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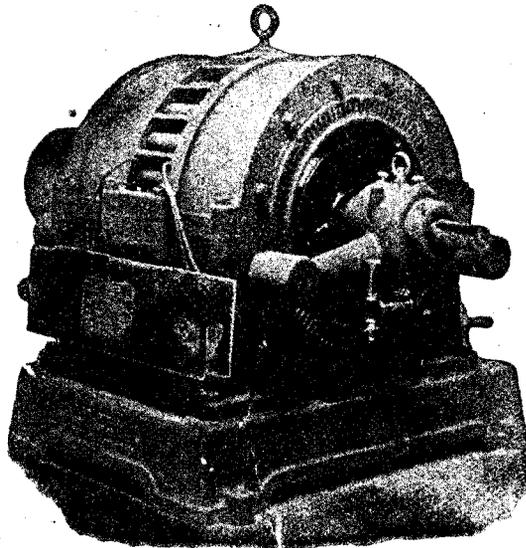
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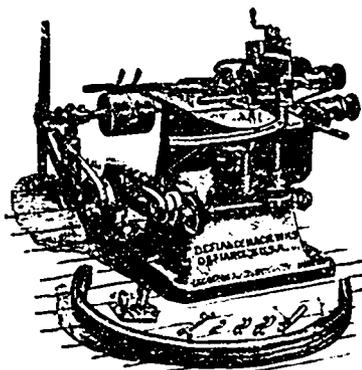
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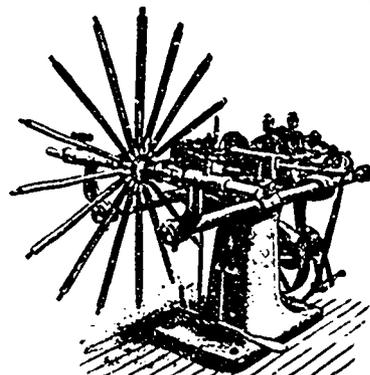
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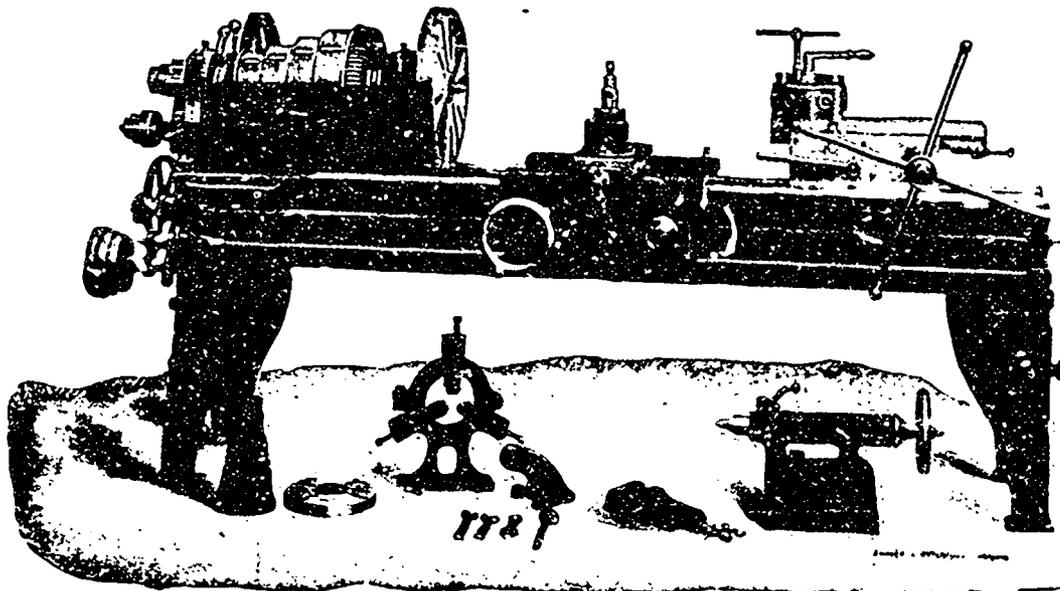
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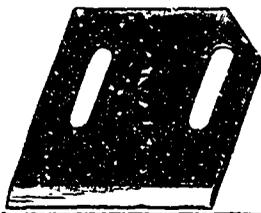
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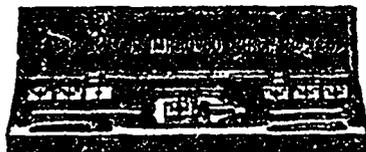
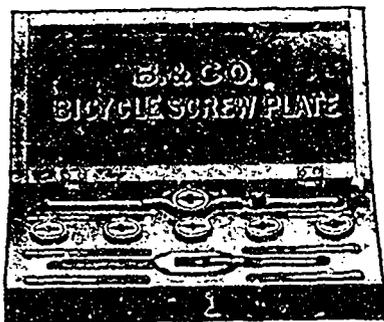
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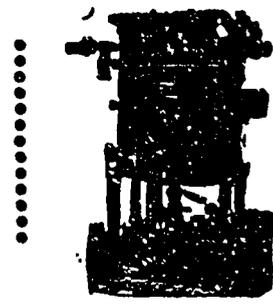
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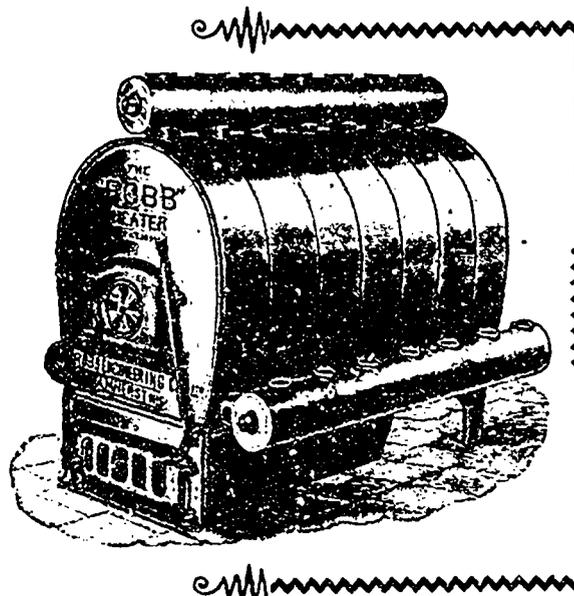
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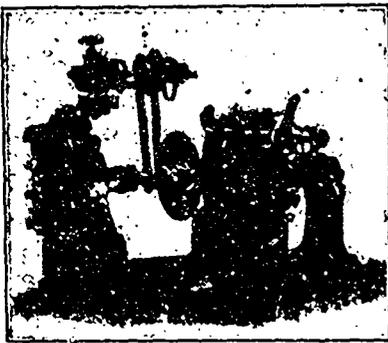
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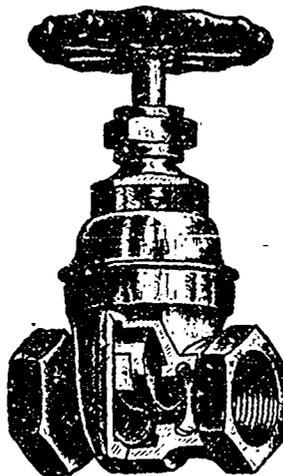
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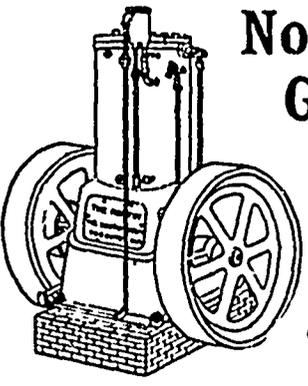
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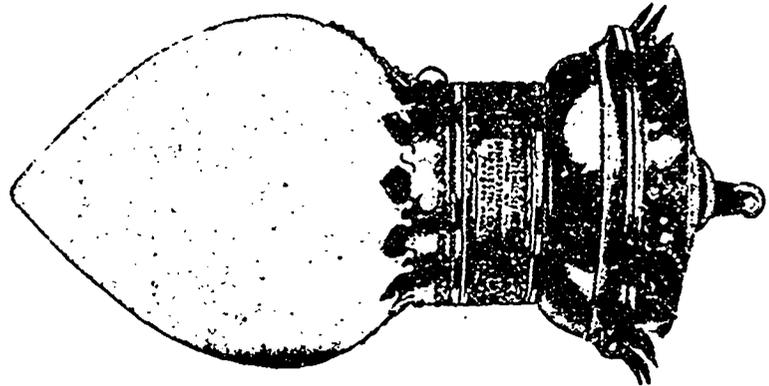
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The Canadian Manufacturer Publishing Co., Limited.*McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.**J. J. CASSIDY, - - - Editor and Manager.**W. B. HOPE, - - - Business Representative.***J. O. MORRISON, Jr.,** Winthrop Building, Boston, Mass., Sole Agent in New England States, Philadelphia, Penn., and Baltimore, Md.**C. A. G. BROWNE,** 145 Fleet St., London, E.C., Eng., Sole Agent in Great Britain.**THE INTERNATIONAL COMMISSION—IMPORTANT TO CANADIAN MANUFACTURERS.**

At the request of the Executive Committee of the Canadian Manufacturers' Association, Hon. N. Clarke Wallace, M.P., is now at the City of Quebec, where he is in attendance upon the British and Canadian Commissioners to the International Commission now in session there, to give them such information as they may require regarding the manufacturing industries and the trade and commerce of Canada. Mr. Wallace possesses extensive knowledge of these things, and the Association have the utmost confidence in his ability and discretion.

Mr. Wallace is domiciled at the Hotel Frontenac, Quebec, where he will remain during the continuance of the Convention, and will be glad to correspond with any members of the Association regarding matters that they may desire to have presented to the Commissioners, and to confer with those who may visit Quebec on such business.

Further information and particulars may be had by applying to Mr. J. J. Cassidy, Secretary of the Association, McKinnon Building, Toronto.

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There is but one principle which can be followed in making mutual trade concessions. No industry of either country can be permitted to suffer real loss. At the same time, incidental inconvenience to particular interests should not be permitted to stand in the way of an arrangement which will be of great and mutual advantage. The basis of such an arrangement would seem to be exclusive preferential rates for certain products of the two countries in each other's market. This would mean that the United States would expect to be given something more than the preferential rates accorded to Great Britain. How the Canadians will solve this practical problem is not very clear, but if they are convinced that reciprocity with the United States will be the boon, which seems probable, they will find a way. They have the most to gain from the removal of some of the tariff barriers between the two countries.—Buffalo Express.

Our esteemed contemporary closes an editorial on "Reciprocity with Canada" with the above extract, but it labors under the misapprehension in common with a large number of other American as well as Canadian journals, that Canada is frantic to effect some sort of commercial reciprocity with the United States, which is not the fact. Time was when we had reciprocity of a sort that lasted through a dozen years, and because our American friends thought that Canada was gaining some advantage from it they abrogated it. There is considerable difference of opinion as to which country gained the most by that arrangement, but be that as it may, times have changed very much since then, and to-day there seems to be no real necessity for Canada to plunge into an arrangement that cannot possibly be made except at the sacrifice of our manufacturing industries.

There is this to be said regarding the preparedness of the two countries to enter into reciprocal commercial relations with other countries: The United States prepared the way by the enactment of a tariff of the most pronounced character—a tariff that placed almost prohibitive duties upon about every foreign article, leaving good leeway by which concessions could be made and still preserve the extravagant feature of it. On the other hand Canada prepared the way by reducing the duties, and now, when the time has come when a reciprocal arrangement between the two countries is proposed, we find the United States prepared to make a slight concession, while Canada, having gone as far as possible in that direction, has nothing to concede except to throw her doors wide open.

Knowing our friends as well as we do, and looking forward to the time when reciprocity was to be discussed, it would have been wise on the part of the Canadian Government to have taken the United States tariff as its standard, and from which concessions could be offered equal to those that that country might be willing to give, and no more. This would be a sensible basis upon which to work, and upon which Canada would have been in a position to demand and obtain a reciprocity that would be reciprocal and even sided, or we could dispense with the article.

Undoubtedly The Express reflects the true sentiment of the American people, and upon which their Government is inclined to act, when it tells us that the basis of any reciprocity that would be acceptable to them would be exclusive preferential rates for certain products of the two countries in each other's market, which would mean that the United States would expect to be given something more than the preferential rate accorded to Great Britain. We do not think that Canada is quite ready for reciprocity on such terms. The advantages we have already given the United States in reduced tariff rates has resulted in an increase of imports from that country valued at millions of dollars, while our increased rates of duty affecting British products, from which a discount of twenty-five per cent. is allowed, do not result in any increase of trade with the Mother Country. Our American friends, however, are not willing to negotiate on a basis of equality with Great Britain, but actually propose that the only concession they will concede to us is that they shall have even better rates than we allow that country. This, we hope, they will never obtain.

We can assure The Express that Canadians are not worrying themselves in trying to solve the problem of reciprocity. They are convinced that equitable reciprocity is not to be had.

They will never consent to give any preference to the United States that is not to be enjoyed by Great Britain. They think that it is better to leave matters as they are. We do not want any such reciprocity as our friends are willing to give.

RECIPROCITY.

The time is past, if it ever existed, for annexation; it is equally past for unrestricted reciprocity on the lines of any reference for this country; but the time has come to consider on the broadest and most liberal terms, what can be done toward helping each other to make the most and get the largest benefit for this generation from a commerce that might be continental in extent and continentally in profit.

ERANTUS WIMAN.

The above is the concluding sentence of a letter printed in an American newspaper, written by a man as well known in Canada as in the United States. Mr. Wiman was discussing the possible outcome of the negotiations now being carried on at the city of Quebec between Commissioners of Canada and Great Britain on one side and of the United States on the other.

In considering the question of a closer relation between Canada and the United States, that possess this continent in common, Mr. Wiman calls attention to the new and somewhat startling changes that have occurred in recent years. He says:—

These it is most important, should now be understood, especially by the American people. The first of these is that there should be completely and forever dismissed the supposition that there is now any political union possible between the two countries. The annexation of Canada to the United States, whatever in the past might have been its probability, is now simply an impossibility. When it is realized that Canada forms no less a proportion than forty per cent. of the area of the British Empire; that it is not only the largest, but the nearest colony to Great Britain; that the integrity of the British Empire is now more essential than ever; and that, further, in every relation which a Motherland can hold to a national offspring there is complete satisfaction and unity, with an appreciative loyalty on the part of the Canadian people which nothing can exceed—it is simply folly to let the question of annexation have any standing whatever in the discussion of the relations between the two countries.

No commercial policy, however drastic on the part of the United States; no isolation possible by geographical conditions; no cessation of communication by repeal of bonding privileges or other limitations; no one thing that the United States can now do, can change the sentiment of the Canadian people in their attachment to Great Britain. They are steadfastly loyal to their present political condition.

Mr. Wiman thinks that the circumstances surrounding Canada in 1898 are very different from what they were during the period 1854-66, when there was reciprocity between the two countries. He says:—

Another thing to bear in mind in this connection is that the Canada of to-day is vastly different from the Canada of 1854, when the Reciprocity Treaty of that year was inaugurated. If, at the repeal of that treaty in 1866, she could stand the rebuff at the hands of the United States that she then met with, she is much more competent to stand alone to-day. If, in 1866, a practically sudden cessation of commerce with her best customer could be borne without even so much as a faltering of fealty to Great Britain, Canada can to-day, by the progress she has made, by her self-development and her magnificent strides in foreign commerce, sustain herself, even though her trade with the United States is limited to its present volume. She is more self-contained and self-supporting,

and the growth of her commerce with the Mother Country has put her in such a position of independence, that not only her loyalty, but her ability to sustain herself and make a profit is infinitely greater than it was at the expiration of the old reciprocity treaty. More than this, the spirit of her people has been roused to a resolution of independence—not an independence of Great Britain, which, perhaps, at one time was possible, but an independence of the United States, resulting from the unnecessary and unjustifiable exactions finding their severest illustrations in the agricultural sections of the McKimley and Dingley tariffs.

Mr. Wiman tells us how public sentiment has changed both in Canada and Great Britain on a subject regarding which the United States is strangely unfamiliar:—

Not only must the question of annexation be entirely removed from the discussion, but the question of even a commercial union, as complete as that which exists between the States, would now seem to be remote. The time was—and that not long ago—when it might have been possible to convince a majority of the Canadian people that great advantage would flow to them if they admitted American goods free and kept a tariff on British goods, provided they were compensated therefor with an equally free market in the United States. The attractions of the American market, and opportunity to supply 70,000,000 people in exchange for what 5,000,000 would consume, might have seemed sufficient to induce the breaking down of the commercial barrier that separated the two nations. This might have been the case especially had Great Britain urged no objection, as she might not then have done, to a discrimination against herself, in view of the fact that such a discrimination was but an extension of the privilege granted to Canada to shut out British goods by a tariff so high as to protect its own manufactures against English competition.

