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Vol. 30.

TORONTO, APRIL 19, 1895.

No. 8.

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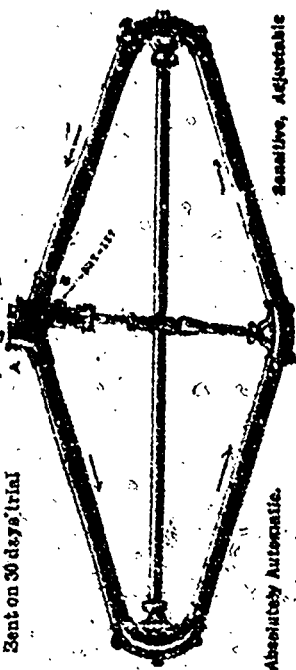
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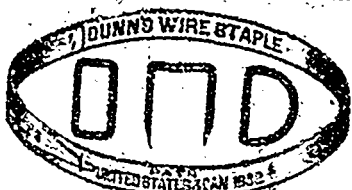
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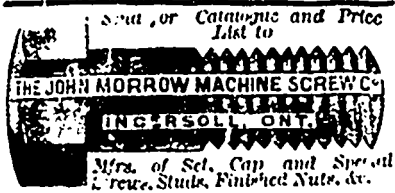
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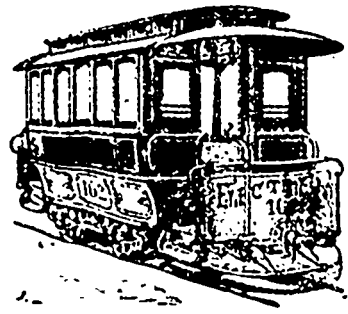
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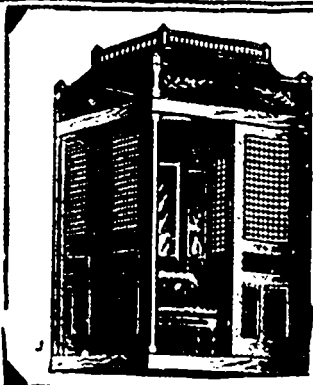
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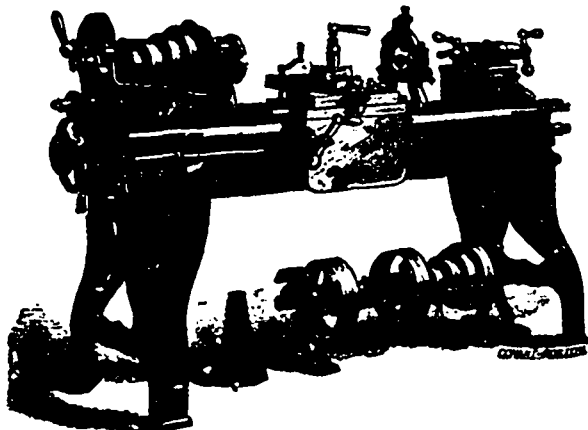
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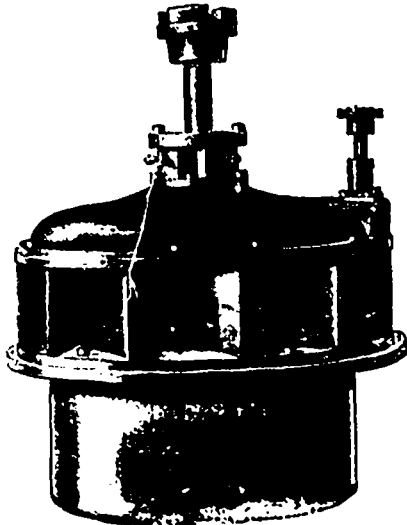
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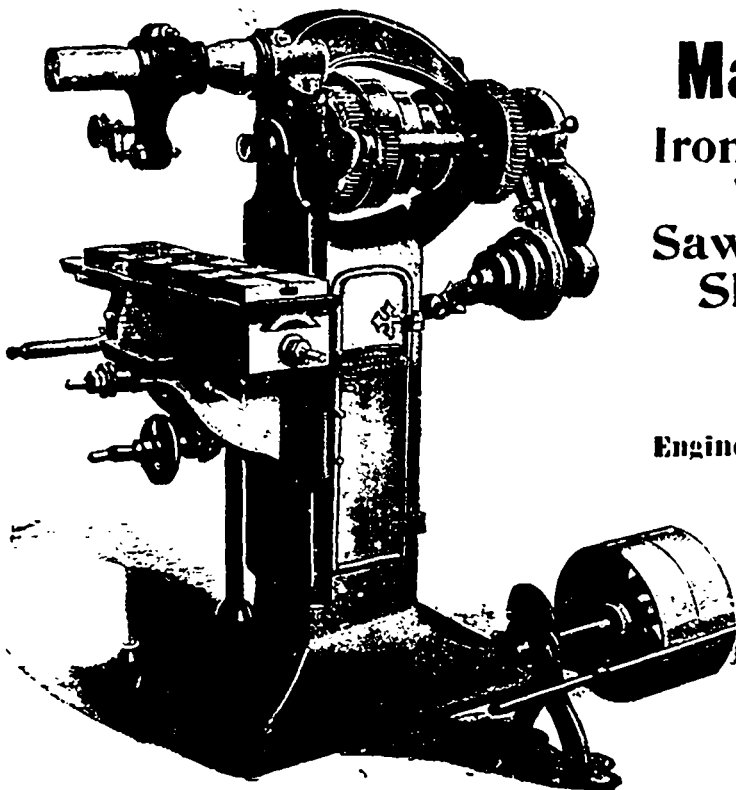
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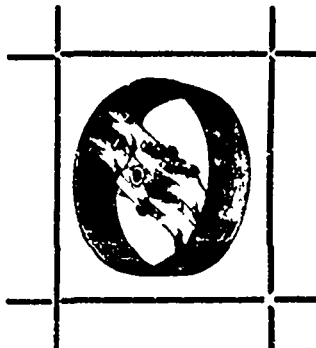
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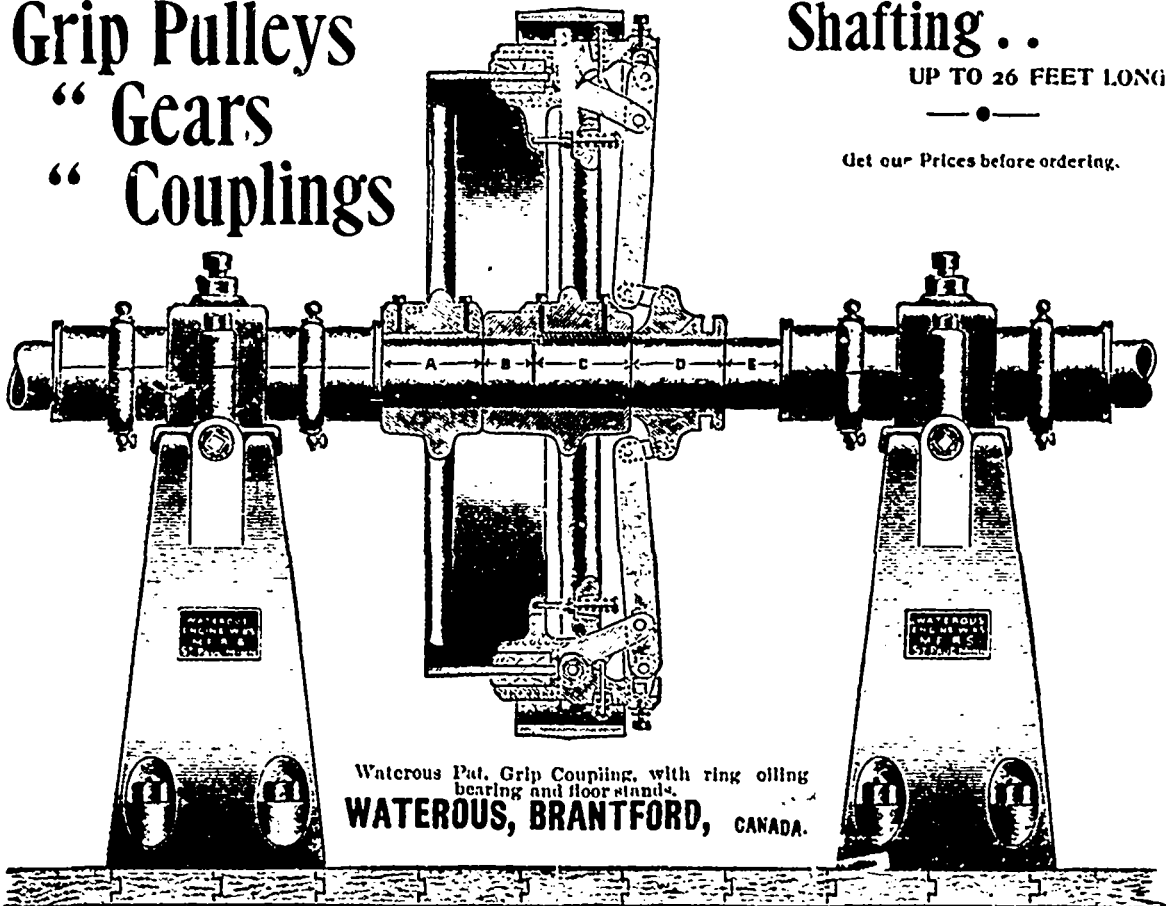
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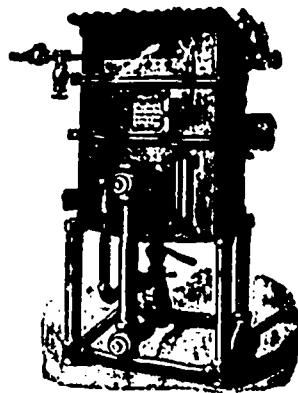
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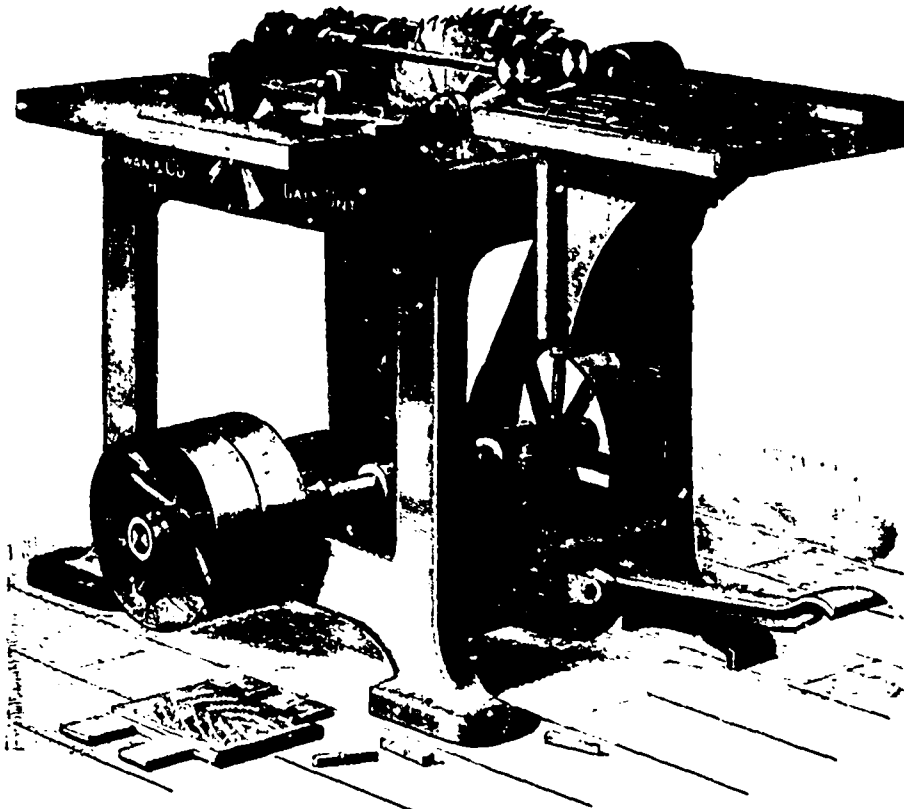
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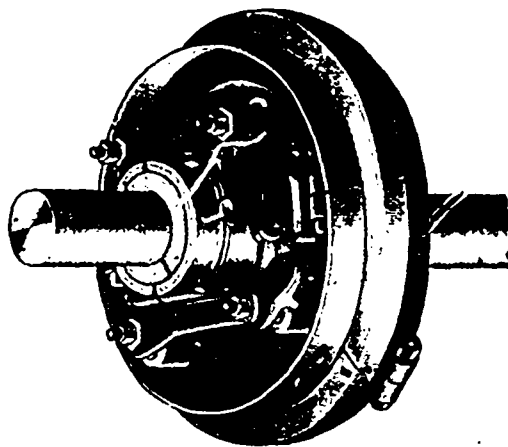
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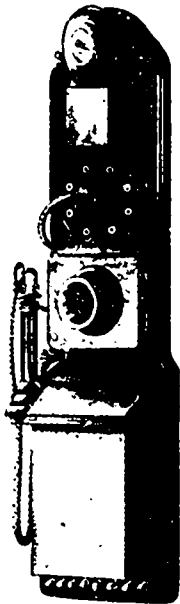
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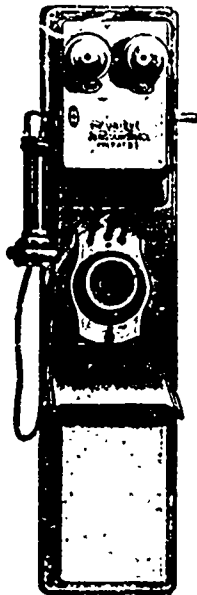
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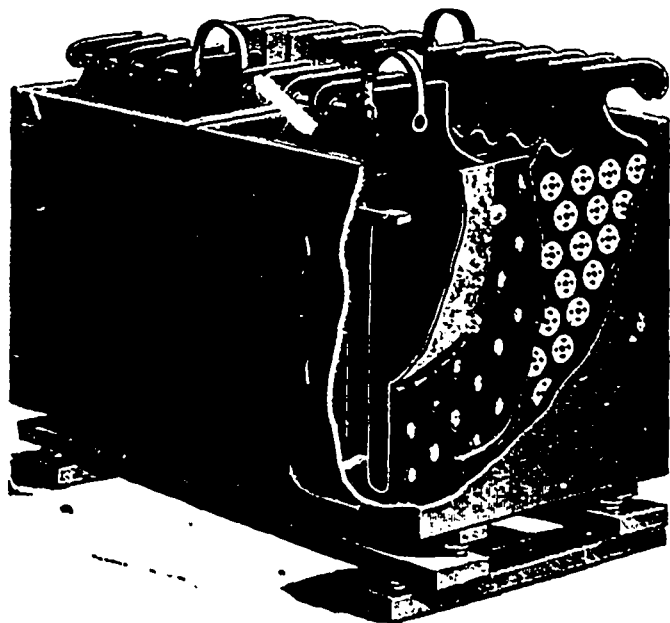
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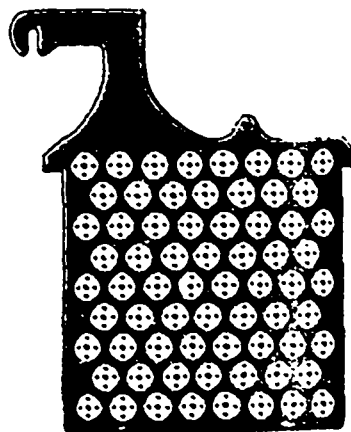
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CUSTOMS DECISIONS.

