruction of property resulting therefrom.

FOLLOWING are the decisions regarding the tariff on importations made by the Customs Department during July and August:—Brass weights for scales, 30 p.c.; fish pumice, 20 p.c.; huckleberries, 20 p.c.; insect powder, 20 p.c.; meerscham pipes, real or genuine, 20 p.c.; meerscham pipes, artificial or imitation, 35 p.c.; pears, 20 p.c.; rape seed, 20 p.c.; repairs on machinery, either on vessels or otherwise, 30 p.c.; scissors, plated, 30 p.c.; scissors, not plated, 25 p.c.; spring wire cotters, 30 p.c.



# 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.

IN experimenting with seaweed for making gun cotton, a beautiful dye has been discovered.

THE knitting factory of Messrs. Patchet & Noyes, Galt, Ont., was destroyed by fire October 13.

MESSRS. G. OUTRAM & SON, manufacturers of files, etc., will remove their works to Port Hope, Ont.

THE Eau Claire Lumber Company, of Calgary, Alberta, will add a mill to their establishment for chopping grain.

THE Ontario Hedge and Wire Fence Company, of Windsor, Ont., has been incorporated with a capital stock of \$250,000.

THE woolen mills of Messrs. Routh Brothers, Southampton, Ont., were destroyed by fire, October 11. Loss about \$5,000.

THE Ontario Wheel Company, Gananoque, Ont., whose works were recently destroyed by fire, will rebuild immediately.

MR. HUGH CHRISTIE'S woolen mills at West Winchester, Ont., were totally destroyed by fire October 12; loss about \$12,000.

NEARLY 200,000,000 feet of lumber cut in the Ottawa valley this year, will be shipped to South America, West Indies and Australia.

THE C. P. R. elevator accommodation at Port Arthur and Fort William, with the new elevators, will amount to five million bushels.

THE Keene lumber mills at Penetang, Ont., have just been supplied with a band saw which is fifty feet long and contains nearly 500 teeth.

A COMPANY has been formed at Victoria, B.C., with a capital stock of \$100,000, who will build a street railway on which motor cars will be operated.

IT is estimated that the dyer of to-day has control of 15,000 different shades of colors. There is not a color known to science which he cannot use.

THE latest lace machines are 200 inches wide instead of 150. The output is 25 per cent. greater and the quality much better than with the old machines.

ANY one having a good second-hand iron turning lathe which he desires to sell, should consult a descriptive card which appears among our special advertisements.

THE Empress Gold Mining Company, Renfrew, N. S., will likely erect a large mill at their mines at that place for crushing ore. It will be run by water power.

MESSRS. WALKER & SONS, the large distillers of Walkerville, Ont., have sent Mr. H. E. Crawford of their concern to London, Eng., to open an agency there for the sale of their goods.

THE Ross-McLaren Co., of Ottawa, of which Mr. James McLaren is a leading promoter, expect to have their new saw mill on the Fraser river, B. C., in running order by next June.

MR. JAMES FENSOM, of the Fensom Elevator Works, Toronto, is putting in the passenger elevators in the new Government buildings in Ottawa, for which the contract price was \$40,000.

THE Hibbard Electric Manufacturing and Supply Company, with principal office at Montreal, has been incorporated with \$150,000 capital stock for the purposes indicated by the name.

THE foundry of Messrs. R. McDougall & Co., Galt, Ont., was destroyed by fire, October 4. Loss about \$7,000. Preparations are being made to rebuild the works on an enlarged scale.

THE TOWN of Wingham, Ont., has recently granted bonuses as follows:—Gilchrist, Green & Co., of the Union Furniture Factory, \$10,000; T. Dell & Co., \$5,000; Kincaid Bros., chair factory, \$5,000.

THE Simmons Hardware Company, St. Louis, are handling the Grellner patent everlasting lock wedge for handled tools, axes, hatchets, etc. The device is exceedingly simple, effective and inexpensive.

NOTWITHSTANDING the recent death of Hon. J. G. Ross, of Quebec, the Ross-McLaren mill project will go on. It is understood that the construction of the big mill at Westminster, B.C., will be commenced at once.

MR. CRAWFORD T. MILLER'S Couchiching Tannery, at Orillia, is embraced in a building 84x40 feet, which is equipped with all modern machinery. It has capacity to tan 200 hides a week, giving employment to fifteen hands.

MESSRS. DODDS & JOLLY, Yarmouth, N. S., have started a knitting factory which gives employment to about twenty-five hands. Their present output is about four hundred pairs stockings and two hundred knit shirts and drawers per day.

MR. D. MAXWELL, who was recently bonused by the town of St. Mary's Ont., as an inducement to remove his agricultural implement works to that town from Paris, Ont., has his new buildings about completed and is moving his machinery, etc.

MR. P. COUTURE, M.P. for Chicoutimi, Que., has formed a company to establish a woollen factory, tinned factory and foundry at Lake St. John, that province. All the requisite capital has been subscribed and the necessary machinery bought.

IT is said an arrangement has been proposed between Mr. Heaps and the town by which his brother will be able to run the factory during the winter. It is said to be as satisfactory to both town and Mr. Heaps as could be made.—*Oshawa Vindicator*.

MR. W. J. HARE, Oshawa, Ont., whose foundry was recently destroyed by fire, will proceed immediately to erect a new works on the old site. The main building will be of brick, 50 x 40 feet, two stories high, and a brick moulding shop 50 x 50 feet.

THE Toronto Rubber Company of Canada, Toronto, a few days ago sent out 1000 feet of their rubber fire hose to the town of Blythe, Ont.; 500 feet to the town of Niagara Falls, Ont.; 500 feet to Hastings, Ont.; and 500 feet to the city of Halifax, N. S.

MESSRS. F. F. DALLEY & Co., Hamilton, Ont., manufacturers of essences, perfumes, inks, blacking, etc., will establish a wholesale branch warehouse in Toronto, under the charge of Mr. E. A. Dalley. The factory and main warehouse will remain in Hamilton as heretofore.

MESSRS. DICK, RIDOUT & Co., proprietors of the Toronto Bag Works, manufacture jute and cotton bags in all sizes and qualities, the printing on these bags being done on their own premises. They make no charge for originating designs for brands. They invite correspondence.

MR. JAMES CROSSEN, proprietor of the Cobourg Car Works, Cobourg, Ont., has recently equipped his establishment with an outfit of two hundred and eighty electric lights. The Harris-Corliss steam engine to drive this electric plant was built by Messrs. Cowan & Co., Galt, Ont.

MESSRS. GEO. F. HAWORTH & Co., manufacturers of leather belting, Toronto, announce that they will hereafter sell all their Canadian hemlock-tanned leather belting at the Canadian price list. Their price list for Hoyt's American pure oak-tanned leather belting remains unchanged.

MESSRS. FRANCIS TUTTON & SONS, proprietors of the Orillia Foundry, Orillia, Ont., do a business of about \$30,000 a year, making, repairing and refitting engines and machinery of every description. Their works are included in a building 90x40 feet, and give employment to about fifteen hands.

MR. H. R. ROBERTSON, the projector of the immense timber raft which was constructed at Joggins, N.B., and successfully towed to New York, has recently been in negotiation with a New York syndicate to construct a raft at Puget Sound, on the Pacific coast, the timber to be towed to San Francisco.

SINCE the woolen mill was established in this city, sheep-raising is gradually gaining ground among the farmers of the lower Fraser. The price of wool is from six to ten cents per pound, and the woolen mill here furnishes a market for all the wool the farmers have for sale.—*New Westminster, B.C., Columbian*.

THE Wescott Chuck Company, Oneida, N.Y., inform us that they are selling their chucks quite largely to Canadian buyers, with whom they are in great favor. These goods are supplied in two styles of drill chucks and five styles of lathe chucks, all of which are made in sizes adapted to the wants of the trade.

THE canning factories throughout the country have been having a successful season in putting up fruits, vegetables, etc. Recently the Bay of Quinte Canning Factory put up over 15,000 cans of green corn in one day; and at the factory of Messrs. A. C. Miller & Co., at Picton, a like amount was put up in the same time.

MR. JAMES E. PALMER, 176 Broadway, New York, calls the attention of textile manufacturers and all who desire to sell to the mills to the "Blue Book" published by him. It is a pocket directory of the cotton, woolen and worsted mill dyers, bleachers and print works of the United States and Canada, giving all the facts regarding them.

MESSRS. DAY BROTHERS, machinists and founders of St. Johns, Que. (formerly of Montreal), have asked the corporation of that town for a bonus of \$10,000, payable by instalments of \$1,000 per annum for ten years. They agree to run a foundry to manufacture Jacques' patent cooking stove, employ thirty-five hands, and pay in wages \$300 a week.

WE have received a copy of the Canadian Textile Directory for 1888 and 1889, being the fourth year of its publication. It is an octavo book of 374 pages, containing a list of all the cotton and woolen mills in the Dominion of Canada, besides much additional and valuable directory matter. It is published at \$3.00. Address, E. B. Biggar, Montreal.

THE International Manufacturing Company is a new concern recently started in business at Cornwall, Ont., for the manufacture of elastic webbing, braces, tapes, webbing, etc. The principals in the concern are Mr. Frederick Ott, formerly designer in the Canada Cotton Company's mills, and Mr. Edward Foley, for the last few years the manager of the canton flannel department in the same mill.

MR. R. CALLENDER, Brantford, Ont., has recently invented and patented two organ actions which he claims possess great merit. The first enables the performer to make combinations without taking the hands off the key board; and the second, for church organs, gives the organist power to produce any number of consecutive combinations, without removing the hands or taking the feet from the pedals.