But whatever might have been vainly imagined as possible ten years ago in the direction of annexation; whatever might have resulted from the strong sentiment which was certainly developed for a real unrestricted reciprocity, a complete and perfect change has taken place. Not only has a widespread revolution occurred in public sentiment in Canada, but in Great Britain the growth of the imperial idea respecting the colonies has completely changed the sentimental relation in respect to them. Perhaps because of the isolation of Great Britain from other powers, and the necessity for strengthening the bonds that unite the distant portions of the empire more closely; perhaps from a desire to increase the supplies of food and bring them more under her control than is now possible—from various causes and influences the result has been that never before in history has been witnessed a closer union in sentiment than now exists between the mighty empire of Great Britain, occupying so widely scattered and so large a portion of the world's surface. So far as the effect of this upon Canada is concerned, the revolution has been all the more complete because of the commercial hostility displayed by the United States towards her neighbor. It is needless to recount the various acts, exactions and consequences that have resulted from the policy of hostility that both countries have pursued in the last few years. This certainly is the result: that both the changed attitude of Great Britain on the one hand and the apparent continued hostility of the United States on the other, has caused a reversal of policy and sentiment in Canada so complete that a real commercial union or unrestricted reciprocity would now seem impossible. This policy in Canada finds its illustration in preferential duties towards Great Britain instead of against her; and instead of offering to the United States, on account of its wide market, any advantages in the shape of commercial union, the best that could now be done would be to be placed on terms of perfect equality with the Mother Country.

He thinks that Canada is no longer impeded by its swaddling clothes, but is quite able to take care of its own interests:—

Aside from these changes in sentiment and policy, the com-

mercial condition of Canada presents a contrast most marked, compared with that which existed at the time of the repeal of the old reciprocity treaty. Not only has there been developed within the Dominion a large growth in manufactures in almost every form of activity, but the progress of foreign trade has been most remarkable. While Canada has a population of only one-fourteenth that of the United States, its foreign trade is now one-seventh of that reached by all the ports of the enormous sea-coast line on both coasts of the United States. When it is recalled that the sole Canadian port is open only seven months in the year while those of the United States are open the year round, it is a remarkable showing to be able to claim a trade of one-seventh by a people forming only a proportion of one-fourteenth. Last year the volume of trade with outside regions from Canada reached the respectable figure of \$301,000,000; and notwithstanding an increase in imports from \$119,000,000 to \$140,000,000 the balance of trade in favor of the Dominion was \$20,000,000. This latter is a proportion per capita of the greatest significance as to future possibilities.

Compared with the years when the repeal of the old reciprocity treaty seemed a death blow; and subsequently when the dreadfully drastic measures of a practically prohibitory tariff with the United States were sufficient to paralyze commerce with her nearest neighbor, Canada might have been considered easy game for capture by the American statesman. But today a picture is presented of a vastly different character, and one that it will interest the American people carefully and respectfully to contemplate.

He reviews the situation, having reference to saw logs and wood pulp, and thinks that in its first wealth Canada has a good thing that ought not to be thrown away. He says:—

The exhaustion of timber in the New England, Middle and Western States has been more rapid than the exhaustion of any other great national asset. It is startling to realize that to day there is less standing timber in these States in proportion to population than there is in Germany. The latter is a finished country, with a provision of homes more or less complete. The United States is a new and rapidly growing country, with a demand for homes now more pressing than ever before, and with treeless prairies of vast extent yet to be peopled. For the manifold uses of wood there is hardly any limit in all industries, and even this universality of use has been greatly augmented by the use of pulp for paper. In the need of a supply of spruce alone for this business, a revolution has been effected of great moment to this country and to Canada, from which alone now a supply can be cheaply afforded. With the exhaustion of the timber forests of Michigan; with only a cut of six years remaining in Wisconsin; with large inroads upon Minnesota—what remains in the shape of a source of supply except the Southern State, distant by dear land carriage, and more costly year after year by exhaustion?

In the presence of such a condition of the essential limit of wood supply, American manufacturers of timber in Michigan and elsewhere sought the forests of Ontario and Quebec; and taking advantage of the liberal laws of Canada, possessed themselves, under leases, renewable each year, of timber limits covering literally thousands of square miles. This was cut into and the logs conveyed across the lakes in large rafts for manufacture in the United States—the tariff of which in the meantime, however, shut out of this market the Canadian manufactured lumber by an almost prohibitory duty of \$2 a thousand feet. In other words, a tax or tribute was exacted from the American consumer of Canadian lumber equal to \$3 on every wagon load. Meanwhile, logs being admitted free, the American manufacturer had the Canadian manufacturer at a great disadvantage. Was it, therefore, any wonder that a popular movement in Ontario took the shape of not alone putting an export duty on logs, but an absolute prohibition of export? Under an absolute impossibility of procuring supplies of raw material or logs for lumber and pulp from Ontario, what is the position to-day of the American manufacturer and sawmill owner? And equally so, what is the prospect for the

paper maker and the newspaper publisher? The Government of Ontario to-day, and not the Dominion Government, holds the key to the lumber situation so far as the Northern States are concerned. The large Canadian owners of timber limits and the great lumber manufacturers and dealers realize the strategic position they occupy; and as they are powerful in their influence upon the Government—having the people behind them—their demand seems a reasonable one that a free market for lumber in the United States is the only compensation they can accept for free logs. Indeed, "free logs for a free market" was only agreed to at a recent meeting of the Ontario Lumbermen's Association in a treaty with the United States of the broadest character. If the consideration of the question had been confined to lumber alone, and agricultural and other interests had not been affected by the proposed arrangement between the two countries, the interest of the timbermen of Canada would find its greatest profit in letting the American consumer pay his \$3 a load into the Federal Treasury as tribute for getting a supply of lumber no where else to be got. The lumber trade has been pushed with such success into the markets of Great Britain, the Continent, South America and the West India Islands; and the manufacturers are selling so largely sashes, doors, woodenware and furniture abroad, and, moreover, they are so conscious of their superior position of supply, of unlimited waterpower and an increasing demand from the United States, that they have grown indifferent to a free market in the United States, unless it includes the free admission of all manufactures of forest products.

Mr. Wiman speaks of the advantages that would accrue to both countries by reciprocity in coal, and in discussing the fish question says:—

However changed may be the situation in respect to lumber and in respect to coal, the question as to the existence of a continued duty on fish has undergone an equal change. When the old reciprocity treaty and recent tariffs were enacted, the fish industry was confined mainly to the Atlantic Ocean and the Gulf of St. Lawrence, but any contemplation of the subject now must include supplies from regions hardly then dreamed of. It is said that eight acres of land cannot sustain life to as great an extent as one acre of virgin sea area. If this is the case, the future possible supply of food from Hudson Bay, 1,000 miles long by 600 miles wide, opens up a possibility of human food of vast magnitude, especially as it has never yet been made tributary to human life. The great lakes of the north, the long rivers within the Canadian lines (said to include more than half the fresh water of the globe), and the great coast line of the Pacific, so long that it equals that from Florida to Main on the Atlantic; the salmon rivers, so crowded in the season as to present an almost solid mass of fish—indicate a possible source of food supply of the greatest value to this country. If this statement was made, that a sustentation of human life was possible from the great inland seas of Canada, equal to that possible from the great prairies of the United States, would it not seem to be the utmost folly to shut out this supply by a tax of a half a cent a pound for the benefit of a few fishermen in Gloucester, Mass.? If the entire interests for whom protection on fish is enforced were supported at the best hotels in Boston, it would not cost the country a tithe of what it is likely to lose, unless free fish is made one of the certainties of the Quebec conference.

The milk in Mr. Wiman's coconut seems to be condensed in the concluding portion of his letter in which he says:—

And if, in addition to the exchange of natural products, there was added an equally free exchange of manufactured articles from these products, a new field would open up on both sides of the border. It is difficult to see how Canada can now discriminate against articles which England can export. Taking in all things which cannot be supplied by Great Britain it is likely that the Canadian Government would be glad to make an arrangement so liberal that a great trade between the two countries would spring up. A respectable

list of manufactures was included for free exchange in the reciprocity treaty negotiated by the Hon. George Brown in 1867 and agreed to by the American Executive. The treaty failed of confirmation by the Senate, as every other treaty has failed for the last thirty years that looked to any better relations between the two countries. But, perhaps a better day dawns, and the list in the Brown treaty, amplified as it might now be, would enormously increase the trade relations between the two countries for the benefit of both.

To which every Canadian manufacturer dissects. Our manufacturing industries must not be sacrificed to Yankee greed.

SHOULD STATIONARY ENGINEERS BE LICENSED?

At the convention of Stationary Engineers held at Pittsburgh, Penn., a few days ago, a question was brought which has long been agitated by this class of workers. That was the question of securing a state law for the licensing of engineers. For several years past numerous efforts have been made by the organization in different states to get such a law passed, for the purpose, as they say, "of preventing incompetent and unskilled engineers from competing with good workmen." A committee on license, which had been appointed for the purpose of getting data on the present laws and the scope of the association's influence, made its report. The committee recommended that each State make its own law in regard to license, as the law of one State would not do for another.

Regarding this effort The American Manufacturer says:—

While there is a great deal to be said in favor of a law licensing stationary engineers, the argument advanced by the organization mentioned is hardly a strong one. If the engineers move for a license law merely to protect them in their employment, they will not be successful in their efforts. We are aware that the National Association of Stationary Engineers is not a labor organization and perhaps it has been somewhat incorrectly reported in this matter, but the reason given for the enactment of a license law sounds a great deal like the arguments advanced by the average labor union. It cannot be denied that there are several good reasons why there should be State laws requiring an examination of the men who have stationary engines in their charge. The United States

regulations require that engineers running the smallest steamboats on our rivers shall pass an examination, and be duly licensed as a measure of public safety. The engineers employed in city industrial establishments have far greater responsibilities, so far as the safety of life is concerned, for there are steam plants hidden under city sidewalks that could do a great deal of damage in the hands of careless or incompetent engineers. The time will doubtless come when it will be necessary to license this class of engineers by a State law, as it is now done in some cities by municipal regulations, but it will be done for the sake of public safety and not to assist a class of workers in holding employment.

This matter applies with equal force in Canada. The Canadian law, like the American, requires that engineers having charge of the engines of even the smallest steamers shall be licensed and that only after a proper examination, while those having charge of stationary engines are under no such restraint. One very seldom hears of the explosion of a steamboat boiler, but the explosion of boilers in sawmills and factories, threshing machines, etc., is of common occurrence; and thousands of unsuspecting persons pass daily along streets beneath the surface of which are steam boilers not always in the charge of skillful, sober and proper engineers. This ought not so to be.

FREE TRADE AND DIRECT TAXATION.

The Buffalo Courier is in many respects like the Toronto Globe—in favor of the greatest possible reduction of duties, and they are unlike in that The Courier is not in favor of stamp taxes, such as now prevail in the United States, while The Globe is very much in favor of direct taxation. The Courier says:—

What the country needs is not heavy internal revenue taxes, but lower duties, which will increase revenue and remove trade restrictions at the same time. The people will not tolerate many stamp taxes in time of peace. They are not only a direct assessment on business operations, but are extremely inconvenient. The people of the United States are in a hurry. That is their chronic condition. They have no time to lick stamps where it can be avoided.

To which The American Economist makes reply as follows:—

This is the Democratic idea of how to make a country prosperous and happy. Increase the revenues by increasing the

BUSINESS FAILURES IN CANADA.

The following is Bradstreet's list of business failures in the Dominion of Canada and Newfoundland for nine months in three years, with assets and liabilities:—

	NO. OF FAILURES		ASSETS.		LIABILITIES.	
	1898.	1897.	1898.	1897.	1898.	1897.
Ontario	545	679	\$1,517,731	\$1,809,232	\$3,224,552	\$4,221,222
Quebec	330	335	302,000	1,523,611	2,676,313	4,751,825
New Brunswick	60	45	171,876	110,620	352,490	237,850
Nova Scotia	100	137	231,321	235,722	532,215	617,012
Prince Edward Island	4	8	21,100	26,830	33,900	61,702
Manitoba	21	38	144,795	205,297	312,085	405,729
Northwest Territory	4	7	21,000	35,700	51,900	65,312
British Columbia	43	52	231,685	134,818	377,951	256,400
TOTALS CANADA	1,091	1,501	\$3,271,772	\$4,141,860	\$7,592,510	\$10,633,212
NEWFOUNDLAND	31	14	\$6,670	17,850	141,151	39,100

In the first nine months of 1896 the total number of business failures in Canada were 1,651, with assets \$5,047,300 and liabilities \$12,219,996, while the failures during the same period in Newfoundland were 12 with assets \$18,622, and liabilities, \$42,866. The failures for the nine months' period of 1898 make an eminently satisfactory showing, aggregating, as they do, only 1,091, with aggregate liabilities of \$7,592,510, a decrease of 26 per cent. in number and of 29 per cent. in liabilities from last year, and of 34 per cent. in number and of 39 per cent. in liabilities from 1896, and it is possible, in fact, to go back ten years in the Canadian failure records without finding a total of failures or liabilities for the nine months' period as small as that reported for the current year, thus again confirming the almost unanimously good reports received as to Canadian trade during the present year.

THE CANADIAN MANUFACTURER is indebted to Mr. T. C. Irving, of Bradstreet's, Toronto, for the above statement.

importations, which can only be done by reducing the duties to a point where foreign manufacturers are able to crowd out our domestic producers. Of course, every dollar's worth of foreign-made goods that comes into the United States means a dollar less spent for American goods and disbursed in wages to American workmen. No matter. It will increase the revenue and remove trade restrictions. That is to say, it will render altogether unnecessary any tax on beer and whiskey, and enable the Government to get along on customs collections alone. To be sure, it would incidentally give to foreigners the complete monopoly and control of the greatest market in the world, for that would inevitably be the result of increased revenues from increased importations. But that is a trifling detail compared with the triumph of the central idea, now so ardently and unanimously advocated by the Free-Trade press of the United States, that the great need of the hour is lower duties and increased importations, to the end that the stamp taxes necessitated by the war may be abolished without delay.

EDITORIAL NOTES.

Cuba will never grow wheat nor make her own flour. She will continue to buy, as she has in the past, her "staff of life" in America, although the records say the bulk of her flour used to come from Spain. For the duty on flour imported by Cubans was only fifty cents per barrel if purchased from Spaniards, but \$4.75 if purchased of others. Spanish flour merchants made money by buying American flour, carrying it to Spain and then back to Cuba, and the Cubans "paid the freight," for, whether the duty actually paid was 50 cents or \$4.75, the consumer paid the same price in either case, the Spanish merchant pocketing the additional profit given him by the law. But now this selfish policy has ended. The military duty on flour is only a trifle over a dollar a barrel, and all the world's traders in that market stand on the same footing. In normal conditions Cuba is very rich; and being rich she will be one of our very best customers. In spite of every handicap of a medieval fiscal system, the island in 1893 bought \$2,821,600 worth of American flour. Let but order and her industrial prosperity be restored, Cuba should become, after Great Britain, in proportion to her population, the best market American miller will have in the world, and one of which they may hold undisputed control.—American Miller.

The Toronto Globe in one of its "Lessons in Economics," tells us for the thousandth time that if we do not open our markets to other countries, i.e., reduce our tariff to a free trade basis as near as may be, they will not buy our products. But what do we see? In a recent issue The Globe gives the figures of our foreign trade for the past year, in which, notwithstanding the twenty-five per cent. discrimination we show to British imports, we are not increasing our trade with free trade Great Britain, while our unabated tariff against American goods does not prevent trade between the United States and Canada going ahead by leaps and bounds. And then look at the wonderful foreign trade of the United States under the Dingley tariff. The fact is, commerce is selfish, and is not very much influenced by the style and color of the flag that waves over the country where goods can be bought cheaper than elsewhere.

Before this Government took office the United States duties upon Canadian products were relatively low. Since it has been in, the United States duties have been given a hoist upwards. At the same time the Fielding tariff has placed

numerous United States products on our free list and has cut down the duties collectable on others. The Americans have strengthened their position; we have weakened ours.—The Mail and Empire.

Accuracy is a valuable element in discussing economic questions. There never was a time since McKinleyism set the tariff standard of the United States that duties in that country were not twice as high upon the same articles as imposed by the Canadian tariff, not excepting the Gorman tariff interregnum under Mr. Cleveland. The Mail and Empire seems to forget that the Fielding tariff imposes a duty on sugar that came in free under the Foster tariff. There can be no disputing the fact, however, that if Mr. Fielding should adopt the tariff views of Mr. Dingley, it would result in as much prosperity to Canada as is now enjoyed by the United States.

A few days ago a deputation from the National Grange of the United States, headed by Mr. A. A. Jones, of Indiana, waited on the American Commissioners to the International Convention at the City of Quebec, and, in behalf of American farmers generally, protested against any concessions being made to Canada that would affect the farming interests of the United States. Mr. Jones said that the farming class was at least sixty per cent. of the population of the United States, and produced fully sixty per cent. of the wealth of the country. After a three months' trip visiting the farmers from the Rockies to the Atlantic, and after receiving official communications on the subject from all parts of the union, he desired to state that the farmers wanted no change in the tariff law. They were better satisfied with the existing conditions than for many years. Even the free traders among the democratic farmers believe that if protection was to be the policy of the country in the Dingley tariff they were not discriminated against in the interest of the manufacturer, but were fairly dealt with. Nothing had so depressed farmers, whether interested in wool-growing or not, as the clause of the Wilson tariff putting wool on the free list. It was a blow at the whole farming interest, the effect of which had been overcome only under the Dingley law. The farmers desired that the present law should have its advantages demonstrated by a further test, and they wished that there should be no interference whatever with any of the schedules. Some States were interested in hay, some in potatoes, and so on, but all, south, west and central, as well as those on the northern border, desired that the Dingley tariff be let alone.

At a recent meeting in Montreal of Canadian pulp and paper manufacturers, the following resolution was adopted:— "It is the sense of this meeting that an export duty be immediately placed on all pulp wood exported from Canada, (no matter in what shape or size), which would be equivalent to the present import duty on Canadian pulp entering the United States, unless the United States admit all Canadian pulp, both chemical and mechanical, free of all import duty."

