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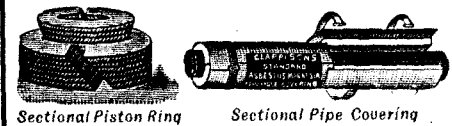
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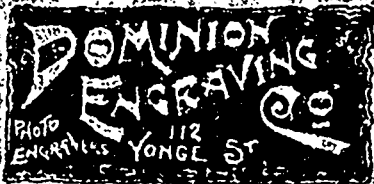
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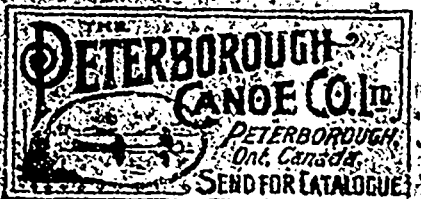
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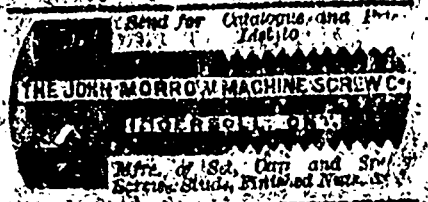
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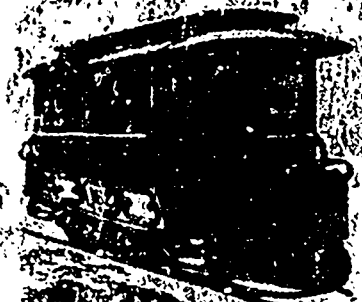
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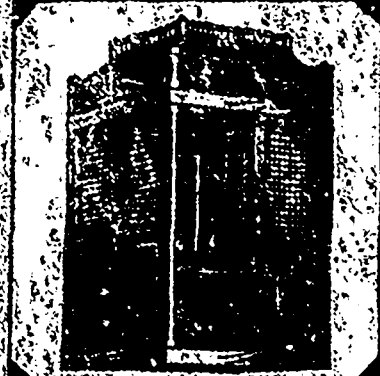


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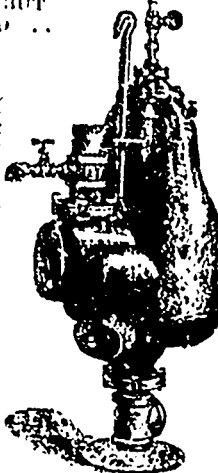
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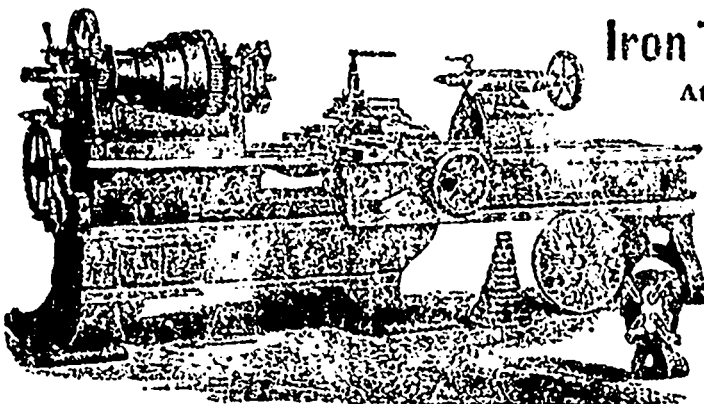
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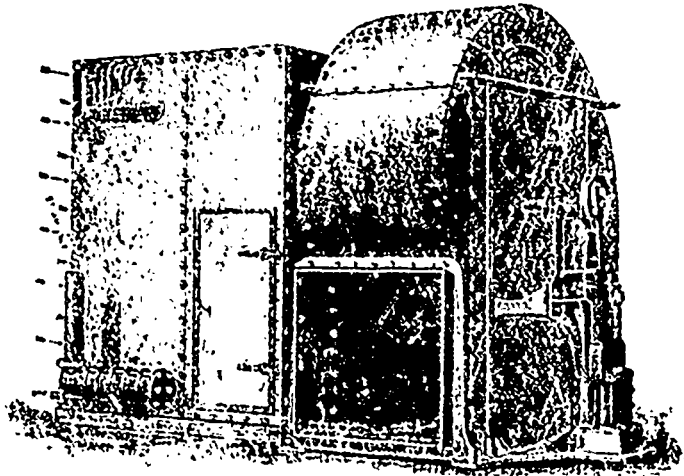
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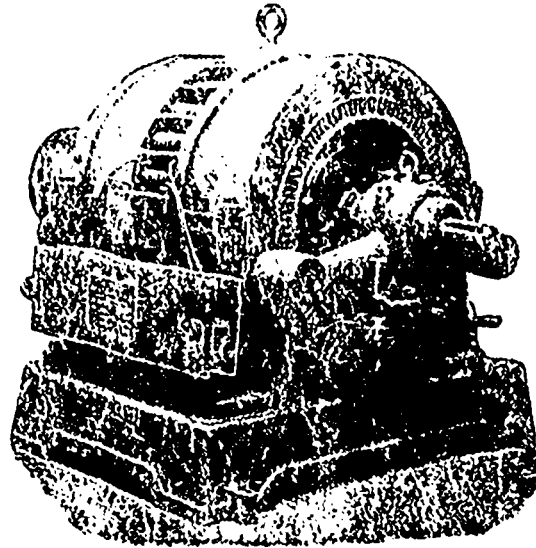
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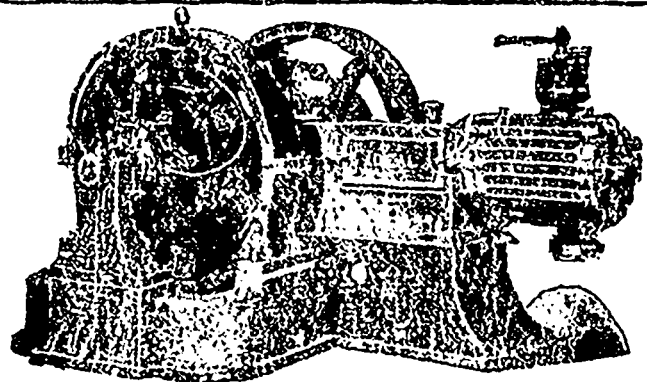
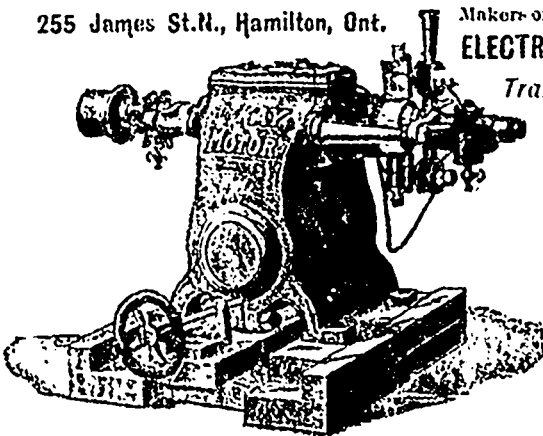
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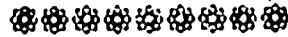
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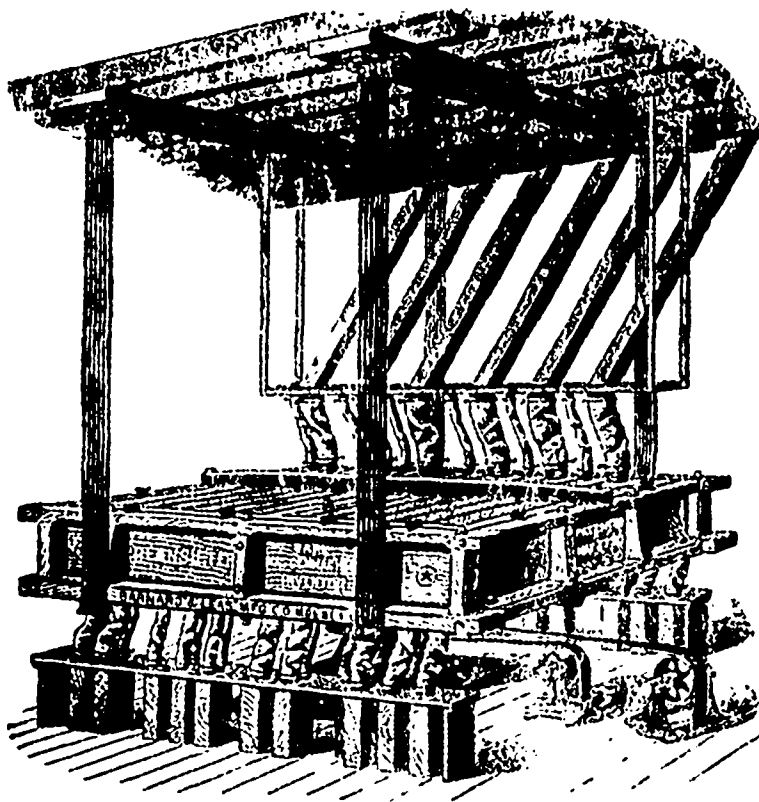
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ROBT. HOYT.

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Three No. 2 Plansifters and 2 No. 5 Little Wonders did all the bolting.

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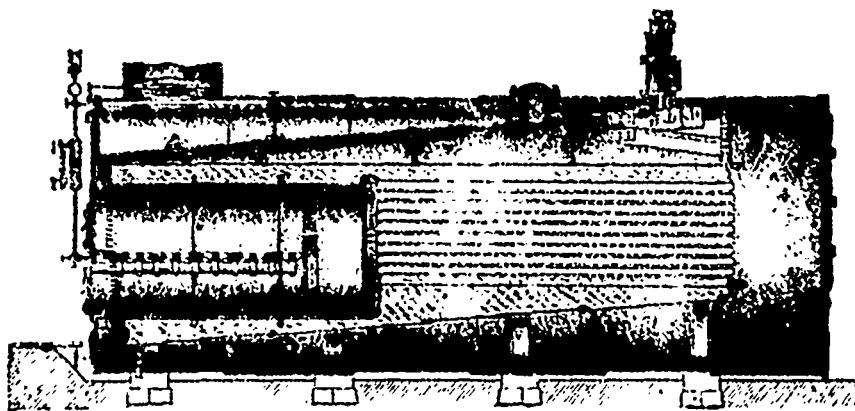
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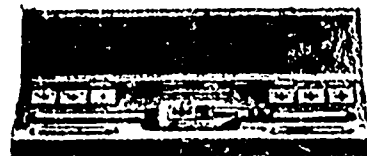
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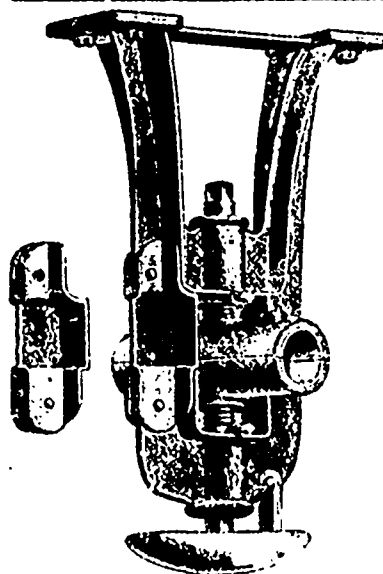
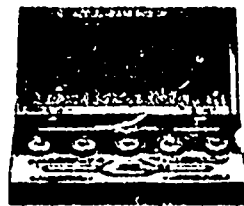
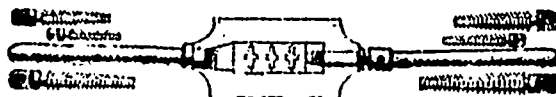


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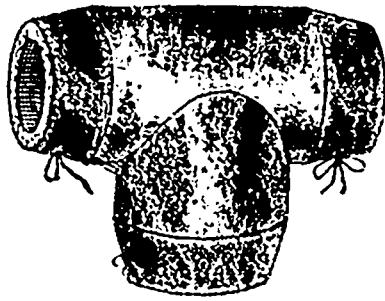
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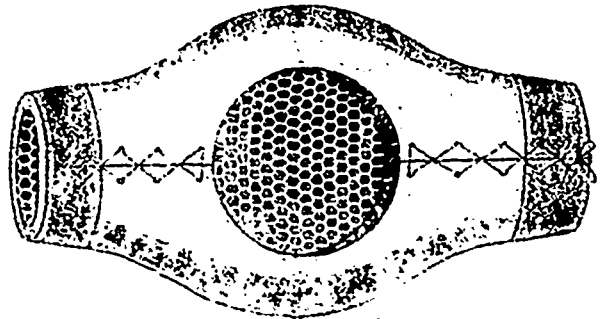
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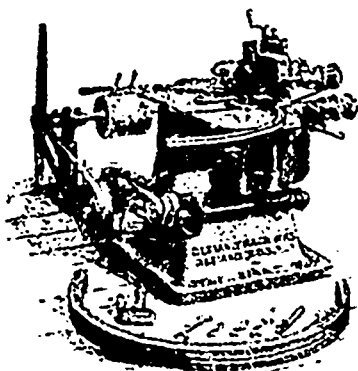
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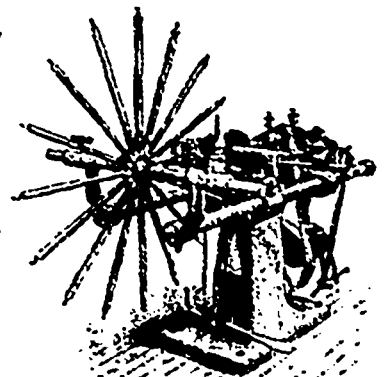
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1837—1897.—A RETROSPECT.

The record reign of Her Most Gracious Majesty Queen Victoria, which has been brought so forcibly before the British public and of the whole world by the Diamond Jubilee celebrations, has been one of unparalleled progress. At no other time in the history of Great Britain, or of the world, has social advancement and commercial activity been so evident. Within the memory of many now living most radical changes have taken place in the customs and habits of the people, and of the general methods of business. A retrospect of only thirty years to the time when the Dominion of Canada came into existence, will emphasize these changes, but they

will be more strongly marked when we revert back to the time when Victoria ascended the throne.

One great factor that then retarded progress was the isolation of the great centres of trade and commerce, and the difficulties that then existed in transportation and communication between them. In those days a man who had travelled a few hundred miles by any conveyance whatever, and particularly if he had crossed the ocean, was considered a traveller of renown. Stage coaches were at their zenith. It is true that in England the railway had made its appearance. Steadily and surely the old system gave way to the new. In 1830 the Stockton and Darlington railway was opened for traffic, about the first road to be thus opened in the kingdom; but Victoria had been Queen fully ten years before the country had entered upon any comprehensive system looking to the transportation of freight and passengers by rail, and when the new method of locomotion was hailed as the great event of the age.

The outcome of the commercial activity induced by this change was the solidifying of the nation. Constant and easy travelling; lower charges for the transportation of merchandise; quicker methods of transacting business, and the consolidation of isolated industries effected it. When Victoria became Queen the only method of distributing the mails and transporting passengers to and from London was by the stage coach. The cost of postage on mail matter was expensive, and the recipient of a letter, the arrival of which was an event, had often to pay a heavy charge before securing his prize. The postage varied according to the distance the letter was carried, and it was not until 1840 that a uniform rate, irrespective of distance was adopted. The advent of penny postage gave a great impetus to business, and enabled traders and manufacturers to effect their transactions to better advantage than ever before. Since then international postage has been established, and the contrast between those days and the present is so very marked that we cannot but wonder at the extraordinary development in this one branch of the civil service during the reign of our Queen.