Some important decisions have been arrived at by the Department of Customs regarding the duty to be paid on articles which are not mentioned in the tariff and regarding points as to which there have been differences of opinion. These decisions have been approved by the Controller of Customs, and have the force of law. The Board of Customs has made the following decisions: Artificial teeth, 20 per cent.; atlases 20 per cent.; Babcock's milk testers, 25 per cent.; brass, in strips, less than four inches wide, 30 per cent.; capsules, medicinal, empty or filled, 25 per cent.;

carpet sweepers, plated, 30 per cent.; carpet sweepers, not plated, 27 1/2 per cent.; cyclometers, 20 per cent.; feather dusters, 25 per cent.; fittings for cast-iron pipe, cast-iron, \$10 per ton, but not less than 35 per cent.; fittings for wrought-iron pipe, malleable iron, 35 per cent.; fullers' earth, a toilet preparation, 30 per cent.; galvanized wrought iron tubing, more than two inches in diameter, 15 per cent.; glass signs, not framed, 25 per cent.; grenades, hand, 35 per cent.; Grinnell sprinklers, 35 per cent.; hose supporters, 32 1/2 per cent.; onion sets, for planting, but not fit for table use, 20 per cent.; pulp stones, \$1.75 per ton; pumice bricks 20 per cent.; silk neckties 32 1/2 per cent.; spectacles and eye-glass frames (complete), 30 per cent.; spectacle and eye-glass lenses (finished), 30 per cent.; tool handles, entirely of wood, 25 per cent.; tool handles, filled with any metal, 35 per cent.; typewriters, 27 1/2 per cent.

The following are the departmental decisions that have also been given: Blankets, cotton, bleached or white, 25 per cent., blankets, cotton, dyed or coloured, 30 per cent.; books, n.e.s., printed in two languages, one of which is English or French, 6 cents per lb.; brass tubing, cased, 30 per cent.; nucoa butter 4 cents per lb.; button moulds, 20 per cent.; buttons, bone collar, 20 per cent.; cases for jewels, cutlery, etc., filled, 5 cents each and 30 per cent.; copper tubing, brazed, 30 per cent.; oyster knives, 30 per cent.; palette knives, 35 per cent.; phonograph cylinders, as parts of phonographs, 25 per cent.; pictures framed, on the frame, 30 per cent.; on the picture, 20 per cent.; pictorial show cards on the frame 30 per cent.; on the card, 6 cents per lb. and 20 per cent.; plaits, when composed wholly, or in part, of any other material than those named in item 633, duty 30 per cent.; putty knives, 35 per cent.; sheep dip, 20 per cent.; steels, butchers', 35 per cent.; steels, table, 30 per cent. Samples of tweeds, coatings, dress fabrics, and like manufactures, exceeding one-half yard in length, are not to be accepted as being of no commercial value. When fabrics one-half yard or less in length are imported, collectors must satisfy themselves that such are to be used solely as samples. In computing the duty on wine, fractions of a degree of strength, up to and including five-tenths, are to be dropped, while over five-tenths are to be counted as a whole degree of strength.

TARIFF UNIFORMITY.

The Montreal Board of Trade, feeling the necessity of a uniform application of the tariff and for a Court of Appeal in case of disputes between collectors of customs and importers, have formulated a petition to be presented to the Government in the matter, the co-operation of other Boards of Trade and other commercial bodies throughout Canada being requested.

The petition to be addressed to the Governor-General-in-Council, is as follows:-

The Petition of the Undersigned Merchants, Importers and Manufacturers Humbly Sheweth,--That your Petitioners suffer from want of uniformity in the application of the Tariff, and from the circumstance that there is no satisfactory recourse or remedy in matters of dispute as to classification for duty, value for duty, or in cases where Customs

officials inflict injustice upon importers by erroneous and arbitrary rulings ;

That your Petitioners believe that these grievances could be removed by the establishment by Parliament of a Board of Experts, with power to deal with all questions and disputes between Collectors of Customs and importers as to rates of duty or classification, and as to value for duty, also to act as a Board of Reference in matters of seizures to the end that the technical facts of a case may be established prior to publicity, and with a view to avoiding practical injustice through error or precipitate action of irresponsible employees in the Customs service ;

That your Petitioners suggest with respect to the establishment of such a board of experts :

(a.) That it shall consist of five members, being one for each of the principal branches of trade as follows :—(1) Dry Goods—(2) Hardware, Oils, Paints, &c.—(3) Drugs, Chemicals, Fancy Goods, Stationery and Jewellery—(4) Groceries, Provisions and Fruits—(5) Leather and Shoe-findings ;

(b.) That appointments be made on the basis of competence for the Office ;

(c.) That sufficient remuneration be given to secure men technically competent and with business experience, so that the Board should enjoy the confidence of merchants.