THE National Electric Light and Motor Company have been incorporated at Victoria, B. C., with \$100,000 capital. The objects of the company are the generation and sale of electricity for light and power, the construction and working of tramways, and the manufacture and sale of electrical goods of every description. The head office of the company will be at Victoria, where workshops will be erected.

SPEAKING of the new Brantford Carriage Works, the *Expositor* says that the buildings are about completed, and arrangements have been made for the purchase of the engine and some of the machinery, which are to be made in Canada. It is expected that the works will be pushed to completion and be in operation in December or January. This concern is an offshoot of the Cortland Wagon Company, Cortland, N. Y.

MESSRS. EBY BROTHERS, Berlin, Ont., have purchased the hot air furnace factory and foundry of Mr. C. E. Moyer, in that town, and will continue the business. Messrs. Eby are both young men with valuable experience, who will push their business for all there is in it. In addition to the manufacture of the heating apparatus alluded to, they will also make certain lines of implements, hardware specialties, etc.

MESSRS. R. H. BUCHANAN & Co. are putting in one powerful steam pump, with pipe and hydrants, for J. C. Wilson's paper mill at Lachute, to work under 150 pounds water pressure. They have just supplied the Temiscouata Railway with five steam pumps, two to the Rathbun Company, Deseronto, and one to River du Loup with 370 feet of suction pipe, 23 feet lift, all of H. R. Worthington manufacture. — *Montreal Gazette*.

THE firm of Park, Scott & Larsen, Oshawa, Ont., have dissolved, and the business will be carried on by Messrs. W. Coulthard and C. W. Scott, under the firm name of Coulthard, Scott & Co. Work has been commenced to repair and enlarge their works, which were damaged by fire last month. They will also put in new and improved machinery, which will put them in a better position to turn out their seeders and harrows than heretofore.

THE Oswego Thermometer Company are anxious to establish a branch of their establishment in Canada, and have asked the City Council to make a bid for its location in this city. It is hardly likely the Council will ask the ratepayers to ratify such a proposition. If any inducement is offered, and it is most likely there will be, it

ESTABLISHED - - 1828.

## J. HARRIS &amp; CO.

(Formerly HARRIS &amp; ALLAN),

## NEW BRUNSWICK FOUNDRY.

RAILWAY CAR WORKS,  
PARADISE ROW.PORTLAND ROLLING MILLS,  
STRAIT SHORE.

PORTLAND, ST. JOHN, N.B.

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

## BRUSHES

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

MANUFACTURED BY

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

IMPORTANT TO TEXTILE MANUFACTURERS AND ALL WHO DESIRE  
TO SELL TO THE MILLS.

## THE BLUE BOOK

A Pocket Directory of the Cotton, Woolen and Worsted Mills, Dyers,  
Bleachers and Print Works of the United States and Canada.

Compiled to meet the demand for a small, compact Directory (as the large and cumbersome Directories contain a mass of matter of no interest to mill men). It gives name of place, county, railroad (or nearest railroad station), hotel, telegraph and express; name of mill, proprietor or company agents, and superintendents; class of goods made; number of cards, looms, spindles, knitting and sewing machines, boilers, water wheels, and if there is a DYE-HOUSE.

It contains full particulars of ALL NEW MILLS under construction, with probable date of completion.

As much care has been taken, and as full particulars are given of a 1-set mill as of the largest.

Manufacturers and travelling salesmen who subscribed for it, and have received their copies, pronounce it the most accurate and complete Directory of the Trade ever published. Size, 7 by 4 inches.

Price, postpaid, \$2.00, bound in cloth; \$2.50, bound in leather.

(Canadian Bills accepted).

JAMES E. PALMER, 176 Broadway, New York.



## ST. LAWRENCE CANALS,

GALOPS DIVISION.

## Notice to Contractors.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for St. Lawrence Canals," will be received at this office until the arrival of the eastern and western mails on *Tuesday, the 30th day of October instant*, for the construction of two locks and the deepening and enlargement of the upper entrance of the Galops Canal.

A map of the locality, together with plans and specifications, will be ready for examination at this office and at the Lock-keeper's house, Galops, on and after *Tuesday, the 16th day of October instant*, where forms of tender may be obtained by Contractors on personal application.

In the case of firms there must be attached the actual signatures of the full name, the nature of the occupation and residence of each member of the same, and further, a bank deposit receipt for the sum of \$6,000 must accompany the tender for the works.

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

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

By order,

A. P. BRADLEY,

Secretary

Department of Railways and Canals,  
Ottawa, 11th October, 1888.

will be in the shape of exemption from taxation and free water for a period of years.—London, Ont., *Evening Times*.

THE steamer Halifax, the pioneer of the Canada Atlantic line, to run between Halifax, N.S., and Boston, Mass., has arrived at Halifax from Glasgow, Scotland, where she was built. She is 1,700 tons, 240 feet in length, engines of 3,000 horse-power, averages 15 knots, has accommodation for 500 passengers, and is said to be the most magnificently equipped and gorgeously furnished steamer on the Atlantic coast, not excepting the Fall River line steamers. She cost \$200,000.

THE E. & C. Gurney Company, Toronto, have recently sent equipments of their hot water heaters to two of the principal theatres in London, England—The Garrick, in Charing Cross, and the Tivoli, in the Strand. This company recently, at the request of the Austrian Government, furnished plans and specifications for heating five large government buildings in Vienna, and they are in receipt of advices that these have been accepted and adopted by the Government architect.

A COMPANY in which Mr. Donald C. Ridout, of Toronto, is interested, are about to embark in a new enterprise in the west end. They purpose putting several boilers and a very powerful engine into one of the group of buildings on the Drop Forging Co.'s premises. From this they will supply power to the Drop Forging Co.'s works, the stair pad and carpet lining factory, and any other works that may be induced by this advantage to locate in that vicinity.—*Dundas Standard*.

MESSRS. H. C. MONTGOMERY & Co., Cleveland, Ohio, have sent us an illustrated circular descriptive of the Montgomery reversible sewer gas trap, manufactured by them. An important feature of this trap is that it is turned and finished on the inside, making it smooth, so that there is no possible chance for it to become clogged. Another valuable feature is its accessibility and convenience for general cleaning when necessary. The trap is straight-way, and its simplicity is such that any person of ordinary intelligence can clean it and keep it in order.

MESSRS. HAZE & Co., Charlo, N. B., have erected a large and substantial shingle mill at the mouth of River Charlo, which will give employment to a large number of men. There are now thirty shingle machines in the county of Restigouche manufacturing cedar shingles chiefly for the American market. It is only lately that this important industry has begun to be developed, which has added greatly to the business done in that part of New Brunswick. There will be more men employed in that section during the coming winter in cutting cedar logs for the shingle mills than for the other mills.

THE Canada Jute Company, Montreal, for whom Messrs. Stark Brothers, 62 Front street east, are the Toronto agents, call attention of the trade to the goods manufactured by them. Among others they mention jute, linen and cotton bags, for flour, oats, potatoes, feed, etc., of every quality, weight and size, the daily product of the goods from the company's works amounting to 30,000 bags. They also make a specialty of printing bags in colors. Other lines mentioned embrace Hessians, burlaps, hop sacking, etc., plain and striped, of every quality, width and weight. They invite correspondence.

A NEW style of gas stove which manufactures its own gas from gasoline, has been invented by J. S. Butler, Springfield, Ill. It is thus described: "It makes its own gas by machinery. The thrifty housewife does her cooking and at the same time makes gas enough to light the house at night. It has a six gallon tank for water, affording an abundant supply of hot water, also an oven surrounded by hot water to place cooked food in to keep it warm. There is a gas burner attached to the stove which furnishes a splendid light for evening work. Mr. Butler will get a patent and then will manufacture his stove for the world."

MESSRS. WAGNER, ZEIDLER & Co., Toronto, built the case of the new organ recently placed in Sherbourne street Methodist Church in this city. It was designed to harmonize with and conform to the architecture of the church. It is of polished cherry, elaborately carved, and holds fifty-five (all speaking) pipes arranged in flat compartments and three towers. The pipe decorations are in flat gold with deep red bands and flittered work about the mouths of the larger pieces. The sixteen feet pipe of the great organ stands in the central tower. The key fittings, stop handles, etc., are also of cherry and present a neat and elegant appearance.

CANADA is noted for the good quality of her gas, and this in turn is due to the high order of the gas men who have their home on that side of the line. Mark B. Thomas, engineer and superintendent of the Dundas Gas Works, is one of these, and than whom there

## Fenwick & Sclater,

43 and 44 Foundling St., Montreal.

MANUFACTURERS OF

Cast Steel Files and Rasps, Anchor Brand.

Cotton Waste, white and colored.

Asbestos Cement for covering Steam Pipes and Boilers

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

HOSE—Rubber, Canvas and Linen.

HOSE—Cotton, Rubber-Lined for Fire Brigades.

SELLING AGENTS FOR

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

## A. C. LESLIE & CO.

MONTREAL and TORONTO,

MANUFACTURERS' AGENTS FOR

### Iron, Steel, Wire, Tinplate, GALVANIZED IRON.

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

BUYERS ARE INVITED TO OBTAIN PRICES.

"JESSOP'S" STANDARD TOOL STEEL IN STORE.

## "BRIGHT LIGHT"

(WATER WHITE)



### THE BEST ILLUMINATING



MANUFACTURED IN CANADA. SAMPLE ORDER SOLICITED.