In the calendar year of 1897 Great Britain exported \$1,170,000,000 of manufactures. The London Statist, in a careful estimate, whose details are given, shows that of these exports \$263,000,000 were raw material and the rest, \$901,000,000, were wages, profits and returns on capital invested in manufactures. In the fiscal year ended June 30, 1897, this

country exported \$288,871,000. Assuming that the same share are raw materials here, and of the exports of manufactures in the last fiscal year \$222,431,000 represents wages, profits and interest, labor being by far the larger share, or nearly nine-tenths of the whole. In England also the raw materials are imported. Here they are produced in this country and do their share in providing labor. If the truth were known it would probably be found that of our exports in the last fiscal year \$250,000,000 went to labor. A policy of expansion and acquisition will increase these exports as a like policy has those of England.—Philadelphia Press.

The New Zealand Government Beetroot Sugar Bill provides that every company, not exceeding three in number shall be entitled to a bonus of £12,000 in respect of sugar manufactured in New Zealand from beetroot or sorghum. Such bonus shall be paid by four annual installments of £3,000 for each year in which the company produces not less than 1,000 tons of sugar, provided that no installment shall be payable after March, 1910, and also that the total amount payable shall not exceed £36,000 during the period elapsing between the coming into operation of this Act and March, 1910.

It is proposed to establish a Beetroot Sugar Factory at Tenterfield, New South Wales, in a section where the land is specially suited to this kind of cultivation. A company has just been formed at Sydney, and the list of subscribers includes a German concern who are willing to take a certain number of shares provided it is given the contract for the supply of the necessary plant.

The Cunard Company have placed an order with the Wallsend-on-Tyne builders, Messrs. Swan and Hunter, for a cargo steamer which, when built, will be the largest vessel ever turned out of an English yard. Approximately the dimensions are as follows:—560 feet long, 64 feet beam, and 42 feet depth of hold.

The British Trade Journal makes the following comparison:

The exports from the United States for 1897 amounted to £250,000,000; the exports from Great Britain of British produce for same year amounted to £234,000,000. For the first time in the records of trade the British exports for twelve months have been surpassed by those of another nation. The figures demand something more than a casual notice, for it should be borne in mind that £250,000,000 is the high-water mark of the exports of any one year from any country, with the single exception of the year 1890, when British exports ran up to £264,000,000. In the period 1868-'74 the exports of British produce averaged in value £220,000,000; and the exports of American produce £109,000,000 per annum. During the last seven years, British exports averaged £226,000,000, and American £196,000,000. The British increase over the twenty-five years has been £6,000,000 per annum, or 2½ per cent.; while the American increase has been £87,000,000, or 80 per cent.

A few more experiences like the above may convince the free-trade economists of England that the "open door" is not the only or indeed the best policy for promoting commercial prosperity, and that the open door may let in more than it passes out.

The Sugar Beet, Philadelphia, September issue, reports that beet sugar factories in Germany seldom if ever pay more than \$4.80 per ton (of 2,204 lbs.) for their beets, and that

the average price during the campaign 1896-'97 may be considered \$4.26 per ton. Sachs says that the beets for that season averaged 13.9 to 14 per cent sugar. This is about the same as the average ascertained from properly conducted experiments in the Province of Ontario.

One reason for the objection entertained in France against the abolition of sugar bounties and consequent decrease in beet sugar production is the injury which would result to the farming industry. In France there are about 11,000,000 head of cattle which eat all the beets that the factories do not want, besides nearly 2,000,000 tons of the necks which are cut off the beets. They also consume a large part of the 220,000 tons of residuum molasses produced at the factories. Another very important reason for extending rather than reducing the acreage sown to beets is the great advantage derived by the land from the cultivation of this crop by which the soil is so much improved in fertility that succeeding crops of grain are immensely increased.

For the first time, in print, General A. W. Greely tells, in the October Ladies' Home Journal, the fearful experiences of himself and his ice-imprisoned band of explorers as they faced death for two-hundred and sixty-four sunless days at the North Pole. Bright in contrast is "The Anecdotal Side of Mark Twain," in the same magazine, in which the humorist's closest friends tell twenty funny new stories of him. Four illustrated pages on scenes in dining rooms, girls' rooms, etc., are given. By the Curtis Publishing Company, Philadelphia.

The Copp, Clark Company, Toronto, have in press, and will issue about October or November, a new book on "Love," written by Hon. J. W. Longley, Attorney-General of Nova Scotia. The promised work is one which is likely to attract considerable interest. The subject is treated upon religiously, and as forming the essence of all that is great and worthy in human life, and the only means by which the world can be regenerated and uplifted. In an age given over so completely to the consideration of mere material things, such a book will be a healthy note in the direction of truer ideals and a higher type of life, nor will its weight be lessened by the fact that the author has been most of his life engaged in active political life.

The article in the October Scribner's on the "Battle of San Juan," by Richard Harding Davis, is not only a description of that famous victory but a complete analysis of the conduct of the Santiago campaign. He points out the problems involved, shows the lack of adequate preparation, and says that the final success obtained was due solely to the splendid and persistent valor of the troops who fought under the most trying and discouraging conditions, combined with the destruction of Cervera's fleet by the navy. Captain Arthur H. Lee, of the Royal Artillery, the British Military Attache, who accompanied the American troops to Cuba, writes of "The Regulars at El Caney." This article, coming from the representative of a friendly nation and having the authority of a trained soldier will have a special interest and value for American readers. He pays ample tribute to the fighting qualities of American soldiers.

Two very fully illustrated articles in the Methodist Magazine and Review for October are "Mountaineering by Rail," and "Around the Mediterranean," by Dora M. Jones. Dr. Antliff, of Wesleyan College, Montreal, has an able article describing how we get the Bible, full of interesting information, and Miss Ninde records the heroic devotion of Mary Reed, a Methodist missionary among the lepers in India. Fourteen numbers to the end of 1899 will be given for one year's subscription.

Outing for October is a seasonable, interesting and finely illustrated number. "Duck Shooting on the Hudson," "The Yarn of the Yampa," "A Day with the Pronghorns," Walter Camps "Football Review," "Trouting Over the Old Hockett Trail" and "Lawn Tennis in Great Britain" are a few of the good things among the sporting features. Two excellent stories "Miss Carrington's Professional," a tale of the golf links, and "The Wedding Finger of Colly," ably fill the fiction department. In the rod and gun and the kennel departments Ed. W. Sandys continues a series of interesting illustrated sketches of game birds and the different breeds of dogs, while other well-known experts discuss various sporting topics.

Articles.	Price.
Soap (yellow).....per bar	12c.
Soups.....per tin	32c.
Starch.....per pound	10c.
Tinned fruits.....per tin	42c.
Tinned tongues.....per pound	18c.
Tinned ham.....per tin	48c.
Tinned chicken.....	32c.
Tinned tongues.....per pound	22c.
Tomatoes.....per tin (3 pounds)	30c.

The imports of wheat and wheat flour into all ports of South Africa during the year 1897, with the exception of Lourenco Marquez, were as follows:

Description.	Total imports.	From United States.
Wheat.....	192,705,757 lbs	183,240,201 lbs.
Flour.....	51,474,873 "	33,575,058 "

The United States has, as can be seen, the great bulk of the trade. Flour is received in bags weighing 200 pounds, or in barrels weighing 196 pounds—the former preferred. The quantity of flour consumed by the white population is the same per capita as in any ordinary community in America. The natives consume but little flour, corn being their principal food of cereal nature.

Most of the flour is made from wheat imported from the United States. There are about fifty mills in South Africa, with an average capacity of fifty barrels per day when in operation. The shipments from the United States have chiefly been via New York and San Francisco. Flour is worth to the consumer five cents per pound; corn meal, three cents per pound; bread, per loaf of four pounds, twenty-four cents. With wheat at a less price, the demand would be larger and imports greater.

Preference is given by the millers to numbers one and two hard wheat. They do not mix wheat as do our millers.

England buys our wheat and converts it into flour for this market. Why should we not send this flour direct? Flour with glucose (flourine) will not sell.

There is no stock of wheat in the open market, all going to the mills, and the supplies of American wheat to arrive are at a very high price. Quotations for California wheat in quantity are \$7 per sack of 200 pounds.

The duty on wheat is twenty-four cents per 100 pounds, and on flour, \$1.25 per 100 pounds. Imports of wheat and corn into South Africa decreased in 1897; flour increased \$283,459.50.

The imports of eggs for 1897 through all the ports of South Africa, with the exception of Lourenco Marquez, amounted to 2,650,273, of which the United States furnished 252,468. Eggs sell in Cape Town at eighty-four cents per dozen, and at higher rates in other parts of South Africa.

The rinderpest, so fatal to the cattle of that country, was supplemented during the past year by diseases among domestic fowls; hence, the scarcity and high price of eggs. The fast mail steamers from England bring eggs from Maderia on each trip south. Packed in baskets filled with salt, they arrive fresh. It must be understood that not until steamers with cooling chambers are employed, can this trade be captured. If Australia can send eggs to South Africa, a voyage of thirty-one days, Canada can surely do the same. Eggs must be what is known as "candle-ested" and packed in clean boxes, with cardboard fillers that have not come into contact with bad eggs or sawdust. A layer of clean straw between each filler would be desirable. Varnishing the eggs has proved the best preservative, but the varnish is at times affected by the damp of the vessel. If requested by buyers, a sample case should be submitted, forwarded by way of fast steamers to England, and then by fast steamer to Cape Town, in the cooling chambers.

Owing to the excessive cost to the consumer, the consumption is small. At half the price, or forty cents per dozen, the sales would be more than trebled. The duty on eggs is ten per cent. Quite a number of crystallized eggs are imported from the United States for pastry, worth \$1.08

per pound in United States; this pound being equal to fifty fresh eggs.

The imports of butter into South Africa for the year 1897, with the exception of the port of Lourenco Marquez, were 4,146,320 pounds, of which about 9,000 pounds came from the United States.

Butter from America has been colored a too deep yellow, has not been sufficiently worked to extract the milk and water, and has not been packed properly. Both Danish and American butter cross the Equator, but the former, imported principally in tin boxes, will arrive sweeter and retain its flavor longer.

Recently Australian butter has found a ready market, owing to its color and purity, and large quantities are imported. Steamers on their way from Australia to England, where they also deliver butter, can perhaps afford to lessen freight rates. A choice article, for very long distances, is put up in a square glass box holding one or two pounds; around this box is a layer of asbestos, possibly mixed with plaster, which makes the package impervious to heat or dampness.

This butter sells at fifty to sixty cents per pound; while the butter in fifty-six pound boxes sells, after paying the duty of six cents per pound and the freight of two cents per pound, at thirty to forty cents per pound wholesale,—this for the choicest quality. The wooden box is first lined with cheese cloth, then with oiled paper, and the butter is packed tight. The box is fastened closely, with wire around each end.

There is no reason why Canada should not have a share of this large trade, if the butter is properly prepared, colored a pale yellow (if at all), and shipped in steamers fitted with cooling chambers. Australia is thirty one days by steamer and New York is about the same, and yet steamers from Australia bring butter, beef, and mutton to South Africa, and continue to England, a distance of 7,000 miles from Cape Town, with the route crossing the Equator.

In connection with the importation of butter, eggs, meat, and other perishable products, the local cold-storage facilities should be mentioned. Up to the present, such facilities have been controlled by one company, which owns all the cold-storage plants and refrigerator cars in South Africa, and consequently has been able to control the sale of these products. If Canadian producers can deliver such products as cheaply as other countries, this company would be their best customer. A company is being organized for the erection of a large cold-storage plant in Cape Town, and the Government of the South African Republic has signed a similar contract. Manufacturers of refrigerator and cold-storage plants should take notice.

The imports of lard into Cape Colony and Natal for 1896 and 1897 were:

Year.	Total imports.	From United States.
1896.....	\$53,950.64	\$45,295.20
1897.....	92,636.46	72,436.98

The United Kingdom sent the bulk of the remainder, and it is presumed that some portion of those shipment came originally from the United States.

The bulk of the lard from the United States usually comes in tin boxes of from two to twenty pounds in weight, and is worth to the consumer twenty cents per pound. The substitute known as cottolene, would find a ready market, provided it could sell at a price slightly lower than that of lard. The duty on lard is four cents per pound.

Ale and beer were imported into ports of Cape Colony and Natal in 1897 to the amount of 1,312,486 gallons, valued at \$767,967.48. Through the same ports, in transit to other countries in the interior, there were sent 54,141 gallons, valued at \$44,716.86. Of the imports consumed in Cape Colony and Natal, the United States furnished 64,844 gallons. Of the imports in transit, the United States supplied 28,796 gallons. The English stand first, the Germans second, and United States exporters third. A large amount of beer is made in South Africa, there being about twelve breweries; but it is principally sold to the native trade.

TRADE WITH MEXICO.

Captain E. A. Halliwell, of The Two Republics newspaper, City of Mexico, was in Toronto a few days ago. Speaking of Canada's opportunities for doing business with Mexico, Capt. Halliwell said that what had frequently struck him, as a Canadian, was the fact that so little had been done towards fostering trade relations between Canada and the Mexican Republic. "As a matter of fact," he said, "the Mexicans like the British and British-Canadians better than they do the Americans, and I see no reason why at least a portion of the valuable trade which is now being carried on between Mexico and the United States should not be secured by Canada. Mexico produces much that you Canadians want, and this Dominion would find a good market for much of its produce in our Republic, for Mexicans are always ready to make advances to meet proposals which promise to further the industrial welfare of their country. At present we buy largely from England, Germany, and the United States, and I have no doubt Canada could easily secure a fair share of that trade. The trade should prove lucrative, for we pay good prices in Mexico."

Asked as to what classes of goods could find a market in Mexico, he said:—"It is difficult to say off hand, but one branch which I have in mind at the moment is the lumber trade. Mexico imports a great deal of lumber, the demand being supplied largely by the Western States. I see no reason why the great forest wealth of British Columbia should not be turned to account in supplying the need. The same should apply to paper if, as I have heard, Canada has practically a monopoly of the pulpwood supply. The Mexicans buy their paper, and Canada should have a decided advantage in this regard."

Questioned as to the other industries Captain Halliwell expressed his conviction that in a number of departments of manufacture where Mexico imported practically her entire supplies, Canada should have a good chance. As an illustration of the prices paid for imported articles, he quoted the bicycle. The better class of people there rode good wheels, and the regular price for a bicycle was \$200 in Mexican money, or about \$100 in gold. The trouble was that while Canadians knew very little of Mexico, Mexicans knew still less of Canada, and continued to buy from those who came to them.

GOODS WANTED IN VENEZUELA.

Manager Rudolf Dolge, of the sample warehouse of the National Association of Manufacturers in Caracas, Venezuela requests catalogues, prices and full information concerning the articles mentioned below, inquiries for which have been received at the warehouse:

- Telephone and other electrical apparatus.
- Corn and wheat grinding mills.
- Acetylene gas apparatus.
- Machinery to crack (not grind) corn.
- Ice machinery of small capacity.
- Small press to draw out the oil from the seeds of the castor oil plant, the press to be worked by hydraulic power.
- Cane mills for hand power.
- Rubber stamp presses and everything pertaining to this line, also apparatus for manufacturing rubber stamps and letters.
- Frame houses.
- Pulsometer pumps, capacity 10,000 gallons per hour.
- Terra cotta for ornamental building facade, must be as thin as possible on account of the heavy duty.
- Steam launch, also such with kerosene, gasoline or naphtha motors.
- Photographic material, instantaneous plates, etc.
- Dairy machinery.
- Saddlery.
- Horse-shoes.

The following suggestions from Mr. Dolge with regard to catalogues for Venezuela are worthy of careful consideration as they apply equally well to similar conditions elsewhere:

If possible send both English and Spanish catalogues.

Send all the English and Spanish descriptive circulars, folders, pamphlets, etc., usually intended for consumers.

Full detailed price lists, stating, if possible, retail, wholesale and export price or discounts, should be sent. (This is requested in order to protect exporters and merchants when information is asked by retail dealers).

Give full information regarding shipping weight, and dimensions of all goods. In the majority of cases it is impossible to form any idea of cost of the article laid down without these data, as freight and duty often more than double the price of goods. All duties are assessed on gross weight.

State terms, also whether it is desired to do business direct or through commission houses. If through the latter mention the houses preferred. In order to secure a footing in this market manufacturers should understand that it is absolutely necessary to conform to the current terms, which vary from three to six months, according to the nature of the business. It should be understood, however, that credit need be extended only to houses which are well established, and where the risk is on a par with that of the leading houses in the United States.

Supplement catalogues, etc., with intelligible letters containing as much information on the subject inquired about as possible.

If manufacturers require further data themselves, let them prepare an intelligible set of questions, each question accompanied by sufficient information, so that it can be understood and asked by one who does not necessarily have a great deal of practical experience with that particular article or line.

Let manufacturers state if they are willing to give the agency for their goods to a responsible representative; if so, on what commission and what terms.

WHAT SOUTH AFRICA WANTS.

Canadian manufacturers should pay close attention to the openings for business in South Africa. The United States Consul-General at Cape Town sends an interesting report to his Government portions of which are here reproduced, which suggests that Canada could do good business in that country.

VEHICLES.

Imports of vehicles into South Africa in 1897 through all ports except Lourenco Marquez were valued at \$472,804, the United States furnishing \$355,985.