The London Ironmonger's Chronicle, commenting upon the changes that have been effected during the Victorian era, says:—

London itself retains a few memorials of the past, but the glory has departed from what were once fashionable quarters, and some of the antiquated buildings and quaint shop premises now seen and which once represented the emporium of wealthy traders, are now the haunts of "old clothes" and third-rate old book and curio depots. Take a glance at old Father Thames and recall its appearance before the Embankments were constructed, before the magnificent piles of buildings that line its sides were erected. Surely the contrast is striking; how to-day we should miss the many bridges that now span its waters, and which are crowned by the great triumph of engineering—the Tower Bridge. The great network of railways above and below that convey the teeming millions of London, have evolved out of small beginnings, and the streets that have been widened, viaducts constructed, and thoroughfares opened up are all matters of modern history. Some of the well-known business streets retain part of their old characteristics, but only a few.

Business is a different thing to day; the activity that is seen in shops and warehouses, the hurry and bustle of commercial life is indicative of a totally different state of trade. Enter a city office, what are those ladies doing there? Ah, they are lady clerks, a thing unknown sixty years ago; their presence is needed now by the additional correspondence and

altered state of trade. The click, click, that is heard is that of a type-writer, a wonderful invention of the nineteenth century, by the aid of which correspondence clear and legible can be produced with great rapidity, and those curious Chinese looking characters which the operator is translating are not a foreign language but only our own written in shorthand, now so generally used. We must not forget the telephone which adorns the office wall. It is the symbol of that still almost unknown power—electricity, the birthday of which is in the Record Reign, and we have now among its products the telegraph, universally adopted in every part of the civilized globe; the telephone which enables business men to hold personal speech with their fellows in distant parts. The phonograph and other developments of the science are not at present so closely allied to commercial life, but we cannot overlook the motive power that it has placed in our hands. It is a wonderful power, and although as yet little understood, it is manageable and has been proved to be a real workable element. We need, however, have no fear for either horses or trains, there will be work enough for all to do. "What about electric light?" some may ask. We have not forgotten it, and this brilliant illuminating light is already taking the place of gas, which is itself the outcome of the advancement of the Victorian era, at the commencement of which dim oil lamps still lit (?) the streets.

THE GLORY OF ENGLAND.

It is pleasant to know that Britishers are not the only ones that appreciate the glory, the grandeur and the power of Great Britain, and the jubilee rejoicings just drawn to a close in that country, and the celebration of the event, not only in every land and country over which floats the British flag, but in the United States and other foreign countries also, indicates that appreciation. A very large number of our foreign contemporaries have taken occasion to say pleasant things regarding the glory of the British Empire, and from these we make a couple of extracts.

The New York Sun says:—

"The most striking feature of the celebration of Queen Victoria's Jubilee was the demonstration of the steadfast, passionate and universal loyalty of the English people to England. In the whole history of mankind there never has been such another display of patriotic pride and devotion as that which was made in London last Tuesday, and throughout the world wherever an Englishman might be. It was a revelation of the secret of British power and domination over a world-wide Empire, and proved that the English people have succeeded to the spirit which made Rome the master of the world when Britain had not yet risen from barbarism.

"This virtue of loyalty to their country, which all Englishmen gloried in exhibiting last Tuesday, must characterize always a people capable of building up and holding together a great Empire. Honoring their own country and believing in its superiority means that they respect themselves and believe in their own prowess; and that is half of life's battle. Faint heart never won fair lady, or anything else. The heart must be strong with confidence, aggressive, determined, and a country which is to be masterful must be masterful in its feeling, not doubtful, self-despairing, self-critical, or fearful of outside opinions, and secretly worshipful of some other country. It must have independence of will, and an absolute belief in its own destiny of greatness.

"This ability of England as a nation to make itself felt as a dominating power in the world is due to the loyalty which leads her people to stand together, resolutely, ardently, on the side of their own country, though all the world be against it. They are not ashamed to declare the faith that is in them, under whatever circumstances; and it is absolute and unconquerable faith in England, a faith to which every sentiment in an Englishman offers its contribution; his love, his

pride, his deepest devotion, his very religion. He carries it with him wherever he pushes his way, and by its impulse the British flag has been borne to every part of the earth, and flies in the remotest regions, kept aloft by undoubting and unquenchable devotion to the fame of England.

"Hence, when Queen Victoria, the titular embodiment of English power and greatness, celebrated the sixty years of her nominal reign, all England, all Englishmen, joined with one accord in offering to her, and through her to their country, the homage of their affectionate, passionate and boundless loyalty. The glory of that day was not hers; it was England's; and the steady and great development of English rule in commerce, in letters, and in society during the long period of her reign received its impetus from the burning national sentiment of which that occasion provided the jubilant expression."

Commenting editorially on the statement recently made by The London Standard, that "As far as the Americans are concerned, we believe they are almost as pleased and proud as though the Jubilee were their own." The New York Tribune says: "That is a strong saying, but not an injudicious one. It may well be believed to be entirely true. Popular interest in the Jubilee in the United States had been unprecedented. It has prevailed in all parts of the country and among all sorts and conditions of men. It has been so uniformly and unequivocally friendly that such few exceptions as there have been have served merely to emphasize its general character. For this no special merit is to be claimed. It is entirely natural. Nor is it a fact contrasting with the British attitude toward America. For obvious and sufficient reasons, British affection towards America is not so strong as American toward Great Britain. Yet it is strong, and has often been made manifest in a most gratifying manner; and we doubt not that to-day, if the conditions were reversed, the British would, to paraphrase The Standard's words, be almost as pleased and proud over our Jubilee as though it were their own. For these two great branches of the Anglo-Saxon, or English-speaking race, are bound together by ties no man or any vicissitudes of human experience can sever. It is easy to talk of George III. and the wrongs his Government inflicted upon the thirteen colonies. Those things belong to history. But history does not shape present life, nor control living hearts. The story of a Waterloo does not hold Great Britain and France apart, nor that of the Crimea unite them. Sadowa and Venetia did not prevent the Triple Alliance.

"Yes; Americans are pleased and proud at the Jubilee of the Queen, who has always been their friend—who, just twenty years ago last week, received their great general and ex-President at Windsor with a cordiality kings and emperors might vainly covet—and of the great Empire of which their own republic is an offshoot. In that they are guilty of no lack of patriotism, no failure of republicanism or true Americanism. He would be a narrow-minded Briton who, seeing the greatness of America, did not feel a thrill of pride in saying: 'That is the nation which we Britons planted.' Equally narrow and ungracious would be the American, who, surveying the splendors of the Victorian realm, should feel no answering thrill of pride in saying: 'That is the Empire, that the stock from which we Yankees sprang.' So far as this Jubilee commemorates the personal achievements of the Queen and the individual attainments of the British Empire. Americans regard it with the pleasurable sympathy due to a friendly sovereign and a friendly power. So far as it sets forth the might and majesty and foreshadows the auspicious and resplendent destiny of the common race, they rejoice and exult in it as though it were—as, indeed, in that commanding sense it is—their own."

A train of eight cars loaded with copper bullion and matte from the Hall mines smelter left Revelstoke, B.C., June 28th, for Montreal for shipment to England. This is the first copper made in British Columbia, and carries high values in gold and silver—the total value being over \$500 per ton.

GREAT PROFITS IN THE TEXTILE CHEMICAL TRADES

Speaking of the very large profits that German manufacturers make in the textile chemical trades, and expressing its surprise that British manufacturers and British capital do not enter into more active rivalry in producing these stuffs, the Manchester Textile Mercury says:

It has often been a matter of remark that Englishmen are very slow to appreciate their opportunities in some things, and over keen to do so in others. In the cotton trade, for instance, the joint-stock companies never make dividends of five per cent. on an average for twelve months together, but there is an immediate rush to promote new spinning companies, and very soon new mills are going up by the dozen. But in other industries profits may be made varying from twenty-five to fifty per cent. year after year, and never excite the least attempt to get a share of them. Especially is this the case in what we may term the textile chemical branches of industry.

It advises its readers to carefully peruse a report of a German company in which it thinks there is justification for its criticism. This report is as follows.

The Meister, Lucius, and Bruning Dyeworks Co., of Höchst-am-Main, has declared a dividend of twenty-eight per cent. for 1896, as against a similar dividend for each of three previous years and twenty-six per cent. for 1892. The gross profit balance showed an increase of £41,650 as against the previous year, but on the other hand the general charges were also increased, the appropriations to the various accounts, moreover, which were decreased in 1895 to the extent of £15,000, were again increased last year to the extent of £8,150. The net profit, £341,555, shows an increase of about £32,000 for last year as against 1895, but the dividend at the same rate absorbs £21,000 more than in the previous year, as, for the first time, the full share capital of £750,000 participates in the distribution. The whole of the company's works were fully employed last year, and the demand for aniline dyes again noticeably increased; the demand for alizarine fell off in consequence of the Presidential election in the United States, and the famine and plague in India. Considerable extensions of the works and new installations have become necessary in consequence of the increased demand for the company's products and the manufacture of new products, and a further considerable outlay of capital will therefore be required. The selling prices again almost generally declined, aniline oil and a few other products being the exceptions, in consequence of the higher cost of benzol; but these also have lately again become cheaper. The prospects of this company's business for the current year are considered favorable.

This, our contemporary supposes, means in comparison with immediately preceding years; and it asks: "What would shareholders in Oldham cotton mills and East Lancashire weaving sheds think of such prospects?"

It asks its readers to glance at another company's report of the same class as the foregoing which says:

The balance sheet of the Badische Aniline and Soda Manufacturing Co. of Ludwigshaven, on the Rhine, for 1896, shows a profit of £400,938 for 1896, as against £394,988 for 1895. The appropriations to the extraordinary reserve fund and to the depreciation and repairs account absorb £107,637 (as against £94,799 for 1895), and out of the remainder a dividend at the rate of twenty-six per cent. has been declared. A similar dividend was declared in 1895. It is proposed to increase the share capital of the company by £75,000, thus bringing the total up to £900,000.

Without going into details, the Textile Mercury is inclined to affirm that each of these remarkable companies have made

as much money as all of the Oldham spinning companies put together during the year. And yet it says, Englishmen boast of their abilities and cleverness, and at public meetings professional politicians tell those assembled that they are able to hold their own against the competition of the world. And the statement is applauded to the echo. What a satiric laugh must spread over the face of the intelligent foreigner when he listens to or reads such rubbish, and recalls the facts under comment.

THE PRINCE OF WALES.

The Prince of Wales, who is generally regarded as a dutiful son, a loving husband and a devoted father, is most pleasantly referred to by Mr. George W. Smalley in an entertaining sketch in the Ladies' Home Journal for July.

The domestic relations of the Prince, Mr. Smalley says, are not a topic for free discussion, but at least one may say that one source of the general regard for him is his bearing both to the Queen and to the Princess of Wales in public. Numerous public occasions have presented the Prince in an attitude of affectionate deference to the Queen which is plainly no matter of decorum merely but personal—the son to the mother: and when the Princess was present—the husband to the wife.

Those who know will tell how deep has been the devotion of the father to his children from their infancy and youth, when the Prince used to be in the nursery early each morning, down to their present maturity. A word may be said also of his brotherly affection for the Empress Frederick, who has so narrowly missed, or at most nominally shared for a short three months, one of the greatest Imperial thrones in the world. It was her nearness to Homburg which was among the inducements that brought her brother there regularly. He was constantly at the old Schloss, where till her new palace was finished she lived. The Empress was constantly in Homburg—her carriage, with its black horses, and the familiar Imperial liveries, always in front of the Prince's villa.

Nothing has ever seriously affected the Prince of Wales' popularity. It is personal to a great degree. As the Queen's son he has, of course, his own share of that loyalty which burns in all British hearts, but he has a great deal more than that. It is felt that he has done much, in very difficult circumstances, to earn the good will and even affection of the people whom he will some day address as "my people." He mingles with them, and is of them. Little things count for much. The crowds that gather about the gates of Marlborough House in Pall Mall in patient expectation of the exit or entrance of the Prince and Princess, are supposed to like a spectacle, and no doubt they do. They delight to behold them drive in or out in a gilded coach with an escort of the splendid Life Guards. But they like almost better to see the Prince drive away in a hansom cab.

The Englishman loves sport and games, and to the great body of the people the Prince seems a more engaging personage because he frankly gives the rein to his tastes for outdoor and indoor diversions. They gather in crowds to see him start for Epsom on Derby Day. They cheer him on the Downs and on Newmarket Heath. They back his horse, not a few of them because it is his. They like to see his name high among the winners of the year, as it now is, after a long

course of ill luck on the turf. They like to think of him as the country gentleman at Sandringham, busy with the management of his estate, receiving guests, taking the lead in shooting and other amusements. They like to see him on horseback in Hyde Park, where he rides often. They like to see him at theatres, where they always recognize and often cheer him. In short, they like to think of him as one of themselves.

EDITORIAL NOTES.

The editor is under obligations to the joint committee of the Toronto Plumbers' Supply Association and the Toronto Master Plumbers' Association for an invitation to a banquet to be given this evening at Webbs' parlors. The festivities are tendered to the delegates to the National Convention of Master Plumbers of Canada.

At the convention of the National Association of Master Plumbers, now being held in Toronto, President Lamarche, in his annual address, referred to the progressive work done by the association in its single year of existence. The importance of master plumbers in all cities and towns joining the association was urged. Among the more important matters that they would have to consider were the improvement of relations with the wholesale buyers. He hoped to see an organization of the wholesale dealers, and also of the journeymen plumbers, which he doubted not would be the means of promoting their interests all round.

During the past ten years the south has made rapid progress in supplying iron to the trade of this country and Europe. A contemporary points out that it was only a dozen years ago that the first shipment of southern iron was made to Pennsylvania. At the time it created no small amount of surprise, for it was never believed, prior to that time, that the south would sell iron in the Keystone State. Statistics on this point show that shipments for April, this year, amounted to 101,141 tons. Of this the west took 38,207 tons, the east 29,996 tons, and Europe 32,838 tons. Shipments to Europe so far this year amount to more than 100,000 tons, more than double the amount exported last year. It is expected that total shipments abroad for this year will be more than twice the amount sent last year.—Bradstreet's.

Some American authorities, and those not the least respectable, see in the Canadian tariff bill an unavowed though substantial preference in favor of American products; in general terms the statement is made that in the tariff Canada sacrifices more to the Republic than to any other country. The instances mentioned include the lowering of the duties on scrap iron, steel, pig iron, coal oil, and free corn. It is pointed out that in recent years the imports of British iron into Canada have been decreasing, while those from the United States have been gaining to an extent which has at last made the latter ten to one of the former. This change is due to the change of conditions under which iron is produced in these two countries, the Americans now being in possession of superior natural advantages. When any country possesses the means of producing an article at less cost than another, many other countries may, if they so elect, in

some degree share those advantages. British competition in the iron trade is by no means a thing of the past, but it has evidently begun to be carried on in Canada at a disadvantage. The American critic who takes so hopeful a view of the tariff situation, from his standpoint, does not fear the effect of a discriminating duty on heavy goods, being fully convinced that it will be insufficient to displace their American rivals. As to the alleged sacrifice to American interests, it is quite clear to us that no such result is contemplated.—Monetary Times.