(d.) That the Board be empowered to administer oaths and subpoena witnesses ;

(e.) That the Board's decisions be published periodically and sent to Collectors of Customs and Boards of Trade throughout the Dominion, which would promote uniformity as to classification and value for duty, and ;

(f.) That both the Government and importers should have the right of appeal from the Board's decisions to the Exchequer Court ;

That such a board of experts has for some years been in operation in the United States where it appears to have well fulfilled its purpose of insuring to the Government the full customs revenue intended by the Customs Act, of securing uniformity in valuation for duty, and of affording satisfaction to importers ;

Wherefore your Petitioners do pray your Excellency in Council to approve the enacting of legislation for the establishment of a board of customs experts as hereinbefore suggested, and so relieve them and importers generally from the serious disabilities now suffered by reason of lack of uniformity in the administration of the tariff.

#### THE CURSE OF CHEAPNESS.

The fact that large departmental stores exist in all of the larger cities and towns of the country, and that they are rapidly driving smaller concerns out of business, has awakened an interest in which the whole community participate. As with all other questions, to this there are two sides, some disputants contending that laws should be made for the suppression of the innovation upon old established methods, others averring that even if the smaller dealers are crushed out of existence by the new order of things, it is for the general welfare that the selling price of the necessities of life should be brought as low as possible. The question affects manufacturers in

various ways. The impression prevails that not only is the small dealer being driven out of business, but that the middleman will have to go also. It is a fact that some of the large departmental stores in one transaction frequently purchase larger supplies of certain lines of goods than are usually carried by pretentious wholesale houses. Why, then, should the middleman stand between the manufacturer and the retailer who distributes the goods to the consumer? Is it not better for the manufacturer to sell his products direct to the retailer than the jobber? If this is done the payment of the middle profit is avoided, the change inuring to a certain extent to the consumer. Perhaps this fact has its influence in developing the opposition shown to departmental stores by the wholesale men and the jobbers.

Another feature of the solution of the departmental store is, that in the driving out of business of the smaller concerns, the rental value of the premises occupied by them is inevitably lowered, to the great disgust of the landlords. In Toronto, as in other large cities, hundreds of small stores are vacant, and the little fellows who continue to hold out experience a precarious existence. What is to be done with these vacated places of business?

The only apparent use to which they can be put is to convert them into residences in which people of small means may live. For such a purpose they cannot be as remunerative to the landlords as before ; but the change of use would have a tendency to lower rents throughout the city, to the great relief of the people generally.

But these are side issues, the great question being as to whether departmental stores, bargain days and bargain counters are demoralizing in their tendency to the general good, and particularly to the welfare of those who are most affected by them. A clear setting forth of an important phase of the question is contained in an American contemporary in which it is shown that the ruling spirit in the mercantile world is cheapness, whose throne is upon the bargain counter. Before this tyrant every interest must bow. He exacts tribute from manufacturer, merchant, miner, planter, farmer, salaried official and wage earner. It is not surprising that the wage workers of the whole world are in a state of unrest bordering upon anarchy. They see that the steady tendency of the age is to lessen the cost of production. They are taught that other costs have a limit beyond which they may not go, except the cost of flesh and blood as paid for in wages. These must decline to meet the prevailing cry for cheaper products, but there is no mile-stone to mark the place where they may say thus far and no further.

There was a time when consumers demanded good goods and at reasonable prices. Employers could then pay fair wages for a fair day's work, and merchants paid tribute to quality, knowing that price was but one factor in a sale. But less than a generation ago there came into trade circles a new class of manufacturers whose sole idea of gaining and holding trade was by underselling all competitors. They ignored every question as to quality and harped solely upon their prices. If the buyer pointed to the inferior finish, the poorer workmanship, the doubtful quality, he was met with but one answer : "Look at the price !"

Two classes of dealers welcomed these new producers, those who saw greater profit in selling inferior goods at old prices, and another class who was able to foresee that cheapness would become the gospel of trade. Both classes found the venture a paying one. In one place the careless or confiding customer accepted the poorer goods at the same prices he had been paying for better wares. The other stores were plastered over with notices of "bargains," and people hastened there to do their buying. The advent of the Cheap John manufacturer, and the eagerness of people for bargains, compelled other producers to reduce their prices in order to hold their trade. As the campaign proceeded they cheapened the material, they slighted the workmanship and they reduced wages. Trade in every line became a keen hunt for something lower priced, in order that to-morrow's announcement might be lower than to-day's. This spirit has permeated every branch of commerce, and bargains are the lodestone that attracts all sorts and conditions of men and women.

Wherever the bargain counter has a home, it has monopolized the talent and brains of all concerned in its management. But where can one go and not meet it? It has its special organs in the daily papers, and its glaring invitations to those who worship cheapness are the controlling influence in the next day's shopping.

Who shall be so foolish as to rail against economy? Is it not the crowning Christian virtue? Why shall not the workingman's wife make her few dollars go to the farthest possible length in her purchases? The answer is ready: Because her keen scent after bargains is the controlling influence in reducing the wages of her husband and sons and daughters. If she must have cheaper goods, these others must do their share towards it by working for less wages, so that the wares may be offered at less price than before.

Of what value is it that the wage earners form unions to keep wages at a higher level, when their own households are searching the columns of the daily papers for lower priced goods. When one reads the piteous stories of starving sewing women, do not the loud announcements of the dealers, Finished Garments at Less than the Cost of the Cloth, at once appear before his eyes? Is not one the complement of the other? There is nothing on earth so cheap as flesh and blood, for it now touches a limit of cost of production; everything else does.

How can there be perennial bargains if wages and material are not perpetually scrimped? And as a bargain ceases to be a bargain to-morrow if not at less price than to-day so must wages drop lower and lower to meet the demand for cheaper wares. In the political economy of the next generation there will be one axiom made more prominent than all others: Cheap Goods Make Cheap Men. Satan must surely rejoice when he sees the whole world uniting in the one cry of Cheap! Cheap! Cheap! When a dealer advertises a garment a few cents under the price of his neighbor is there a single woman who stops for a moment to consider her sister in the garret who has to work for less that this may be done? Is the saving made by the buyer a matter of actual concern to her? It very rarely is. But to produce the article so that it could

be sold at this lower price women went hungry to their wretched beds.

If one did not know that every bargain offered meant sorrow to wage workers somewhere in this wide, wide world, if not at his very doors, he might rejoice that so much could be bought for so little money. But any article is sold too low when the man or woman who made it was not paid living wages. And when the wage earner's purchasing power is reduced every other interest must necessarily suffer.

The gauge of the times is the condition of the wage earner. Give him fair wages, increase his power to supply himself with the comforts and even the luxuries of life and his demands for these will accelerate the wheels of business in every line and bring prosperous times for all interests. But the bargain counter must have cheaper goods. It encourages bankruptcy. It offers a premium for inferiority. Nothing is out of its line from summer silks to mess pork, from pianos to liver pills.

Is it nothing that these toilers are without joy and without hope? Only despair is theirs. Only a dark to-day followed by a doubtful to-morrow. They are the slaves of the modern Moloch, the bargain counter, that monster who knows no mercy and serves no god but cheap John.

#### THE COST OF GOVERNMENT.

There is not a free trade journal in the country that does not produce statistics to show that the expense of conducting the Dominion Government is constantly increasing, and this because the policy of the Government is in the direction of protection rather than free trade. Of course they ignore the fact that the advances of civilization require the expenditures of money to maintain and improve means of communication between different sections of the country, and to meet its rapidly growing demands; and to these critics we commend that portion of the budget speech of Hon. Mr. Harcourt in the Ontario Legislature, bearing upon the subject where he says:—

Recognizing that we had a large, new and promising territory in Northern and Western Ontario to open up and develop, we have asked the Legislature from time to time to further this work with liberal grants of money, and by doing so to bring home to the new settlers some, at least, of the many advantages which the older parts of the province so richly enjoy. Large subventions to railways, generous grants to schools, liberal votes in aid of agriculture and mining, new asylums and other public buildings, which are justly the pride of the province, costing in the aggregate millions of dollars, while supplying urgent, immediate needs, have, of course, greatly added to our gross expenditures. Session after session the Legislature has, without a dissenting voice, without word of protest or complaint, agreed in all these particulars to add largely to our yearly burdens. No interest, educational, agricultural, mercantile or otherwise, has in any way been neglected. These increasing expenditures are unavoidable. Growth, expansion, development call for and require an ever-increasing measure of aid from the public chest. As population increases, as our new and rich norland is developed, as settlers from year to year enter upon and occupy portions of the province hitherto unsettled, demands for new and increased grants must be expected. These demands are inexorable, and a progressive government and legislature dare not refuse them. As to these matters, we are by no means alone in our experience. It is the common

experience of all progressive countries. Progress, expansion and development have been won and secured in only one way the world over, and that is the way I have briefly indicated.

Commenting upon Mr. Harcourt's speech the Montreal Gazette says :—

This language might fittingly enough be employed by a federal Finance Minister in a review of expenditure upon Dominion public service during the past decade and a half. The reasons which Hon. Mr. Harcourt believes to amply justify the increasing cost of government in Ontario apply with equal pertinence to Dominion affairs, with this difference that in the larger sphere the demands for grants of money for purposes of public utility are ten-fold greater. Every section of territory opened up and developed in Northern and Western Ontario imposes new charges upon the Dominion Treasury in the establishment of post offices, the administration of justice, the collection of customs and excise revenue, the provision of public works, and so forth. The growth, expansion, development which the Ontario Government has found to require an ever-increasing measure of aid from the public chest that no progressive government and legislature dare refuse, impose like charges on the Dominion purse. And yet, while liberally meeting the demands for new and increased grants thus created, the federal Government has succeeded in administering public business more economically than the Liberal ministry at Toronto. Between 1888 and 1894, the Dominion expenditure rose from \$36,718,494 to \$37,585,025, or by 2.4 per cent., while in the same period the expenditure of Ontario increased from \$3,536,248 to \$3,839,338, or by 8.6 per cent., the ratio of increase having been nearly four times as rapid in provincial as in Dominion expenditure. In the case of civil government, the Ontario expenditure rose from \$200,685 in 1888 to \$240,474 in 1894, or by 20 per cent., whereas the charge for the same service at Ottawa has been augmented only 12 per cent. in the last six years. In every item of the ordinary expenditure of Ontario the tendency has been steadily upward, without exception, whereas in federal affairs many reductions have been made in the cost of government, and in no instance, when like services are contrasted, has the percentage of increase been so great as under the Liberal Government of Ontario.