The United States has thus far been prominent in the vehicle trade in this country. Merchants here have in some instances been able to induce manufacturers to build vehicles that would meet the demand, and in such cases both the merchant and the manufacturer have profited.

The vehicle that has a large sale is known as the four-wheel, four-and-six-seat, extension top barouche. This vehicle is built on the same lines as the one used in America; it has the same "track," but the seats are made not less than six inches wider. The Dutch people of this country want comfort, and, being large themselves, they want room.

The most popular vehicle for passengers, and one manufactured largely in this country, is a four-seat, extension-top, two-wheel cart, known as the "Cape cart," which sells at \$400 up; the "cab cart," which has two wheels, two seats, and extension top, sells for \$200 up. The Malays, who do about all the livery business, and the farmers near the town use these carts almost universally.

The American buggy of the piano-box style has made some friends and is making more, but they should be constructed so as to be very strong and durable. It seems to me that our park wagons, three-spring wagons, and side-spring road wagons, all with tops, would sell well. Quite a number of regular express wagons with panel sides and canvas top, are also sold.

Manufacturers should meet the demand, and not try to send what is not wanted. The demand here will increase from year to year.

OPPOSITION FROM HOME INDUSTRIES.

I regret to report, however, that the few wagon and carriage manufacturers of this country are up in arms, and are using every effort to have Parliament enact laws that will place a prohibitive duty on American vehicles. The wagon makers met at Worcester on the 25th of March, and the Paarl Protective Association urged combination, memorializing Parliament to place a high duty on imported vehicles.

King Williamstown, where wagons and carts to the value of \$271,693 were built in 1896, has also taken action. In 1896, the South African Republic alone imported carts and carriages from different countries as follows:—

From.	Carts.	Carriages.
Europe	\$105,609 32	\$26,384 94
Other countries (United States)	63,373 33	19,498 32

The duty on vehicles of all kinds is twenty per cent. ad valorem. The duty now desired by the home builders is £20 per vehicle; or \$97.20. The duty on a fine vehicle, valued at \$1,000, such as they cannot build here, is \$200; the proposed duty would be \$97.20; on an ordinary four-wheel vehicle at a valuation of, say, \$100, the present duty is \$20 and the proposed duty \$97.20, the same as on a high-priced vehicle.

It is obvious that the duty would be prohibitive and would shut out all but the most expensive vehicles. Timber to make parts of vehicles pays a duty of two cents per cube of twelve feet; finished wood and iron parts pay a duty of twenty per cent. With no change in duty on these items, it seems conclusive that manufacturers here would make money.

The sale of American-made vehicles is in the hands of resident merchants, who do not desire any change in the duty; certainly the users do not. As all the timber and iron used here in the manufacture of vehicles is imported, I am of the opinion that no change in duty on these items will occur.

Horseless carriages are being introduced for passenger service, and are quite successful.

HARNESS.

The imports of harness into South Africa in 1897, with the exception of Natal and Lourenco Marquez, were:

Country.	Value.	
United Kingdom.....	£108,017	\$525,664
Natal.....	1,108	5,392
New South Wales.....	65	316
Victoria.....	22	107
Belgium.....	328	1,596
Franco.....	27	131
Holland.....	21	102
Germany.....	1,102	5,362
United States.....	2,864	13,937

For Natal, the total value was £57,906 (\$281,789), the countries of origin not being given; but it is estimated that about the same proportion came from the United States as given above.

Samples of harness sent to the United States could be duplicated and again sent here, at a less price than now charged, with a good margin of profit. Pack saddles for mules, head collars with ring, Boer saddles, team harness, barouche, cab and other harness, if made to meet the demand, would find a market; as well as all kinds of girths, etc.

The harness used here is usually of "russet" color. An ordinary single harness sells at \$55 to \$75; double harness, \$125 to \$250; and cart harness is offered as low as \$25.

The duty on harness is £9 on every £100 value.

BICYCLES.

Imports of bicycles and accessories into all ports of South Africa, except that of Lourenco Marquez, for 1897 were:

Country.	Value.	
United Kingdom.....	£244,709	\$1,190,876
Mauritius.....	21	102
New South Wales.....	59	287
Victoria.....	15	72
Belgium.....	1,051	5,114
Denmark.....	5	24
Holland.....	1,631	7,937
Germany.....	9,665	47,034

Country.	Value.	
France.....	1,542	7,504
Austria.....	8	38
United States.....	35,897	174,692
Other countries.....	791	3,849
Total.....	£205,394	\$1,437,534

The imports from the United States in 1896 were £13,202 (\$64,248), and the increase for 1897 is estimated at 171 per cent. All the English makes are sold here, and several American. Some very cheap bicycles have been imported from the United States, which has injured the trade. There being a lull in the demand, it was believed that a cheaper machine would find a market; but it was soon found that a cheap machine was not an economical one, and now only the best are in demand.

The duty on bicycles is 9 per cent. They sell here at about the same price as in the United States, with freight and duty added.

AGRICULTURAL IMPLEMENTS.

The imports of agricultural implements into the ports of South Africa for 1897 were to the value of \$525,827.70, of which the United States furnished \$295,662.96.

There should be openings for mowing machines, corn cultivators, grinders and shellers, wheat binders, potato diggers, etc. Africa can raise as good wheat as any other country, and the Government is now buying seed wheat and testing several kinds. A large number of small, cheap plows, both steel and cast, cutting from 7 to 14 inches, have been sold; and there is a demand for a light gang plow, the two small plows held together by an iron frame, with iron handles and no wheels.

The five-tooth cultivator is also in demand. I am of the opinion that hand corn planters, hand seeders, disc harrows, and in time sweep corn grinders, will sell. One dealer said to me that he wanted for immediate delivery 100 feed cutters, and could not get them. Only the cheapest implements are purchased now; but in the future, when farmers farm as they should, the larger and better ones will find a place.

Agricultural implements of all kinds are admitted free of duty. In the line of implements, as in all others, the market should be studied with the fact in mind that both England and Germany are good imitators, and that America must do all she can to keep this trade. Durable goods should be made, and, although they may not be expensive and such as are used at home, in time the best will be wanted.

THE SUPPLY OF CALCIUM CARBIDE.

The rapidly increasing use of acetylene has pushed the demand for calcium carbide so close to the present limit of available supply that the questions of increased productive capacity, the future out-put, and probable price of this new and important material assume a definite international interest.

It is understood that the use of acetylene, and consequently the consumption of carbide, has increased somewhat more rapidly in America than in Europe, and that, notwithstanding the large out-put at Niagara Falls, the home demand has rather more than kept pace with the supply. The latter may practically be also said of Europe, at least of Germany, which country obtains almost its entire supply of carbide from Switzerland, notably from the great works at Neuhausen.

The whole carbide industry, so far as central Europe is concerned, is now in a transition stage, and the conditions of supply and price are likely to be greatly modified by the increased production of next year. The most important accession will probably come through the operations of the great combination headed by the Schuckert Electrical Manufacturing Company, at Nuremberg, which expects to have in operation during the course of next year, the following carbide factories:

	Horsepower.
Electrical Works Lonza, at Gampel (Wallis).....	2,500
Electrical Works Hofslund, at Sarphog, Norway... ..	5,000
Bosnian Electrical Company, Iajce, Bosnia	8,000
Societo Espagnolo, Broga (Catalonia).....	2,500

The aggregate annual product of these four plants is estimated at 20,000,000 kilograms (20,000 metric tons), capable of generating 6,000,000 cubic meters (211,896,000 cubic feet of acetylene. Besides these, the Aluminium Industry Company, of Neuhausen-on Rhine, has this year increased its capital to 16,000,000 francs (\$3,088,000) for the purpose of constructing a 7,500 horse-power plant at Land-Gastein, in Austria. All these establishments will employ the original process, by which the lime and carbon are smelted together by the heat of an electric current.

The Walther process smelts the same materials by the heat of darting acetylene flames intensified by mechanical pressure, and is employed by a company at Leipsic, which has works at Cassel. Although this company is said to have exhibited at Berlin carbide samples of very high quality, there seems to prevail among business men some doubt—which may be only the Conservative prejudice that discredits all new things—as to whether this process can be made to compete economically with electrical heat generated by water power under favorable conditions. So far as can be ascertained, a favorably located and well-managed water power plant in Germany or Switzerland ought to produce carbide of standard quality at a net cost of 160 marks (\$38) per metric ton, and it is doubted whether this minimum figure can be much reduced by any process now in practice. The consumption of acetylene will have to increase rapidly after next winter to keep pace with the great augmentation in the carbide supply that will then occur.

There is now in the European market no apparent surplus of carbide, and the current supply is taken up as fast as it is turned out. There is even a demand there that would justify some importation, provided the foreign made carbide were of standard quality and could be furnished at prices within the local market rate and under conditions of delivery and payment that prevail.

This situation can probably not continue beyond the close of the present year. The several large new carbide plants that will be started up next winter and spring will so increase the output as to probably reduce the market price to a fair profit above net cost of production, and, unless the use of acetylene increases phenomenally, leave a surplus that will be available for export.

Calcium carbide is, however, a somewhat critical kind of merchandise for international traffic. The requirements of railways and steamship companies in respect to packing, etc., are so costly and difficult of fulfillment that in one recent case a large order of carbide for China had to be cancelled because it was impossible to comply with the specifications for its transportation.

THE ENGLISH CHEMICAL TRADE.

Liverpool, England, is the largest chemical center in the world, and the United States has been the best customer. Conditions, however, are rapidly changing. There is a revolution going on in the method of manufacture. Within recent years, the English chemical trade has been meeting with great competition from the Continent, especially from Germany. A still more recent and more significant feature of the chemical trade of the Liverpool district is the falling off in the exportations to the United States—indeed, no other manufacture, with the exception of tin plate, shows such a great decline in exportations to the United States. The following table gives the values of the exportations of chemicals from the Liverpool district to the United States for the calendar years named:

1891	\$8,695,822
1892	8,692,731
1893	7,226,636
1894	5,865,238
1895	6,075,305
1896	4,357,287
1897	3,893,667

During the first six months of 1898 the exportations were \$1,181,529.

The English manufacturers of chemicals concede that the principal reason of this decline of exportation to the United States is owing to the recently established American home industry. At a general meeting of one of the largest concerns (Brunner, Mond & Co.), the president, Sir John Brunner, M.P., referring to the fact that the dividend on the ordinary capital had decreased from thirty to twenty five per cent. as compared with last year, said that the shareholders "were all aware that the company had suffered a very severe loss in their American trade through the operation of the Dingley tariff."

The chemical trade is intimately connected with the salt industry, as salt is by far the most important of the raw materials in the manufacture of chemicals. The county of Chester, immediately south of the River Mersey, produces more salt brine than any other territory in Great Britain, and this fact accounts for the establishment of the chemical industry at Liverpool. In a statistical circular letter upon the Cheshire salt industry, published at the commencement of this year, it was stated:

In 1887 Liverpool sent to the United States of America 169,195 tons of salt; in the year just expired (1897) the total amounted to only 91,723 tons—a terrible decline. It is at all times difficult for England to compete with the salt works of America on their own continent, and this difficulty is turned almost into an impossibility by the fact that the Government of the United States, in the year just concluded, placed upon common salt a duty amounting to 150 per cent. of its cost at the works in Cheshire.

The greater portion of the salt exported to the United States goes over in bags as ballast. The duty under the present tariff is \$1.25 per ton on salt cake, eight cents per 100 pounds on salt in bulk, and twelve cents per 100 pounds on salt in packages. Under the tariff law of 1894, salt cake and salt in bulk and in bags, barrels, etc., were free.

For some years there has been an active rivalry in the production of chemicals from salt by two methods—the Leblanc process and the ammonia soda process. The first stage of the Leblanc process is the decomposition of common salt by the agency of sulphuric acid. In this process there is great waste, and until recently it was very objectionable on sanitary grounds. About forty years ago, the by-product hydrochloric acid was utilized for the manufacture of bleaching powder, the processes for which have been greatly improved upon within the past twenty years. Some years afterwards, the ammonia-soda process was established on a commercial footing in Great Britain and other countries. The new process was made financially successful by the establishment of works in Brussels, and by Messrs. Brunner, Mond & Co., at Northwich, Cheshire,—thirty-three miles from Liverpool. As carried on by this concern, the ammonia-soda process has long yielded the principal article required, at a saving of cost so considerable as compared with the Leblanc process that if the manufacturing exponents of the latter had been confined to the production of soda, they would before now have been driven from the field. It is the utilization of their by-product, hydrochloric acid, for the manufacture of chlorine products—including not only bleaching powder, but chlorate of potash (used for making matches and percussion caps) and chlorate of soda—which has been their mainstay, to such an extent that it is, commercially, quite true to say that in the Leblanc soda industry at the present time, soda is a by product of the manufacture of chlorine products. The utilization of other by-products has been of great service to the Leblanc manufacturer in his fight with the ammonia soda process. Every constituent of every substance employed at every stage is, if not altogether, yet to a very large extent, used in a way to have a market value. Yet, not a few of the houses engaged in the Leblanc process found their profits reduced so much that they dropped out of business.

About the end of the year 1890, there was a combination of

practically all the alkali manufacturers in Great Britain, with the exception of Brunner, Mond & Co. This syndicate is known as the United Alkali Company, Limited, and its head quarters are at Liverpool. It has a capital of nearly \$39,000,000. Its principal works are at St. Helens and Widnes, but it also has works at Newcastle, Briston, and Glasgow. It employs 6,000 persons at the St. Helens and Widnes works, and 3,500 on the Clyde and Tyne. The United Alkali Company until a short time ago produced nearly all its chemicals by the Leblanc process. In order to meet the competition of the ammonia-soda process, the United Alkali Company has been obliged to cut down wages, and reductions have been made in the wasteful escape of gases. Yet, in spite of the savings and improvements, there seems to be no doubt that the production of soda by the Leblanc process must continue to steadily decline. The amount of salt decomposed in England by the Leblanc process declined from 434,298 tons in 1894 to 360,929 tons in 1896, while the amount decomposed by the ammonia-soda process rose from 361,603 tons in 1894 to 431,577 tons in 1896. A short time ago, the United Alkali Company established a plant for carrying on the ammonia-soda process at Widnes and Fleetwood (Lancashire), and its output of ammonia-soda is now between 60,000 and 70,000 tons.

It has been the hope of the English chemical manufacturers to so reduce the cost of production by improvements as to enable them to compete with the American concerns. In order to have a share in the American home trade, the United Alkali Company is now erecting works at Bay City, Mich., and will operate under the name of the North American Chemical Company.

Perhaps the question of greatest interest in connection with this industry is the possibility of producing bleaching

powder and other chlorine products cheaper than they can now be produced by the Leblanc process.

It is at this point that the revolution in the chemical trade is making itself manifest.

In 1896, an address was delivered by Dr. Ludwig Mond, president of the chemical section of the British association, in which he gave a description of a new method, which, though elaborate, enabled the ammonia-soda process to compete not only in the production of carbonate of soda, but also in that of bleaching powder, with the Leblanc process. Dr. Mond went on to say that he had hesitated to extend the new method in connection with the ammonia-soda process as rapidly as he would otherwise have done, because of the possibilities involved in the processes lately developed for the production of chlorine by electrolysis.

The electrolytical method for the manufacture of chloride of potash, bleaching powder, and caustic soda for the decomposition of salt, instead of the employment of bi-sulphuric acid, has been in use for some time in Germany, and also to a small extent in the United States. It is claimed, that by the application of electricity, the chemicals can be produced more cheaply than by the old method. The electrolytical methods do certainly produce more direct results, but local experts say that it is yet too soon to definitely decide whether they are more economical than the old method, as there are so many considerations which time alone can solve, such as the wear and tear of machinery and the cost of replacement, which are expected to be serious items of expenditure. Where electricity can be produced by water-power, as in Norway and at Niagara and other places in the United States, the new process will have a better chance of success than in England, where it must be produced at great cost in the consumption of coal.

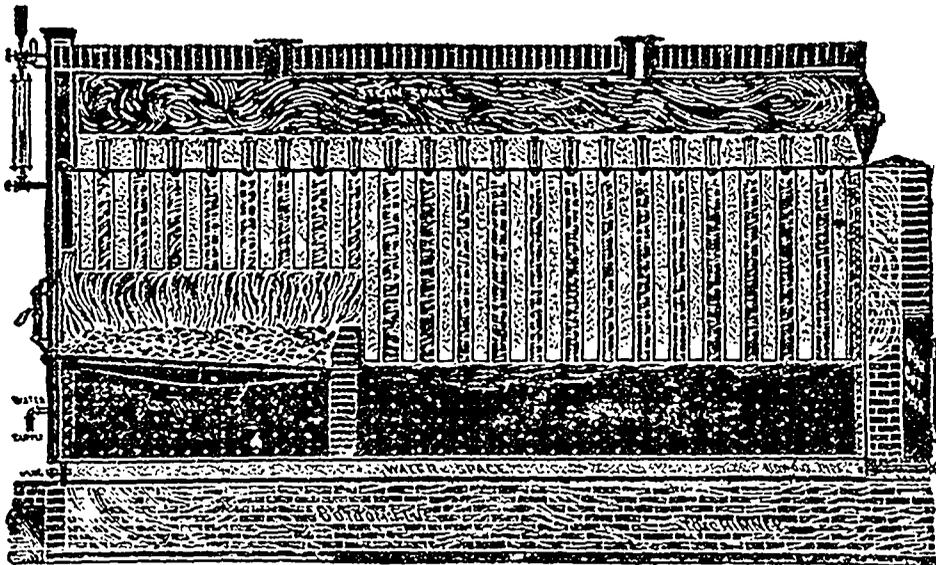
E. A. WALLBERG, C.E.,

Bell Telephone Building, - MONTREAL, QUE.