Address **MCMILLAN, KITTREDGE & CO.**

Head Office, **PETROLEA, ONT.**

## The Wm. Hamilton M'fg Co.

PETERBOROUGH, ONT.

MANUFACTURERS OF THE MOST MODERN

### SAW MILL MACHINERY

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

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

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

are none better. The company understands that so well that they took occasion recently to send him to the States to look into the subject of fuel gas (which they recognize is the uppermost question for gas men now), and to enjoy a deserved recreation as well. It is safe to say that both duty and pleasure were fully attended to—we know they were in New York.—*New York Progressive Age.*

A NEW YORK firm are about to begin to handle in New York cedar shingles made in Oregon. This means that the shingles are to be shipped 3,500 miles, but the dealers are confident that the article will commend itself to the public and that it can be successfully sold in competition with shingles not so good, which may be manufactured nearer home. British Columbia shingles are equal in every respect to the Oregon article, and if the latter can be sent to New York, British Columbia shingles should be able to find a profitable market in Eastern Canada. British Columbia cedar shingles now find a ready sale all over Manitoba and the Territories.

A FEATURE of the exhibition of the Acton Union Agricultural Society, held in Acton, Ont., last week, was the display made by Messrs. W. H. Storey & Son, glove manufacturers of that place, of their beautiful goods. It embraced some two hundred and fifty lines of gloves, mitts, and gauntlets, and some thirty lines of moccasins. Messrs. J. E. McGarvin & Co. also showed lines of trunks, satchels, etc., manufactured by them. Messrs. Beardmore & Co., tanners, showed some fine sides of sole leather. Mr. P. Jacobi showed a fine display of cordovan vamps and sides; Mr. I. Francis a varied assortment of domestic kid glove leathers of various shades and colors, and Mr. Wm. Ramsay a variety of dressed elk and buckskins.

THE experts appointed to hold the thirty-two-hour test of the new Heine boilers at the wheel-house, have prepared a report showing that the boilers have not fulfilled the terms of the contract, the evaporation which was guaranteed being ten pounds of water for every pound of coal, whereas at the test the evaporation fell short 40 per cent. of that standard. The expert on the part of the patentee—who provided his own fireman—corroborates this report, but attributes it to the quality of the coal used, which was furnished by the Water Department as the best Scotch steam selected. Mr. Heine's representative suggests another trial, at which he shall provide the coal and pay all expenses should it be a failure.—*Montreal Gazette.*

A SERIOUS break occurred in the Cornwall canal near Moulinette, Ont., October 12, which causes considerable annoyance to some of the factories which drew their motive power from this source. The result will be very serious to Cornwall, as many of the factories there, as well as the electric light company, are entirely dependent upon the canal for motive power. Hodge's mill, the electric light company, the Toronto Paper Company's mill, Mack's flour mill, and Flack & Vanarsdale's pottery have had to shut down completely. The Stormont cotton mill is only able to run one half its capacity, its provision for running by steam power being incomplete at present. The other mills are supplied with full steam power in case of accident, and will not be much inconvenienced.

THE Edison Company of New York, intend to enter just as soon as possible into competition with the Consumers' Gas Company in the supply of light to merchants and citizens. It is expected that in the course of a month or two a complete plant of lighting material, dynamos, etc., will be placed in position, and the incandescent lamp will be used in many of the stores, offices and private residences of the city. It is understood that the rates will be cut to such a fine point that the price of gas in Toronto will have to be reduced if the Consumers' Gas Company desire to keep up their present number of customers. A couple of Edison agents are now hustling around the city making a survey of things generally, with a view to approximating the magnitude of the plant required.—*Empire.*

DURING the month of September the coal shipments from Nanaimo and Wellington amounted to 43,908 tons of coal, being nearly 4,000 tons in excess of the July shipments, which were the highest reached at that time. For custom purposes the coal is valued at \$4 per ton, making a total value of coal exports for September of \$176,000. These shipments do not embrace the coal taken to Vancouver for the use of the China steamers, nor the provincial trade. The coal was exported in twenty-five vessels, the greater bulk going to San Francisco. In addition to the coal shipments, the steamer Ferndale took to the Irondale smelting works at Port Townsend, 1,700 tons of Texada Island iron ore for the month of September, the value of the ore for export purposes being \$3 per ton, thus swelling the total by \$5,100.—Victoria, B.C., *Colonist.*

MESSRS. M. BEATTY & SONS have shipped this week another steam excavator, being the second one within the last three months.

## G. & J. BROWN M'FG CO.

(LIMITED),

BELLEVILLE, ONT.

Engineers, Machinists, Boiler Makers,

Foundrymen and Bridge Builders.

**RAILWAY and CONTRACTORS' SUPPLIES A SPECIALTY.**

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

## COWAN & BRITTON,

GANANOQUE, ONT.

MANUFACTURERS OF

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

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

FOR

**Cylinder, Machinery**

**& Wool Oils**

WRITE TO

**ROYAL OIL COMPANY,**

**1, 3 & 5 Sherbourne Street,  
TORONTO.**

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

## CANADIAN TEAZELS.

PATRONIZE HOME INDUSTRY

Every user of Teazels should purchase those of Canadian Growth in preference to Foreign Importations.

ORDERS FILLED BY

**F. W. SCHWENDIMAN, DRAYTON, ONT.**

OR

**THE DOMINION DYEWOOD & CHEMICAL CO  
TORONTO, ONT.**

This excavator was first built for Mr. H.J. Beemer, but as he did not require it after it was completed, Messrs. Beatty sold it to Messrs. Symmes, Usher & Co., at Amherst, N.S., where they have a large contract of about \$3,000,000. The excavator was taken down through Main street on rails and was successfully placed on the railroad track on Wednesday, and the following day sent off to its destination. Messrs. Beatty & Sons have other large orders from Symmes & Co., which will probably amount to about \$75,000. They have also an order from Mr. Beemer to build him another excavator, as he finds he must now have one. The Beatty firm have sufficient orders to keep them busy all winter.—Welland, Ont., Telegraph.

Messrs. INGLIS & HUNTER, Toronto, have their establishment full of work. Among other jobs now in hand or recently delivered they mention milling machinery for Manitoba Milling Company, Winnipeg; G. S. Baldwin, Aurora, Ont.; John Band, Thorold, Ont.; Runciman Brothers, Peterboro, Ont.; Hunt Brothers, London, Ont.; Campbell, Stevens & Co., Chatham, Ont.; Hay & Patton, New Lowell, Ont.; W. Bensley, Warkworth, Ont.; and Dominion Brewery, Toronto. They also mention having furnished steel boilers to Purdy, Massel & Co., Toronto; Wm. Kennedy & Son, Owen Sound, Ont.; J. C. Wilson & Co., Montreal; Dominion Brewing Company, Toronto; and Wm. Jelly, Shelburne, Ont. Engines and boilers to S. Jonasson, Winnipeg, Man., for steamboat; Canadian Pacific Railway Company, for new elevator at Fort William, Ont.; and R. S. Williams & Sons, for new piano factory at Oshawa, Ont.

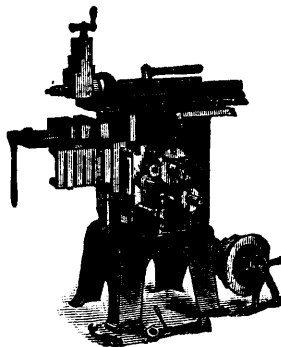
Mr. E. E. ABBOTT, proprietor of the Leeds Foundry and Machine Works, Gananoque, Ont., is offering his No. 2 drill, made from new patterns, to which he calls the attention of the trade. It has friction worm feed, which can be instantly thrown out to use the quick return movement, and is operated by the left hand wheel. It also can be used for counter-sinking and light drilling, when desired. The spindle is counter-balanced and has a vertical movement of eight inches. Rack on sleeve is cut, and pinion to drive sleeve is made of wrought iron. Drills to the centre of 18 inches. Table 15 inches in diameter, turns on centre in arm, which may be swung to any point desired on column, and raised and lowered by rack and pinion. Table has a vertical movement of 18 inches. Base projection is planed true with column, and slotted to receive bolts, for bolting on work. Greatest distance between spindle and planed base, 45 inches. Greatest distance between spindle and table, 22 inches.

The building that has been erected by the Maritime Chemical Pulp Co., of Canada, at Chatham, N. B., of which Mr. John A. Fisher is managing director, is a very large structure. Four millions of bricks have been used in its walls. The ground plan of the building forms the letter H. One side is 268 ft., and the other 270 ft. by 45 ft. The central section is 109 by 82 ft. The chimney is 152 ft. 6 in. high. The mill was begun two years ago, and it is expected that it will be in operation in a few weeks. It is constructed throughout in the most thorough manner. One hundred and fifteen men are now employed in the works, besides those employed in the construction of the building. It is claimed that this is, in all respects, the best pulp mill in Canada. It has all of the latest machinery, and will employ the most improved chemical process. The highest architectural and engineering skill has been employed, and Canada, France and Germany have been drawn upon for machinery and skilled workmen.

Messrs. COWAN & Co., proprietors of the Galt Foundry, Galt, Ont., inform us that they have recently completed a considerable amount of work for parties in various parts of the country, among which they mention a 14 x 36 inch Harris-Corliss engine and a 60 inch x 14 foot steel boiler for the new electric light station being erected for the corporation of the city of Portland, N. B.; for Mr. R. Smardon, of Montreal, a 12 x 30 inch Harris-Corliss engine and a 44 inch x 14 foot steel boiler for his new boot and shoe factory at Three Rivers, Que.; for Mr. C. Caron, Arnprior, Ont., engine and boiler for new planing mill which he is building; for Messrs. Barrie & Munroe, Chesterville, Ont., a 60-horse power Harris-Corliss engine for their new grist mill; for Dr. Groves, Fergus, Ont., a 60-horse power steel boiler for his grist mill; for Messrs. J. & J. Kerr, Petrolea, Ont., whose establishment was recently destroyed by fire, a complete overhauling of damaged machinery, and new machinery to complete equipment of their new buildings; and for Messrs. Hepburn & Co., Preston, Ont., new boiler for their boot and shoe factory.