**DOES PROTECTION PROTECT?**

No foreign vessels are permitted to participate in the coastwise traffic of the United States, that privilege being reserved to the shipping of that country. Thus no foreign vessel is allowed to carry freight or passengers between any two American ports, either on the Atlantic, Pacific or Gulf coasts, or on the Great Lakes. Under the law regulating such traffic what are undoubtedly the fastest and most elegant steamers in the world are found plying between American ports; and in no part of the world has the development of the shipbuilding industry shown such marvelous advancement as in the Great Lakes.

The Marine Review, alluding to the American lake trade, says :—

The books of the United States treasury department contain the names of 3,341 vessels, of 1,227,400.72 gross tons register in the lake trade. The number of steam ves-

sels of 1,000 gross tons and over that amount on the lake on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1894, was as follows :—

Class.	Number.	Gross Tonnage.
Steam vessels . . . . .	1,731	845,239.65
Sailing vessels . . . . .	1,139	302,985.31
Canal boats . . . . .	386	41,061.25
Barges . . . . .	85	39,214.51
<b>Total . . . . .</b>	<b>3,341</b>	<b>1,227,400.72</b>

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows :—

Year ending June 30,	Number.	Net Tonnage
1890 . . . . .	218	108,515.00
" " 1891 . . . . .	204	111,856.45
" " 1892 . . . . .	169	45,168.98
" " 1893 . . . . .	175	99,271.24
" " 1894 . . . . .	106	41,984.61
<b>Total . . . . .</b>	<b>872</b>	<b>406,976.28</b>

Speaking of the traffic through the St. Mary's Falls canal and the Suez canal, that journal says :—

The traffic of the great Suez canal is no longer to be compared with that of the St. Mary's Falls canal, which connects Lake Superior with other ports of the great lakes. Official reports of the traffic of the Suez in 1894 are at hand, and although they show an increase over the business of 1893, the net registered tonnage of vessels is more than 5,000,000 tons less than that of vessels passing the St. Mary's Falls canal during a navigation season of only 234 days in the same year. The figures are given in full at the head of this page. The number of vessels passing the St. Mary's Falls canal during 234 days of 1894 was 14,401 and their net registered tonnage 13,110,366, while the number of vessels for the full year passed through the Suez was 3,352 and the net registered tonnage only 8,039,105.

The official reports of canal officers in these two canals show the traffic through them for the years indicated to have been as follows :—

	St. Mary's Falls Canal.			Suez Canal.		
	1894.	1893.	1892.	1894.	1893.	1892.
No. vessel passages	14,401	12,008	12,580	3,352	3,341	3,100
Tonnage, net registered	13,110,366	9,819,754	10,647,203	8,039,105	7,659,068	7,712,904
Days of Navigation	234	219	223	363	355	351

**FANCY VERSUS FACT.**

That rival nations cripple their own energies in endeavoring to exclude Great Britain's competition is undoubtedly true, and while her industries are often upset and deranged by the efforts of other peoples to keep her out of their markets, many far-sighted Englishmen perceive many advantages to the great trading nation under present conditions. They feel that so long as other peoples find their ideal in restriction and high taxation Britain's premier position in the commercial world will be assured.—Toronto Globe.

This very optimistic, and is intended to induce Canadians to look with favor upon free trade as they have it in



Great Britain, which is now the fad of *The Globe*. But Britishers do not thus view the question; and we commend to *The Globe* and its free trade friends a careful perusal of the following article reproduced from a representative British journal, the *Macclesfield Courier and Herald*. That paper says:—

Are cheap goods a boon to the producer? In other words, is free trade a blessing or a curse to a nation of manufacturers? In these parts the subject has been so fully and freely discussed that it seems as if nothing new could be said on the question, but it is one of those topics which so vitally affect us all that we cannot have too much insight into it. The question has been raised by Mr. Blatchford, author of "Merrie England," whom that young and smartly-written periodical, *To-day*, describes as "a gentleman with beautiful ideals but childishly impracticable methods," and proceeds:—

"In arguing this question of free trade, Mr. Blatchford has, beneficially for his cause, put his Arcadian dreams behind him, and has dealt with this world of strife and struggle as he finds it. Free trade, half a century ago, was the panacea of all human ills. Under free trade everybody was to be happy, healthy, wealthy, and wise. To even now hint a word against it is considered rank blasphemy by the older school of political thinkers. But the young men everywhere are asking themselves if we have not given the drug sufficient experiment, or, at all events, whether the surroundings have not changed and the conditions altered to an extent sufficient to render a new treatment advisable.

"Cheap food is excellent if you have the money to buy it; but a threepenny loaf is of very little value to a man with only three halfpence in his pocket, and of less value still to the man who has nothing. Free trade has given us cheap goods, and it has taken away employment from English workers to an alarming extent. If we were all consumers, living on an income derived from an investment in consols, free trade could not be too highly praised; but our political guides forget that we have to earn our income as well as to spend it, and many of our leading industries are being completely killed by the unchecked competition of countries where, living being cheaper, labor is content with a much less wage.

"Is the measurable future it will be a question whether any English manufacturer can pay his way, and then what is to become of our army of workers? To offer them 'a free breakfast table' will be no answer to a man looking for employment. Free trade has practically killed agriculture already, and made us of necessity a land of coalpits and smoky factories. That may be very good as far as it goes, but what is to become of us when free trade, having rendered it impossible for us to grow our own food, also renders it impossible for us to earn our living by manufacture? To save a few pence on our wife's print frock we pay the price of thousands of out-of-work operatives in Lancashire. We hold up our hands in horror at the hard-hearted farmer, but it is we, my good friends, with our cheap loaf made from imported corn who have driven the agricultural laborers to swell the useless swarm of unneeded life in our great towns, and who pay the few remaining on the land a starvation wage that does not enable them to keep themselves and their families from actual daily hunger.

"I shall be told that all this has been thrashed out years ago; that the thing has all been settled and done with. But who are the people who have so kindly 'settled and done with it' for us? and will the members of the Cobden Club give me some proof of their superhuman wisdom that will force me to believe that when once they have considered a thing there is no further need for thought upon the subject? Catchpenny phrases invented to bamboozle votes from fools are our stock political argument. The big free trade loaf stuck on the end of a pole can win an election,

but it does not fill the bellies of our unemployed thousands. Free trade has been of immense benefit to the political wire-pullers. It is time now that the subject was considered from the point of view of the nation."

We most heartily endorse every word uttered by *To-day* on the subject, and so must the poor silk weavers of Macclesfield and Congleton, whose industry has been so severely hit by the one-sided system of free trade—a system which enables the foreigner to come into our markets and purloin our trade while he hedges his own with a high wall of prohibitory tariffs, and practically shuts us out from anything like fair competition. And the lamentable thing about it all is that the commerce of the country is the very last thing that Parliament will address itself to. This was shown by the miserable tactics of the Government on Tuesday night, when they tried to count out the House on a commercial subject on which they had ultimately to eat humble pie. Time after time has the hon. member for Macclesfield division (Mr. W. Bromley-Davenport) tried to bring the depressed condition of our staple industry and the inequalities of the present fiscal system before the House of Commons, but the Radical Government has successfully prevented him being heard—the appeal of the suffering thousands dependent on the silk trade is nothing to Lord Rosebery and his satellites—the welfare of the commerce of the country has to "play second fiddle" to such absurdities as Home Rule, Welsh Disestablishment, Local Veto, One-Man-One-Vote, etc. How long will the constituencies be content to tolerate this iniquitous condition of things? The trade of Lancashire is being hit hard, and Lancashire is calling out with no uncertain voice. We have always felt in regard to this question that when the great cotton industry was attacked the silk trade and other industries would be heard in the great appeal to the nation. It is coming. "What Lancashire says to-day, England says to-morrow," Lord Beaconsfield once declared. He was prophetic in many important utterances, we trust he was in this.

#### AS TO ARCHITECTS' PLANS.

The Customs Department has decided that the duty on architects' plans, either original drawings or copies for use as original drawings, shall be 2 per cent. on the estimated cost of the building to be erected in accordance with them. If accompanied by details the duty shall be 3 per cent. of this estimated cost. Additional sets are to be valued for duty at \$5 each, in addition to the original estimate of the cost of the building. According to this decision an imported set of plans and details for a building to cost \$20,000 would be taxed \$600, which is by no means a modest impost. The Ministry must have discovered in architectural designing the lost industry which could not operate without encouragement. The weak spot in that theory, for all such theories have their weak spots, is the fact that Canadian architects were doing as well and better before the introduction of the National Policy than they are doing now.—*Toronto Globe*.

There is no good reason why the Government should ever be benefitted to the amount of one dollar by duties collected upon architects' plans imported into Canada. The country is well supplied with architects thoroughly competent to make plans for any buildings which it may be desired to erect, and as this industry is entitled to tariff protection as well as any other, that protection should be extended to it. It is true there are those in Canada who imagine that nothing really good can be produced at home and therefore must have the plans of such buildings as they may desire to erect made abroad; and these are the ones who object to any duty being imposed upon their plans. But generally such buildings are for residential purposes, where the wealthy owners can well afford to pay the duty



on the plans. In the making of plans by foreign architects, but few if any of whom are familiar with the different styles of materials produced in Canada for building purposes, the specifications call for foreign articles; and thus it is that while the services of competent Canadian architects are rejected, the products of Canadian factories are also rejected, the labor expended in the production of them going to foreign concerns. We have knowledge that in many buildings recently erected in Canada not a dollar's worth of Canadian hardware was used, the contractors explaining that the specifications called for articles to come from foreign factories. Remonstrances disclose the fact that these foreign articles were named in the specifications simply because the foreign architect preferred to specify them in preference to similar articles produced in Canada.