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KINGSLEY WATER TUBE BOILERS

Manufactured in Montreal,
Ottawa and Toronto.



*For Steam, Power
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Installations...*

*The Most Economical Boiler,
and the Cheapest, when
based on Evaporat-
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Can be installed in any Basement,
requiring only 6½ feet in height.

GUARANTEED: A Saving in Fuel of 30 per cent. over Return Tubular Boilers.
A Saving in Fuel of 50 per cent. over any Cast Iron Heater.

...Catalogue Free.

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 on 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 telegraph, 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, bolting, lubricants, machinery supplies, wood or iron working machinery, ventilating and drying apparatus; pumps, valves, packing, dynamos, motors, 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.

The Rumpel Felt Boot Factory at Berlin, Ont., is being enlarged by the addition of a four storey brick building 125x50 feet, which means the employment of about 100 more hands.

Messrs. J. & B. Goldstein and D. W. Ferguson, of Montreal, will establish a tobacco factory at Leamington, Ont.

Mr. Archibald Blue, Director of the Bureau of Mines, has returned from Renfrew County, Ont., where he spent a week inspecting the corundum belt. The best showing was on what is known as Block's farm. The corundum appears there in a syenite rock, which extends over a large area. Large numbers of float boulders, in which the white variety of corundum was to be seen, were encountered on the road. Several other deposits of considerable extent in Carlow and Raglan Townships were examined.

Stirling, Ont., will spend \$20,000 in bringing water from Lake Somerset by gravitation.

The Cleveland Bicycle Co., Toronto Junction, will build a three-storey brick addition to their factory, 140x60 feet.

The Belleville, Ont., Gas and Electric Light Works were damaged by fire September 15th, to the extent of about \$500.

R. G. Anderson's grist and sawmill at Port George, Ont., was destroyed by fire September 13th. Loss about \$1,000.

J. V. Methot's carding mill at St. Antoine de Tilly, Que., was destroyed by fire a few days ago.

Robt. Bell, Jr, Hensall Engine Works, Hensall, Ont., has just shipped a large planer and matcher to C. F. Bennett & Co., St. John's, Nfld; 25-h.p. stationary engine and boiler to John Taman, Goderich, Ont.; one medium sized sawmill to London, Ont.

The Quebec Chronicle states that the cotton factories at Montmorency, Que., are to be still further enlarged, owing to a new field which has been discovered for their produce. This is Mombasa, on the West coast of Africa, where for some time past American cotton has been driving out the English product. Now the Montmorency cotton is superseding there both the English and American.—This is stale news as the facts above stated were published in full in the columns of this journal some three months ago.

The Guelph, Ont., Board of Trade have appointed a committee to confer with and assist Messrs. Wallace, Duff & Buckingham, of that city, to organize a company to establish an extensive pork-packing establishment there.

During the month of August the Londonderry Iron Co., Londonderry, N.S., turned out and shipped 700 tons of cast iron pipes.

Messrs. Brown, Pole & Tanner's cheese factory at Mayfair, Ont., was destroyed by fire September 16th.

The Montreal Street Railway Co. car sheds, Montreal, were destroyed by fire September 16th. Loss about \$150,000.

St. Roumald's College, Levis, Que., was destroyed by fire recently. Loss about \$13,000.

Regarding building operations in Toronto the books of the City Commissioner show that during the year 1896 the value of buildings erected and alterations made aggregated \$657,168, against \$938,619 during 1897, and \$1,419,790 during the first nine months of 1898. The following is a summary of the distribution of the operations during the current year to Sept. 30:—

Dwellings.....	\$436,900
Alterations and additions to dwellings.....	61,105
Factories.....	162,500
Alterations and additions to factories.....	110,120
Stores.....	25,520
Alterations to stores.....	56,780
Warehouses.....	150,100
Alterations to Warehouses.....	71,665
Office building and repairs.....	22,000
Schools and additions.....	117,500
Churches and additions.....	18,600
Charitable Institutions.....	65,500
Hotels and restaurants.....	34,000
Theatres and repairs.....	27,200
Bank and repairs.....	13,000
Sheds and stables.....	27,285
Miscellaneous.....	20,105

Total, 1898, till Sept. 30th... \$1,419,790

Some of the prominent timber merchants of Campbellton, N.B., have decided to try the Australian markets in competition with British Columbians and Norwegians. Two dealers, Messrs. Richards & Shives, are loading two large sailing ships, of respectively 1,500 and 1,100 tons, which will sail from Campbellton for Sydney. They will carry about 225,000 feet of deals and deal ends. The cargoes have been specially selected, and a competent agent in Sydney has been engaged to see to the sales. The New Brunswick and Nova Scotia timber trade will look anxiously towards the result of this venture.—Maritime Merchant.

The new industry in the fish curing way recently established at Centreville, Digby, is being well tested this season. The canning of herrings had never been undertaken in Digby before, and the present indications are that the venture will prove very successful. The fish are brought from Grand Manan, and forty or fifty men find employment in putting them up.—Annapolis, N.S., Spectator.

The Vankleek Hill Electric Light Co., Vankleek Hill, Ont., are increasing their lighting capacity by the installation of a 50 kilowatt S.K.C. two-phase generator.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET Air Compressors

STRAIGHT LINE
 DUPLEX and
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

JAMES COOPER MANUF'G CO., Limited, - 299 St. James St., Montreal.

Other Offices - - - ROSSLAND, B.C. RAT PORTAGE, ONT. HALIFAX, N.S.

Several important additions and changes are making at the Norton Emery Wheel company's plant, at Barber's crossing near Worcester, Mass. Prominent among them is the construction of an eighteen foot kiln, similar to the ones at present in use there. This will largely increase the capacity of the concern. The kilns are probably the largest used for that purpose in the country. The general manufacturing capacity of the company is being largely increased, also, by the addition of a building fifty feet square, at the rear of the establishment. The stock and supply rooms and the office are being enlarged at the same time, by the erection of an addition on the front of the present office. This is to be three stories high, with a basement, and the storing capacity will be enlarged by it, and more capacious offices will be arranged. The company's business is increasing, and these additions have become necessary in the general growth of the establishment. All through the year the business has been booming, and the prospects for a lively trade during the rest of the year are especially bright.

The Robb Engineering Co., Amherst, N.S., are building a sixty horse power boiler for Wm. Curry & Son, Windsor, N.S., and a thirty horse power for W. C. Hatfield, Parrsboro, N.S.

Messrs. King Bros., lumber mill and yard, Pabos, Que., was destroyed by fire recently. Loss about \$53,000.

E. W. Thurston's boot and shoe factory, Montreal, was destroyed by fire September 16th. Loss about \$3,000. Johnson & Copping's, picture frame factory was also badly damaged. Loss about \$3,000.

The Grand Trunk Railway Company have recently been turning out considerable equipment from their Montreal shops of modern and up-to-date style and character. Of this new equipment four wire baggage cars, 60 feet in length, of the full height of fourteen feet two inches from the top of the rail, the width being nine feet eight inches, with an elevated roof, and finished and painted with the new Grand Trunk standard color. The cars are equipped with the Gould automatic couplers and buffers, Westinghouse air signals and quick action brakes, and heated with steam. The total weight of each car, including trucks, is 64,900 pounds and the total carrying capacity 18,000 pounds. The company are now turning out a large number of new refrigerator cars, designed especially to carry perishable shipments originating at points on their lines in Canada, the special features being according to the well-known Wickes patents for refrigerator cars. The cars are about thirty five feet long and thirteen feet high, with a carrying capacity of 60,000 pounds each. The Wells & French Car Company, of Chicago have just commenced the delivery to the Grand Trunk Railway of 500 new thirty ton capacity box cars of the standard Grand Trunk design and finish.

The Vankleek Hill Shoe Co., Prescott, Ont., have been incorporated with a capital stock of \$40,000 to manufacture boots, shoes and leggings.

Messrs. Richard A. Hazelwood and James Whalen, of Port Arthur, Ont., and associates, have been incorporated with a capital stock of \$60,000 to carry on a lumber and pulp wood business under the firm name of Hazelwood & Whalen.

Messrs. Lohel & Casson, Louis, Que., have been incorporated to manufacture acetylene gas apparatus.

The O'Neil Lumber Co., St. John, N.B., has been incorporated with a capital stock of \$40,000, to manufacture lumber, etc.

The Perley flour mill, operated by R. P. Boyer & Co., at Burford, Ont., was destroyed by fire September 21st. Loss about \$8,000.

The Canadian Gold Fields Company, Deloro, Ont., has ordered a 50 horse-power tandem compound engine from the Robb Engineering Company, Amherst, N.S.

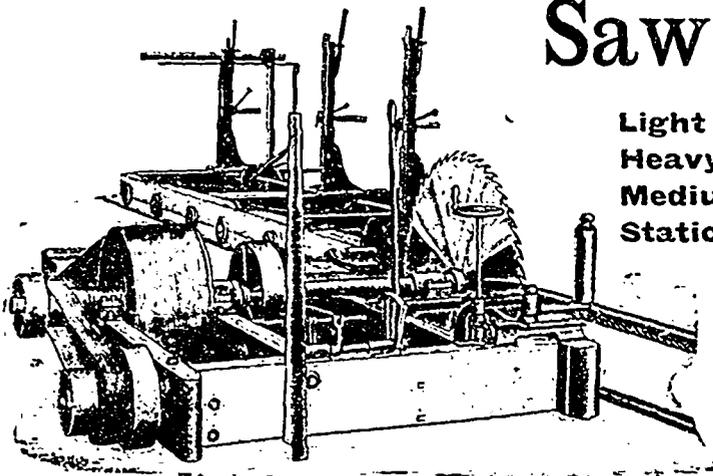
Messrs. John Black, J. S. Neill, John Kilburn and associates, Fredericton, N.B., are applying for incorporation of a company to establish a large shoe factory there. The city of Fredericton has already voted a bonus of \$10,000 to encourage the enterprise.

R. F. Bicknell and associates, Napanee, Ont., propose establishing a pork packing works at that place at a cost of about \$65,000 with capacity to handle 1,000 hogs per day.

The W. G. Nott Bicycle Co., Brantford, Ont., is applying for incorporation of a company with a capital stock of \$20,000 to manufacture bicycles.

The Peterborough, Ont., Light and Power Co., is about to commence the erection of a large water-power station to cost between \$30,000 and \$40,000, to develop about 2,000 horse power.

Galt, Ont., has voted to take over and operate its gas and electric light plants, at an expenditure of about \$100,000, and will erect a new fire-hall to cost about \$12,000.



Saw Mill Machinery.

Light Portable Mills for the Klondike
Heavy Portable Mills for British Columbia
Medium Portable Mills for the East
Stationary Mills of all sizes

LATHE MACHINES. EDGERS' TRIMMERS.
BELL AUTOMATIC ENGINES
SLIDE VALVE ENGINES AND BOILERS

SEND FOR CATALOGUES AND PRICES.

ROBT. BELL, Jr., Hensall Engine and Machine Works, HENSALL, Ont., Canada.



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1012 VINE ST., CLERKENWELL,

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CLOTH AND PAPER.
GLASS & FLINT PAPER.
"Atlas Brand"

FLORA Knife Polish
in 31 lb & 1 Tin.

Ground, Washed & Flour

WHEELS of highest
quality for general
& special purposes.

Grinding Machinery



Mr. J. W. Poupore, M.P., Ottawa, is negotiating with an American Syndicate, capitalized at \$5,000,000, to erect smelters at Ottawa and on the Georgian Bay in connection with the Ottawa ship canal.

A Berlin correspondent calls attention to a saccharine novelty now being produced in Germany. As all sugar producers must pay a tax, some ingenious German sugar manufacturers have developed the idea of preparing beet juice ready for direct consumption. So far as we can understand it, this would be something similar to cane syrup. The beet juice in Germany is given the flavor of fruits and berries, such as strawberries, currants, etc., and it finds a ready sale, one factory alone having turned out 450 tons two years ago, and 700 tons of this material one year ago. As this beet juice, or syrup, evades taxation under the present German fiscal system, it is invading the market hitherto occupied by the sugar manufacturers, and they are about to call the attention of the Government to this plan of circumventing taxation, and will endeavor to prevent it. The syrup is largely used by confectioners and others.

A British Columbian correspondent writes to The London Times as follows:—"The salmon canning business has increased by leaps and bounds of late years. One of the owners laughingly remarked to me that his cannery had got the 'record' catch, which, he said few in England would be inclined to believe, as it amounted to 60,000 salmon in one day. The salmon go up the Fraser River in millions, so that in places it is quite black with the crowds of fish. The actual catch goes on for a short period, but for many months previous arrangements are being made for the catch, fishing boats and nets are being got ready and cans made for potting the fish. The principal catch may be said to continue from the middle of June to the middle of July, after which the work of packing and shipping continues till late in the autumn."

It is safe to say that at no former period in the history of Canada was the consumption of pig iron so great as it has been for the last ten months. All the foundries continue as busy as ever, with a fair prospect of having a good supply of orders for another ten months. At the same time a good deal more business is being done in English irons. In May, 1897, the imports of American pig iron at Montreal were a little over 54 tons, and of British pig 95 tons. This year the imports of American have increased to 147 tons, while those from Great Britain have leaped to 520 tons. This increase of over 400 per cent. in British, as against a little over 100 per cent. in American, must be gratifying to those who desire to see an expansion of Canadian trade relations with the Mother Country. The quantities are, of course, so small as to be trivial, but it must be remembered, too, that this increase took place before the 25 per cent. preferential tariff came in force, under which our pig iron maker should be able to do still better. The duty on pig iron entering Canada is 10s. 3d. a ton, and a reduction of 25 per cent. on this amount is equal to 2s. 7d. a ton—a not inconsiderable amount in these days of small profits.—Iron and Coal Trades' Review.

During the past week the Swansea Forging Co., Toronto, have shipped over 500 tons of railway supplies to Messrs. Mann, Foley Bros., & Larson, contractors for Columbia and Western Railway, B.C.

The Warwick Clothing Manufacturing Company, of Warwick, Que., are lighting their works throughout by electricity. The order for the necessary apparatus has been given to the Royal Electric Co.

The Canadian Electric & Water Power Co., of Perth, Ont., are installing a five h.p. two-phase S.K.C. motor. This is the third installation within a short time and shows what can be done with the two-phase system for developing a power trade for electric light companies and assisting to make the much desired day load.

The Ontario Wind Engine and Pump Co., Toronto, have just received word from Nikosia, Cyprus, that their third shipment of pumps have arrived safely, and are giving general satisfaction. Canadian goods are in high repute in the eastern end of the Mediterranean.

The Canadian Pacific Railway have purchased from the Royal Electric Co. one of their fifty light 2,000 candle power arc dynamos, together with fifty-two arc lamps, for use in their car shops at Hochelaga, near Montreal.

The Metropolitan Electric Railway is extending its line from Richmond Hill, Ont., to Newmarket, Ont. Most of the iron work is being supplied by the Swansea Forging Co., Toronto.

The McDonell Rolling Mills Co., Toronto, have just added to their already extensive plant two new furnaces, a squeezer and a train of twenty inch rolls.

The Citizens Electric Light Co., of Smith's Falls, Ont., are increasing their electric lighting plant, and have purchased from the Royal Electric Co., one of their 1,500 light "Royal" Incandescent dynamos, with station apparatus complete. This is to be installed at once.

Under date of September 17th. Messrs. David Maxwell & Sons, St. Mary's, Ont., announce their regret at the death of their senior partner, Mr. David Maxwell, Sen., which occurred on September 10th. The business of the firm will be carried on by the surviving sons, who have been actively connected with it for many years. The name of the firm will remain unchanged.

The works of Mr. W. G. Harris, Toronto, recently destroyed by fire, are being rebuilt, and will embrace many essential improvements and machinery for the manufacture of habbitt and stereo metal, etc.

The Montreal Glove Manufacturing Co., Montreal, has obtained charter of incorporation.

THE CANADIAN RAND DRILL CO. have moved their General Sales Office, controlling Canadian Territory, to 18 Victoria Square, Montreal, in order to facilitate their business, which has been rapidly increasing during the last two years. They have established an office at 88 York St., Toronto, one in Halifax, one in Rat Portage in charge of Mr. George J. Ross, and one in Rossland in charge of Mr. Mendenhall. They are as usual manufacturing largely along the lines of duplex construction which they have advocated from the first. A duplex compressor costs a little more in the first place than a straight line machine, but the difference in economy of the two offsets the difference in price. Their Toronto office has lately contracted with the Canadian Copper Co., the largest nickel producers of Canada, for a very large mining plant. The Canadian Gold Fields of Marmora, they have also just equipped with a large Corliss Compressor.

Through the Halifax office the Intercolonial Coal Mining Co., of Westville, are also installing one of their high class machines for pumping. Duplex construction permits of an economical arrangement of cylinders in proper ratio to the steam pressure at hand, and to the air pressure required.

The Rat Portage office last year installed from start to finish a large plant at the Sultana mine, a large plant at the Foley mine, and also a large plant at the Mikado. They are now putting in machinery at the Cameron Islands mine, and also a large plant for the Boulder Gold Mining Co., which is controlled by Mr. Leclair and other American capitalists.