RECENTLY the treaty payments were made to the Blood and Peigan Indians, in Alberta, whereupon about 2,000 of them flocked into the town of Macleod, that territory, the stores becoming packed with men, women, children and dogs, there being an average of about

## Leeds Foundry and Machine Works E. E. ABBOTT,



MANUFACTURER OF  
Vertical Drills, Shears,  
IRON PLANERS,  
Punching Presses, Rolls,  
BOLT CUTTERS  
AND  
SPECIAL TOOLS FOR WORKING  
IRON AND WOOD.

GANANOQUE, - ONTARIO.

## HENRY PORTER,

MANUFACTURER OF

# LEATHER BELTING

432 to 442 Visitation Street, Montreal, Que.

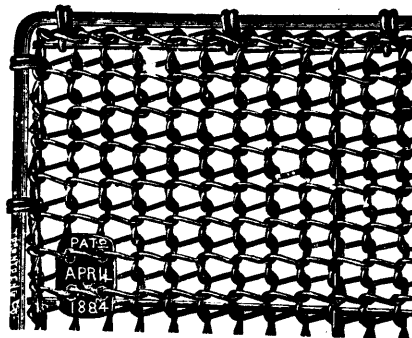
AND

36 FRONT STREET EAST, TORONTO.

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

## VICTORIA WIRE MILLS

ESTABLISHED 1859.



PATENT  
Reversible Steel Mat

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

B. GREENING & CO.  
HAMILTON, ONT.

## FOR SALE !

# CHARCOAL BLAST FURNACE.

IN

HURON COUNTY, MICHIGAN.

IRON STACK. FIRST-CLASS CONDITION. EASILY REMOVED

Address,

E. C. POPE,

CLEVELAND, O.

three dogs to the individual. When the Indians entered a store they at once demanded that tea should be made for them, with plenty of sugar in it. Their appetites also required large crackers. Before the tea was passed around once, the first ones were back asking for more. This meal was disposed of by groups of Indians sitting on the floor, and the cups consist of anything convenient that would hold tea. The first day was spent making a thorough examination of the articles for sale and getting prices. The bulk of their money was laid out in blankets. The next staple they went for was duck for tents. Stoves were in considerable demand, and a large quantity of tinware was purchased. Shirts for the men and cloth for the women were largely bought. Tea, sugar and baking powder came next. The Indians do not go in for useless trinkets and ornaments, as they did in former years, although large quantities of beads are always sold.

FOREMOST among the Brantford, Ont., firms who handle machinery exclusively, is that of H. W. Petrie. The warerooms are large and commodious, three stories in height, fitted with the latest conveniences for the handling of goods. Besides handling new machinery of every description, Mr. Petrie probably buys, refits and sells more second-hand machinery than any other dealer in the province. Back of the show room is the repairing shop, in which every second-hand machine that comes in receives a thorough overhauling. The machinery on the ground floor is mostly of the heaviest description, planers, saw mills, engines, boilers and lathes for wood and iron. In the shipping room are boxes of machinery waiting to be shipped to different parts of the Dominion. Here is a saw mill which will shortly be engaged in waging a battle against the Douglas firs of the Rockies. It is addressed to Lillooet, B.C. Beside it is another addressed to Stittsville, among the pineries of the Ottawa valley. Another lot is designed for the Muskoka district, and still another for Richibucto, N. B. These, with hosts of others intended for places nearer home, show the extent of Mr. Petrie's trade. In other departments are every class of lighter machinery; in fact the firm can furnish anything from a complete mill to a crowbar, and from a steam engine to a coffee grinder.—*Empire*.

THE dry dock now being built at Halifax, N. S., is a most important undertaking, which is being built in a most thorough manner. The caisson, or floating gate, will be 100 feet long and 36 feet high, and is to have 250 tons of stone ballast. Workmen are erecting pumping machinery which is to empty the dock in about three hours. Still another gang are deepening the entrance channel by blasting and dredging; and if the season is favorable very little work, if any, will be required to complete the dock by the end of the season. The walls are very massive, being from three feet to ten feet in thickness, according to the heads in the rock shaken loose by blasting, and which look as if built of one stone. Some 5,000 tons of cement will be required in its construction, and 52,000 cubic feet of granite. An engineer of large experience, who has inspected the work, said it would be one of the finest docks in the world. A large quay has been formed by the excavated material being deposited on the harbour side, which will add much to the revenue of the dock from storage of cargoes. It is also the intention of the company, having such good facilities, to do a large coal trade. Any quantity can be stored to meet emergencies, so that a coal famine is not likely to occur, and in time of war this would be invaluable. Attached to the dock are all the work-shops necessary for repairs to vessels and machinery.

PARIS, Ont., has become a Canadian Cohoes or Leicester, having now three large knitting mills and one small one, besides two carpet factories. A representative of this journal looked into the works of the Paris Manufacturing Co. recently, and was shown through the works by the courteous managing director, Mr. Jonathan Schofield. Everything is in order in this mill, and having regard to its excellent light, its pleasant situation and well kept work-rooms, it would impress the visitor as one of the best knitting factories in Canada. Its power is excellent and a new waterwheel recently put in from the works of Goldie & McCulloch, Galt, will increase its power sufficient to run another mill of the same size. The company have spent within the past year \$5,000 in repairs and machinery, thus improving its facilities still more. The Paris Manufacturing Co. produce plain and fancy underwear and top shirts, and their goods are deservedly popular from British Columbia to Prince Edward Island. Top shirts are one of their specialties, and among other kinds of these goods their double thread shirt has a remarkably good sale. Their undershirts are also beautifully finished and are known in the trade as excellent value. Mr. Schofield has made a special study of getting good colors, and while it is difficult to get permanency in certain shades, he has succeeded in many cases in producing colors that will "stand anything." Mr. Schofield may well be proud of the success he has achieved.—*Journal of Fabrics*.

## TO LET. TO MANUFACTURERS.

FACTORY, with water privilege, near Black's Bridge, Montreal. Building 60 x 60, five flats, extra well lighted and very strong; rare opportunity for party wanting cheap power. Apply

**WM. JOHNSON & CO.**

14 St. John St., Montreal.

## To Manufacturers and Others

### THE ONTARIO INDUSTRIAL LOAN AND INVESTMENT CO.

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

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

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

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

**E. T. LIGHTBOURN,**

Manager.

## MUNDERLOH & CO.

MONTREAL,

SOLE AGENTS FOR THE DOMINION

OF

## Meyer's Watchman Control Clock.

REDUCED PREMIUMS ON FIRE INSURANCE  
SECURED BY USING THIS CLOCK.

*Description and particulars on application.*

## CANADA BANK NOTE CO. (Ltd.)

MONTREAL.

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

**BANK NOTE PRINTERS,**

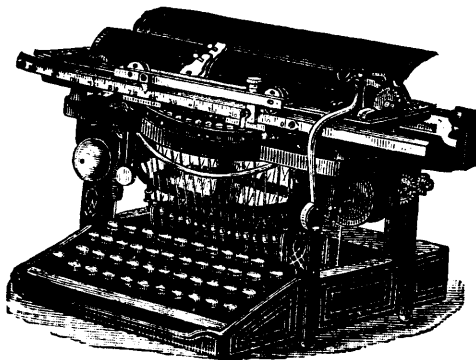
**LITHOGRAPHERS,**

**ARTISTIC PRINTERS.**

RAILWAY MAPS. GLOSSED LABELS

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# Remington Standard Typewriter



AWARDED FIRST AND SECOND PRIZES  
Gold & Silver Medal

BY  
**CANADIAN**  
Shorthand Society  
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AGENT.  
36 KING ST. EAST  
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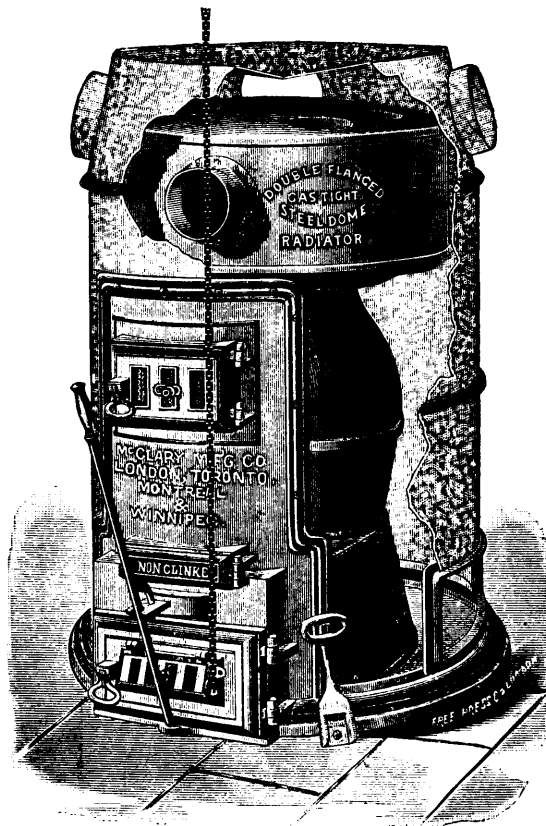
## PATENT ADDING MACHINE

### A MATHEMATICAL MARVEL

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

**WHITON MANF'G CO., - TORONTO.**  
SOLE AGENTS FOR CANADA.  
BRANCH OFFICE—BUFFALO, N.Y.

# FAMOUS TOP RETURN FLUE FURNACE.



IN THREE SIZES, FOR BRICK OR PORTABLE SETTING.