The Globe tells us that the duty upon architects' plans "might make it profitable for an American architect to load up his head with a design, cross the river, and work it out on the Canadian side." Of course if the architect located himself in Canada and carried on his business here, he would cease to be an American and become a Canadian architect. But in so doing he would contribute to the general welfare of the country by paying taxes, etc., and as such be entitled to tariff protection against foreign competitors, which would not be the case if he remained on the other side of the river. The Globe well knows that there are foreign architects who make plans and specifications for fine buildings to be erected in Canada, and who do not put themselves to the trouble of even crossing the river to work out their designs on the Canadian side, thereby saving themselves the 20 per cent. duty; and it is asserted that although the plans and specifications of the Provincial Parliament Buildings in Toronto were made in Buffalo, they were introduced into Canada in a manner that resulted in not a dollar of duty thereon being paid into the Dominion treasury. The Customs Department have not changed the tariff, but a ruling has been made by which such incidents will not in the future be so easy of accomplishment. This new decision is intended to enable the Customs officers to collect a long evaded duty. The Globe will please notice that it is not a blow the force of which will fall upon the head of the poor man; and if it reaches men who can afford to build residences that cost \$20,000, and the plans and specifications must be made in a foreign country, certainly the rich man must be allowed to pay his \$600 duty. It is very much like the fine wines the rich man likes to have on his table. The fine house and the fine wine can afford to be taxed as luxuries—necessities they are not.

#### ELECTRICAL RAILWAYS.

Few persons know that there is a model of an electrical railway extant, dating as far back as the year 1835—just about sixty years. It was designed and made by a Yankee blacksmith, Thos. Davenport, whose inventive genius led him to make, between 1835 and 1841, about one hundred electric motors, one of which was large enough to drive a printing press. He was so enthusiastic about his inventions that he published a weekly journal in New York City, called 'The Electro Magnet and Mechanics' Intelligencer,

and printed it by electric power. This motor preceded Morse's electric telegraph.

The model railway was small, but it worked; the locomotive having a fixed field magnet below a rotating armature, in which latter the current reversed twice each rotation,—quite the modern way. As an interesting lesson to inventors who don't know a good offer when they get it, I may mention that he refused \$250,000 for his invention,—and then had the disgusting experience of realizing nothing for it.

From this time on, there were various more or less unsuccessful attempts to make electric motors, including one in 1851 or 1852 by Page, for which Congress appropriated \$50,000, and the failure of which turned public interest away from electric motors as offering opportunities for profitable investment of capital.

As far back as 1855, an Italian, Bessolo, proposed a trolley road, one of the principle claims of which was the impossibility of head collisions between trains on the same track. In the same year there was a practical electric road between Paris and St. Cloud, with the rails as a circuit and an insulated third rail conductor between them.

Some Detroit people saw a successfully working model of an electric railway (VanDepoele's) there as far back as 1874, but it was nine years later before any public exhibitions were made.

In 1877 a motor for the San Francisco railways was ordered from Europe by Field, but it was lost at sea. A second one reached him and gave good experimental results, but his money gave out, (he got to fighting wealthy corporations,) and then his health followed; but his plan, with the conducting wire in a subterranean conduit, was well worked out and is still employed.

In 1882 Finney showed a trolley road in Allegheny, Pa.,—the conductor from the trolley being a flexible cord, instead of a rigid rod as at present.

In 1883 Daft worked a regular electric passenger car on the Mt. McGregor railway at Saratoga, and Van Depoele had one in Chicago, while Field's electric locomotive at the Exhibition of Electrical Appliances, at Chicago, carried in all 27,000 passengers, the car being slung from the truck.

In 1884 regular trips were made by an electric car (Bentley & Knight's) on a mile section of the East Cleveland (O.) S.R. Co.; being the pioneer for regular service. The motor was hung from the car-body, between the axles, to which latter it was belted by spring wire cables. The conductors were insulated in a wooden conduit and a sliding contact through a slot in the conduit took the current from the conductor to the motor.

In 1884 Toronto had at its Exhibition a 3,000 feet electric railway (conduit) with a current of 1,000 volts and a locomotive of 30 h.p.

In 1888 Allegheny City opened an electric road, part of which had a conduit and the rest a trolley. From this year the electric railway as a steady runner and as a money-earner may be said to date. Richmond and Washington, and then Boston, followed Allegheny. Richmond seems to have been the kindergarten in this matter, for the conditions were so unfavorable that about all kinds of trouble

possible manifested themselves; and by the costly lessons there learned, Boston and other cities profited.

To-day, probably half the street railways of the U. S. either use electricity, or are arranging to use it, as a motive power. In Europe, also, it has a firm foothold; and the far-away lands of the Orient and Australia are commencing to employ it also.

#### EDITORIAL NOTES.

Sir Julian Paucotote, the British Ambassador, has furnished to the Department of State at Washington a copy of a circular issued by the West India committee of London, concerning sugar production. The Ambassador explains that it is not to be regarded as an expression of opinion by his Government, but only of the committee's views. The circular calls attention to the fact that the sugar industry, beet as well as cane, is passing through a crisis of the most serious description, and expresses the hope that in attempting to provide a remedy the various Governments should avoid taking any steps which may aggravate the crisis instead of relieving it. It is shown that while the production is increasing at the rate of 1,000,000 tons per annum the consumption grows slowly at the rate of 25,000 tons per annum. Naturally prices are depressed, and the bounty system is ascribed as the cause of this state of affairs. Therefore it advocates the entire abolition of the bounty and the stimulation of consumption by the reduction of the duties levied on sugar which are excessive in Europe, and prevent the people as a whole from using sugar.

The United States Consul-General at Frankfort has furnished a description and also other interesting data of a gas motor street car now being successfully operated at Dresden, Germany. The cars being in experimental service at Creydon, England, and of the same general type as those in use at Dresden, have not only furnished interesting matter for a previous report, but have developed the close and critical attention of capitalists and others interested in the economics and service of tramways. A car of improved type and of higher motive power, better suited to American conditions, according to the report quoted, has been constructed for exhibition in this country. It can be applied to cable, electrical and horse cars already in use, economizing all but the running gear of such vehicles. "The following modifications," says the Consul, "have been made in the Dresden model: The motor has been condensed in compass so as to be readily set upon a four wheel truck, wholly independent of the upper portion of the car. The fly-wheel and driving machinery are laid in a horizontal position between the wheels, and two sets of springs are provided, those supporting the machinery resting directly on the axles, and those supporting the car body bearing on the truck frame, the two sets of springs being entirely independent of each other. The whole apparatus is so simplified that when the body of any ordinary street car is bolted to the springs and the cool-water reservoir and its connecting pipes are attached, the car is ready for service. The motor has been increased from 8 to 20 horse power, and its maximum speed, with the larger

friction clutch in engagement, to twelve miles an hour." In describing the Dresden car, the same authority says, "all the machinery is enclosed and concealed from sight; there is no smell of gas, no noticeable heat from the engine, and no undue noise or jar when the car is stopped, or set in motion. The motor is placed under the seat at one side of the car, and reached for purposes of oiling, cleaning, or repairs by doors which form panels in the outer wall of the car, and when closed are not noticeable. The gas is ignited at each stroke by an electric spark from a small battery located in the engine space, so that the car is put into or out of service by turning a knob which opens or closes the circuit. The gas reservoirs are filled at the end station by means of a flexible hose, leading from the condenser, and the filling process occupies from thirty seconds to a minute, according to the caliber of the hose and the degree to which the gas in the reservoirs has been previously exhausted. The car costs in Germany, \$2,856."

The Engineering and Mining Journal speaking of the low prices at which coal is being sold in the United States, says:—

The great distances from our seaboard at which our chief bituminous coal fields are situated, have been held, by foreigners especially, to preclude the possibility of very cheap coal in our ports. The extremely low transportation rates on our railroads have, however, offset the long hauls and we have recorded a price of \$2 per ton f. o. b. Newport News and Norfolk, Va., for coals, coming over the Chesapeake & Ohio, and Norfolk & Western roads with a haul of fully 400 miles. As the prices paid for the coal at the mines was then about 80 to 90 cents per ton, this left only \$1.10 to \$1.20 for hauling and terminal charges, or about  $\frac{1}{4}$  cent per ton-mile for hauling. These extraordinary figures created much comment abroad, and brought orders to this country that had formerly gone to England. Equally low prices were taken for Alabama coal f. o. b. Pensacola and Mobile, but the haul is shorter and the railroad rate a little higher. We confess we considered \$2 a ton f. o. b. at our tide water ports as being a minimum, below which it would be almost impossible to go, nevertheless, this record has recently been lowered. Good steam coals have recently been sold f. o. b. Newport News at \$1.80 per ton of 2,240 lbs., and Clearfield coal has been delivered f. o. b. Philadelphia at \$1.75 if not at \$1.70 per ton, the haul being less than 300 miles.

With coal delivered in the railroad cars at the mines for from 60 to 70 cents a ton, and railroad freights at  $2\frac{1}{2}$  to 3 mills per ton-mile it would seem as if the very bottom had been reached. These rates leave no fair return to capital invested in either mines or roads; it is not surprising, therefore, to find reductions being made in wages at some of the mines. On the other hand this remarkably cheap fuel benefits manufacturers who are now quite active and are extending their markets in all directions both abroad and at home.

Toronto is being taught the difference in having incompetent theorists and good practical business men as representatives in the legislature. No doubt the city members are adepts at taxing bills of costs in suits at law, and they may be eloquent orators either in the court house, on the hustings, or in the legislative halls of the province, but they are no match for the land sharks and boomers, and the country members through whom they work, in obtaining legislation which exempts vacant lands in Toronto from

such taxation as is imposed upon the little holdings of mechanics and other men of small means. It is of no avail for our sleepy members to excuse their neglect of duty by saying that while they slumbered the enemy sowed the tares that will bring forth such an abundant crop of increased taxes to those least able to bear them. To him that hath, more shall be given, while from him that hath not shall be taken away even that which he hath.

Manufacturers can very accurately gauge the value to their interests of the Hamilton Spectator by observing that its advocacy of the National Policy does not prevent it from uttering unwarranted and malicious falsehoods against their organization because it declines to be bled to support such sleepy heads as represent the Conservative party in the Ontario Legislature.

If it may be called such, the only political mission of the Canadian Manufacturers' Association is to support, defend and maintain the National Policy of protection to Canadian manufacturing industries. Those who imagine that the Association may be used for any other purpose are mistaken.