The lumbermen of the Ottawa and Chaudiere are not happy, for they fear that the \$2 duty on lumber agreed upon by the United States Senate will very seriously contract, if it does not almost destroy, the export trade to that country. The new tariff will not, however, prohibit the shipment of lumber in bond. One result of this will be that the Americans will consume their own lumber and use Canadian lumber for the export trade. Canadian lumber holds a high place in foreign markets. There is not nearly so much lumber shipped to the United States for consumption as many people would suppose. A great part passes through in bond for foreign countries. The opinion has been expressed that the Americans will use Canadian lumber very extensively for export to Europe and other places. This export trade, when better facilities are provided by Canada, will be taken hold of more extensively. Canadians and Americans will enter into competition and Canadians stand a better chance of doing the business.

Commenting upon the views of a correspondent who had suggested the propriety of Canada and other parts of the British Empire adopting the British system of currency as a feature of the Queen's jubilee, *The Mail and Empire* says that the suggestion has little to commend it, and that it is a fact that the tide of opinion in England, as well as in other countries, has become steadily stronger in favor of the adoption of the decimal system. The subject was first brought before the Imperial Parliament in 1824 by Sir John Wrottesley, and in 1838 a commission of inquiry was appointed at the instance of the Chancellor of the Exchequer, Mr. Spring Rice, afterwards Lord Monteagle. This commission reported strongly in favor of the proposed change, and another did likewise in 1843. A committee of the House of Commons reported to the same effect ten years later, and an association was formed in England in 1854 for the purpose of obtaining the adoption of the system. There was another commission in 1855, but no opinion seems to have been given by it, and in the same year an International Decimal Association was formed. The decimal currency was adopted in Canada in 1858, and in 1864 an Act rendering permissive the use in Great Britain and Ireland of the metric system of weights and measures was passed by the Imperial Parliament. A bill for its compulsory adoption was rejected in 1871, and an international convention for urging its adoption was held in Peru in 1875, and again in England in 1884. The agitation has been continued since then without apparent effect, but there is every reason for thinking that the time is not far distant when the decimal system will be adopted by the nations of Christendom. A move in the other direction would be a retrogressive one.

The retail wall paper dealers of Canada and the United States, who were in convention at Niagara Falls this week, formed an association or pool by which they desire to control prices in restraint of trade. They hope to bring into the Association all the retail wall paper dealers in both countries, commissioners having been appointed to visit the dealers in all the cities, towns and villages with this object in view. And what are the Dominion Government going to do about it? They have already announced what would be done if the wall paper manufacturers should form a pool—they say that such a combination would be in restraint of trade and prejudicial to the public welfare, and therefore wall paper would be immediately placed in the free list. But in this instance the combine is not of manufacturers who produce wall paper, but of retailers who sell it to the consuming public. Are these combinesters to be punished, and if so, how? That which is to be sauce for the manufacturer goose should be sauce for the retail gander. If manufacturers who enter into a combine to unduly raise or maintain prices in restraint of trade and to the injury of the public are to be punished by the Government by being deprived of their business, why not also punish the retail dealers who combine to unduly raise or maintain prices by also depriving them of their business? Fiat justitia ruat cælum.

The New York Sun has the faculty of making a monumental ass of itself every time it refers to Canadian affairs. It is as ignorant as a horse of anything outside of the boundaries of Manhattan island. There was a time when anything unusual in The Sun was attributed to the office cat. The cat must now be installed in the editorial chair, and must be a fool cat as well. This exquisitely misinformed New York paper has taken the British Columbia legislature to task for passing a law prohibiting aliens to taking up mining claims. That no such law passed the legislature, is probably known to all mankind except the editorial management of The Sun. It further says that the law is beyond the powers of the legislature. If a man in a Canadian newspaper office should display such ignorance of the Constitution of Bulgaria, as this expression of opinion shows The Sun writer enjoys in regard to the basic constitutional act of Canada, he would be set to washing rollers or sweeping out the office, or anything in fact which would not give him an opportunity of foisting his tomfoolery upon the public.—Victoria, B.C., Colonist.

A large and representative meeting of lumbermen, bank presidents, and directors and representatives of railway and transportation companies was held in Ottawa last week for the purpose of discussing the action to be taken in consequence of the rejection by the Senate at Washington of the motions to strike out the duties on lumber and pulp imposed by the Dingley bill. The great injustice of allowing Canadian logs and pulpwood to be exported to the United States free of duty, to be there manufactured into lumber and pulpwood, which would then compete with the Canadian products, upon which an import duty must be paid, was pointed out, and it was unanimously resolved that the Government be asked to take power to make provision by order-in-Council to impose an export duty on logs and pulpwood equal at least to the United States import duty should that be ultimately imposed. A deputation waited upon Sir Richard Cartwright, Mr. Fielding and Mr. Davies, representing the Government, and

placed the views of the convention strongly before them. The lumbermen declared that \$2 will be just as effective in barring out Canadian lumber as a much higher rate, and that if our lumber is to be shut out the Americans should not be allowed to deplete Canada of logs. As the result of a confidential talk with the Government the deputation saw the leader of the Opposition and obtained an informal assurance that if the Government decided to ask for power to place an export duty on logs no opposition would be made from the Conservative side. It looks as if the power to retaliate would be conferred by unanimous consent. The presence of the representatives of the great Canadian banks at the convention and their cordial approval of the steps proposed to be taken shows that the movement is much more serious than ever before.

An engineer of the Pennsylvania Railroad has invented a method for making the roadbeds of railways dust proof. The World describes his method to be to sprinkle the road with crude inexpensive petroleum. It has been discovered that the application of oil will make the fine particles of matter cohere and prevent their being raised by every passing train into clouds of dust, which are so annoying to travellers. The oil used is cheap, non-explosive and odorless, and when once a roadbed is saturated with it, no repetition of the anointment will be necessary until the surface is disturbed for repairs. Proof of the value of this invention is afforded not only in the short strip of road between Camden, N.J., and certain seaside resorts, but also by roads in the oil country, which are comparatively free from dust owing to the drippings of oil from tanks that pass over them. The cost of applying oil from a patent sprinkling car is estimated at about \$50 a mile, and it is believed fully that amount may be saved annually in diminution of the wear and tear of axle bearings, and prevention of hot boxes, alone.

The following sentences appear in a convincing little pamphlet, urging the imposition of an export duty on our logs and pulpwood from the pen of Mr. E. W. Rathbun:

The Canadian lumber market, excellent under normal conditions, with a \$2.00 American import duty on sawed forest products would soon become glutted and unprofitable.

At the same time the American manufacturer, unless our Government equalizes the proposed discrimination by the application of an export duty on logs will go on and profitably cut his Canadian limits, and owners of Canadian mills of that district would be immensely profited by removing to Michigan.

This is the opinion of an expert. And it seems plain enough to the uninformed that a mill situated in Michigan, drawing its raw material without let or hindrance from the Canadian forests and free to ship its finished product without encountering a duty to any part of the United States, would be in a much better position than a mill located in Canada and shut out from the American market. The difference is created by an American duty, and it can be obliterated by an equal Canadian export duty. If the Americans are willing to leave the trade to its natural course, we are; but if they insist on thrusting in an artificial barrier for the benefit of their people, our Government must take a similar step to protect the interests of the Canadian people. This is simply a part of the old policy of reciprocity. "Reciprocity of trade or reciprocity of tariffs," said Sir John Macdonald; and it is a good enough rule to go on in this instance.—Montreal Star.

The second annual convention of the Dominion Master Plumbers Association was opened in the rooms of the Toronto Association, Toronto, yesterday July 1, to continue in session for three days. The first day's programme included three interesting and important sessions, and for to-day a morning session, and an address from Mayor Fleming followed by a trolley drive around the city in the afternoon, and a banquet in the evening. For to-morrow a trip across the lake to Niagara Falls has been arranged.

The National Association of Manufacturers have petitioned President McKinley to be governed by the following conditions in making consular appointments. 1. That the changes in the consular service shall be as few as possible. 2. That removals shall be made only because of demonstrated incapacity. 3. That vacancies shall be filled as far as possible by promotions or transfers. 4. That appointments shall be made solely upon the basis of proper qualification for the positions, and without regard to political service. 5. That only American citizens shall be appointed to any consular offices.

The figures that are published touching the financial aspect of the projected Australian Federation, are interesting to Canadians for purposes of comparison. It seems, for instance, says the Montreal Star, that the total public debt of the six colonies, including Queensland, amounts to £172,779,000, or approaching \$850,000,000. Now, at Confederation, the Dominion of Canada assumed debts of the then four provinces to the amount of \$77,500,000; and has since assumed further provincial indebtedness, which raises the total to \$109,430,000. It is only fair, however, to add that the Australian colonies are much farther advanced in the task of equipping themselves with the furniture of State life than the Canadian provinces were in 1867; and to point out that the gross total of the Dominion and Provincial debts have been swollen since that date considerably, and is now swinging along about \$375,000,000. Yet this falls greatly short of the Australian total, which demands some \$33,000,000 annually for interest. In calculating their probable Federal expenditure, they have prepared an estimate under a clause in their proposed Constitution Bill, which provides that in the first three years of the establishment of the Commonwealth, the total yearly expenditure shall not exceed, for services necessitated by Federation, £300,000. They intend to pay their Senators and Representatives £400 each, which will make our more or less faithful servants at Ottawa green with envy; but they only count on seven Cabinet Ministers, whom they expect to cost them £12,000. Seven Ministers they will probably find to be quite sufficient. We have thirteen now and a Solicitor-General; but this is because we long ago fell into a bad habit of multiplying offices--and the habit appears to be growing worse. It is plain, however, that they are not doing much modelling after the Canadian example; which is a good thing for them in such cases as our mistaken multiplication of cabinet ministers, but not so good, perhaps, at other points. In one respect, at any rate, they can follow our lead with confidence. We have found Federal Union to be a wise and profitable policy, and so, if they give themselves half a chance, will they.

The United States bicycle pool consisting of manufacturers of bicycles in that country, and formed in restraint of trade to unduly maintain prices, has gone to pieces, and some of the manufacturers already announce a twenty five per cent. reduction in prices. This means that upon bicycles imported from the United States into Canada the revenue stands to lose a fourth of the duty, which would not occur if a specific duty were levied.

The foolishness of Mr. Fielding in making Indian corn free is welcomed by the agricultural journals of the United States as a boon to their own farmers. By The Farm News of Springfield, Ohio, it is pointed out that during the past year Canadian hog-raisers received on the average seventy-seven cents per hundredweight for their live hogs in excess of the price paid hog-raisers on the United States side of the line. The difference in price was not due to an accident nor to a whim of the purchasers. The seventy-seven cents represented just that much difference in the quality of the bacon the hogs would produce, and the quality was the result of feeding with peas instead of with corn. "Canada bacon exports are increasing every year," says The Farm News, "and will continue to do so, unless her new tariff law, which admits American corn free of duty, shall lead her pork-growers to abandon peas in favor of American corn." Then comes the sharp suggestion, "We ought to raise more peas and like plants in this country, and sell our corn to Canada if she wants it." This is rather good. Let us hope that the patriotism of the Canadian farmer will save the growing business which the unwisdom of the Canadian Government would sacrifice. --Mail.

Mr. George Anderson, Toronto, who has been appointed by the Dominion Government a special commercial agent under the control of the Department of Trade and Commerce, to visit Japan in the interest of our manufacturing industries and export trade, has sent us a circular which explains itself as follows: I have been appointed by the Dominion Government a Commissioner to visit Japan, with a view of ascertaining from personal investigation to what extent and in what manner an increase in trade between the Dominion of Canada and Japan may be brought about. Before leaving I am desirous of obtaining from manufacturers and others interested in the export trade of Canada special information regarding the products they are prepared to offer that country. If there are any lines of goods which you think advisable to export, will you be kind enough to furnish me with a minute description of the same, manner of putting up, form, sizes, etc., etc., (photographs where possible) and also the lowest prices at which you will be willing to sell for export. All of such information will be treated as absolutely confidential. The time has arrived when Canadian manufacturers require to reach out for wider fields, and do their fair share in supplying the world's markets with Canadian products. Such goods, the products or manufactures of Japan, as you may wish to import, the original cost of which you would like to find out, I shall be glad to report upon. It will be my special mission to say what the probabilities and possibilities are for the extension of trade between the two countries. May I ask your hearty co-operation and assistance that my mission may prove successful.

A recent report from Australia states that such efforts have been made to extend the dairy produce, fruit and meat trades with England that shipping accommodation has been temporarily exhausted. The report says that 150,000 rabbits are awaiting shipment at Melbourne, and are being added to at the rate of 12,000 per day.

The United States can now claim to have the second largest city in the world on its map. Greater New York has this distinction, or will have, when the new municipal circle is complete. The area of the city, it is calculated, will be 360 square miles, and the street mileage 3,000 miles. Its elevated and surface roads will make a total length of 12,200 miles. Its wharfage capacity will be 550 miles. In the incorporated city there are 130,000 dwelling houses, 37,000 business houses, 1,100 churches, 1,125 hotels, 350 public schools, 1,800 miles of gas mains, and 6,500 acres of parks. These are big figures, but not so large as they probably will be, in a city, that is a centre of many railway systems, a leading seaport, and the hub of national wealth. It is but a question of time when the cities of the United States—at least some of them—will have no equals elsewhere. It will be necessary, however, to make the comparison good for wholesome purging to be had of some of the flagrant evils and corruption that have given many of our municipalities the odor of a leak—The Age of Steel.

Among much other Jubilee literature, there has come to us for review a small volume entitled "A Short History of the Union Jack," purporting to be an account of its origin and development, together with a list of its most important victories from Sluys to Tel-el-Kebir. It is written by Mr. W. H. Holmes, and published by the Copp Clark Co., Toronto, in strong and serviceable binding. In the preface the author tells us that the work was begun as a diversion during a vacation, and was at first intended to be a mere pamphlet, for use in his own household only, but that unwittingly enthusiasm carried him forward until the present volume was the result. The first thing that strikes us is the order and compactness with which the events are arranged, and the extreme care which has been taken to verify any statement about which a doubt could possibly exist. The first few pages are given to a careful consideration of the origin of our national flag, and a description of the stages of its development, illustrated by colored plates, and contain much new and interesting information. This is followed by a concise yet vivid account of the most important of the victories gained under that banner in its various stages of growth, together with tabulated lists by means of which can be seen at a glance not only the name of the battle, but that of its commander, the date and reign in which it was fought and the nationality of the opposing forces. The description of the fighting is given with force and directness, and almost every person, whatever their age and sex, will find much to interest them in this volume. Particular attention has been paid to the victories of the Union Jack in Canada and the United States, and the description of the war of 1812, is especially full and vivid. The volume ends with a warm tribute to our Canadian soldiery, one sentence of which we cannot refrain from quoting. It is thus: "Canadians can look back with honest pride upon the heroic achievements of these early patriots, and when the necessity

arises, the same immortal tribute will animate the land, and the recital of their deeds will stir the young blood of our countrymen to a generous emulation of merit so exalted."