WITH EITHER CAST IRON OR STEEL RADIATOR.

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

By Royal



Letters Patent

## THE PERFECTION SMOKE CONSUMER — AND — FUEL ECONOMIZER

FOR ALL HORIZONTAL BOILERS.

AT PRESENT BEING APPLIED TO FLUED BOILERS.

PRICE IN MONTREAL, \$100 PER FURNACE.

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

BOILERS SET AND TRAVELS CONVERTED TO NEW SYSTEM.

CORRESPONDENCE INVITED.

**DOBSON & BRODIE,**  
169 St. James St., Montreal.

NEW GEM

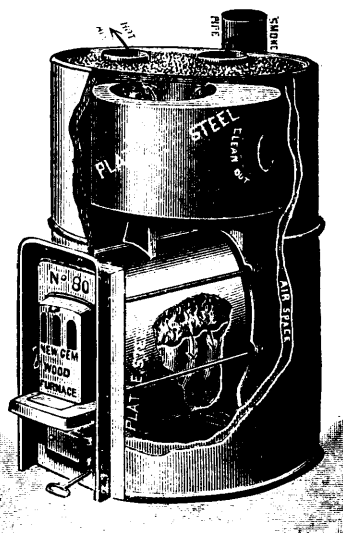
## Wood Furnace

Entirely new and of novel design.

A Powerful and Economical Heater.

Thoroughly tested. Specially adapted for medium sized dwellings.

**SURE TO SELL**



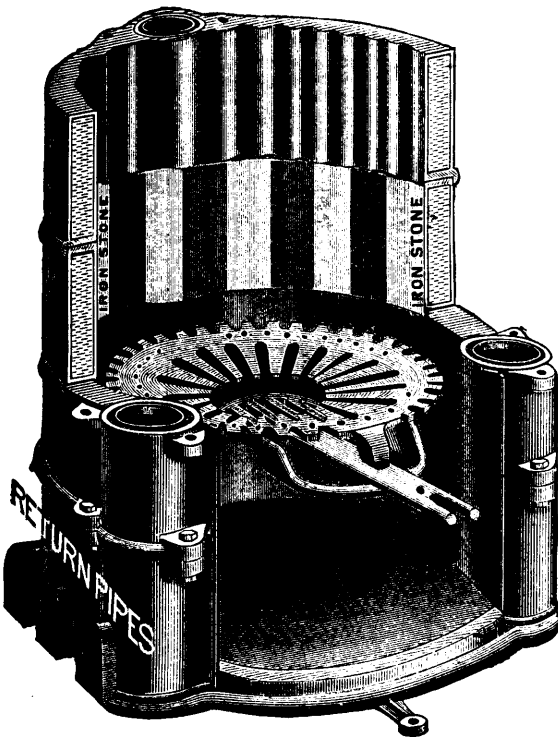
Any dealer who has not received our price list for 1888 will please advise us.

**McClary Mf'g Co.**

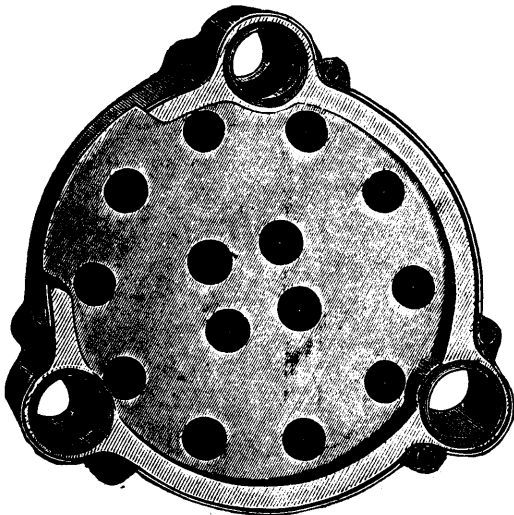
London, Toronto, Montreal and Winnipeg.

# New Improved Gurney Hot Water Heater.

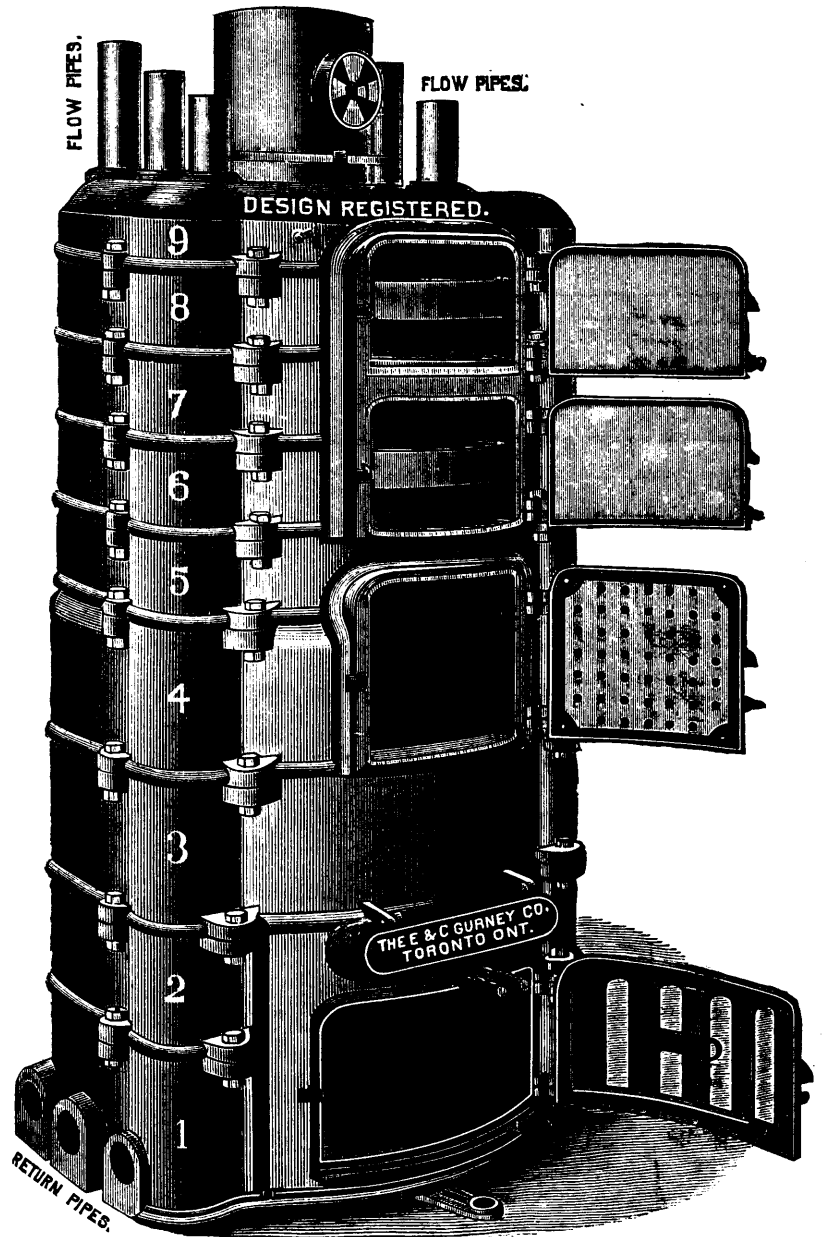
1888



Ash Pit, Grate, Fire Pot and Corrugated Section.



Top Radiator with Deflector.



Front and Side View.

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

MANUFACTURED BY

# *The E. & C. GURNEY CO.*

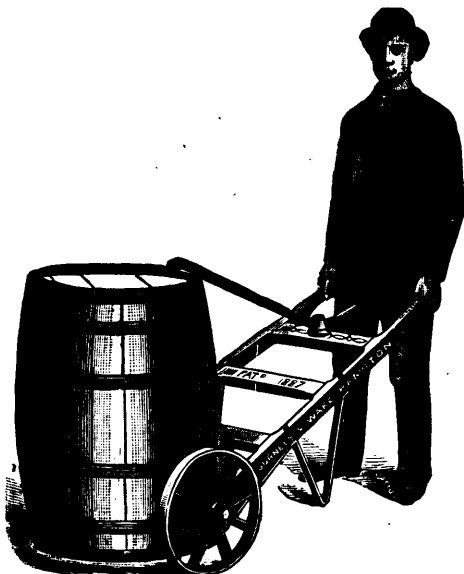
**TORONTO, WINNIPEG, HAMILTON, MONTREAL.**



# BARREL TRUCK

FOR MOVING BARRELS WITH HEADS IN OR OUT.

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



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

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

Office of THE MORSE SOAP Co'y.

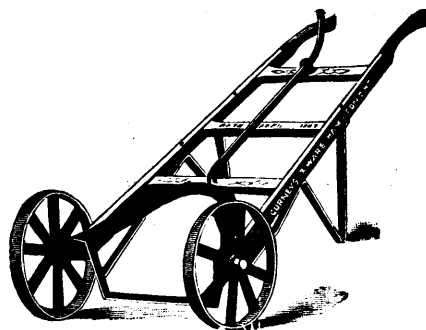
JOHN TAYLOR & Co., Proprietors.

TORONTO, April 25th, 1887.