The action of the Ontario Legislature in compelling municipalities, in which are vacant lands, to assess the same for taxation as farm lands, which is a much lower rate than occupied lands, is a premium given to the land speculators, and an additional burden upon those who have small holdings, used for residential and industrial purposes. The first are rewarded for withholding their lands from occupation until the unearned increment in value makes it profitable to them to sell - the second are punished for their temerity in improving their possessions. The incident emphasizes the contention that there should be no property qualification demanded for representatives in legislative bodies. If an enterprising manufacturer invests his capital in a factory where human beings may find employment, he is severely punished therefor by having heavy taxes laid thereon. If a land shark holds his vacant lots for a rise in their market value, he is encouraged in so doing by a remission of taxes. But this condition will not last forever.

The farmers of Canada must not forget that farm products excluded from the Dominion by a tariff are quite as effective in reducing prices as if they had been imported. Such products meet the Canadian farmer in the British market, which decides the price both here and there.—The Globe.

That is to say, the duty upon such articles as fruits, vegetables, poultry, etc., such as are produced upon Canadian farms, is effective in reducing prices obtained in the Canadian market by Canadian farmers. Under free trade American farm products would have free entry into Canada and be brought into full competition with Canadian farm products, which, according to The Globe, would be to the advantage of the Canadian farmer, because if the American products were shut out by the tariff from the Canadian market they would be sent to the British market where they would compete with similar products sent

from Canada. The logic of The Globe is most remarkable.

A few weeks ago, when several great fires in Toronto destroyed property valued at hundreds of thousands of dollars, the people realized that the city possessed no steam fire engines. At the panic that ensued, when every one demanded that engines should be purchased without delay, the incompetence of the City Council led to a time-wasting discussion regarding the merits of engines built by several different concerns, and although it was well known that steam fire engines built in Canada were equal to the best made elsewhere, and although one of these engines was bought and delivered without delay, it was deemed expedient that one should be purchased in England. An order was therefore placed for one, for immediate delivery, yet it has not yet been delivered, nor is it expected that it ever will be. Perhaps the Council will wait until another conflagration destroys a few more hundreds of thousands of dollars' worth of property sooner than make a small outlay for another Canadian engine. This sort of incompetence is exceedingly wearisome.

For some days past a rumor has been in circulation to the effect that the General Electric and Westinghouse interests have been negotiating with a view to an agreement ending the present expensive patent litigation between the two companies. That such a negotiation is now under way we believe to be true, and at this writing it seems probable that an agreement will be arrived at. Whether the understanding will go beyond a modus vivendi with respect to patents alone, or include an amicable arrangement as to prices, can only be surmised at present, but it is improbable that its scope will extend to any general combination of interests. The case seems to be rather similar to that of the Westinghouse and Thomson-Houston companies some years ago. The latter had entered into an arrangement with the Sawyer-Man Company in regard to the manufacture and sale of incandescent lamps, which was continued when that company was merged in the Westinghouse interests, notwithstanding the competition between the two rivals in other directions. As concerns the electrical industry at large, there can be no doubt of the wisdom of a course which will not only cut off enormous expenses for litigation, but give a great impetus to electrical development by removing from the minds of purchasers the fear of trouble from infringement suits. As to the effect on outside manufacturers, nothing can, of course, be known until the agreement, if completed, is divulged. In the meantime, we think it safe to assume that the unfortunate experience of the General Electric Company in its attempt to ride rough-shod over smaller concerns, and the consummate business acumen displayed in recent years by the Westinghouse management, both give assurance that no undue alarm need be felt on this score — Electrical World.

We are requested by the Packard Electric Co., Montreal, to state that they have obtained a large and suitable factory building at St. Catharines, Ont., where they will manufacture all their lines of electric goods. They will

occupy their new factory the latter part of this month. A large and rapidly increasing demand for their high grade lamps has rendered it necessary for the company to seek more commodious quarters where their output can be increased. In the meantime, while the new factory is being equipped, all orders will be filled from stock on hand.

OFFICE OF COMMERCIAL AGENCY OF GOVERNMENT OF CANADA,  
SYDNEY, N.S.W., March 13th, 1895.

Editor THE CANADIAN MANUFACTURER :-

In response to your request for notes on prospects of trade for Canadian manufacturers in Australia, I may say that my two months' experience in these colonies have confirmed the opinions I had formed and to which I gave expression at meetings of the Boards of Trade before leaving Canada. There is a trade here for Canadians which at the outset will, in most lines, be small, and which will need special efforts for its development.

It will be small at the outset not only because it is a new trade, but because business at this time is depressed. As a Canadian here remarked to me, "talk of hard times in Canada, after a visit here I have concluded that the meaning of the term is not known at home." The following figures relating to the two chief colonies will give some conception of the state of things here.

	1891.			1894.		
	AMOUNT	PER HEAD		AMOUNT	PER HEAD	
	£	£	s d	£	£	s d
<b>VICTORIA</b>						
IMPORTS.....	21,711,608	19	1 0	12,470,599	10	10 0
EXPORTS.....	16,096,743	14	1 0	14,026,546	11	19 0
<b>N. S. WALES</b>						
IMPORTS.....	25,383,397	22	8 0	15,801,641	12	15 0
EXPORTS.....	25,941,021	22	18 0	20,577,673	16	13 6

It will be seen that Victoria has suffered the most; simply because it was the most extravagantly boomed colony, and has been affected by its decline in gold production. The city of Melbourne has lost in these three years over fifty-one thousand of its population. There

are some bright features in these unpleasant figures. In the case of Victoria the cessation of borrowing is the principal cause of the shrinkage of imports, and the decline in values largely accounts for the falling off. The more satisfactory feature of the comparison is that instead of an excess of five and three quarter millions in the imports in 1891, there was an excess of over a million and half in the exports in 1894, showing that the colony had ceased from borrowing, or at any rate was not borrowing so freely as in the earlier year.

In the case of the New South Wales trade there was also a drop of nearly 9½ millions sterling in the imports, about the same decrease as in the case of Victoria. The exports in 1891 exceeded the imports by about half a million, indicating that the colony was borrowing very nearly the amount of its interest on public and private debt. There was a decrease of nearly 4½ millions in the exports in the three years, but in 1894 the colony exported about four and three-quarter millions, more than it imported, which would not be far short of the amount of interest payable on public and private debts. The panic is working out the salvation of the colonies.

There are signs of a reaction. I am not sure that real estate has yet got to the bottom. Rents in the cities are too high although considerably reduced. Building can be done at nearly one-half the cost of erection of a large majority of buildings now leased, and boom prices were paid for the ground on which they stand. As yet the reduction of rent has not more than kept pace with the reduction of interest on money, and has not yet got to a reasonable return on present values. Beyond this there is in business circles a much firmer feeling. Prices of stocks have gone up, showing a return of confidence, and the revenue of the Government in this colony from customs and railways for the past two months show a comfortable increase, showing better trade. Orders, however, are not increasing in size, and it does not appear that the trade of this year will vary very much from that of last.

Canadian trade will be slow in developing because communication is slow. The San Francisco line steamers sail once every four weeks, the Canadian line once per month. The consequence is that at this season of the year they arrive and leave about the same dates. Later on it will be better. Just now it requires three months to get at reply from Ontario. It is hoped that arrangements will be made with the Government of the colonies that will enable the Canadian line to put on a third steamer and alternate with the San Francisco line, giving a fortnightly mail service to Canada.

Notwithstanding these drawbacks I am still of the opinion that now is the time for the Canadian firms who can afford it to open up trade. There are changes going on here that should be taken advantage of. Old firms, crippled by the losses of the past three years, and a de-

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crease of profits from a decreased trade, are going out of business or curtailing expenses, and therefore decreasing their machinery for pushing business, giving opportunities for new men and new lines. The chances for bad debts, still considerable, are much less than for years back. An opening made now will put a firm in a position to do a good business when the trade turns, as turn it must within a year or two. Canada is in good repute and Canadian goods will be received with favor.

What can Canada sell? Perhaps the most practical way of answering this query is by sending the following copy of the manifest of the barque Gratia, one of the two vessels which arrived at this port from New York within a week of each other, a couple of weeks ago:—

Gratia, bqe., from New York: For Sydney—21,000 cs oil, 166 cs lubricating oil, 125 bbls lubricating oil, 1,650 cs turpentine, 650 bbls plaster, 110 cs benzine, 62 bbls salad oil, 50 cs salad oil, 50 bbls oak strips, 10,176 ft. white pine lumber, 136 pcs walnut, 48 bbls boards, 621 cs axes and hatchets, 43 cs advertising matter, 3 drms ammonia, 28 cs agricultural implements, 26 cs axles, 20 cs agate ware, 55 bbls beer, 15 cs bolts, 164 pkgs blacking, 24 bls broom corn, 8 cs brooms, 177 kgs casings, 8 bbls casings, 2,400 bxs clothes pins, 12 pkgs carriages and waggons, 59 pkgs carriage ware, 351 pkgs carriage woodware, 21 cs clocks, 8 cs clothing, 6 cs castings, 6 cs confectionery, 15 cs catsup, 305 cs canned goods, 131 cs chairs, 7 bls corks, 18 pkgs crackers, 15 crts churns, 50 cs crayons, 198 cs drugs, 16 cs drug-gist sundries, 102 cs slates, 37 cs shovels, 35 cs seats, 41 pkgs shellers, 278 cs soap, 14 cs scales, 1 cs shade rollers, 8 bls strawboard, 35 pkgs mfd tobacco, 15 hhdts tobacco leaf, 18 pkgs dry goods, 8 bls duck, 8 pkgs dairy goods, 2 cs eyelets, 17 cs furniture and desks, 84 cs firearms and cartridges, 33 pkgs forks, hoes, and rakes, 25 cs fly-paper, 309 pkgs grease, 120 bbls glucose, 8 cs grain mills, 82 grindstones, 554 pkgs hardware, 637 pkgs handles, 9 hay presses, 16 cs harness, 50 cs iron rings, 49 pkgs ink, 20 cs kalsomine, 39 cs leather, 493 pkgs lamp and glassware, 48 bbls leatherboard, 32 cs myrbane, 7 cs machines, 25 bbls marble dust, 110 cs mucilage, 18 cs machinery, 87 pkgs nails, 57 pkgs oars, 127 cs oiled clothing, 22 cs organs, 387 bbls paper bags, 419 rls paper, 101 cs paper, 19 pkgs paint and varnish, 11 cs perfumery, 4 pkgs platedware, 2 pkgs pumps, 2 cs pitch, 12 bbls pails, 1 cs perambulators, 11 pkgs rubber goods, 118 pkgs sundries, 6 bxs tobacco shapes con'd, 83 cs tools, 44 cs tinware, 2 trucks, 13 cs tricopherous, 95 pkgs trunks, 16 cs wood pulp board, 290 pkgs woodenware, 195 bbls washboards, 1,905 rls wire, 10 cs wringers. For New-castle—3,250 cs kerosene, 300 cs turpentine, 20 csks plaster, 25 bxs axes, 1 bx advertising matter, 2 cs baby carriages, 43 pkgs blacking, 75 bbls boards, 5 crts churns, 200 bxs clothespins, 7 bxs clocks, 6 cs

cartridges, 1 cs forks, hoes, and rakes, 5 bxs flypaper, 30 cs grease, 21 cs handles, 56 pkgs hardware, 2 cs harness, 3 pkgs lawn mowers, 14 pkgs lamp and glassware, 3 pkgs paint, 1 cs primers, 2 cs plated-ware, 1 box pumps, 3 bls rubber goods, 10 cs sewing machine oil, 9 cs sundries, 2 cs shovels, 3 crts shellers, 35 cs soap, 1 crt seats, 2 cs travel bags, 7 cs tinware, 7 cs tools, 10 cs tricopherous, 2 pkgs traps, 2 cs woodenware, 1 cs waggons, 36 bbls washboards.