Type and Press is the name of a new publication devoted to the interests of the printing trade, its salutation announcing that it will be sent regularly to Canadian printers and publishers with a view to advertising the business of Messrs. Miller & Richard, Toronto. Its columns, we are told, are open to any discussion or correspondence which may be of interest to the newspaper and printing fraternities. R. L. Patterson is the man who has made the business of Miller & Richard the great success it now is in Canada, and this success will be all the more emphatic as a result to be obtained by the valuable assistance of Type and Press.

With the exception of the noted World's Fair number of The Cosmopolitan, which reached the price of five dollars a copy after the last edition had been exhausted, no stronger number of this magazine has ever been issued than that for July, 1897. The report of Julian Hawthorne, the Special Commissioner sent by the Cosmopolitan to India to investigate the horrors of the plague and famine, is of an extraordinary character, and will open the eyes of the world to conditions which were scarcely suspected. The remarkable story of the War of the Martians, by Wells, which is attracting the attention both of the scientific and non-scientific good-story-loving public, is continued. The educational discussion—this time by Professor Peck, of Columbia—the story of "The Every-Day Life of a Sister of Charity," elaborately illustrated. "The Genesis of a Comic Opera," given by Reginald de Koven; President Gilman, of the Johns Hopkins University, on "The Bankruptcy of Science," and an interesting story by the Greek who conceived and brought into existence "The Streets of Cairo at the World's Fair"—are some of the contents of this ten-cent magazine.

After paper pulp is shaped into letters of desired size and character they are treated chemically so as to harden and toughen them. By variations of the chemical treatment the letters can be made to resist the action of oils as well as water. After going through this stage in the process, the letters are trimmed at the edges to remove any roughness, and either decorated in imitation of oak, walnut, maple, cherry, or, as is principally intended, treated with either a ceramic or a Japanese enamel finish, the latter being very like in all respects to the regular enamelled letters now in use. The embossed and otherwise decorated letters in imitation of fancy woods are for interior signs, the enamelled ones for exterior, they being qualified to resist rains. The pulp letters weigh but very little compared with enamelled pottery material. It is claimed that when the pulp letters are cemented to plate glass they are unmovable, unless a certain chemical is applied to dissolve the cement.

Some time ago we made the statement that each foot in length of two inch steam pipe uncovered under steam pressure cost a dollar a year in condensation. This statement is so striking that it has been several times commented upon, and called into question, but a little figuring will show that it is not far from the fact. Recent experiments show that with a difference of 269 degrees between the temperature of the steam in the pipe and that of the surrounding air, each square foot of bare pipe condenses .85 of a pound of steam per hour. A foot of two inch pipe contains about a half a square foot of surface, so that each foot of two inch pipe would condense .425 per pound of steam per hour. Multiply this by 8,760 hours in a year, and you would obtain 3,723 pounds of steam, which would be condensed by the pipe, and allowing an average evaporation of seven pounds of water per pound of coal, it would take 532 pounds of coal to furnish the steam. This would be worth a dollar if coal was about \$3.75 per ton, which is not an exorbitant price in the eastern manufacturing cities.—Power

It is asserted that repeated experiments have proven, in the transmission of power, that ropes and belts, when well arranged, absorb almost the same amount of power. Some French trials in this line, as reported in Engineering Mechanics, were made, it appears, with a 200 horse power engine, fitted with rope and belt fly-wheels, 14 1/2 feet in diameter. The steam engine had a fly-wheel for the belt and one for the ropes; the dynamo was driven direct off the fly-wheel without a counter shaft, and was provided with two pulleys, one for the belt and one for the ropes. The dynamo was driven direct off the fly-wheel, being mounted on adjusting screws, so that the tension of the belt or ropes could be regulated at will. A cotton belt, a leather belt, and a homogeneous leather belt, and ropes were of standard quality. Experi-

ments of a comparative nature were made alternately, with the ropes and belts, several tests each day, the result being as above indicated.

The sugar beet may soon be as great in Wisconsin as is the cow. Dean W. A. Henry, an enterprising educator in the Wisconsin University of Agriculture, believes that he can start Wisconsin farmers in a new channel of prosperity, and has set about it with a "vim." He thinks that Wisconsin can be made a great beet state as well as a great dairy state. Accordingly six wagon loads of quarter-pound packages of seeds have been sent to different counties of the state, with the request that samples of the beets grown be sent from each grower in the fall. Such a large amount is expected that the railroad companies have agreed to carry them free of charge. Prof. Henry, in his letters, writes as follows: "We will furnish the seed free of charge, will arrange for the transportation of the sample beets in the fall without cost and will give due credit in our published report of the season's work. In return we would want the grower to grow the beets according to our directions, to keep an accurate account of the work expended in growing the beets, and to send us two samples of three beets each in the fall, as directed." There are forty stations in as many counties now engaged in the experiment, some interested party in each having from half to three quarters of an acre under cultivation. In several counties the poor farm managers have taken the growing of the beets in hand. At the University farm three acres of many varieties are under cultivation. One plot was sown with extra choice seeds from Washington, and considered worth their weight in gold. At Merrill, Wis., the ground is being cleared for a sugar beet factory, to be ready for operation by Oct. 1st. Twelve hundred acres of beets are contracted for, and it is hoped to eventually raise it to 80,000 acres. The so-called failure of the factory at Menominee Falls was purely a financial failure, and not a beet failure. Two things are requisite to the knowledge of beet culture, the percentage of sugar and the co-efficient of purity. If the percentage of sugar is twelve and that of purity eighty the beet is satisfactory. The beets grown at Menominee Falls contained from twelve to seventeen per cent. sugar and eighty and above in purity. Hence all that the Wisconsin farmer needs to figure on is the length of the season and the quantity of beets to be raised.—Farm Machinery.

The paper-making for Oxford Bibles is a specially important and interesting part of the work. At Wolvercote, a mile or two out of Oxford, the university has a large mill for the supply of its own requirements, says Chambers' Journal. A good deal of the paper they turn out here is made out of old ships' sails, the materials of which, after battling with storms in all quarters of the world, come here for the purpose of being made into paper, printed in almost every language under heaven, and bound up in volumes, to be again scattered far and wide into all the uttermost ends of the earth. The Wolvercote paper mill has much to do with the great reputation that Oxford has acquired in the production of Bibles and other devotional books. Twenty years ago and more the management here hit on a valuable invention in paper-making, and ever since their "India paper" has been the envy and the puzzle of manufacturers all over the kingdom. There are said to be only three persons living who know the secret of its make, and though the process has never been legally protected, and all the world is free to imitate the extremely thin but thoroughly opaque and wonderfully strong and durable paper of the best Oxford Bibles if they only know how, all the world has hitherto quite failed to do so. It is thin as tissue, but perfectly opaque, and so strong that a strip of it three inches wide has proved to be capable of sustaining a quarter of a hundred weight. Over 160 works and editions are now printed on this paper. This special advantage has very largely helped Oxford to retain the leading position which it originally gained by being nearly the first if not quite the first printer of books in the kingdom, and by the prestige of its name.

It is difficult to conceive of anything for which paper lumber, or if you please, pulp lumber, cannot be adopted, says an exchange. Tubs and pails are no novelty, but boards an inch thick and thirty inches wide are not so familiar objects, while yet they have been produced, and at a first cost scarcely above that of the price for which ordinary No. 1 common pine lumber will retail. It is some years since the writer has seen specimens of this lumber, but that it has been produced is evidence that as occasion demands it will come to the front. So, too, with doors, which a recent patentee proposes to mould under great pressure from pulp, which is colored while in the soft condition, to give rich effects in panelling and in frame, while securing all the strength desirable in a door. So, too, with wall brackets, picture moulds and balusters, including friezes and cornice, which can be moulded hollow, and with a waterproof cement which is incorporated in the

pulp, is claimed to withstand the weather as well as the terra cotta, which forms so important an adjunct to the steel structures for which our great cities are becoming noted. So, too, mosaic blocks for inland floors may be colored to represent marble, oak, or any other desirable appearance, and being compressed to great density, will present a good wearing surface. Pulp, molded as a covering to steel or iron posts, is claimed, from its comparatively non-inflammable character, to be equally with terra cotta adaptable as a protecting and ornamental shield, which can be as highly finished as may be desirable to the most aesthetic taste.

MAKING BICYCLE BALLS.

If it were not for the ball-bearing idea, the modern bicycle would be an impossibility. These balls have to be perfectly round and they are formed of solid, hard steel. Their manufacture requires a large capital, for extremely elaborate and well-contrived machinery as well as great skill and care on the part of the workmen are necessary. The balls are made by rolling and grinding and by special screw machines. They are sold in boxes of 1,000. It has been found necessary to have the balls gauged and sorted into lots which do not vary more than one-thousandth of an inch in diameter. It makes no difference in a cone adjusted ball track whether the balls are a thousandth over or a thousandth under given diameter, but it does make a difference if the balls are not all the same diameter in a single cup. "Flat" balls also give rise to serious trouble.

Gauging is carried out in various ways. One method is to have a workman watch the balls through a magnifying glass as they travel down inclined ways. The ways are closer at the top, where they take the ball, and spread out as they come down, so that the ball constantly drops nearer and nearer to the centre as it travels. Its progress is constantly retarded by increasing friction until it drops through between the ways and falls into a chute, which conveys it to the box for use in filling wheels. "Flat" balls linger on the ways and show eccentricities in their movement and are picked out of the line of travel with a magnetized point. It is a slow, careful operation, and yet is not perfect. Another method is to employ automatic ball gauging machines. The most accurate system, however, is that of hand gauging with special micrometers, which give the closest approach to uniformity and detect flat balls with certainty. Micrometers are operated by girls, who make six different diameter readings for each ball visual record and sort the balls to the nearest quarter of one-thousandth of an inch. The girls sort 6,000 balls in a day's work, which requires 36,000 readings. The operation is very hard on the eyes, although the micrometer dials are large and the light well-shaded. These girls have to pay the closest attention to their work and are not allowed to engage in conversation. They move the balls and micrometer screws with such rapidity that it seems almost impossible that their readings should be accurate, but the balls regauge in the micrometers to the size designated when measured by other hands.

Filling the cups is the next operation. The operator sets the bicycle hub on a flat stand, having a bit to centre the hub, and fills the hub with a little sheet metal tubular scoop filled from a box of balls. A round block is held in the centre of the ball cup to keep the balls from falling down into the bore as he empties the balls from the scoop into the hub. The centre block is then removed and the operator takes up a cup, and, after applying it to the hub, brings the ram of the press down with his foot, forcing the cup into place and confining the balls so that they cannot drop out.—American Machinist.

SMOKELESS FIRES AND FUEL ECONOMY.

The very small quantity of carbon represented in a large volume of dense smoke is sufficient proof that there is no direct connection between prevention of smoke and economy of fuel. As a matter of fact, the production of smoke has no direct correlation with the saving of fuel. The smoke itself requires but little excess fuel to produce it, while there are other conditions which may make a boiler or other furnace economical of fuel or not, irrespective of the production of smoke. The smoke problem is a social one and smoke is to be prevented for the good of a community in which a works is located.

There is no end of cases where the introduction of a smoke preventing device or system has been attended with a considerable saving in the amount of fuel consumed to produce given heating results, but in general the abolition of smoke has been merely a circumstance in the changed conditions. Nor has the production of carbonic oxide instead of carbonic acid been responsible for any considerable loss of heating effect, many careful experiments

having failed to show the production of carbonic oxide at all. The losses in a boiler furnace are almost entirely losses of heat actually produced, but not expended in making steam, and those losses of heat are from radiation from the furnace and from convection up the stack. The temperature of the effluent products of combustion, and their quantity, are direct measures of the loss of heat in this manner. A change in the construction of the furnace, or the manner of feeding the fuel, which will lower the temperature of the flue gases will result in fuel economy, and incidentally may suppress smoking. On the other hand the admission of a greater quantity of air than is needed for actual combustion may suppress smoke but increase the volume of the exhausting gases and thus carry away a greater quantity of heat than is actually necessary, and so tend to an economic loss.

An important saving possible to be effected with mechanical firing lies in the fact that a much inferior fuel may be used than in hand firing, even slack being admissible. The mechanical stoker, however, must, in order to attain its greatest efficiency, be provided with those means of regulation which are possible in hand firing. The rate at which the fuel is delivered must be variable at will, and means must be provided by which clinkers may be dealt with, as with shaking grate bars. Different grades of coal require also different spacing of the grate bars. But besides this, the point can never be too much accentuated, that the introduction of careful as against careless hand-firing may accomplish almost as much in many cases as the installation of costly mechanical appliances, and with hardly any cash outlay. Instead of investing a large sum of money in improvements, the interest on such investment may frequently be more profitably employed in the hiring of better and more intelligent firemen.—Tin and Terne.

THE NASMYTH STEAM HAMMER.

The Great Western Railway Company having successfully dispatched its steamship Great Western between Bristol and New York, and having elected to construct another steamer, the Great Britain, procured tools for making the engines from the Bridgewater (i. e. Nasmyth's) Foundry. They were perplexed, however, about the forging of the intermediate paddle shaft, which was of a size never before attempted. They applied to Mr. Nasmyth, and he devised the steam hammer, the most famous of his inventions—an instrument with which, as he says in his autobiography, the workman might, "as it were, think in blows. He might deal them out on to the ponderous glowing mass and mold or knead it into the desired form as if it were a lump of clay; or pat it with gentle taps according to his will, or at the desire of the forgerman." All was going well for setting the hammer in operation, when the plan of the vessel was changed by the introduction of the screw propeller, which rendered the immense shaft unnecessary. No patent was taken out for this invention, but the drawings of it were kept in the shop, open to the inspection of visitors. Among those who looked at them were M. Schneider and M. Bourdon, his foreman, of the great iron works at Creuzot, France. A few years afterwards when Mr. Nasmyth visited Creuzot, he admired the excellence of a certain piece of machinery, and asked M. Bourdon how the crank had been forged. M. Bourdon replied, "It was forged with your steam hammer." Mr. Nasmyth was then taken to the forge department, where he saw this "thumping child of his brain," which for him had existed only in his books, at work. The foreman had recollected the drawings, and embodied them substantially in the machine. Mr. Nasmyth at once secured a patent, introduced some improvements, and made the construction of the steam hammer a branch of his business.

Though he was prompt enough in explaining to them the merits of his invention, it took considerable time to arouse the official minds of the Lords of the Admiralty, "who are very averse to introducing new methods of manufacture to the dockyards." But after he had furnished hammers to the principal manufacturers of England and had sent them abroad, these dignitaries learned in the course of three years that a new power in forging had been introduced. A deputation visited the foundry to see the invention, and were pleased and "astonished at its range, power, and docility." An order came for a hammer for the Devonport Dockyard. Their lordships were present when the hammer was started, and Mr. Nasmyth "passed it through its paces." He made it break an egg-shell in a wine-glass without injuring the glass. It was as neatly effected by the two-and-a-half ton hammer as if it had been done by an egg spoon. The "I had a great mass of hot iron swung out of the furnace by a crane and placed upon the anvil block. Down came the hammer upon it with ponderous blows. My lords scattered and flew to the extremities of the workshop, for the

splashes and sparks of hot metal flew about. I went on with the hurtling blows of the hammer and kneaded the mass of iron as if it had been clay." Orders followed to supply all the royal dockyards with a complete equipment of steam hammers.