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

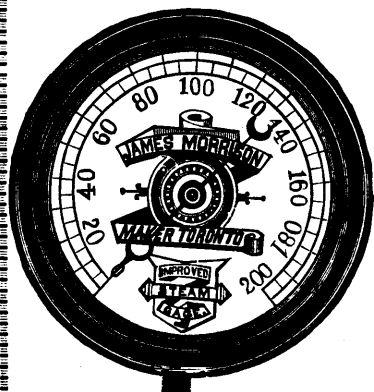
Respectfully,

[Signed], MORSE SOAP Co.



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

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

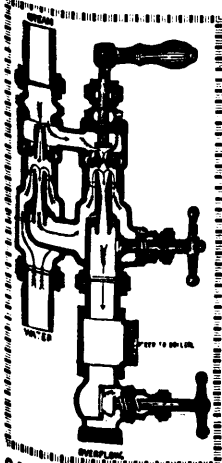


**JAMES MORRISON,**

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OF

Steamfitters' and  
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75 & 77 ADELAIDE ST. WEST,  
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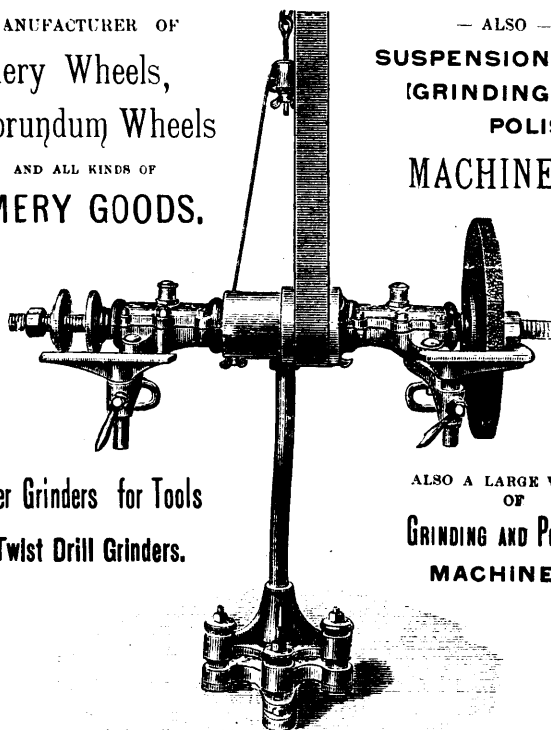
SANITARY EARTHENWARE Now in Stock, Morrison's Washout Hopper  
National Water Closet.

## PRESCOTT EMERY WHEEL CO.

PRESCOTT, ONT.

MANUFACTURER OF  
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Water Grinders for Tools  
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ALSO A LARGE VARIETY  
OF  
GRINDING AND POLISHING  
MACHINERY

Discounts and Price Lists on application.

# NEW BRUNSWICK CORDAGE WORKS,

## THOS. CONNOR & SONS,

MANUFACTURERS OF ALL KINDS OF

HEMP and MANILLA CORDAGE,

BINDER TWINE, ETC. ETC.

VESSELS' OUTFITS A SPECIALTY.

BINDER TWINE,

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CLOTHES LINES,

LATH AND PALING TIES,

LOBSTER MARLINE,

RATLINE,

LANYARD ROPE

PORTLAND, N.B.

## To Manufacturers!

### THE LAND SECURITY COMPANY

OF TORONTO

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

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

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

**WM. I. MACKENZIE,**

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

Manager.

# Corliss Engines

STATIONARY and MARINE ENGINES and BOILERS

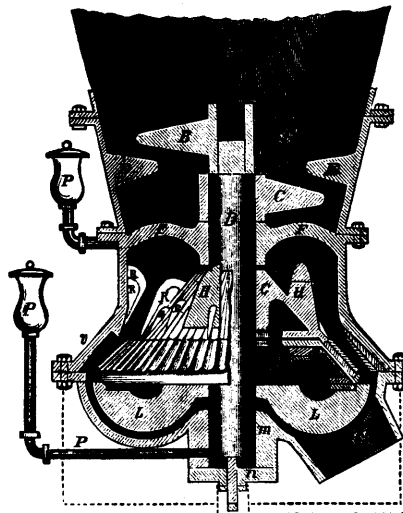
High Economy and Superior Work Guaranteed.

FLOUR MILL MACHINERY,  
CASE'S IMPROVED SYSTEM.

CYCLONE DUST & SHAVINGS COLLECTORS.

**INCLIS & HUNTER,**

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Important to Tanners.

**SEGMENT BARK MILL.**

For grinding any hard substance  
SUCH AS

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

Breaker.

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

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

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

**PAXTON, TATE & CO.**  
PORT PERRY, ONT.

Notice to Shippers to South America.

## D. M. RENNIE,

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

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

REFERENCES BY PERMISSION.—Simeon Jones, Dominion Commissioner to  
the Argentine Republic, St. John, N.B.; Nichol Kingsmill Consul to the Argentine  
Republic, Toronto; W. B. Hamilton (of W. B. Hamilton, Son & Co.); Hon. Frank  
Smith (of Frank Smith & Co.); W. R. Brock & Co.; Wyld, Grasett & Darling; Smith &  
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**SAULT Ste. MARIE CANAL.**

**Notice to Contractors.**

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

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

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

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

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

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

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

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

By order,

A. P. BRADLEY,

Secretary.

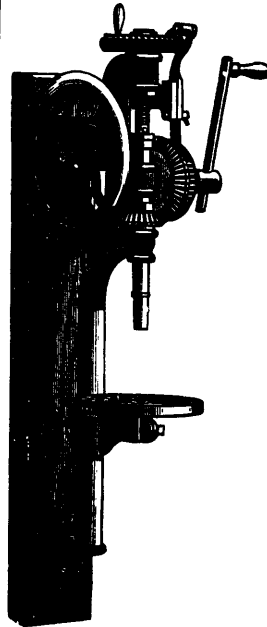
Department of Railways and Canals,  
Ottawa, 8th August, 1888.