The Rossland branch has rather the advantage of the others in that it has a large warehouse at its back and is able to fill orders from stock. They have lately contracted with the Knob Hill mine for a large power plant and two mining plants, the object being for the second mining plant being supplied with power from the one Compressor located at Knob Hill.



B. GREENING WIRE CO.
(LIMITED)
WIRE MANUFACTURERS
& METAL PERFORATORS
HAMILTON
& **MONTREAL**

Wire Screens for Every Class of Material.

Perforated Metal of Steel Copper, Brass, Zinc for all purposes.

Special Attention given to Minor's Requirements.

Mr. W. W. Ogilvie is building what will be the largest grain elevator in Montreal. The plans are already completed for its construction. It will have a capacity of 2,000,000 bushels. The mill will be built almost directly opposite the city mills, also operated by Mr. Ogilvie, on Mill street. Already the foundation is said to have cost fully \$30,000. The total cost of the elevator when completed will be enormous. It will have a frontage of 240 feet and a depth of 200 feet.

Glace Bay, N.S., is to be lighted by electricity. Over 800 lights have been already subscribed for and the plant will be installed this fall. It is understood that the Royal Electric Co., of Montreal, will have the contract for the electric plant and the Robb Engineering Co. that for the steam plant, although negotiations are going on between the promoters and the Dartmouth Co. for

the purchase of a boiler and engine used by the latter since that company began the use of water power.—Maritime Merchant.

The ratepayers of Lanark, Ont., have defeated the by-law granting a bonus to the Lanark County Railway, and a scheme is now on foot to connect that town and Carleton Place by an electric railway.

At a meeting of the city council of Belleville, Ont., last week, a communication was read from the Belleville Brussels Carpet Company, stating that they intended to buy or erect works in that city for the manufacture of Wilton and Brussels carpets. They asked that the city grant them a free site, if they should require one, exemption from taxation, and a bonus of \$35,000, \$25,000 payable when the works are completed and 100 hands are employed; another \$5,000

when 150 hands are employed, and the balance when 200 hands are employed. The Executive Committee recommended that the proposal be accepted, and that an agreement and by-law be drawn up for submission to the council and to the ratepayers.

We are informed by Mr. Lea, proprietor of the Toronto Fence and Ornamental Iron Co., that he will in the near future erect a much larger and more commodious works than those he now occupies in Adelaide street.

The Department of Railways and Canals has awarded contracts for freight cars for use on Government railways as follows:—Crossen Car Mfg. Co., Cobourg, Ont., 100 box cars; the Rathbun Co., Deseronto, Ont., 50 box cars, and Rhodes, Curry & Co., Amherst, N.S., 150 box and 100 flat cars.

The Royal Electric Co., Montreal, have received an order from the Jacques Cartier Pulp and Paper Mill Co., Point Rouge, Que., to instal a plant to light their new pulp and paper mills.

The Lunenburg Gas Co., Mahone Bay, N.S., has placed an order with the Canadian General Electric Co., Toronto, for a 100 kilowatt three-phase revolving field type alternating generator.



WATER WHEELS

For Heads of 3 Feet to 2000 Feet.

ADAPTED TO MILLING AND ALL POWER PURPOSES.

Recent tests at Holyoke enable us to guarantee:

The Largest Power ever obtained from a wheel of the same diameter. The highest speed ever obtained for the same power. The highest mean efficiency ever obtained when running from half to full gate. We guarantee also a running of the greatest possible strength. A note unequalled in quietness and ease of operation and closing.

Write for pamphlet, stating your Head.

JAMES LEFFEL & CO., Springfield, Ohio, U.S.A.

THE TORONTO PATENT AGENCY, (LIMITED) . . .
TORONTO, CAN.

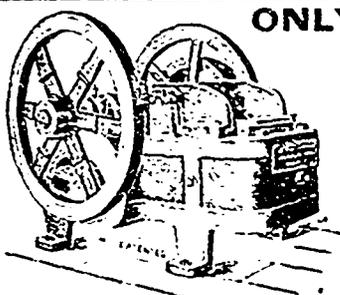
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Pipe and Boiler Coverings, Engine Packings,

LUBRICATING OILS, GREASES, AND BOILER COMPOUND, COTTON WASTE, ETC.

EUREKA MINERAL WOOL and ASBESTOS CO., 136 Bay Street, - Toronto.



ROLL JAW CRUSHER.

ONLY

FINE CRUSHER

BREAKS LARGE, or when set close
Reduces to GRAVEL and SAND.

FOR ORES.

STURTEVANT MILL CO., BOSTON, MASS.

Crocker Patent Turbine



This Wheel is to be found in representative plants in nearly all parts of the Dominion. It possesses among its leading features

LARGE POWER FOR THE DIAMETER. SUPERIOR STRENGTH AND DURABILITY.
GREAT EFFICIENCY AT ALL DEGREES OF GATE OPENING.

Designs prepared for complete plants and the best development of power possible under the peculiar circumstances of head, etc., in any locality.

CIRCULARS AND PRICES ON APPLICATION.

5 inch Crocker Wheel Plant at the works of
the Boston Rubber Co., St. Jerome, Que.

The JENCKES MACHINE CO.,

42 LANSDOWNE STREET
SHERBROOKE, QUE.

A Stratford, Ont., by-law has been passed to raise \$30,000 to erect new municipal buildings.

The Maple Leaf Woolen Mills Co., Markham, Ont., has obtained a charter.

The Hamilton Electric Light and Power Co., have lately placed in their lighting station one 2000-light Royal Alternator, and one 100 h.p., 250 volt, direct current, Royal Power Generator.

The sawmill of Lequime & Powers, near Midway, B.C., was destroyed by fire a few days ago.

James Devall's planing mill at Simcoe, Ont., was destroyed by fire a few days ago.

The Sheffield Cutlery Co., Montreal, has been incorporated with a capital stock of \$10,000 for the manufacture of cutlery, etc.

The Best Wire Fence Co., of Ontario, has been incorporated with a capital stock of \$50,000, with headquarters at Windsor, Ont.

The London Cold Storage and Warehousing Co., London, Ont., has been incorporated with a capital stock of \$75,000 to carry on a business of cold storage, warehousing, etc.

The McLaughlin Carriage Co., Oshawa, Ont., have ordered a 100 horse power Robb-Armstrong Engine from the Robb Engineering Co., Amherst, N.S.

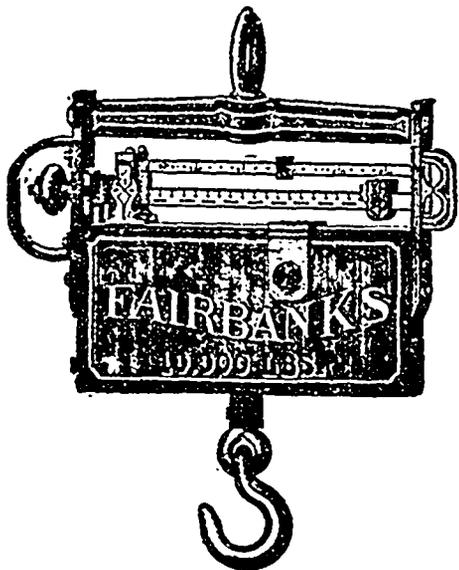
The city of Fredericton, N.B., will give \$10,000 and exemption from taxation for the establishment of a shoe factory there.

C.S. Drummond will make application to the city council, of Nelson, B.C., for a charter for electric railways to be built in the towns in that vicinity. Mr. Drummond represents the British Electric Traction Company, of London, Eng.

The Essex Standard Gas and Oil Company are preparing to put another pipe line across the Detroit river, opposite Sandwich, Ont. A contractor from Detroit has the job of putting down the pipe. The line is staked out, and work will begin at once.

The Fairbanks Company,

749 CRAIG STREET, MONTREAL.



Compound Suspension Scale

FOR USE IN THE

**FOUNDRY,
MACHINE SHOP,
SHIPPING ROOM,**

AND IN ANY PLACE WHERE YOU HANDLE ANYTHING BY A CRANE, DERRICK OR HOIST.

Made in Capacities of 500 to 40,000 lbs.

WE KEEP A COMPLETE STOCK OF.....

WRITE US FOR
PRICES ON

FAIRBANKS VALVES AND COCKS.

FAIRBANKS STANDARD SCALES,

NICHOLSON FILES AND RASPS,

AMERICAN FILES AND RASPS,

TRUCKS, FORGES AND FACTORY SUPPLIES,

CHATILLON SPRING BALANCES,

DODGE WOOD SPLIT PULLEYS.

TO MANUFACTURERS...

Bar Iron, Steel, Boiler Plate,
Rivets, Tube Expanders,
Hammers, Metallic Letters
and
Figures for Patterns.

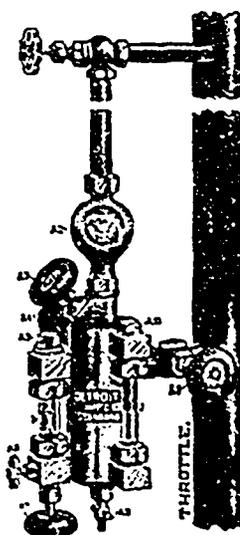
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(LIMITED)

COR. KING AND VICTORIA STREETS, TORONTO.

ADVERTISE IN THE CANADIAN MANUFACTURER.

SEND FOR RATES.



THE BEST JUDGES OF ENGINES

THOSE WHO BUILD HIGH-GRADE ONES.
ALL USE

The **Detroit
Sight-Feed
Lubricators**

This is equally true of Canadian as of American engine builders. They know that the valve friction must be overcome if their engines are to work at their best. They know from experience that the Detroit Lubricators do this, and where so much is at stake they want only the best. It should be the same with all engine owners. The saving our Lubricators effect will pay for themselves very soon.

Send for Catalogue and Prices.

Detroit Lubricator Co.,
DETROIT, MICH.

The Maritime Sulphite Fibre Co., Chatham, N.B., have ordered a 500 h.p. cross compound condensing engine from the Robb Engineering Co., Amherst, N.S., to replace their present 250 h.p. simple engine, and to provide for contemplated enlargements of their plant. They expect their new engine to effect a large saving in fuel over the type they are now using as well as to give much better speed regulation.

The Royal Electric Company, of Montreal, will hold a special meeting on October 18th, for the purpose of authorizing an issue of preferred stock and the acquisition of shares in the Chambly Manufacturing Company for an additional amount of \$100,000.



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FIRST and BEST

1,600 REMINGTON'S used by U. S. Government
Departments at Washington.

Endorsed and used by Dominion and
Provincial Governments.

EDISON MIMEOGRAPH

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The Royal Company has heretofore been paying 4½ per cent. on its mortgage bonds, and a higher rate of interest for its customers' paper. The Company's credit being excellent, any money required can be obtained in England at a much lower rate of interest, and the board deems it in the interest of the shareholders to avail themselves of that credit, instead of issuing common stock at once for all the money needed, which stock would carry 8 per cent. dividend.

The Deseronto, Ont., Tribune, speaking of the industrial progress of that town, says: "The manufacture of charcoal iron cannot but prove of great and lasting benefit to the town and will mark a new era in the industrial career of the province. It must be remembered that there is a large home market for charcoal iron in Canada, and the products of the works can also be shipped to England and the continent of Europe, where there is always a growing demand for this kind of iron, so useful in many manufacturing industries. Already a stimulus has been given to the business interests of the town as a result of the erection and expansion of these industries. The employment of so much labor in the erection of the works and the continual employment of even more when the works, with probably other allied industries, are under way, has resulted in the erection of about twenty new houses in different parts of the town. Additions have also been made to a great many residences, and on all sides renovation is the order of the day and night. Painters have been plying their brush all through the season in brightening the exterior of scores of homes. Many are contemplating the erection of new houses next spring and business men are demanding better premises for the accommodation of their customers. Notwithstanding the depressed condition of the lumber market in the United States, the various industries of the Rathbun Company have been all busy, and have given employment to even a larger number of hands than in former years."

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2 ft. 8 in. wide, 24 in. diameter.

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36 in. diam., 60 in. wide, with
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4½ in. x 3½ in. Water Cylinder.

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Six Horse Power.

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The importance of Southwestern Essex as a tobacco-growing district has forced itself on the attention of tobacco dealers and manufacturers. Some days ago Messrs. J. and B. Goldstein, and D. W. Ferguson, of Montreal, visited Kingville and Leamington, to examine the tobacco crop, with a view to establishing a tobacco manufacturing plant. Mr. Ferguson is an old manufacturer and bought tobacco there many years ago. These gentlemen figure that the output of the counties of Essex and Kent will be between five and six million pounds, and that the price, in consequence, will not be as high as it was last year. Mr. Goldstein said it would have been better for the growers had they planted more cigar tobacco, and suggested that the municipality would engage a man who understood curing cigar stock to instruct the growers on that point. He strongly advises growers to import seed instead of raising it themselves. They told the Windsor Record that they never saw a better crop of tobacco in Canada than this country is producing this year. They also found that all the different kinds of leaf required are now being raised. In establishing their factory they say they will be guided by the terms offered by the municipalities, which are seeking for them, and hint at bonuses. They propose manufacturing all kinds of tobacco, and would likely go into the cigar trade as soon as the other branches were running properly. Chatham would like to have the factory; its Board of Trade will meet these gentlemen. But Windsor has claims too, as a shipping point.

The people of Hamilton who are users of electric light will be pleased to know that there is a prospect of a reduction in the price

of that at present too expensive article. Whether their pleasure will become a permanency or be merely ephemeral will, it is said, largely depend on the result of the first few week's test of power used from the Cataract Power Company's headquarters at Decew's Falls. Through some bad working of the machinery at that end of the line the Cataract people have been unable to give power as yet to the Hamilton Electric Light and Power Company, but it is expected that early next week the regular supply service will begin. The Cataract Company now has, in a sense, a monopoly of the electric lighting business in Hamilton. By an agreement with the Hamilton Electric Light and Power Company, the new concern is to supply all that company's power, and in a short time the engines in the big works at the corner of Main and Catharine streets will be closed down, providing everything goes well with the Cataract concern. The arc lamp lighting for the city streets will be then run on the direct system, rotary converters being used. The incandescent lighting will all be run on the alternating system. Then the Simpson Electric Light Company, which has been doing business for some years in a small and unsatisfactory way, has been reformed and is under contract to take all its power from the Cataract people. If the Cataract Company is able to carry out its part of these agreements an assurance has been given, indirectly, that there will be a reduction to consumers in the cost of light. (Of course every user of light will hope that this may happen and happen quickly.—Hamilton Spectator.

As illustrating how quickly a wide-awake business man sometimes takes quick advan-

tage of suddenly presented opportunities, a writer in Brick, of Chicago, tells how Mr. W. Alsip, of Grand Forks, Dakota, hearing that an attempt was being made to "corner" the price of brick at Winnipeg, gave orders that a brick-making plant which he had loaded on a train for new works he was about to establish at Fargo, should immediately be shipped to Winnipeg. As a result of this hastily formed decision, Mr. Alsip has now a large brick manufactory in the capital city of our Northwest, and is assisting by his energy to promote its growth and welfare.—Architect and Builder.

ELECTRIC POWER AT PORT ARTHUR ONT.

Mr. E. S. Jenson is an engineer who for three years has been devoting his time and attention to the development of the Kakabeka Falls water-power on the Kaministiquia River, Ont. In 1897 he got a special Act of the Ontario Legislature, to expropriate certain lands and rights from the Kakabeka Falls Company, and the question of damages and rights has been before the official arbitrator and the courts until quite recently, when the matter was finally disposed of.

The proposal now is to build a water-power canal from above the Ecarte Falls on the Kaministiquia river to the boundary of Port Arthur, where an immense storage reservoir will be built, and where practically an unlimited supply of power may be developed, but the water will be delivered with 300 feet of head. The intention is that the town of Port Arthur and Fort William shall get their water supply from this source, which will likewise give them a fire pressure



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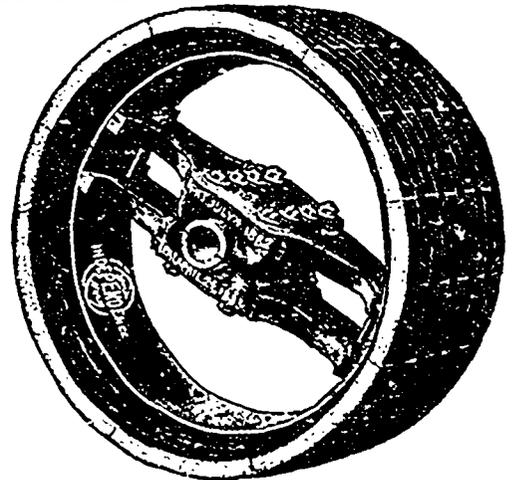
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by gravitation. Both towns are to be supplied with water sufficient to generate electricity to supply the Port Arthur electric railway, and both lighting plants upon payment of a rate of one cent per thousand gallons, which will furnish power at a less rate than either municipality is now paying for their steam power.

Behind all this and as a consideration, Jenison is to have the right to furnish water-power, compressed air, and electric power to the manufacturing institutions in the two towns, and he claims that he could now make contracts, if he were to say just how soon he would be in a position to deliver the goods. Mr. Jenison has letters from some of the foremost financial institutions in Chicago, showing his ability to carry out

successfully any undertaking that he assumes and he states most emphatically that if an arrangement can be entered into with the twin towns such as this, work will commence at the earliest possible moment in the spring, and that power will be on tap by autumn.

The immediate expenditure involved for the construction of the canal will be \$1,000,000. One of the important industries which is expected is a thousand-barrel flour mill.