The extension of the docks at Devonport called for an immense amount of pile driving. The contractor for the work had witnessed the operation of the steam hammer, and asked Mr. Nasmyth if the principle could not be applied to the pile driver. Such a pile driver was constructed. It was tested. Two piles of equal length and diameter were selected, one to be driven with the new machine and the other in the old way. The result was four minutes and a half with the former to twelve hours with the latter; and the steam driven piles were hardly bruised, while the others suffered in the usual way.—Appleton's Popular Science Monthly.

THE LOG DUTIES.

The Ottawa correspondent of the Toronto Globe takes the trouble, apropos of nothing unless it be the final tariff draft, to give the readers of his paper double-headed assurance that the question of export duties has not yet been decided one way or the other by the Government. The need of some statement of this kind was probably felt because of the possibility that those interested might infer that Mr. Fielding's last revision of the tariff finally closed the case in reference to all duties to be imposed. The assurance might, indeed, have well been official; though a close reading of Mr. Fielding's latest speech would show that he purposes keeping the question of duties especially affected by the new American tariff—such as those on coal—open until that tariff has received the President's signature. The Globe's remarks on the logs and pulpwood matter, run

"The proposal to place export duties on logs and pulpwood has not been abandoned and upon the action of the United States Congress depends largely the future course of the agitation. Parliament will doubtless have adjourned before the final draft of the Dingley bill is agreed upon, and there are still those who believe that free lumber is by no means an impossibility. . . . It is not improbable, therefore that the Government of Canada will not be called upon at present to place export duties on sawlogs to meet hostile tariff legislation. The Fielding tariff, with its reciprocal clauses and its practical result in the reduction of duties on British goods, has done already a great service in teaching our neighbors that Canada is by no means defenceless against the attacks of the high tariff devotees in the United States."

This is a long way short of a definite declaration of policy. The Globe, of course, is not called upon to be definite when the Government is absolutely silent; but these sentences have a last gasp sound about them that would not disturb a Washington mosquito. If we intend to clap export duties on our logs and pulpwood in case the Americans persist in shutting out our lumber, this is the time to say so in unmistakable terms, when it can have its proper influence on the action of Congress.

It is something to be told, however, on fair authority, that the policy of reciprocal treatment has not been abandoned. Canada should never lose sight of the fact that in the lumber affair, it holds all the trump cards. The first effect of the shutting down of our export of logs would be to literally crush out the Michigan milling interests; and the next to raise the price of lumber all over the United States. Shut up to their own resources, the Americans must begin to consume their forest reserves at an enormous rate, enriching those who are lucky enough to own them, of course, but steadily increasing the cost of lumber to the poor man. How long, then, is it probable that the lumber consumers will permit this state of affairs to last, when they know that plenty of cheap lumber is to be had from Canada the moment they have sense enough to let it in? In a waiting game we have everything to gain and nothing to lose. We simply keep our raw material while the Americans exhaust theirs, and then sell when we can fix the price with little limitation. Of course, we are willing to let trade go on naturally if our saw mill men are given a chance for their lives, but if Congress is determined upon shutting them out of the game the only question left for our decision is whether we will let their successful American rivals enjoy a long and profitable career by depleting our forests.—Montreal Star.

Corks are thrown away in great quantities, and very few people think that there is any value attached to that material after it has served its purpose once as a stopper of a bottle, says Popular Science News. Nevertheless, it has become an important component of a city's refuse. Great quantities of old corks are now used again in the manufacture of insulating covers of steam pipes and boilers, of ice-boxes and ice-houses and other apparatus to be protected from

the influence of heat. Powdered coal is also useful for filling in horse-collars and the very latest application of this material is the filling-in of pneumatic tires with cork shavings. Mats for bath rooms are made of cork, and it also enters into the composition of linoleum. Cheap life-preservers are now also filled with bottle corks cut into little pieces.

THE "PROTECTION" POLICY.

When asked what does Protection mean
One may this answer give:
'Tis pay for work and work for pay,
To live and to let live,
The land to till, the mine to drill,
The forest to remove;
With all industrial wheels at work
Our country to improve:
When each to other, hand to hand
Will true protectors be;
One grows the grain, one makes the goods,
Another fells the tree.

CHORUS—

Then we'll all as true Canadians
Together stand or fall.
Let us each other then protect,
And heaven protect us all.

With righteous cause and justest laws,
Resources past compare,
We then should get of immigrants
Who want to work full share;
And here to every one who came,
While doing no one harm,
We'd give them all protection for
Mill, forest, mine and farm,
And then by giving work to all
In every relation,
We'd make this Canada of ours
A most progressive nation.

CHORUS—

Then we'll all as true Canadians, etc.

It matters not how rich the soil
Of prairie, hill or plain;
No country yet grew truly great
By only growing grain.
So with the farmer we should have
Also the artisan,
And find all sorts of work to do
For every lab'ring man.
Then when the stranger reaches here
We give him not a stone;
Of old, 'twas told, it was not meet
To live by bread alone.

CHORUS—

Then we'll all as true Canadians, etc.

Some may have finer theories
But when all facts you scan
'Tis pay for work at home's the way
To help the lab'ring man.
In helping him we're helping all,
For on his labor rests
The progress that our country makes
To meet all our behests.
With wages sure, few need be poor,
We'd prosper on all hands,
And then we may in honest way
Get labor from all lands.

CHORUS—

Then we'll all as true Canadians
Together stand or fall.
Let us each other then protect
And heaven protect us all.

REAL INDIA SHAWIS.

Since the introduction of the Thibet goat into France the cashmere shawl has been imitated with such wonderful exactness that it is hard to detect the imitation from the original. Experts say, however, that the

genuine India shawl can be detected from its having a less evenly woven web and also from its brighter colors. It is likewise said that the border of the real India cashmere shawl is invariably woven in small pieces, which are sewed together, and the whole border is afterwards sewed on to the centre. It is a mistake to think that the shawls are manufactured in India in the form in which they are usually sold. Generally the borders and centres come out separately, and are put together in sizes and often in patterns to suit the customers. A number of shawls sold as "real India" are actually manufactured in France. Persons familiar with both articles say that the original is softer than the imitation, and that this softness arises from the way the yarn is spun and partly because the Thibet goat deteriorates when removed from its native hills. As laces woven by hand in damp cellars bring a price five times greater than those woven by machinery, so fashion prefers the ruder work of the Orientals, which costs vastly more than the cleverest imitations. In Bokhara, where the finest and most expensive camels hair shawls are manufactured, the camel is watched while the fine hair on the under part of his body is growing. This is clipped so carefully that not a fibre is lost, and it is put by until there is enough to spin into a yarn which is unequalled for softness. It is then dyed all manner of bright colors, and woven into strips eight inches wide of shawl patterns of such exquisite design as with all our study of art, and all our schools of design we are not able to rival. These strips are then sewed together so cunningly that it is impossible to detect where they are joined. Russia is the principal market to which these beautiful Bokharan creations are sent. From Russia they find their way all over the world, London, Paris, Vienna and New York being the heaviest importers. Besides these Oriental shawls there are the beautiful woven shawls of Paisley, Scotland, the printed shawls of Lyons, and the filmy Llana lace creations, which, unlike the Oriental works of art, are within reach of the moderate purse. Special artists with pencil and brush are engaged in making designs for these shawls. While years and sometimes a lifetime were and are required for the manufacture of the Bokharan and Hindu shawls, at Paisley, if the pattern requires months in its designing, the weaving of the most elaborate pattern occupies only a week. The cutting of the threads from the backs of the shawls, which was formerly a process requiring the combined labor of two girls an entire day for each shawl, is now done by a French machine in a minute and a half. Few of the grand dames who boast of costly Oriental shawls, rugs and portieres know that these articles have probably seen service before they came into their possession; that the magnificent shawls in which they wrap themselves have enveloped the women of some harems, and the rugs and portieres have draped their apartments. It is not uncommon to find a telltale darn that confirms this suspicion.

THE BICYCLE TRADE.

An announcement made a few days since that the manufacturers of bicycles in this country had concluded to form a close combination and force out those establishments known as "assemblers," has caused numerous inquiries regarding the trade, and the alleged intention of makers to advance prices on high grade wheels. The assemblers form a class peculiar to the bicycle trade. With little capital they have started establishments

by buying the different parts of a wheel from the different manufacturers and putting them together at a small cost. In this way the supply of wheels has been rapidly increased, and it seems that these establishments have fully prepared for future wants, as one of them is said to have stock contracted for that will be sufficient for at least three years' operations. It will be remembered that this class of makers do not manufacture any part of the wheels they turn out, but they have bought enough ahead to make them safe from everything except a big cut in prices by the actual manufacturers.

AN IMPORTANT PRECEDENT.

In the Supreme Court of the State of Pennsylvania Justice Williams has just rendered a decision and opinion concerning the speed of electric cars, which is of importance as a precedent of interest to all street railway companies.

The case was one for damages brought by the parents of a child who had been injured by a car of the Electric Traction Company in Philadelphia. The child was playing upon the sidewalk and suddenly ran out into the street, where she was knocked down and injured by the car. The evidence showed that the car was stopped almost within its own length, with such violence, indeed, as to make a noise which attracted people a block away to the scene.

The principal evidence related to the speed of the car at the time of the accident. It appeared that this was high, but that the car was well under the control of the motor man. Justice Williams, in rendering his opinion on this point, made a statement which is luminous with good sense. He said: "We are not prepared to lay down any rule in regard to the rate of speed at which an electric car may be run between crossings, nor to say that the mere fact that the defendant's car was moving faster than usual at the time the plaintiff ran in front of it would be, in the language just quoted from the charge, 'sufficient to justify' the jury in finding the defendant guilty of negligence. All that can be safely said upon this subject is that the car must be kept well in hand, and that the speed must not be so great as to make this impossible, or to endanger the safety of the public using the streets with reasonable care. But these passenger railways are created to facilitate the movements of the general public, and to furnish rapid transit for citizens from their homes to the business centre of the city. They are practically indispensable in all great cities. The same rules as to speed that may be applied to ordinary vehicles propelled by horses are not applicable to street cars. They move upon a track from which they cannot turn, which is plainly visible, and which is prepared with a view to the rapid movement of cars upon it. The cars can be seen and heard for considerable distances, and are required to warn persons who may be upon their tracks of their approach. The purpose of their owners and the demand of the public are that the greatest rate of speed consistent with the safety of other persons using the street or highway shall be maintained; and wearumable to say that any rate of speed that does not transcend these limits is negligence, or should be submitted to the jury as 'sufficient to justify' a verdict against the railway company."

This is a recognition of the rights of street railways of the greatest value. It contains a definition of the allowable speed of cars which forms a precedent of vital importance.—Electrical World.

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This Special Edition will possess unique and exceedingly valuable advantages as an advertising medium to all those who desire to have their business brought to the attention of the managers of thousands of cotton and woolen mills, pulp and paper mills, flour and lumber mills, coal and gold mines, engine and boiler shops, machine shops, electric lighting and street railway stations, bicycle factories, etc., in Canada and elsewhere.

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The Canadian Manufacturer Publishing Company, Limited
McKinnon Building, TORONTO, CANADA.

Orders for copies of this Special Tariff Edition should be sent in without delay.

The manufacture of bicycles has increased wonderfully within a very short time. Three years ago there was only one mill in the country making bicycle tubings, now there are fourteen. Among the largest of these are the Shelby Tube Company of Shelby, O.; the New Castle Tube Company, of New Castle, Pa.; the New Jersey Tube Works, at Jersey City; the Pope Tube Company, of Hartford, Conn., and the Lozier Tube Company, Elwood City, Pa. The item referred to stated that the manufacturers proposed to combine against the assemblers, but the fact is, there are but two bicycle concerns in the country which manufacture their own tubes. These are the Pope Manufacturing Company, of Hartford, Conn., and the Lozier Tube Company, of Elwood City, Pa. All the others are more or less assemblers, using different grades of material, some holding their own patents on certain parts.

Within a comparatively short time figures on bicycles have been considerably reduced, and a further tendency in that direction seems inevitable. With the great increase in the production of bicycle material it will become more difficult to sustain prices. Processes of manufacture are being constantly cheapened, and the great demand which suddenly set in has attracted a great amount of capital and a large number of workmen. Even now this great production is being felt, and when the supply once catches up with the demand it will be a short time until stocks begin to pile up. Then will come the squeeze, and there will be no need for a combination against the assemblers, for the trade will be on a basis that will make every builder either manufacture his own material or drop out of the business.—American Manufacturer

CAPTAINS OF INDUSTRY.

The following items of information, which are classified under the title "Captains of Industry," relate to matters that are of special interest to every advertiser in these pages, and to every concern in Canada interested in any manufacturing industry whatever, this interest extending to supply houses also.

If a new manufacturing enterprise of any kind is being started, or an electric lighting plant instituted, or an electric railroad, or a telephone, or a telegraph line is being constructed; or a saw mill, a woolen, cotton, or knitting mill; or if any industrial establishment has been destroyed by fire with a probability of its being rebuilt, our friends should understand that possibly there may be something in the event for them. Do you catch on to the idea?

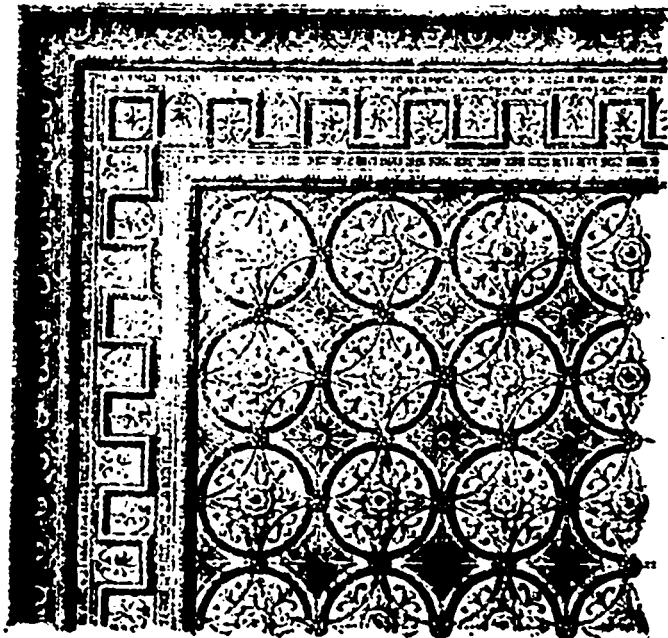
The starting of any such concern means a demand for some sort of machines, machinery, or supplies, such as steam engines and boilers, shafting, pulleys, belt- ing, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, meters, wire, arc and incandescent lamps, and an infinite variety of electrical supplies, chemicals, acids, alkalis, etc. It is well worth the while of every reader of the Canadian Manufacturer to closely inspect all items under the head of Captains of Industry.

A stained glass memorial window was recently presented to the Waterous Engine Company, Brantford, Ont., by their employees. The centre piece contains a portrait of the late Charles H. Waterous, founder of the works. The window has been placed in the front of the company's new office building.

Five miles south of the village of Flinton, Hastings County, Ont., is a hill thirty feet high of what is known as star actinolite. It has been computed by actual measurement that the deposit will yield three carloads per day for eleven years. The company owning the property have contracted with the Canadian Pacific Railway Company to remove three car loads of this ore per day for five years.

The wire cables of the old Suspension Bridge at Niagara Falls are being cut into thirty foot lengths, and shipped to Hamilton, Ont., to be made into nails.