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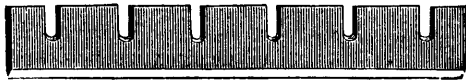
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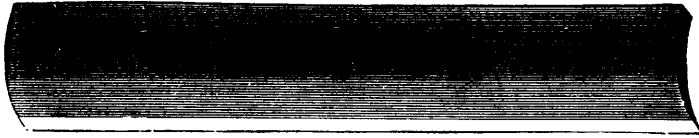
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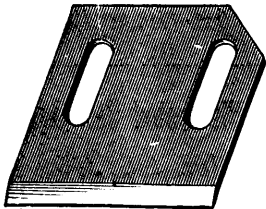
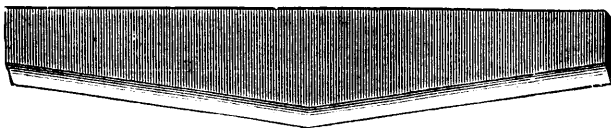
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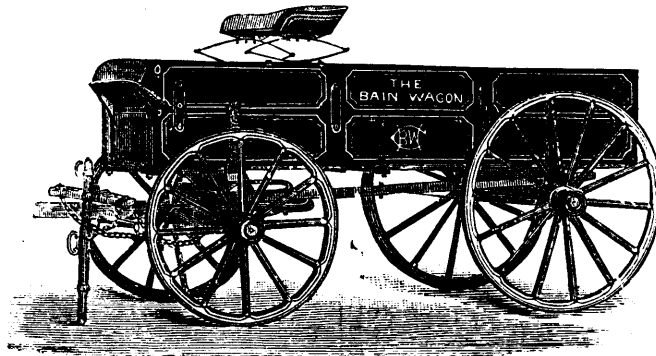
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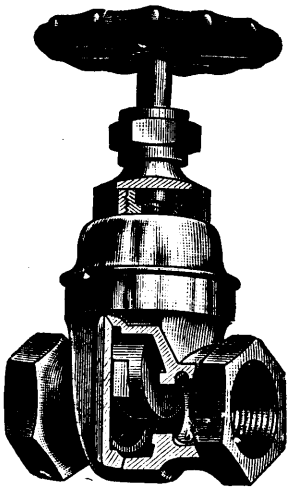
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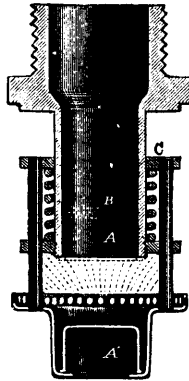
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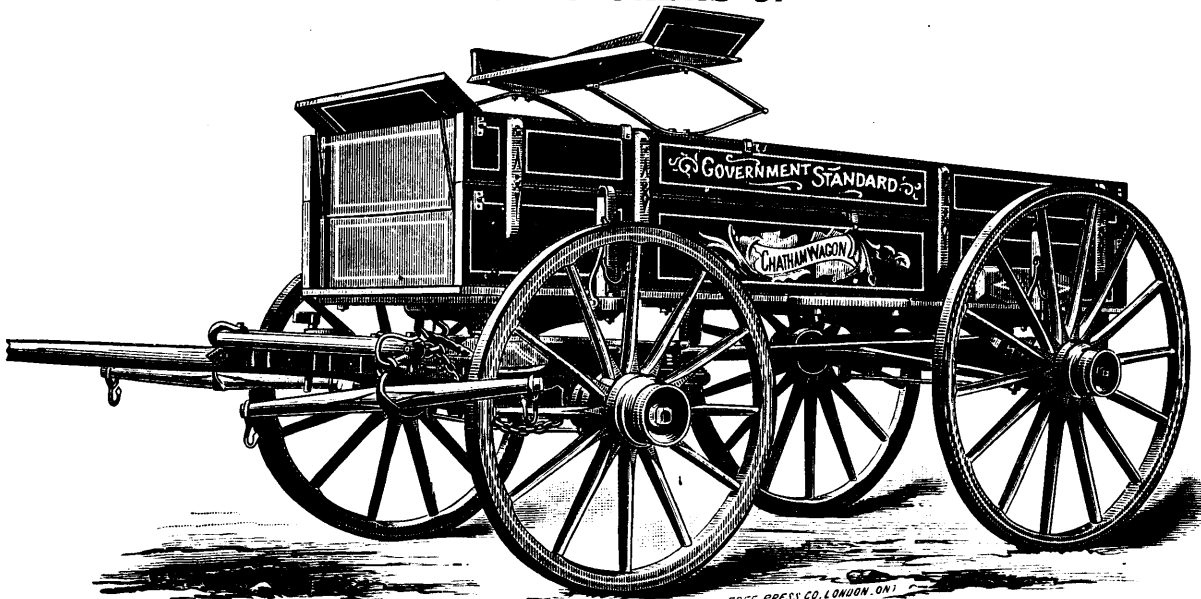
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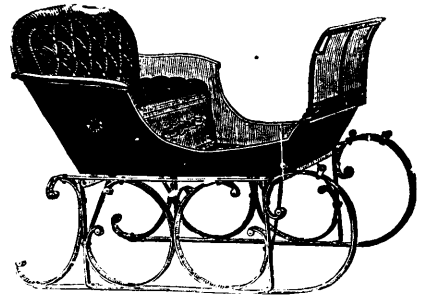
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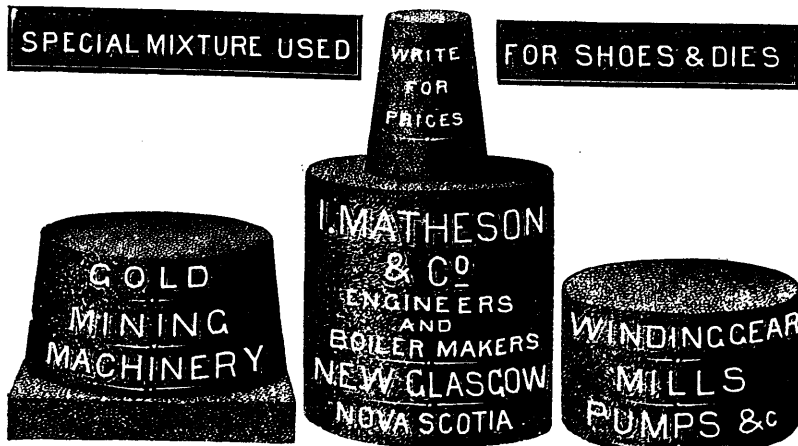
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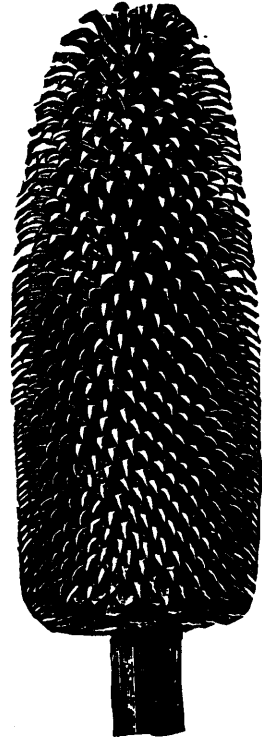
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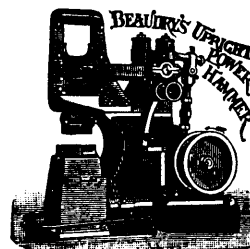
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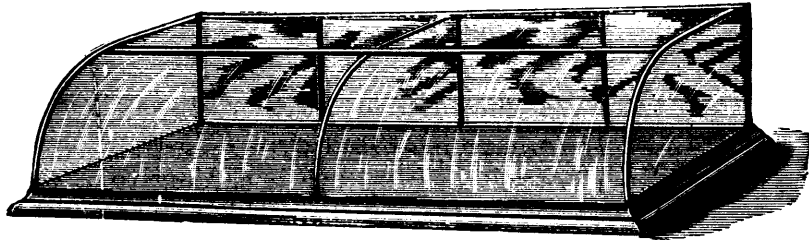
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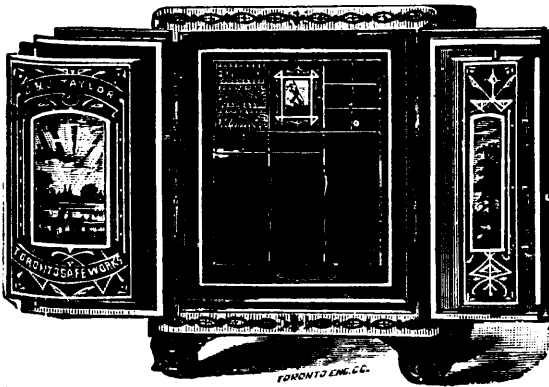
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## Transmitting Power by Ropes and Grooved Wood Pulleys.

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



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

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

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

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

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

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

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

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

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

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

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

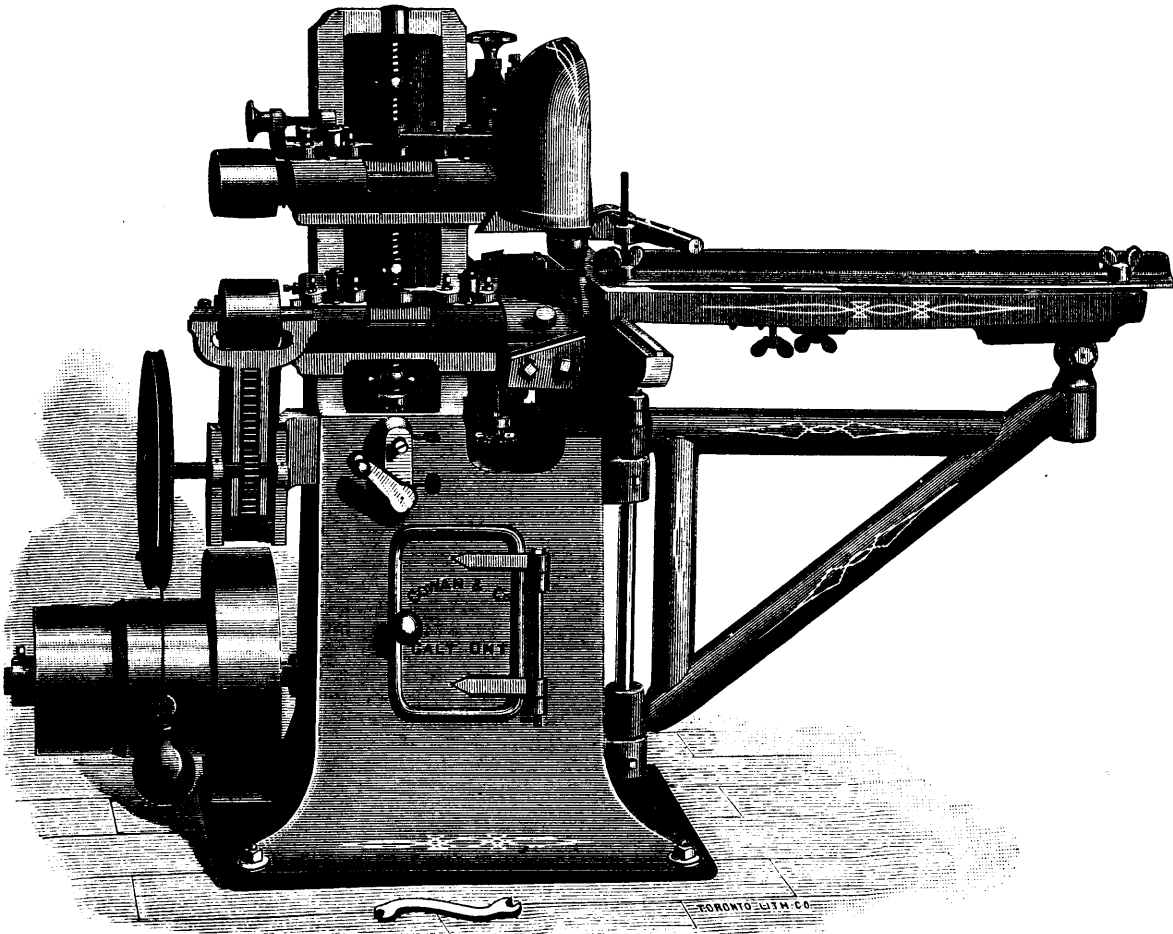
For estimates of cost and all information relating to this system of transmitting power by ropes, apply to the undersigned, who also manufacture the best belt pulleys in the world.