MONTREAL AND GEORGIAN BAY CANAL.

Mr. McLeod Stewart, of Ottawa, who was in Montreal a few days ago on business con-

ected with the Montreal, Ottawa, and Georgian Bay canal scheme, says he has laid before the Dominion Government the following proposals, which will be approved of and accepted by Messrs. E. Pearson and Son, London, England, the largest contracting firm in the world:—

The Montreal, Ottawa, and Georgian Bay Canal Company will build, construct, complete, and fully equip the Montreal and Georgian Bay canal with locks of fourteen feet depth, and up to the standard of the latest locks built by the Government of Canada, so that boats can pass through from the great lakes to Montreal without interruption.

The company will wait for one year, or longer if required, from the date of the absolute completion of the said canal before the guarantee hereinafter mentioned shall commence to be paid.

The guarantee required of the Government by the said company is \$340,000 a year for twenty years, or two per cent. on \$17,000,000, the cost of which the said company accept as the estimate for the purposes of this arrangement or negotiation with the Government.

The said company will only ask the Government to pay the deficiency in the interest on the bonds to the extent of a sum not greater than \$340,000, e.g., if the earnings for the first year were \$140,000, the Government would only be called upon to pay \$200,000.

If the Government of Canada shall be called upon to pay and shall pay the whole or any portion of the said guarantee, the same will be refunded by the said company from time to time out of the current and

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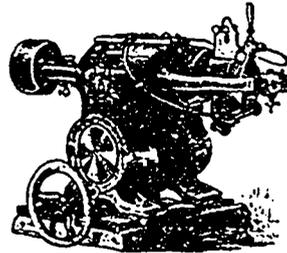
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of steam costs money. No steam appliance saves so much money, so much power, or so much heating expense as a good steam trap.

THE HEINTZ

is the best because it's the most perfect in construction and operation. It never freezes, never fails to operate in any position. Guaranteed under any and every condition if properly installed.

THE HEINTZ

has but six parts beside the case, with nickel valve, guaranteed not to corrode. It has no floats, no screws, no pit-cocks, no rotating parts. It operates to open and close the valve at one degree of heat—at 211 it's open—at 212 it's closed—and stays closed until condensation takes place in the pipe then valve is automatically operated upon allowing water to escape, valve closing with the first entrance of live steam.

There are cases where

THE HEINTZ

has saved one-third of the usual coal bills, and increased the power. We will send you a trap on 30 days' trial. Booklet B will interest every manufacturer of an investigating turn of mind.

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LIMITED.

SOLE AGENTS,
Adelaide Street West, - Toronto.

subsequent profits, so the guarantee will partake of the nature of a loan.

Mr. Stewart being asked if there was any reasonable likelihood that the revenues of the company will enable the company to recoup the Government, and whether the canal would be a source of revenue, said— "To both questions I can say yes with absolute certainty of being correct. The application of water-power to the production of electricity has totally revolutionized the financial aspect of the undertaking. Were tolls on traffic the only source of revenue, no private company could be found to assume the burden, but in addition to opening up a waterway of national and even Imperial importance, the construction of the works necessary to establish navigation will afford water-powers of a value sufficient to pay ample returns on an investment much larger than engineers' reports show will be necessary.

GAS AND GASOLINE ENGINES APPLIED TO SMALL PUMPING PLANTS.

The application of small power units, particularly for the pumping of water, is a subject which has not been studied very thoroughly from an economical standpoint until quite recently. Particularly has this been the case among railroads, along the lines of which are distributed innumerable pumping stations of varying capacities. A

pump, any old thing of a boiler, and a man in charge, are the component parts of perhaps the majority of such stations. The aggregate fuel consumption of those plants is an item which is apparent even on the coal pile of a railroad company, even as the labor expense is on the pay roll. Any reduction in either of these items is therefore of significant moment.

In a discussion of this subject in a paper by Charles O. Rogers before the Engineers' Society of Western Pennsylvania we find gas and gasoline engines considered in their applicability to small insulated pumping plants. Late in 1896 the East Pittsburgh Water Company installed an auxiliary pumping station at Pitcairn. It was decided to use a gas engine and power pump, the reason for this being briefly as follows: Adjacent gas mains afforded a convenient and cheap fuel supply; the gas engine would always be ready for operation without the expense of banked fires; installation of boiler and stack and carting of fuel and ashes were avoided. Moreover, the conditions demanded that the pump should be under automatic control. The pump was an 8½ x 8 inch single acting triplex and was guaranteed to deliver 225 gallons of water per minute against a head of 325 feet with a power of twenty-five horse. The engine was to furnish twenty-five horsepower at the break on a gas consumption of fifteen cubic feet per horse power hour. These conditions were maintained with a

gas consumption per brake horse-power of 13.42 cubic feet. Other instances are presented of gas engine pumping plants of different capacities which show equal efficiencies.

Tests of small units employing gasoline engines indicated a consumption of 0.312 gallon of gasoline per horse-power hour. It is pointed out that even in exceedingly small plants the cost of fuel is kept in some proportion to the duty as compared with larger ones. The advantage to the railroad above all saving in fuel expense is that of having a pump which does not require constant attention. One attendant can control several stations along the line, or an employe can handle the machinery with his other duties. Trials of a crude oil engine of small size gave a consumption of 0.47 gallon per horse-power hour.

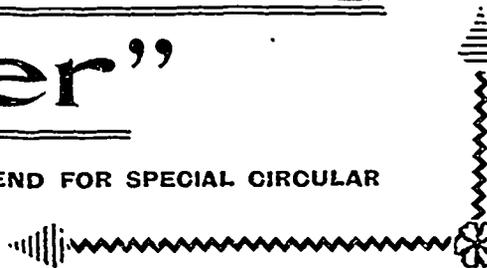
Regarding durability and repairs it is stated that the gas engine in its present form is not yet sufficiently aged to speak from experience, but, used intelligently, it promises to be as easy of maintenance in good repair as a steam plant. The strong point in its favor is that in case of emergency water can be forced into the mains at once, without waiting for banked fires to revive. Consumption of fuel ceases when the engine stops and it automatically takes care of all fuel and waste. While the paper presents only a few instances of gas and gasoline engine pumping outfits, it points the lines along which advances may be made.

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Contractors for the Design and Construction of Complete Stamp Mills, Concentration, Chlorination, Cyanide, and Smelter Equipments....

Department "E"

PETERBOROUGH, ONT., or VANCOUVER, B.C.

COWAN & CO., OF GALT, ONT.

The exhibit of Messrs. Cowan & Co., of Galt, Ont., at the recent industrial fair at Ottawa, was thus alluded to by the newspapers of that city :-

With forty years experience in the manufacture of practical, up-to-date machinery, the firm of Cowan & Co., of Galt, came to the fair with a magnificent exhibit of their productions occupying a large and prominent space in machinery hall. The firm makes a specialty of manufacturing wood-working machinery, and in this line do perhaps the largest business of any firm in the Dominion. Cowan & Co. believe that in industrial pursuits the highest skill alone can produce the best possible results, and the best results

are what the public require. Profiting by their past experience, and each year evolving some new idea or improvement in the manufactures, the firm has the proud satisfaction of receiving and filling orders not only from the expanse of the Dominion but in Europe as well. Last year they exported to the old country \$30,000 worth of machinery which whenever used never failed to give the utmost satisfaction. None but the most skilled labor is employed and every improvement in their line conceived by ingenious mechanics is put into execution. Cowan & Co. make a specialty of manufacturing planers, matchers, boilers, coreless and slide valve engines in fact everything in the line of wood-working machinery, and their products are used almost exclusively in the

large wood manufactories of the Dominion. The Dakin Feed Water Heater, Purifier and Oil Extractor is another excellent machine manufactured by the firm. The prospects for business this year were never so bright before. The firm are now busily engaged in executing orders from all over Canada and have just received a large one from a visitor from British Columbia. The exhibit in machinery hall should be visited by everyone who appreciates seeing up-to-date mechanism carried into effect. M. R. T. Randal, the general secretary of the company, and Mr. A. B. Cowan, were in charge.

Messrs. P. Gennelle & Co. are erecting a saw mill at Robson, B.C.

A Saving.

The first cost is not the test of an actual saving. The truly Economical Manufacturer knows this to be true. For instance, the cheap, trappy Pulley, by its inferior working qualities, is a source of loss to the user the moment it is put in operation, and this loss continues all the time the Pulley is working. You do not get the full or proper results from your power plant. Higher price, though, is not always a sign of better quality, for instance—you may or may not have to pay more for

"THE REEVES" PATENT WOOD SPLIT PULLEY

but in either case you are getting the best value on the market. Because with THE REEVES the saving is continual, in Power, in Time, in Shafting, in Belting, and last but not least, and as a result of all the other savings, a saving in Money. CAN YOU AFFORD TO BE WITHOUT "THE REEVES"? Is the best too good for you? WRITE TO-DAY FOR OUR CATALOGUE AND GET OUR PRICES.

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Good Condition?

CANADIAN ARSENICAL ORES.

An event of considerable importance occurred a few days ago at Actinolite, a mining centre near Tweed, Hastings county, Ont., being the testing of Prof. H. H. Eames' new process for treating arsenical ores. The experiment proved a success, and the results are so satisfactory that operations will be immediately commenced on an extensive scale. The parties most interested were Prof. Eames, the inventor of the process; the directors of the Kaladar and Anglesea Mining & Development Co., and Mr. Clapp, owner of the property on which the tests were made. A transfer of the Clapp property to the Kaladar and Anglesea Co. being in prospect, the tests were for the purpose of demonstrating the feasibility of the process. A ton of ore was put through the furnace, and after eight hours' work 200 pounds of arsenic was extracted, thus proving the process a complete success. Time being limited, the exact values of arsenic and gold contained in the ore could not be ascertained. The details of the process are, of course, known at present only to Prof. Eames. The method of treatment, however, is to first extract the arsenic from the ore; this leaves the ore practically free milling, and the gold values therefore are easily secured. Arsenic is regarded as the chief product, the gold being counted "so much to the good." The company will at once proceed to work the property vigorously.

STORAGE BATTERY AUXILIARY.

The Electric Storage Battery Co., Philadelphia, Penn., have sent us an illustrated circular having reference to the installation of an outfit of their chlorine accumulations in the station of the Barre-Montpelier Traction Company, at Montpelier, Vt.

This plant is notable as being the first railway plant in the United States operated exclusively from rotary converters with storage battery auxiliaries.

Power is furnished by a dam which gives an average of something over 2,000 h.p. throughout the year. At this point a generating plant was installed and started up in April, 1896, embracing three 750 h.p. turbines which drive two 150 k.w. Westinghouse three-phase alternators which furnish current for a great deal of work in the immediate vicinity, as well as supplying power for the railroad service. The company also operates a line nine miles long, running between the two cities.

The sub-station just inaugurated, contains the battery and the rotary converter with which it operates. Current is carried to this point from the plant at Middlesex, where it is generated as three-phase alternating current at 2,200 volts with 7,200 alternations per minute. From the generators the current is carried to two step-up oil insulated transformers of 150 k.w. capacity each, raising the potential from 2,200 to 6,300 volts. At this latter voltage the current is carried from the plant to the car house, a distance of eight miles from the step-up converters to the step-down transformers. The run is made with three No. 6 rubber covered wires, running on double petticoat glass insulators

and protected at both ends with Wirt's non-arcing 2,000 volt lightning arresters, there being three in each phase. The high-tension line is also fused with high-tension fuses after entering the transformer house at the car house. The two-phase side is fused between the oil transformers and the switchboard with aluminum fuses.

The step-down transformers at the car house convert the potential from three-phase to 480 volts two-phase current. The connections from this service to the rotary converter are made on the combined switchboard for the rotary and storage battery.

The rotary converter, which was built by the Westinghouse Electric and Manufacturing Co., is of 160 k.w. capacity, generating on the direct current end 550 volts, and is arranged to be started by a 25 h.p. synchronous motor. The rotary was designed specially to operate under the conditions of this service in connection with the battery. The direct current end is compounded to suit the working voltage of the battery under the

widely fluctuating loads so that the battery will take up the fluctuations without the aid of a booster or other auxiliary apparatus, thus making the operation of the plant exceedingly simple.

The battery, which consists of 248 cells of type 11-F Chloride Accumulators, is connected in multiple with the rotary converter, the two being connected directly across the trolley line. The entire length of the line is operated with no further provision for feeders than the single No. 00 trolley line.

The battery takes practically all the fluctuations in load, so that the rotary runs at nearly a constant load independent of the service on the line. The 248 cells of the battery are located in a small room partitioned off at the end of the car barn, in a single tier on wooden racks. Each cell consists of fifteen plates, 10 1/2 inches square, suspended in a glass jar, which in turn is supported by a tray filled with sand, which rests upon four single petticoat glass insulators.

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"Capitol"

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STANDARD GRADE

"Renown" "Atlantic"

ENGINE



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SAMUEL ROGERS, PRESIDENT
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A GREAT CANADIAN INDUSTRY.

Canadian competition begins to mean something in the markets of the world. The Montmorenci Cotton Mills Company works entirely in grey cottons, says the Quebec correspondent of The Globe, and the mill was established at the foot of the falls because of the magnificent water power they furnished. The mill made an opening for itself in the Chinese market and cultivated it steadily. The management, on the lookout for new openings, saw that American grey cottons were crowding out English cottons in Africa and elsewhere. The idea occurred to them that if British cottons must go in any case and be succeeded by cheaper fabrics, it would be better that Canadians, rather than Americans, should take the trade. The Department of Trade and Commerce, which closely watches market conditions, on being applied to, thought so too, also made inquiries in England and gave the firm's agents letters to Gray, Dawes & Co., a noted English house engaged in African trade. They were shipping American cottons at that time to Zanzibar and Mombassa, for the trade of the British East African and Great Lakes region, but moved somewhat by the Jubilee enthusiasm, which swept over the empire last year, and more perhaps by the fact that Canadian cottons were fully as good value as American, they decided to use Canadian goods. The immediate result of finding a market in East Africa as well as China is that the mills at Montmorenci, which at present employ about three hundred and fifty workpeople, are now in process of enlargement to double the former capacity, and will employ after this fall between 700 and 800 persons. The

management praises warmly the work of Sir Richard Cartwright's department, which has thus opened up a trade of tremendous possibilities in Africa. Gray, Dawes & Co. are at present building a railway under Government guarantee from Mombassa on the coast to the Great Lakes. It will be pushed north through Uganda to connect with the railway that Kitchener is building up the Nile towards Khartoum. The result will be the opening up of a vast tract of the most thickly populated territory in Africa, and a great enlargement of the market. The manager of the Montmorenci company says their route of shipment at present is to London, thence by P. & O. steamers to Aden, thence by Gray-Dawes' steamers to Mombassa. The distribution in the interior is by Gray-Dawes' own agents. In China the retail trade is controlled by the Chinese themselves, who cable for quotations through Shanghai agents. Between the Chinese and African trade there is plenty of room for expansion, and from the enlarged mill the shipments to British East Africa alone will run at an average of probably over \$1,000 per day. The industry can take care of itself, and there is no fear of American competition. Our total export of home manufactured cotton has more than doubled in the last five years. It was only valued at \$424,061 in 1893, and in 1897 it had increased to \$949,861. With right methods of operation Quebec can beat out New England in cotton manufacturing.

TRANSFER ORNAMENTS.

How few people have any idea how the beautiful geometrical figures and floral ornamentations seen on high grade pianos,

bicycles, sewing machines, carriages, safes, locks, furniture, crockery and china are made. The old and expensive system of inland marquetry has been almost entirely superseded by what is known as the decalcomania transfer process perfected and controlled by the Meyercord Co. of Chicago.

The process is simply the method of transferring lithograph pictures, ornaments, or drawings from paper, chemically prepared by the decalcomania process by which the picture is instantaneously transferred to either wood, metal or glass, leaving the impressed picture so that it cannot be erased and impervious to water and atmospheric conditions.

Some thirty years ago the transfer process was first discovered in Germany by a lithographer. The process though extensively used for decoration purposes in Europe was never patented, but was kept a profound secret. Other lithographers, seeing the almost universal use of the transfer process for decorating wood, china and metals, started to experiment, but none of them secured the results of the original inventor, till about five years ago two young men in Chicago, after many experiments, succeeded in producing results exceeding that of the original process. The Meyercord Co. now control absolutely the process discovered by the two Chicagoans, and have perfected it to such an extent that the product is to be seen on nearly all goods upon which the transfer process is used in the United States, and a very large export trade is made to the country where the transfer process originated.

The Midland Elevator Co., of Midland, Ont., are having placed in their elevator a fifty-light T-H. Dynamo, from the works of the Royal Electric Co.

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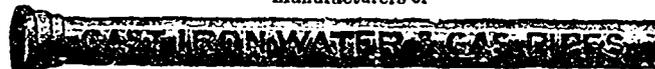
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THE CANADIAN NIAGARA POWER.