These are busy times at the Jenckes Machine Company's works. To the spectator, the interior of the works present a view resembling a miniature and very lively manufacturing city. A carload of mining machinery was shipped by them yesterday to the Sultana mine, near Rat Portage. The car contained a compound duplex compressor of large dimensions. The steam cylinders are 12 and 20 x 18, and the air cylinders 12 x 18. Two other large compressors are now in course of construction, one for Windsor Mills and the other for Cape Breton.—Sherbrooke (Que.) Daily Record.



ONE OF OUR DESIGNS

Embossed Metal Ceilings

These Ceilings are made from mild annealed steel plates in a great variety of designs, suitable for every description of building, including

**Hospitals, Churches, Schools
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The many advantages of their use, as a modern substitute for wood and plaster, lies in the fact that they are light in weight, will not crack nor drop off, consequently no danger of falling plaster: are unquestionably durable, have air-tight joints, are easily applied, are

practically fire-proof, are highly artistic, do not harbor vermin or the germs of disease, and possess splendid acoustic properties in addition to many other points of excellence over any other form of interior decoration.

SOLE MANUFACTURERS:

Write for prices and ask for Catalogue "O."

PHONE 2481

THE METALLIC ROOFING CO., Limited., Cor. King and Dufferin Sts., TORONTO

The Standard Chemical Company of Toronto has been incorporated with a capital stock of \$20,000, to manufacture chemicals, wood pulp, etc.

The Bell Telephone Company have contracted to give Carleton Place, Ont., an electric fire alarm system at a cost of \$1,000.

The Goldie and McCulloch Company, Galt, Ont., recently made shipments of machinery to British Columbia and to Bracebridge, Ont.

C. H. Mitchell, Niagara Falls, Ont., has made application to the council of that village for a franchise for developing power from that part of Niagara River between the cantilever bridge and the whirlpool. There is said to be a fall of forty-six feet in the river between these two points, and Mr. Mitchell considers it the most valuable water-power available along the river.

The city council of Sherbrooke, Que., contemplate building an iron bridge over the river at that city to cost about \$11,000.

The locomotive repair shops at Farnham are to be removed to Outremont as soon as possible. While this will take from Farnham about twenty-five skilled laborers, the town will be more than compensated by the car shops to be located there, which will, in building box cars and repairing others, give steady employment to 120 men or more.—*Sherbrooke (Que.) Daily Record.*

The Perth, Ont., canning factory has proven such a success that an enlargement is now necessary.

It is reported from Port Arthur, Ont., that the Davis Sulphur Ore Company of Davis, Mass., have purchased a mine of iron pyrites,

near Schreiber on the C.P.R., on the north shore of Lake Superior, and have already commenced development work on an extensive scale.

The Buffalo Forge Company, Buffalo, N.Y., have had printed a large number of the pocket edition of their 1897 catalogue, principally for engineers, and will be glad to send a copy to any engineer on application. This catalogue contains a large number of table pages of valuable data not heretofore published.

The E. B. Eddy Company, Hull, Que., will put in a separate waterworks system at their mills, equipped with forty hydrants, with a pumping force of 5,000 gallons per minute.

The Halifax Chronicle states that an English company will build a factory for the manufacture of terra cotta in Halifax county, N.S.

Messrs. E. Leonard & Sons, London, Ont., have installed an engine and boiler in the Auburn sawmill, Auburn, N.S.

The Partridge Carbon Company, Sandusky, Ohio, contemplate starting a branch of their works in Canada. They are seeking a favorable location.

A by-law to grant \$25,000 to a company to build an elevator in Kingston, Ont., has been ratified by the ratepayers of that city.

The proposition to amalgamate the Hamilton, Chedoke and Ancaster Electric Railway Company with the Brantford Street Railway Company, for the purpose of making direct connection between Hamilton and Paris by way of Brantford, will probably be carried into effect.

Regarding the recent large shipment of copper from the new smelter at Nelson, B.C., a telegram from there says.—The successful operation of the new calcining and refining furnaces has been a matter of general congratulation, and the fineness of the copper produced has been steadily improved. The grade now produced is ninety-eight and ninety-nine per cent copper, silver and gold, and as much as fifteen tons have been taken from the refining furnace from a single charge. The new 200-ton blast furnace is to be completed in about one week, and will at once be blown in. The Silver King will bring down 200 tons daily over the tramway, commencing to-morrow, and the management states that the mine is in a condition now to keep up this supply uninterruptedly for at least six months. With this supply, and the custom ore now on hand, and daily being received, both blast furnaces, with a total capacity of 320 tons, will be enabled to run without stoppage. The Athabasca ore has been received, and will probably turn in twenty tons daily.

For the week ending June 12th 4,800,000 feet of pine saw logs were taken from Parry Sound, Ont., for points in Michigan.

The farmers of Pipestone, Man., will build a 2,500-bushel elevator.

The Kootenay Lumber and Manufacturing Company are opening business at Wardner, B.C.

The Lake of the Woods Milling Company have received a large contract from the Dominion Government for the flour required for the Indian supplies. It will be manufactured at the Portage la Prairie mill of the company.

SADLER & HAWORTH

FORMERLY

ROBIN, SADLER & HAWORTH

Manufacturers of

OAK-TANNED LEATHER BELTING

MONTREAL AND TORONTO

Orders addressed either to our Toronto or Montreal Factory will have prompt care. Goods will be forwarded same day as order is received.

A very unique and handsome piece of work is the postal portfolio which is to be presented to his Royal Highness the Duke of York by the Dominion Government, and which is on exhibition in the window of Ryrie Brothers, jewellers, Toronto. The portfolio is in the form of an album, the cover of which is of royal blue morocco leather, handsomely decorated in gold. In the centre of the front cover is a raised shield in white, on which are the words in gold letters, "Dominion of Canada, Diamond Jubilee Postage Stamps, 22nd June, 1897." The corners of the portfolio are decorated with guards of Canadian gold, made from British Columbia and the Ruiny River district ore. The right hand upper corner decoration is a design of maple leaf, and the lower corner of English oak leaves and acorns. The portfolio is fastened with a clasp of Canadian

gold in the form of oak leaves, while the brackets on the front holding the clasps in position is entwined with maple leaves, with the monograms of H. R. H. the Duke of York—G. F. E. A.—George, Frederick, Ernest, Albert. On the third page is the inscription: "This collection of postage stamps issued at Ottawa by the Dominion of Canada in commemoration of the diamond jubilee of her most Gracious Majesty Queen Victoria, is presented to H. R. H. the Duke of York, K. G., by the Government of Canada, 1897." This inscription is in colors, and decorated with an ornamentation of three parts of a semi-circular wreath in maple leaves, cut in the centre with the arms of Canada, surmounted with the Imperial crown while on top of the leaf are maple leaves surmounted with the Prince's coronet. The feet of the wreath is a repre-

sentation of a Canadian beaver. The last page will contain the certificate of the destruction of the dies and plates in the presence of Hon. William Mulock, the Postmaster General of Canada. The engraving of the portfolio was done by Mr. R. M. Williams. The gold work is by Ryrie Bros., and the binding by Messrs. Brown Bros. A rich royal blue morocco case has been prepared for the reception of the portfolio, and it will be forwarded to Ottawa in a few days.

The Brantford Machine Tool Company Brantford, Ont., has been incorporated with a capital stock of \$150,000, to manufacture machinery, castings, machine supplies, etc. The St. Mary's Co-operative Creamery Company, St. Mary's, Ont., have been incorporated with a capital stock of \$50,000, to manufacture butter and cheese.

WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY
PITTSBURG, PA.

THE LEADING MANUFACTURERS OF ELECTRICAL APPARATUS FOR ELECTRIC LIGHTING, POWER TRANSMISSION, AND ELECTRIC RAILWAY PLANTS

New York—129 Broadway. CHICAGO—New York Life Bldg. PHILADELPHIA—Girard Bldg. WESTINGHOUSE ELECTRIC COMPANY, Ltd., 22 Victoria Street, LONDON, S.W., ENGLAND.

For CANADA address, - - - - - AHEARN & SOPER, - - - - - OTTAWA, CANADA

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WM. HAMILTON MANUFACTURING CO., Limited

MANUFACTURERS OF

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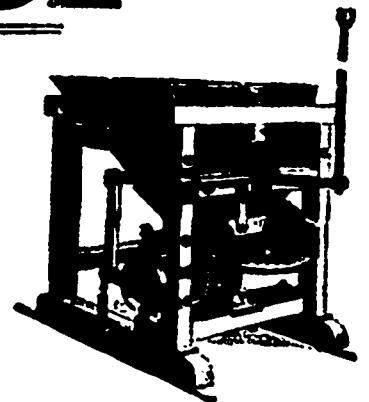
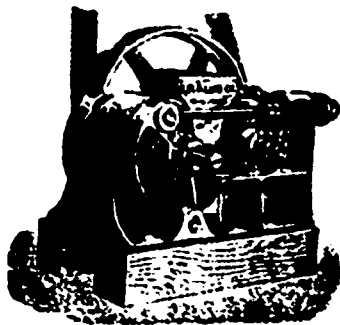
Mining, Milling

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Smelting Machinery

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Compressors, Hoists, Boilers, Engines, Water Wheels, Etc.

Branch Office . . .
VANCOUVER, B.C.


PETERBOROUGH, ONT.

Messrs. McNeil Bros. & Lowe are preparing to do a large business at their mill in Millville, N.S. This is the old mill owned for many years by the late T. R. Harris of Aylesford. It was bought two years ago by the McNeil brothers of Factorydale two miles distant, who were joined in the business this spring by Mr. T. H. Lowe. The machinery from McNeil's mill at Factorydale was moved to Millville, and placed in the Harris mill. Other machinery including a Goldie & McCallough endless bed planer was added to fully equip it. This pushing firm intends to make 1,500,000 feet of lumber this year. It will consist of shingles, staves, clapboards, laths, deals, etc. The deals will be shipped to England via Halifax.—Outlook, Middleton, N.S.

During the present week a trial was made in Toronto of several street sweepers that are to be shipped to New York, where a public trial will be given before the Street Cleaning Department of that city. The patent sweeper, which is the invention of Mr. John Jones, the Street Commissioner of Toronto, and Mr. Alexander Gillies, who was formerly chief blacksmith, is something similar to the machine which has been used for some time in our own city, but is an improvement on the Toronto machine. The present machines do not reach into the curb, but an attachment has been fixed to the new sweeper whereby it sweeps the street clear right up to the curb, and deposits the dirt in a winnow, and the automatic loader comes along and picks it up. Messrs. Jones and Gillies hold patents on the sweeper and loader, also on the steel broom which is used on the sweeper, and which is the only broom of the kind in America. It is understood that Messrs. Jones and Gillies have disposed of their interest in the machines to Mr. James E. Knox of Toronto, and that gentleman is now engaged in forming a joint stock company in New York for the manufacture of the machines in the United States. None of the cities in the States have anything that can touch the Toronto sweeper, and it is the intention to manufacture the machines in the States, and sell them to the Street Cleaning Departments of the different cities there. Col. Waring, the New York Street Commissioner, has taken a great interest in the new sweeper, and wrote to Mr. Knox, asking him if he would give them a public trial in New York. Three machines were specially built for this purpose, and at the trial on Wednesday they worked perfectly. The inventors are not afraid to operate on the worst street that New York can produce, and if the trial is successful there the company will be immediately organized with plenty of capital at its back. Mr. Knox will go to New York to be present at the trial.

Messrs. T. Pepper & Co., manufacturers of axles, Guelph, Ont., have dissolved. Alexander Smith will continue the business.

The Ellwood City Weldless Tubing Company and the Greenville Tube Company, of Pennsylvania, both of which are the property of Mr. H. A. Lozier, of Cleveland, Ohio., head of the firm of H. A. Lozier & Co., have passed into the possession of a company to be known as the American Tubes Limited, Mr. Lozier retaining a controlling interest. The other stockholders are Englishmen headed by Mr. Arthur Tillingham, of London, England. The two factories mentioned have been making tubing under a new process which it is stated has enabled them to turn out a large quantity of tubing at a cost much below that of other systems. The two factories together employ 1,750 skilled workmen.

LOW WATER 

You may have it in the Summer, or
You may want More Power now

The Crocker Turbine

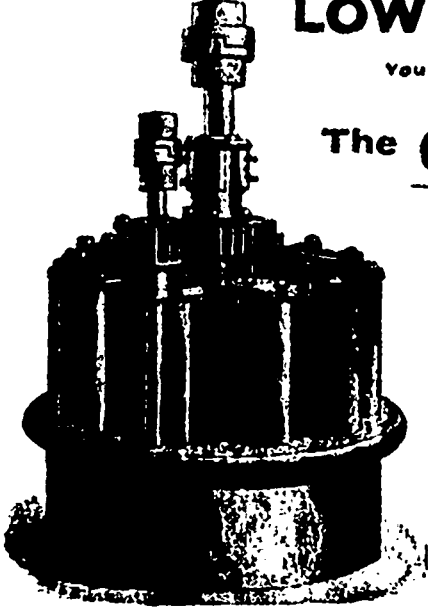
WILL HELP YOU

Perhaps...

You have an Undeveloped Power?
Why not use it?
It will increase Your Income.

Write Us for Descriptive Circular
Address

The Jenckes Machine Co., 28 LANSDOWNE STREET Sherbrooke, Que.



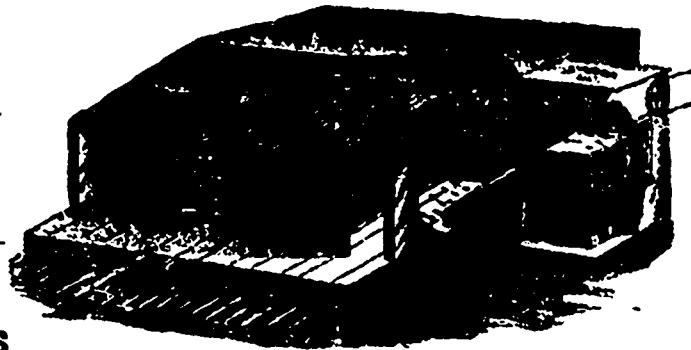
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LITTLE WONDER HOT WATER BOILER for Heating Dwellings.

McEACHREN HEATING AND VENTILATING CO.
GALT, ONT.

The Packard Electric Co., Limited.

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Sole Agents for SCHEEFFER RECORDING WATT METERS
ST. CATHARINES, ONT.

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Manufacturers' Life Insurance Company

Guarantees a stated income for a specified number of years.
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TEMPERED STEEL MACHINE SPRINGS.



SPECIAL SPRINGS of all description to order
and for Upholstery, Furniture, Beds, Chairs, etc.
WIRE, Oil Tempered, Spring Steel and all kinds.

WASHERS

Rhode Island Horse Shoes

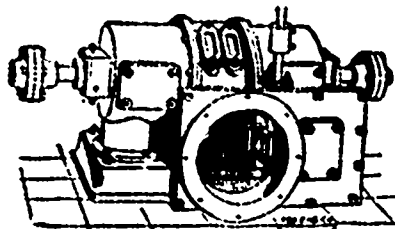
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Pressed Spikes

ABBOTT & CO., - MONTREAL



Horizontal Type.

Water Wheel Governor, Machine Dressed Gearing, Pulleys, Shafting and Bearings.
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BUILT IN 44 SIZES.