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

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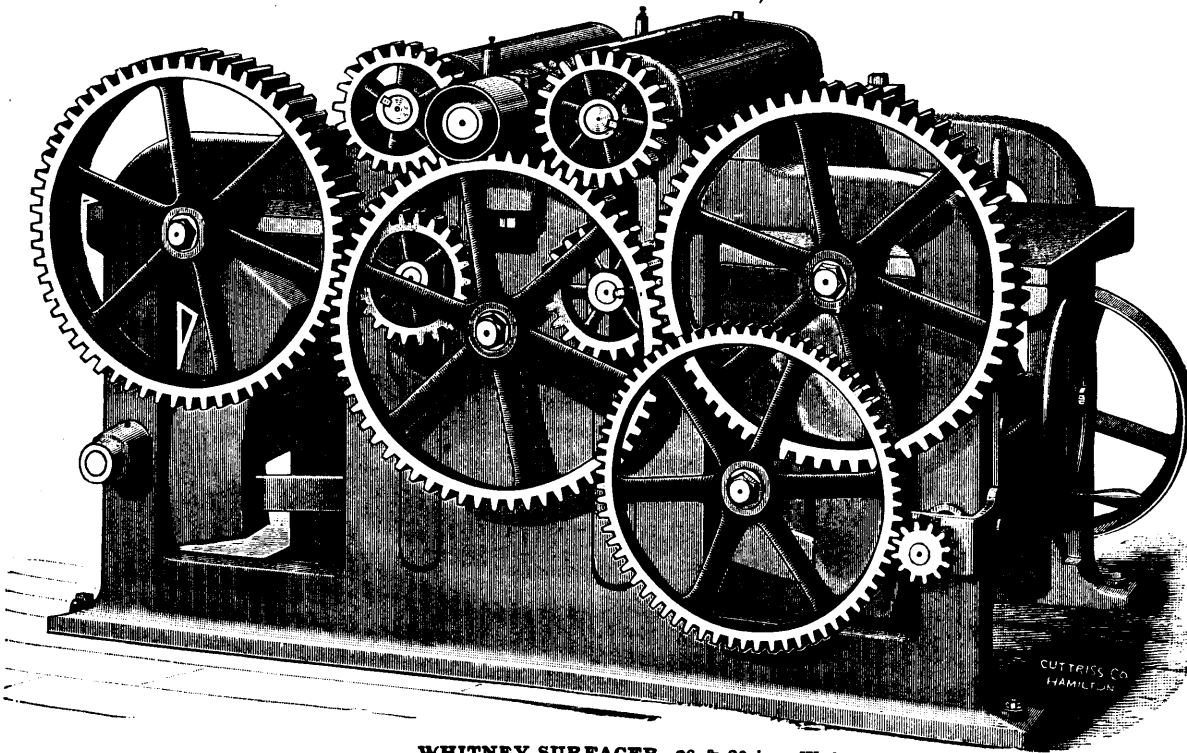
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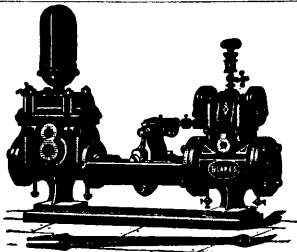


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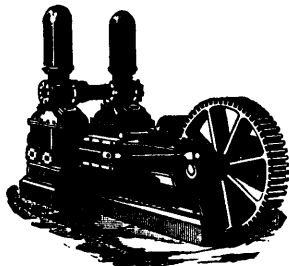
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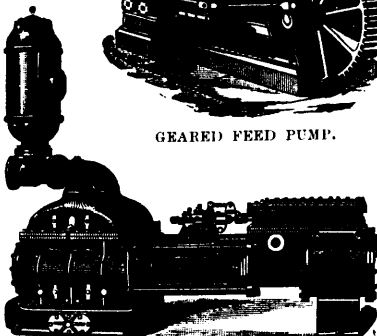
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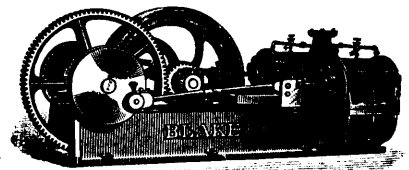
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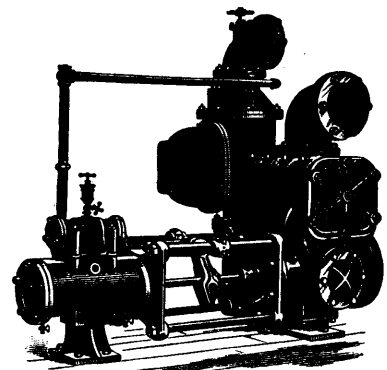
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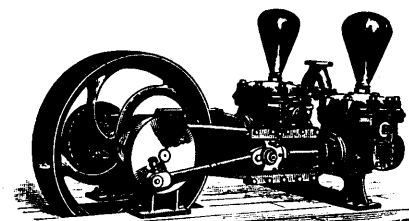
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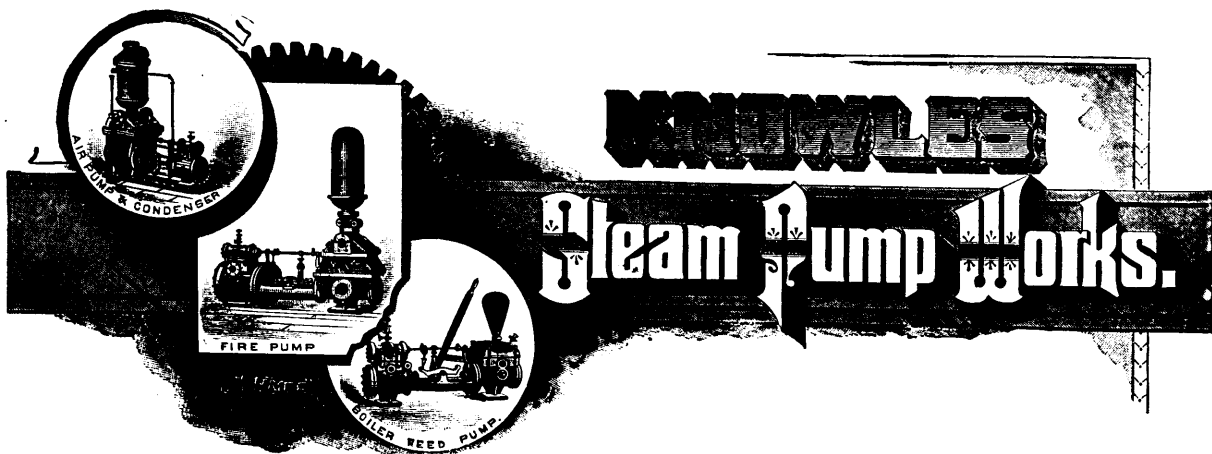
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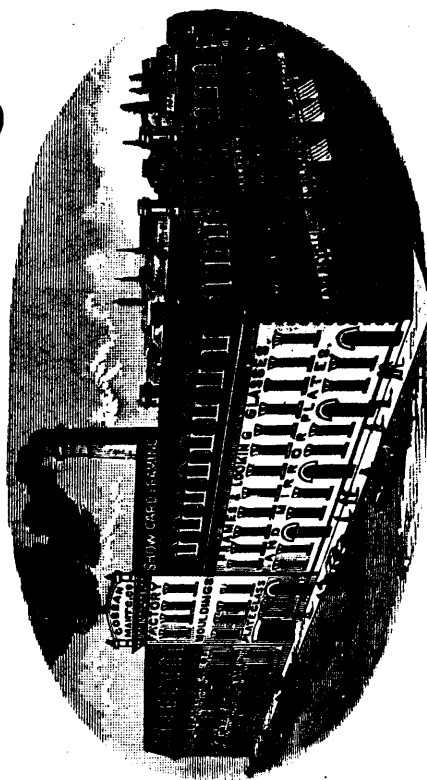
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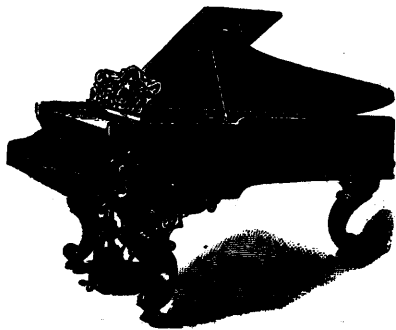
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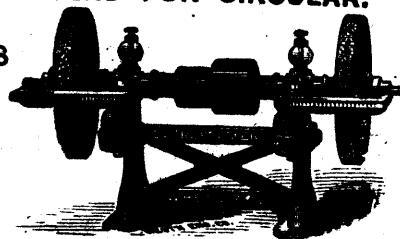
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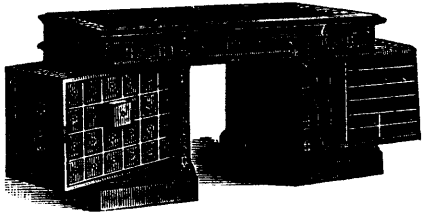
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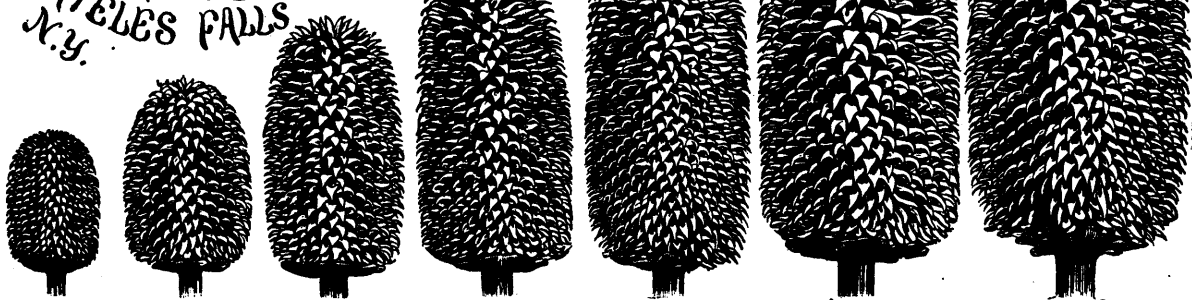
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