The first item is illuminating oil. With the exception of this oil, turpentine, benzine, raw tobacco, clocks, wire, and one or two small lines, there is scarcely an article on the list that Canada ought not to be able to duplicate. Two, and sometimes three, ships per month sail from New York for these colonies laden with just these goods. In spite of the decline of trade during the last three years the United States manufacturers have materially increased their sales.

Let it be noted that this trade is done by sailing vessels from New York. This brings up the question of freight. The C.P.R. and the Vancouver line have done all they could to cultivate this trade by quoting low rates of freight, but it is not possible yet for all goods going over three thousand miles of land haul to compete with those paying sailing vessel freight. I wish they could. Goods via Vancouver are practically certain of delivery within thirty-five days, while via New York will require from 95 to 135 days. A higher rate can be paid for the prompt delivery by the overland routes, but the difference is too great for the bulk of goods. Canada ought to have at least monthly sailings from the St. Lawrence. Quebec and New Brunswick can furnish the timber, New Brunswick and Nova Scotia the plaster and grindstones for a bulk cargo, thereby offering low freight for manufactured goods. As it is now, some vessels loaded with timber do come, often with poor results. When in Melbourne a short time ago I was pointed out three ships that had sailed from the St. Lawrence, arriving so closely together as to overload a poor market. Canada sent pine and spruce to New York, from whence it was shipped here, some as clear stuff and other as manufactured wooden ware; and Nova Scotia, gypsum, where it was manufactured into calcined plaster, and five or six thousand barrels and casks of it sent to these colonies. Nova Scotia and New Brunswick send grindstones across the border, some of which no doubt follow the course of the timber stuff here. If New York can make money by doing this the middlemen's trade could not Canada profitably do some of this trade directly?

To do this trade I still know of no better method than I recommended to manufacturers before leaving. "Come over or send a thoroughly competent man to look over the ground." If a traveller comes he must know the goods he represents thoroughly and have broad powers of action. It will be the exception if the mere sending

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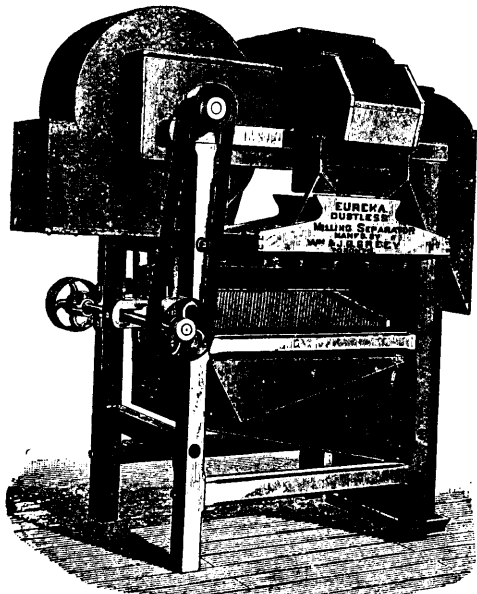
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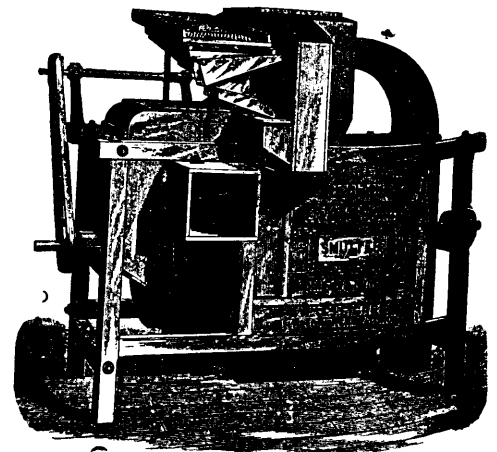
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of circulars or catalogues will lead to good business. It is the old story, "Goods seek good men, poor men seek the goods." Business men are as reliable here as in Canada, but men unqualified, or worse, are to be found; and unfortunately too many Canadians have consigned their goods to the latter class at considerable loss. One of the letters that go by this mail is a reply to the enquiry of a Canadian firm as to whether they should send goods to a party who had sent very high testimonials. I had to write that the party is unknown here, and had managed previously to get a considerable quantity of goods from another Canadian house, which has never been accounted for. No Canadian has yet come over without having done some business with a prospect of more. Mr. Boswell, who came over in November, has taken fair sample orders; Mr. Girvin, who came in December, has sold a considerable quantity of rubber goods to first-class houses, for the Canada Rubber Co.; Mr. McLaren, who came in January, representing D. Morrice & Co., placed lines of cottons, notwithstanding he came in the off season, and is likely to do more before he leaves for South Africa next month. The February steamer brought over Messrs Dietrich, Scott and McGregor from Galt. Messrs. Dietrich and Scott sold the goods which they brought that were suited to the market, and have a fair outlook for the future, although they have practically confined themselves to this city. Mr. McGregor struck a bad time for wood working machinery, but is arranging with a firm to handle his goods. The Massey-Harris Co. are making steady progress in the introduction of larger quantities and larger varieties of their manufactures.

The season has been a bad one for agriculturists. What would a Canadian farmer think of getting only eight bushels of wheat to the acre, putting it in sacks, carrying it in a two-wheeled cart twenty miles to a railway station, paying railway freight for a hundred miles to the seaboard and then getting fifty cents per bushel, sacks included? That has been the luck of a good many Victoria farmers. Pushing the sale of agricultural implements under such conditions is not cheerful work, but the Massey-Harris Co. did it this year, and are steadily getting an increasingly larger share of the trade. In Tasmania I found that the largest house in the island had concluded to abandon the lines they had hitherto imported to take up the Massey-Harris machines.

The Warimoo which arrived on Monday last brought over Mr. Pirie representing the Sanford Mfg. Co. and some other Hamilton firms. He has got his samples through and has promptly struck down to business. The Bed Organ and Piano Co. have an office here and are not only selling organs but have introduced their pianos with good results. The last vessel from New York brought over some sixty or seventy cases of musical instruments, all Canadian. With

the next mail there will go letters from leading firms here to manufacturers who have written from Canada, asking for samples and prices for paper, cigars, machinery, boots and shoes, axes and edge tools, harness, windmills and bicycles. Two Australians are now on their way to Canada to look into goods in which they are interested.

Canadians coming over must not be in a hurry. To stay a month is of but little service, but business is slower here than at home. The goods are unknown and there are only about three days in the week which you can depend on to meet buyers. Mondays and Tuesdays are European mail days, and Saturday is a half holiday; and it is not easy to get the attention of a business man on these days. If time could be spared to visit not only the seaports, but the leading interior towns, it would be of great advantage. In this way an expert could introduce his goods to the leading retailers, and if they came up to the mark a continuance of business would be certain. The Australian business man is naturally conservative. He is inclined to stick to goods that suit him. Orders from the interior generally ask for specific brands and jobbers send new goods at their own risk. This makes it slow to open trade, but it has its advantages when it is once opened. It necessitates the visit to the retail trade by a competent traveller.

Trade would be much facilitated by the opening of a Canadian show and sample room. The wholesale and agency firms should be invited to examine the goods, and if prices were confidentially sent with the sample it would at once decide whether business could be done. There is a good feeling here towards Canadian goods, and I am asked "What have you to sell and where can I buy it?" Locating the showrooms on the leading street would bring the goods before the consumer, and, by placarding the names of the people handling them, would enable him to learn where they could be obtained. Rents are high, but such a room could be opened, if a sufficient number of manufacturers took part in it, at a cost of about three dollars per square foot of floor space. I think it would abundantly pay the manufacturer for the investment. I should be glad to get the opinion of Canadian manufacturers on this matter.

J. S. LARRY.

**Electrical Enterprises.**

BY GEO. WHITE FRASER, ELEC. ENG.

The rapid increase in the number of electric lighting and electric railway enterprises in Canada, renders opportune a consideration of their methods of inception and operation; and it is interesting and instructive to note, that not only are they quite different to those recognized all over the Continent of Europe, and rapidly becoming

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Boiler Shops, Ship Yards, Steam

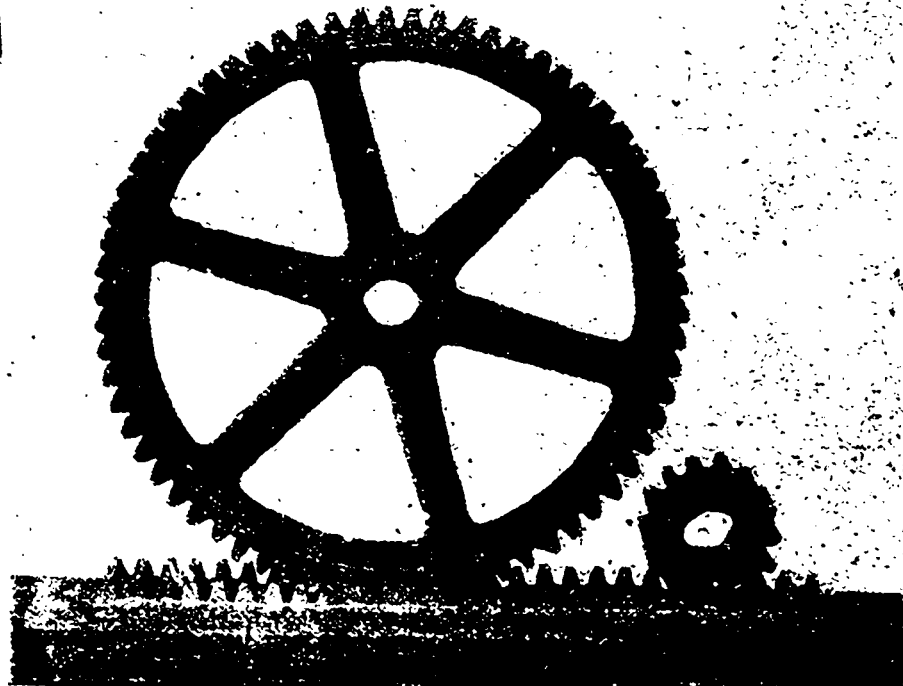
Forges, Repair Shops, &c.