The Government of the Province of Ontario, Canada, is being agitated to take action in the matter of the franchise granted by the commissioners of Queen Victoria Niagara Falls Free Park to the Canadian Niagara Power Company. This franchise is one of the most remarkable rights of its kind ever granted a company in America. It bears date of April, 1892, and while the period covered by it is 20 years, it may be extended for a century. Under its provisions, says Iron Age, the Canadian Niagara Power Company were to have commenced work on or before May 1, 1897, and at that time they did break ground. They were to have proceeded so far with the work by November 1, 1898, that they will have completed water connections for the development of 25,000 horse power, and to have actually ready for use, supply and transmission 10,000 developed horse power. November 1st is rapidly approaching and the work of development is practically not yet commenced. But in the meantime the Canadian Niagara Power Company have secured from the Park Commissioners the right to erect two 500 horse power generators in the station of the Niagara Falls Park & River Railway in the park in order that they might be prepared for the prospective demand for power. Their readiness to supply electric power at any point within 4 miles of the park has been extensively advertised throughout the Dominion, but there is not the response from prospective purchasers that many of the power agitators would have people believe. In fact, the only customers so far are the Canadian branch of the Carborundum Company, using 200 horse power, and the Carmelite Monastery, using about 70 horse power.

It has been apparent to the Canadian Niagara Power Company for some little time that their chief market for power must be Toronto and such other cities as are anxious for the Niagara current. They have asked for an extension of the time in which they must have a certain amount of power developed, taking the position that they now have more developed power than is called for, and that it must needs require longer time to develop the Toronto market and perfect the transmission, as Toronto is 90 miles distant by the land route from the Falls. Certain politicians, however, do not see it that way and feel that the Government should revoke the franchise, it being their belief that another company would be organized to develop the project with greater rapidity. To such belief the Commissioners of Victoria Park take exception, expressing confidence in the Canadian Niagara Power Company and stating that it would be difficult to get such powerful capital again interested in the power development in Canada.

To some Canadians the development on the New York State bank of the river by the Niagara Falls Power Company has proved an eyesore, the feeling being that as the Niagara Falls Power Company and the Canadian Niagara Power Company are practically one and the same, the resources of one side of the stream are being advanced and developed to the cost of the other, the comparative industrial interests of the two countries not being taken into consideration. For this reason the members of the Provincial Parliament are being solicited to revoke the power franchise. There are several reasons why this is not likely to be done. The annual rental that the Canadian Niagara Power Company pay for the privileges of which they have not so far availed them-

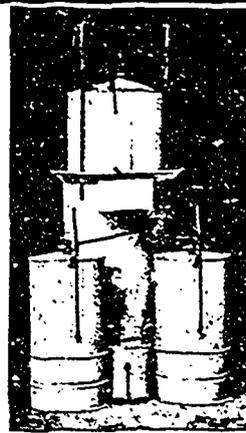
selves is \$25,000, and this amount has been paid every year since 1892. It is believed to be the greatest amount paid for similar rights in the world; in fact, when a reliable company start to develop a locality they are usually given such rights free of cost. On the New York State side the only obligation that the State placed on the Niagara Falls Power Company for the rights it granted to that company was that the power company should furnish water and electricity for lighting the State Reservation. The annual rental received from the Canadian Niagara Power Company is an important item in supporting the park, the annual cost of maintenance of that pleasure ground being about \$40,000. In no other way could this sum be obtained than by a rental of privileges. This being the case, the following facts about this greatest of power franchises are especially interesting:

The Canadian Niagara Power Company were incorporated in April, 1892. The capital stock of the company is \$3,000,000. They control the exclusive right to develop Niagara power for commercial uses in Victoria Park, on the Canadian side of the river. They pay more for this privilege than any other power company in the world pays for similar rights. Their rights are

almost irrevocable and they are good for a century from the date they were granted. These rights were obtained through the Ontario Legislature and the Government of Ontario.

The president of the company is Col. Albert D. Shaw, of Watertown, N.Y. Others interested with him are Francis Lynde Stetson, William B. Rankine and other members of the Niagara Falls Power Company. From this it will be seen that the Niagara Falls Power Company practically control Niagara power.

The company's agreement provides that they shall begin work by May 1, 1897, and have 10,000 horse power developed by November 1, 1898. They must have completed water connections by the date last mentioned for developing 25,000 horse power. For the first ten years the company's rental is \$25,000 a year, the rent being computed from May 1, 1892. The rental for the second ten years increases \$1,000 each year until at the end of the twentieth year it reaches \$35,000, at which rate it is to be continued. The rent for the first two years, \$50,000, was paid when the articles of agreement were delivered, and now the rent is paid in semi-annual instalments on May 1st and November 1st. The rent is paid to the



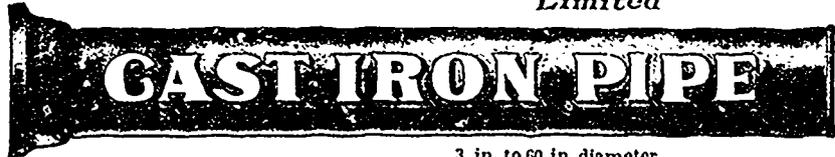
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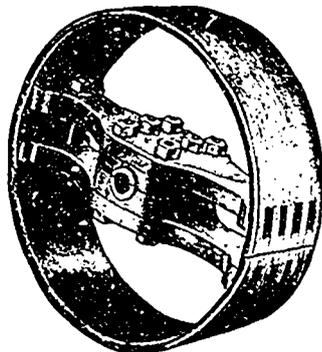
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As we shall not be able to personally visit each manufacturer, it is for this purpose that we publish this advertisement. This is our agent who is going about to solicit a share of your patronage. We are thankful for the patronage extended to us in the past, and hope that we may secure an extension of the favors for the future.

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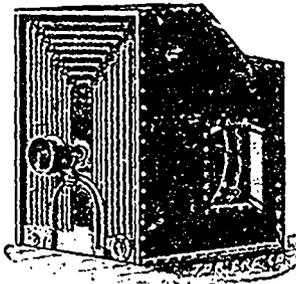
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Commissioners of Queen Victoria Niagara Falls Park, the Canadian free Niagara, and forms the most important revenue to support the park. If at the end of twenty years the company desire a renewal of the franchise for another twenty years they must give twelve months' notice to the Park Commissioners, when they shall be entitled to receive the desired lease, the intention being to confer upon the company rights for an original period of twenty years and for four further periods of twenty years each.

The method of development to be employed on the Canadian side will be very similar to that now established on the New York State side—a tunnel and wheel pit. On the Canadian side the tunnel which it will be necessary to build will be much shorter than that at Niagara Falls, N.Y. Its length will be only about 800 feet, and for this reason the power will not cost so much for development.

The agreement of the company with the Park Commissioners does not limit them to any number of horse power. For this reason the amount of power developed by the proposed Canadian tunnel is likely to be much greater than that developed by the New York tunnel. The conditions on the Canadian side are such that many more horse power can be developed there than on the New York State side for the same money. The construction of the inlet canal will be much easier in Canada, for the reason that there is a natural channel which will require but little extension to afford the necessary facilities. The water for the power development will be taken from the river between the head of Cedar Island and the mainland south thereof. The power house will be erected near the foot of the high bluff between the Carmelite Monastery and the rear of Table Rock House. The franchise provides that the company shall not occupy a space more than 1,200 feet long and not more than 100 feet in width. The company have the right to excavate tunnels to discharge the water from the power house into the gorge below the Horseshoe Falls. The water from the tunnel on the New York State side is discharged below the American Fall.

One of the very important grants of the franchise is that they may transmit one-half the power out of Canada. This privilege will make the Canadian station an important adjunct of the Niagara Falls, N.Y., plant, and should an accident occur in either of them the current from the other could be furnished all customers. In addition, this right makes it possible to increase the power in use at Niagara Falls by just one-half of the amount developed on the Canadian side. It seems highly improbable that all the power to be developed on the Canadian side would be used there, for the demands of Canada for power are not so great as in the States. But where the power is sold in Canada it must be sold at not more than is asked for similar power for similar uses in the United States—that is, the Canadian Niagara Power Company must not ask more for power than the Niagara Falls Power Company.

The Lieutenant-Governor in Council may at any time make the Canadian Niagara Power Company make a return of prices charged, verified under oath. Where a dispute arises as to the price or power furnished in Canada the High Court of Ontario shall have jurisdiction to hear and determine the question. If for one year the Canadian Niagara Power Company should fail or continuously neglect to generate electricity or

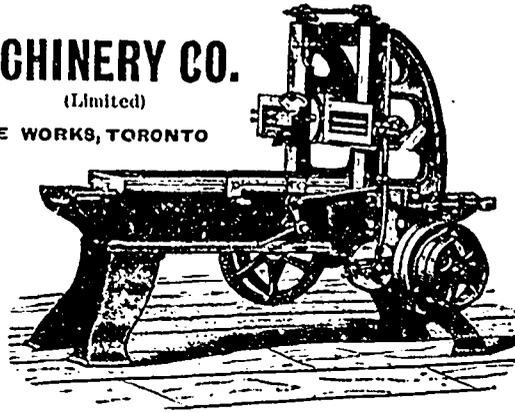
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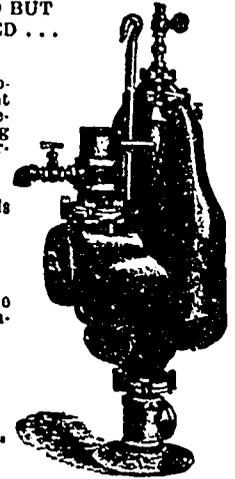
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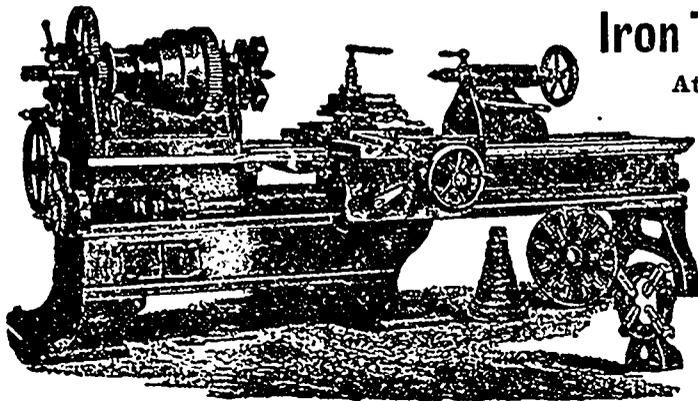
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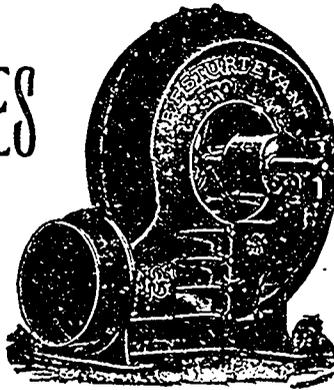


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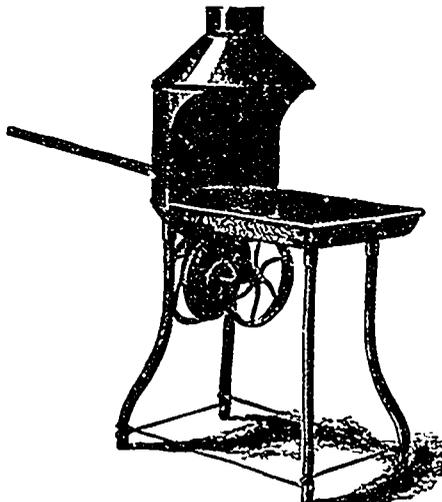
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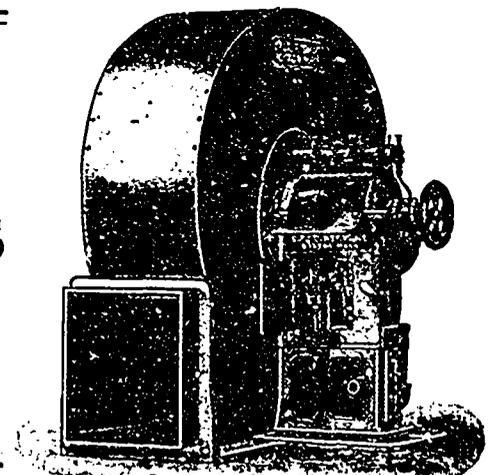
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The contract is one of the most important ever made for the development of Niagara power. It is exclusive and allows wonderful development. Should the company hold the franchise for a century they will pay no less than \$3,335,000 rental. The construction of the power plant will cost millions of dollars. Already several American factories are preparing to erect plants there to maintain their Canadian patents. Among these

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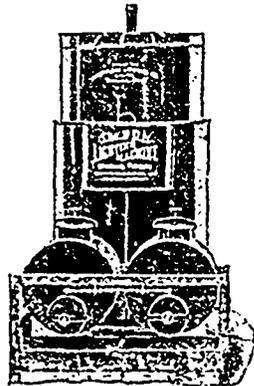
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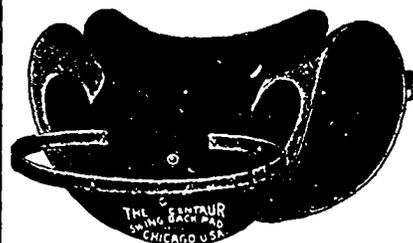
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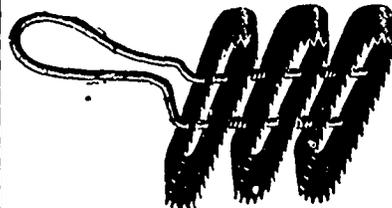
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THE MATHESON SAMPLE CARDS.

Messrs. Wm. J. Matheson & Co., New York, have sent us sample cards containing dyeings illustrating results obtained with their dye stuffs which have recently been issued in addition to their regular bulletins and circulars, which they will be pleased to forward to interested dyers.

Shades fast to milling on wool. The samples comprised in this card number 120, in shades varying from a bright yellow to a deep black, thus making this to be one of the most complete and valuable cards ever issued.

For practical reasons, the samples shown are divided into: (1) those produced in one bath with the Anthracene and Dia.ine colors, together with others of our well-known dyestuffs, being subjected in many cases to an after treatment with chrome; and (2) those

died on a chrome bottom, with our Alizaine Blue CS, in various combinations with the Anthracene Colors. These dyeings, exhibiting as they do, full and even shades, with excellent fastness to milling, and, being moreover easy of production must appeal strongly to those interested in this class of work. The information contained is ample to allow of the reproduction of any of the shades found herein, while by varying the combinations given, new shades may be easily obtained.

Anthracene Acid Colors dyed in one bath fast to milling. The value of these well-known colors for cloth dyeing, such as may be desirably employed for suitings, trouserings, etc., is here very effectively shown. The samples, though numbering but eight, exhibit a pleasing variety of shades—the drabs, and black and white effects, being particularly worthy of notice. These dyeings possess in common an excellent fastness to milling. All the shades shown were produced in a single bath operation, the saddening being effected in the original dye-bath, which has been exhausted of its color, thus avoiding the expense and labor of employing a second bath. The brown dyeings were obtained with the addition of Glauber's salt and acetic acid, while for the blacks, acetic acid with a subsequent addition of oil of vitrol, was employed. The directions given for producing the shades shown are most explicit.

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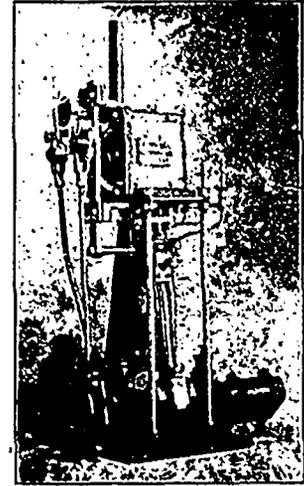
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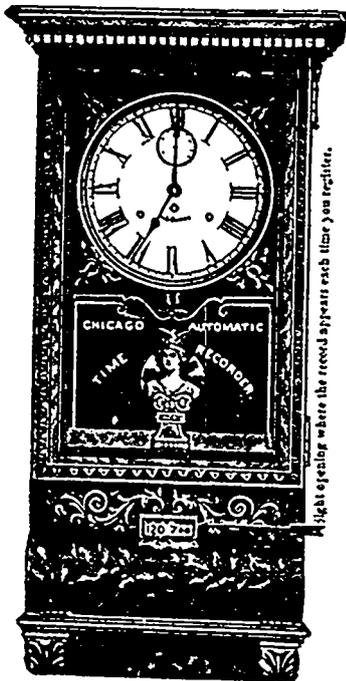
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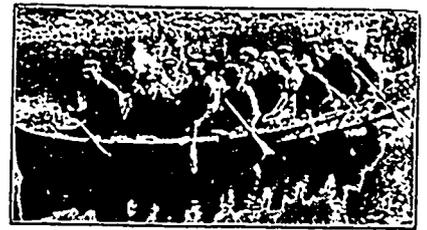
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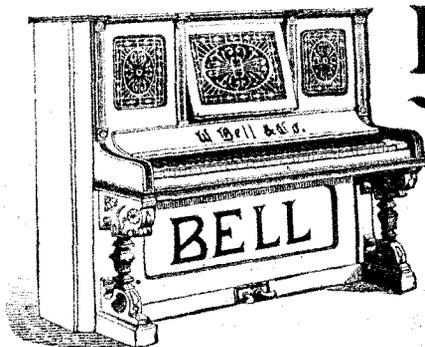
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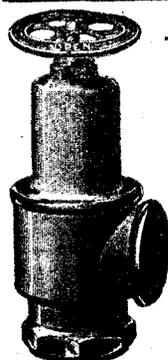
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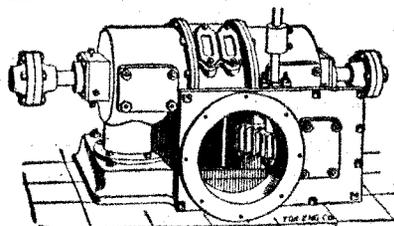
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