We guarantee a higher percentage of power from
water used than any other wheel on the market.

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"Enclosed Arc Lamps"

To burn 150 hours without Recarboning. for Series, Incandescent, Alternating and Power Circuits.

"Open Arc Lamps"

For all Circuits, Single and Double Carbon Lamps.

We are the only concern in Canada making a specialty of manufacturing all kinds of Arc Lamps.

WRITE US FOR PARTICULARS.

Refining works are all that British Columbia needs to enable it to place the products of its ores on the market in their completely-separated and pure state. From its smelters the matte is now shipped out of the country for final treatment. At the Hall Mines works we are glad to see some advances has been made beyond that stage. There copper of a high degree of fineness is being turned out at the rate of ten to twelve tons a day. Being situated on the silver-copper belt, the mines from which the Nelson smelter draws its ore are likely to yield an abundance of copper. That metal is one of the most important in commerce. Last year's exports of it from the United States were worth almost \$20,000,000.—Mail.

Sault Ste Marie, Ont., is agitating for a sewerage system.

The lobster packing factory of H. A. Trenholm, Tiverton, N.S., was burned a few days ago. Loss about \$3,000.

A raft containing 3,000,000 feet of logs recently left Georgian Bay, Ont., for Saginaw, Michigan.

The Montreal Gas Company, Montreal, has secured the exclusive right to manufacture the penny-in-the-slot gas meters in Canada, and have made a contract with Robert Mitchell & Co., Montreal, to manufacture for them two thousand of the machines.

Six companies, including the Standard Oil Company, are buying up oil lands near Dutton, Ont. A number of wells have been bored, and good results obtained.

The trustees of the Church of the Covenant, Toronto, will erect a school-house to cost \$8,000.

A company is being formed in Owen Sound, Ont., to erect an elevator to be operated in connection with the Grand Trunk Railway.

The ratepayers of Ottawa will vote on a by-law to raise \$550,000 to enlarge the drainage system of the city.

The J. A. Sayward Lumber Company will erect a sawmill at Nelson, B.C.

The Toronto Biscuit and Confectionery Company, Toronto, has been incorporated with a capital stock of \$100,000.

The Manitoba Dairy Company, Winnipeg, Man., has been incorporated.

B. F. Honsinger, a cigar manufacturer of St. Thomas, Ont., has imported 10,000 tobacco plants from the Onondaga Valley, New York State, and distributed them among several farmers in different parts of Elgin County, the object being to test different varieties of tobacco in that county.

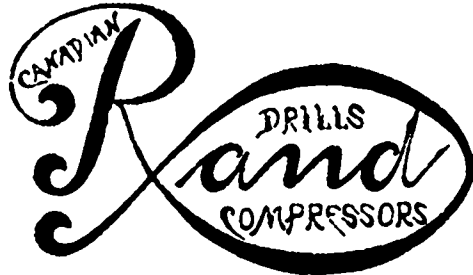
Saller & Haworth Belt and Manufacturers, Montreal and Toronto have just furnished the Hull & Aylmer Electric Railroad with two double leather main driving belts, 130 feet long and thirty-six inches wide.

In a few days the last of the iron work of the new arch bridge, built to replace the old Suspension Bridge over the Niagara River, will have been put in place. The work of removing the big towers which supported the cables has already begun and with their removal all traces of the old railway Suspension bridge will be gone. The woodwork of the new bridge will be completed during July, ready for the official opening on August 1st.

Hon. Mr. Tarte, Minister of Public Works, will spend \$75,000 for fire protection, electric lighting and power generating plant for the parliament buildings, Ottawa. Tenders for the work are to be invited.

The Albion Iron Works, Victoria, B.C., have recently greatly enlarged their works. Besides doing a general machine and foundry business they will enter largely into the manufacture of stoves and ranges.

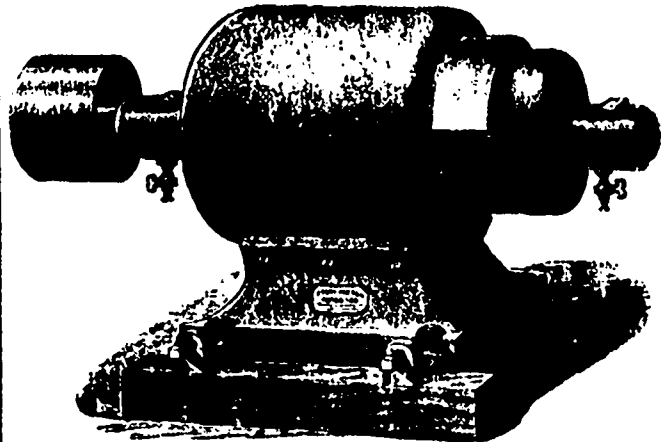
The Canadian Postal Supply Company, Montreal, is being incorporated with a capital stock of \$15,000, to manufacture stamp cancelling machines, and accessories pertaining thereto.



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Storey Motor and Dynamo



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THE STOREY MOTOR AND TOOL CO.

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OIL-CLOTHS OF EVERY DESCRIPTION

Floor Oil-Cloth, Table Oil-Cloth, Carriage Oil-Cloth, Enamelled Oil-Cloth, Stair Oil-Cloth, etc., etc.

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BRASS, BRONZE, PHOSPHOR BRONZE, ALUMINUM BRONZE, COPPER, ZINC and ALUMINUM CASTINGS TO ORDER. Large or Small.

Write for Prices.... **DEAN BROS., 184 Richmond St. West, Toronto**

FERGUSON & PATTINSON

PRESTON, - - ONTARIO.

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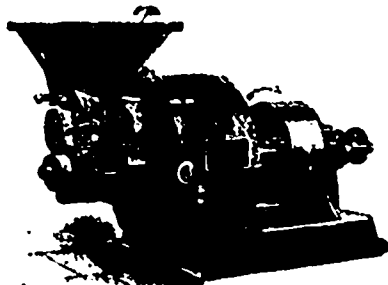
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To Manufacturers

Ability and integrity of the highest degree are possessed by a travelling salesman—now in Toronto for a few days—calling on the wholesale trade of South America (East and West Coasts), and South Africa.

Canadian manufacturers, of unquestioned standing, desiring to be represented through the above countries, will, in the first instance, communicate with

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FRENCH BUHR AND ESOPUS STONES. Sent for Circular. STURTEVANT MILL CO.

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COPPER
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Brewing Kettles, Boiling Coils,
Beer Coolers, Attempartors
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—THE—
BOOTH COPPER CO.
LIMITED,
TORONTO, ONT.
Established 1854.

**VALVES AND
PIPE . . .
FITTINGS**

WRITE FOR LATEST PRICES

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& SON, Limited**
Corner King and Victoria
Streets
TORONTO

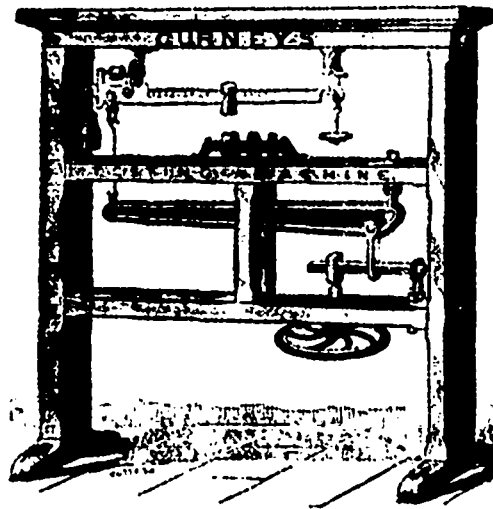
The Quebec Central Railway are having increased heavy shipments of lumber lately to the Levis terminus. Much of the cut along the line from all points, including the Megantic region, etc., that formerly went south through Sherbrooke and to the United States has now been diverted to the opposite direction. Lumber shipped to Levis is mostly for ocean shipment, and what was begun mainly as an experiment on account of the uncertainties of the United States tariff changes, has grown rapidly into a heavy traffic. Shippers by this route are reported as well satisfied with the prices obtained, and are disposed to push business in this direction. Close on to 400 cars have already been delivered in Levis by the Q.C.R. since navigation opened. This is outside of the shipments for local users there. That the total shipments for the season will amount to over 5,000 cars is now confidently expected by the railway people. —Sherbrooke (Que.) Daily Record.

The Brookfield Mining Company recently installed a chlorination plant at their mines at North Brookfield, N.S.

A. C. NEFF, Chartered Accountant. JAMES WOOD, Late Sec. The T. Eaton Co., Ltd.
NEFF & WOOD
PUBLIC ACCOUNTANTS, AUDITORS
ASSIGNEES, ETC.
Room 500 McKinnon Bldg., Toronto

FOUNDRYMAN'S TESTING MACHINE

A Durable and Effective Machine for the Use of Foundrymen in Testing the Strength of Best Iron, and ascertaining the Best Mixture of Iron for any work, thus showing positively which is the Best Iron for the Requirements.
Can be done in a few minutes.
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SUBSTANTIALLY CONSTRUCTED.
HIGHEST CLASS OF WORKMANSHIP.
CAPACITY, 5,000 POUNDS.
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Manufactured by **THE CURNEY SCALE CO.,** Hamilton, Ont.



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FAST COLORS for Wool Dyeing.
One Dip Cotton Colors, Novelties
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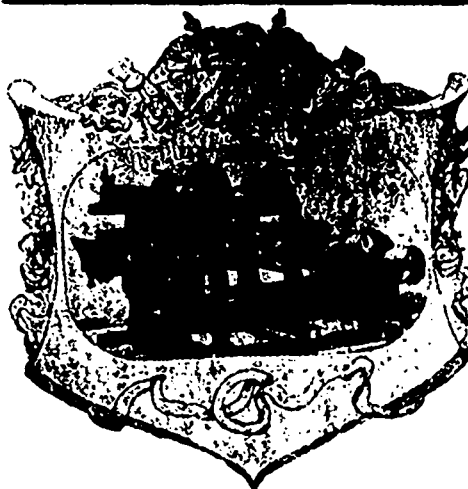
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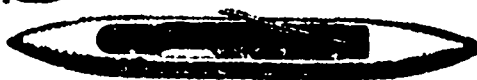
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6 TIMES

the strength of any other is what I claim for my **Anti-Scale Boiler**

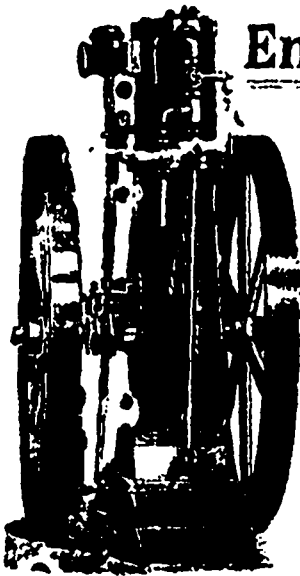
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Engine



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For any Young Man or Woman is a

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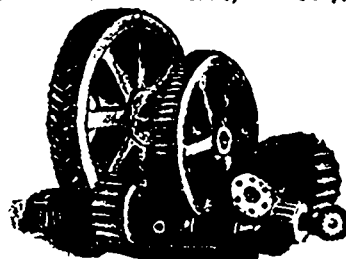
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W. H. SHAW, Principal.

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Patterns and Molds in wood or metal of every description made to order. The largest and best equipped pattern shop in Canada, and employing the largest staff of skilled workmen of any one in the trade. Telephone 2872. 89 Wellington St. W., TORONTO.

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Boiler Makers, OTTAWA, ONT.

SPECIALTIES.

Machinery Brushes for woollen and flour mills, jewelers, shoes, breweries, dairies, platers, foundries, and all machinery work; old rollers refitted.

Frank Wehrle & Co.,
Brush Manufacturers,
134 Bay Street, Toronto.

Messrs. Cowan & Co., Galt, Ont., recently shipped a large consignment of machinery to British Columbia.

The smelting works will re-open on Monday, and it is expected that nearly 200 men will be employed. The statement is made that orders are in for twelve months' day and night work. — Hamilton Spectator.

Messrs. Killer & Schaefer, who purchased the furniture factory of A. E. Klippert & Co., Waterloo, Ont., have taken possession, and will begin operations as soon as possible. They will manufacture fine lines of furniture, making a specialty of chairs, tables, etc.

The drying house connected with Warren Curtis' sawmills at Three Rivers, Que., was damaged by fire a few days ago.

The Robb Engineering Company, Amherst, N.S., a few days ago received an order from Ganong Bros., St. Stephen, N.B., for a 100 h.p. boiler.

Gas has been struck on a farm belonging to David Kitts, near Tilbury, Ont.

The Jencks Machine Company, Sherbrooke, Que., a few days ago shipped another car load of machinery to the Sultana mine, Lake of the Woods district, Ont. There are several more carloads to follow.

The Waterous Company, Brantford, Ont., a few days ago sold a hook and ladder truck and two chemical fire extinguishers to the town of Blenheim, Ont.

Contracts amounting to \$11,997 for improvements at the Industrial Exhibition grounds, Toronto, have been let. Among the items is \$4,074 for an addition to Machinery Hall.

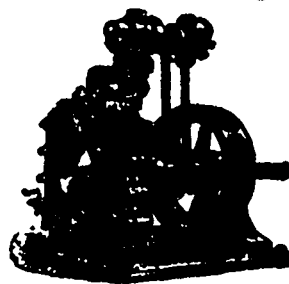
The McEachron Heating and Ventilating Company, Galt, Ont., recently received an order for one of their improved dry lins from the Uxbridge Piano and Organ Company.

The Pembroke Navigation Company, Pembroke, Ont., has been incorporated with a capital stock of \$40,000.

The Fraserville Company, Fraserville, Que., has been incorporated with a capital stock of \$50,000 to develop water power at Fraserville, and to manufacture wood pulp, etc.

The Dake Engine

For Running Dynamos in



Small Isolated Plants.

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STEADY AND EVEN MOTION,

ALSO FOR

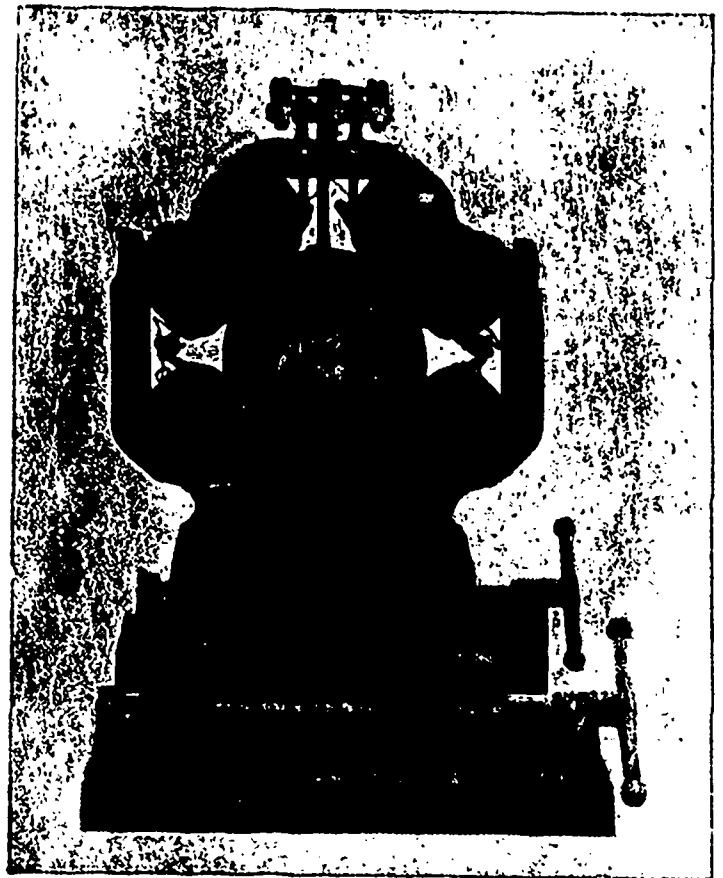
Attachment Direct to Fans, Blowers, Centrifugal Pumps, Stokers, Steering Gear, Etc.

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Phelps Machine Co'y,
EASTMAN, P.Q.

NEW DIRECT CURRENT MULTIPOLAR DYNAMO.

The Electrical Construction Co., London, Ont., are just placing on the market a new type direct current multipolar dynamo, wound for 110, 250 and 500 volts. The description of this machine sent us by the Company is as follows:—
 New type of direct current, multipolar dynamo, represents and contains the best and latest electric engineering practice in this class of apparatus. A minimum number of parts are employed in the construction of the machine, and all the mechanical details are so perfect in design that absolute interchangeability of parts is obtained. The field magnets are made from a special quality of cast steel, and the metal is so placed, and so used, that there is no choking of lines at any point of the magnetic circuit; nor has any attempt been made to work the magnetic frame to its full limit of saturation. The shunt and series coils are wound up separately, and are secured to the pole pieces by suitable clamps. The slotted type of armature is used in this machine. The coils are so designed and placed in the armature that they are interchangeable at every point. They are of equal length and ample conducting capacity. The commutator is very large and designed for the use of carbon brushes. The carbon brushes are so constructed that the contact between the carbon and the machine terminals is through a flexible conductor strip clamped securely to the carbon brush. This design prevents, absolutely, arching between the brush and its holder. This bed-plate is made in one piece, and is very stiff and strong; it supports the barrel bearings of the armature, which are of the self-aligning and self-oiling type.
 Points of excellence claimed for this dynamo are:—
 Neat finish and general appearance. From no load to full load without sparking. Splendid ventilation for heavy overload, without injurious effects. Coil-wound armature; easily repaired. Cast steel field magnets; high efficiency. A high-class machine, at a reasonable price.
 This dynamo is manufactured in the following sizes, viz.: 4 k.w., 7½ k.w., 15 k.w., 20 k.w., 30 k.w., 40 k.w., 60 k.w. Prices and catalogues sent on application.



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 318 ST. PAUL ST., MONTREAL, QUE.

Kemp Mfg. Co.
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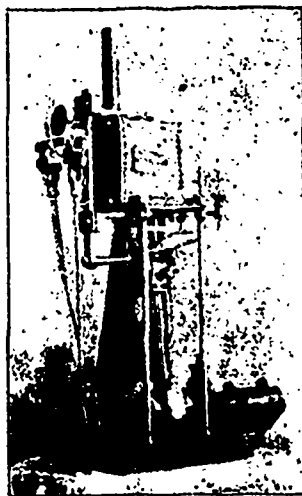
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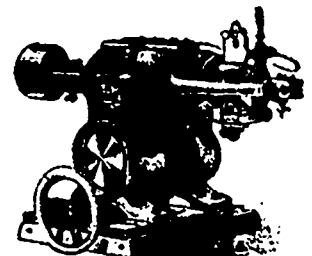


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CANADA—AUSTRALIAN TRADE.

Prior to her departure from Sydney for this port the R.M.S. Aorangi was the scene of an interesting banquet given by the owning company in honor of the addition to the Canadian-Australian fleet. Mr. R. Grayson, agent for Mr. Huddart, occupied the chair, and among those present were members of the government and representatives of the Merchants' Exchange and Marine Board, as well as of shipping interests generally. In replying to the toast of the owning company—given by Mr. Cook, the Postmaster-General for the Colony—Mr. Grayson referred to the numerous difficulties which had been confronted and overcome by Mr. Huddart in the establishment and maintenance of the Canadian line, and to that gentleman's firm belief in the large potentialities of the service to Great Britain, via Canada, and felt if success was not immediately reached it would be reached in the near future. It was that feeling which after four years of struggle had decided the company to place on the line the Aorangi. They had acquired her with a reputation in the service between London and New Zealand which was second to none. It would be found, he thought, that the vessel had sufficient speed to perform the mail contract to the satisfaction of the Postmaster-General, and he ventured to say that once she had settled down to the service on the Pacific she would surely make a reputation which would lead to increased travel in the service. Already the passenger list to Canada was greater by fifty persons than that of any vessel previously dispatched. The arrangements made for freights were also satisfactory and full of promise.

He said that on the next voyage of the ship they intended to make a departure by calling at Wellington, (N.Z.), and hoped in that way to secure a still larger trade and increase the business of the company. In conclusion, he called upon the Hon. J. S. Larke, the commissioner for Canada, to speak.

Mr. Larke congratulated the company on the addition to the fleet, which for strength and power, speed and elegance of equipment, compared favorably with the finest ships which left Sydney for Great Britain. These were indications that the trade between the two great colonies of the Empire was growing. They in Canada were satisfied, as since the ships had been running their trade to Australia had quadrupled, though he regretted to say that from Australia to Canada had not increased in like proportion. Canada, he said, was contributing the principle part of the subsidy, viz., £25,000. The general policy of Canada was to foster trade with the Empire, in proof of which he referred to the proposal recently made in the Canadian parliament. In conclusion, he trusted that prosperity would reward and encourage enterprise and skill.

A number of other toasts were honored, and the proceedings concluded with general congratulations to the hosts.—Victoria, B.C. Colonist.

THE WESTINGHOUSE ELECTRIC MANUFACTURING COMPANY.

At the recent annual meeting of the shareholders of the Westinghouse Electric and Manufacturing Company, the annual report was read, showing the condition of the Company to be a prosperous one. An announcement was made about what was claimed to be the largest contract for electrical apparatus that has ever been given out

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Manufacturers of

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PIG IRONTHE . . . DOMINION WATER
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Economy in Use of Water, Great Power
Equal Efficiency at any Gate-Opening
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Sensitiveness to Change in Gate-Opening
Ease for Regulation by Governor
Strength and Durability
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Not Clogged by Ice
Accessibility to all Parts

ST. CATHARINES,
February 9, 1897

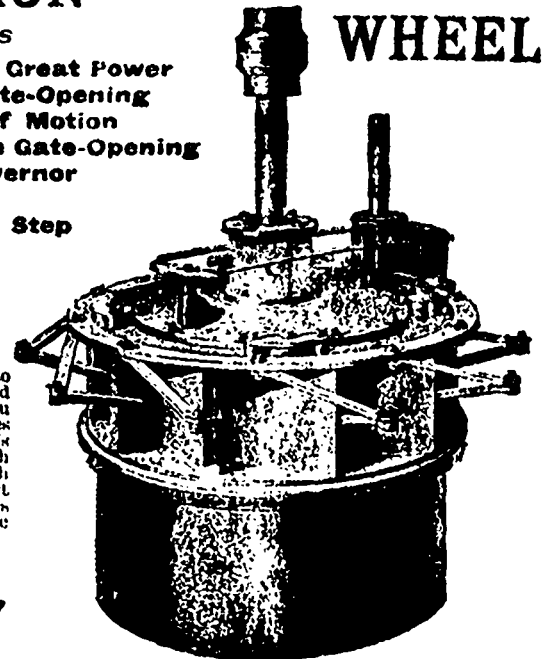
Messrs. Wm. & J. G. Greey,
Toronto.

GENTLEMEN: Your favor of the 5th to hand. Have been away from home, and hence delay in answering your letter. You ask us how your Dominion Wheel compares with the . . . Well, sir, the comparison is this—we have been using two . . . 38 inch diameter, double wheels, and your 54 inch Dominion wheel we put in December last gives us as much power as both, and does not use but very little more water than one of the 38 inch wheels. Yours truly,

COOKE & SON.

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WM. & J. G. GREEY
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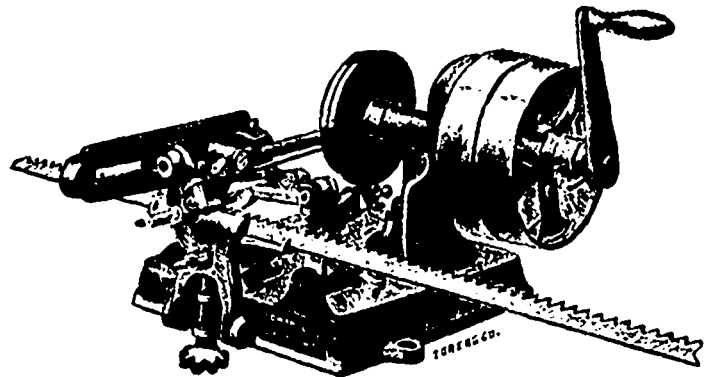


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...Manufacturers of...

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Heaters and Purifiers. We make the Best. Write and Get Our Prices

Toronto Warehouse, - - - 160 King Street West

and which had been secured by the Westinghouse Company. The announcement was to the effect that the St. Lawrence Construction Company of New York, had awarded to the Company a contract for fifteen 5,000 h.p. generators, which are to be erected at their plant at Massena, northern New York. This is the largest single order ever given for electrical apparatus and the amount directly involved is about three quarters of a million dollars.

This contract together with that recently given by the Cataract Construction Company, of New York, for five 5,000 h. p. generators for installation at Niagara Falls, N. Y., makes a total of twenty 5,000 h. p. generators, having a total capacity of 100,000 h. p. which have been ordered from the Westinghouse Electric and Manufacturing Company this year.

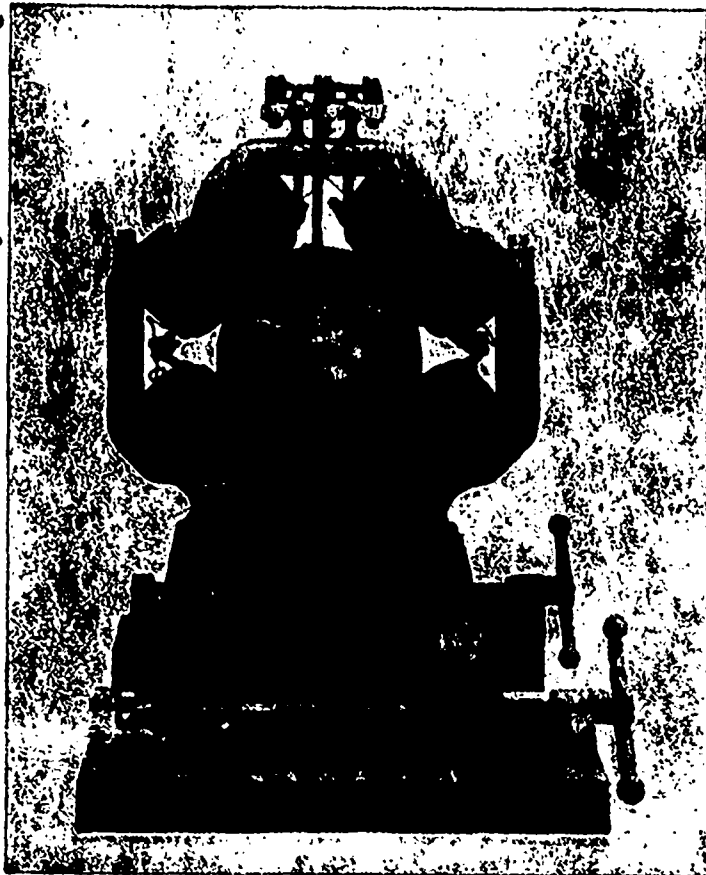
The five generators for Niagara Falls are well under construction, and the other fifteen required by the St. Lawrence Company will be immediately proceeded with and their construction will give employment to a large number of men.

These orders cover only the apparatus for generating electricity, and there will necessarily be required other apparatus of equal capacity for the utilization of the electrical energy produced by these great generators, and the Westinghouse officials expect that a large proportion of the additional apparatus will be ordered from their company by reason of their having already secured the contract for the principal apparatus.

The placing of these recent important contracts has undoubtedly resulted by reason of the great success of their three 5,000 h.p. generators already installed at Niagara Falls, coupled with the fact that the Westinghouse Electric and Manufacturing Company has ample facilities for turning out such large work promptly and satisfactorily.

The Electrical Construction Co.,

OF LONDON, Limited, - LONDON, CAN.



New Type Direct Current Multipolar Dynamo. Made in 110. 250 and 500 Volts

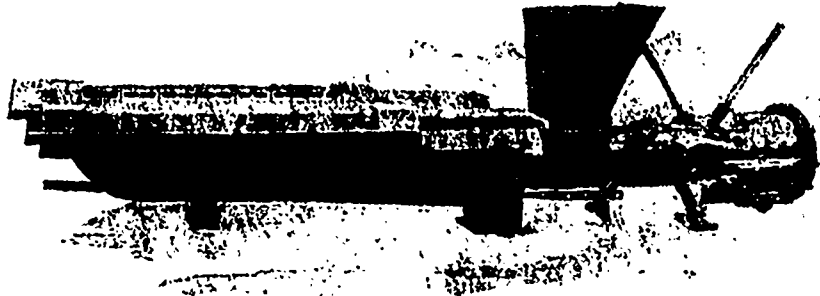
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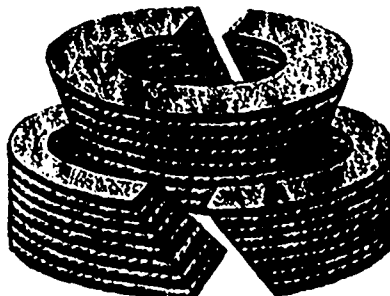
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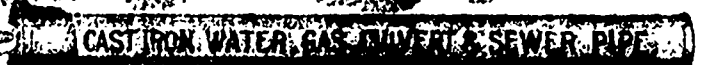
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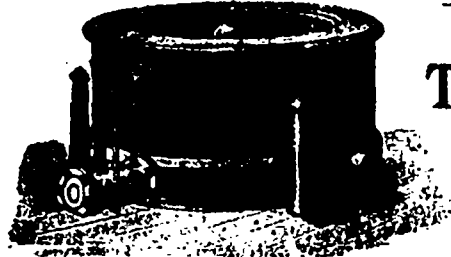
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Oakey's Flexible Twilled Emery Cloth.
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SODA ASH, all strengths.
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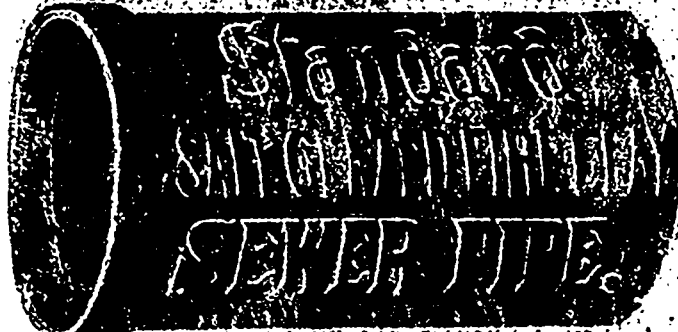
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