Gear and Rack Cutting to  
Order.



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more general in the United States; but that those principles which are established as standard in all other enterprises of the same nature, even in Canada, seem not to apply to electricity. The success that seems to have attended the operations of most electric stations, is really wonderful, when one considers the absence of business principles in the management of all of them, except the few really large ones, and the disadvantageous conditions attending both their organizations and subsequent operations.

An examination into the details of the design of the large majority of smaller stations, leads to the conclusion that the unity—the fitness for a purpose—that should exist in the plant taken as a whole, is not recognized as being a very important factor governing the payment, or non-payment of dividends. One finds a high-class, expensive engine, running an old-fashioned, inefficient dynamo, or a large slow-speed engine purchased because it was cheap at second hand, to run a small dynamo that would not require, on the average, more than 50% or 60% of the engine capacity; these combinations being made regardless of the facts that the low dynamo efficiency will probably more than counterbalance the high engine efficiency in the first case; and that the waste of power in the large engine running light, will probably represent a considerably larger annual expenditure, than the interest saved on the difference between the prices of a large second-hand, and a proper sized new engine.

One also finds, even in stations where everything has been purchased new, and of standard makes, a want of proportion between the various parts making up the complete plant, that to the professional eye, accustomed to regard an electric station as such, and in relation to its fitness as an electric current factory, and not merely as an exhibition of first-class, but quite unconnected machinery, is just as irritating in its incoherence and numberless sources of petty, but expensive wastes, as the fumbling of the piano learner is to the finished performer.

The causes of this want of balance are not far to seek; and station owners have only themselves to thank for it, that their dividends are not so satisfactory as they might be. The whole trouble is caused by the letting of contracts, piecemeal, for various portions of the plant, without reference to any distinct specification embodying the exact requirements of the enterprise, and arrived at after a careful scientific consideration of local conditions. About all the consideration these local conditions receive is that the proprietors think 1,000 lights will be sufficient, or two or three sixteen foot cars; and with this information they place themselves absolutely and entirely in the hands of one particular manufacturing company for electrical machinery, and in those of another for steam plant; allowing these manufacturing companies to furnish their own

specifications, and to decide what is or is not necessary, just according as the interests of their respective manufacturing businesses dictate. As every manufacturing company desires to sell large orders, and has not the same interest in reducing investment as has the purchaser who has to pay the money, it is perfectly evident that such purchaser does not consider his own interests, when he relies implicitly on the advice of an agent whose salary depends on commissions on sales; moreover, as he thereby eliminates the competition he should desire; and that by purchasing different pieces of machinery on his own responsibility, without any better guide than that afforded by the interested eloquence of a professional drummer, he is simply inviting the electrical and mechanical chaos which is found to exist to the prejudice of dividends. A 100 h.p. engine being sufficient, one of 125 h.p. is purchased "just to make sure" on the irresponsible recommendation of a salesman whose "personal magnetism" has given him an influence over a person ignorant of electrical requirement.

This shortsighted policy results to the disadvantage of the purchaser in two directions, and its effects are permanent. It first tends to raise the investment higher than necessary; and second, the want of due proportion between engine, boiler and dynamo, introduces a permanent waste of power—which is waste of dollars and cents. What is a manufacturer but a contractor, and a human being? Is he to be blamed for taking a little advantage of the confidence and childlike trust reposed in him by the innocent purchaser who will cheerfully pay good money for all sorts of little elegant "fixings"? The purchaser, who in every other walk of life, is probably a shrewd business man, allows himself, in electrical enterprises, to be led gently by the nose, by a silver-tongued agent, whose object is to sell his goods, as much of them as possible, and at the highest price obtainable.

Another peculiarity of Canadian electrical practice that points to the personal influence of agents, rather than to the acceptance of electrical machinery on its intrinsic merits, is the fact that wherever a particular "system" is adopted, it is adopted to the uttermost detail thereof, to the complete exclusion of any trifling apparatus manufactured by the exploiters of a rival "system." Manufacturers, in order to obtain entire control of any business coming to them, arrange to make a complete line of apparatus—from dynamo instruments—right through to lamps, a "system," as it is called, so that they may fill a purchaser's entire order; and, of course, every agent will claim superiority for every detail of his own system over every parable detail of any rival one. But is it to be supposed that any particular manufacturing company can own the best patents for every individual detail of apparatus comprising an electric plant? Is it not more supposable

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## ELECTRIC TRAMWAYS.

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**Complete Electric Plants Installed.**

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that a plant using exclusively one system contains good, bad and indifferent, and that a perfect one will include the best features of all systems, excluding the weak?

(To be continued.)

**A Case of Defective Riveting.**

The driving of rivets is such a comparatively simple operation that it might be supposed that it would be almost always well done. This is far from being the fact, however, and bad riveting is one of the commonest defects reported by the inspectors of the Hartford Steam Boiler Inspection and Insurance Company. The rivets may be too short, or too long, or too small; they may have heads that are too flat, or they may have projecting "fins," or they may not fill the holes, or the holes may not come "fair" with one another. There are many ways in which riveting may be bad.

A case that recently came to the notice of the inspectors of the above company seems to deserve special mention. The rivets in question were in a vertical pulp digester 10 feet in diameter and 30 feet high, which was to be so constructed as to be safe under a pressure of 90 pounds to the square inch. The plates were of steel five-eighths of an inch thick, united by lap joints, which were triple riveted on the straight joints and double riveted on the girth joints. The pitch of the rivets in each case was 3½ inches, and the distance between the parallel rows was two inches. The rivets were three-quarters of an inch in diameter.

Before the digester was accepted, the inspectors were called upon to inspect it and pronounce upon its safety. The inspector found the rivets "driven very low"—that is, the heads were entirely too flat. He had a number of these rivets taken out, and found that the holes in the two sheets did not come opposite one another fairly. This defect is a common one, and it is very serious, both because it reduces the shearing area of the rivet, and because it greatly increases the difficulty of making the rivets fill the holes perfectly. A shop that turns out work of this kind is particularly censurable, not only because the work itself is poor and weak, but also because the defect is not easy to discover after the rivets are in place, and the owner of the boiler is therefore likely to be deceived by a fair external appearance, and to carry more pressure than the boiler can safely withstand.

The inspector also found that the heads were not driven evenly over the holes, the centres of the heads often lying well towards the side of the rivet. This defect, although not so dangerous as the unfairness of the holes, would not be tolerated in a good shop having any pretensions to turning out first-class work. It is very easily detect-

ed, even by one who has had little experience in inspecting, and there is no excuse for it, whatever. The rivet holes were not countersunk, as they should be in all good work; and, taking everything into consideration, we think this case presented the finest example of notoriously bad work that we have seen in some time. The only thing that could be done to it, in the way of improvement, would be to cut out all the rivets, ream out the holes until they should be true, and rivet them up again with larger rivets. The most reprehensible thing about the job, perhaps, is that the builder used rivets that he knew to be too short. At least, we presume he knew them to be so, for any one who had the smallest idea about the business would know it. A boiler 10 feet in diameter, to carry 90 pounds of steam and with five or six men working about it, cannot be built too carefully; and any such reckless performance as putting in rivets that are too short and too small comes dangerously near being criminal negligence.

The joint used in this digester is far from being beyond criticism. To begin with, a lap joint should not be used at all; a butt joint would be much safer and better in every way. Taking the tensile strength of the plate at 60,000 pounds per square inch, and the shearing strength of the rivets at 38,000 pounds per square inch, a little calculation will show that in the joint that was actually used the rivet area is far too small, so that with three-quarter-inch rivets and a factor of safety of five, the safe working pressure is only about 56 pounds. If a triple riveted lap joint were used at all, the rivets should be an inch in diameter (holes 1-16 inch), and the pitch should be about 3¼ inches. This joint gives an efficiency of 72 per cent., and a safe working pressure (with a factor of five) of just 90 pounds per square inch. But a double welt butt joint is the proper thing for this case.

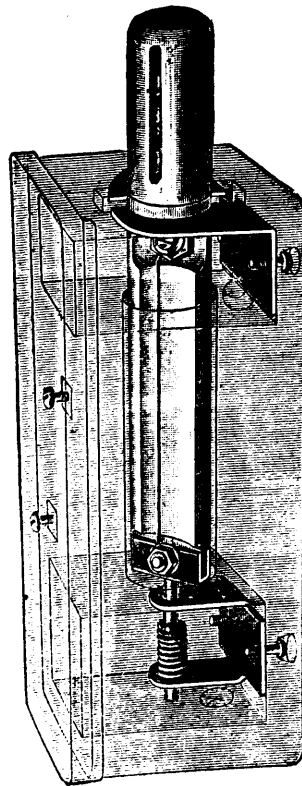
**Relative Cost of Iron Lumber.**

An estimate has recently been obtained from a practical builder in which it is claimed that a building of sufficient size for ordinary manufacturing purposes can be covered with iron roofing and siding at a cost 20 per cent. less than lumber. The cost of lumber is now so low that this may seem a rather improbable statement, but as the builder's figures were made on a contract it is at least reasonable to suppose that he can do what he claims. Nor is the first cost the only item that is to be considered in the matter of saving. The expense of applying the iron is claimed by a competent expert to be at least 35 per cent. less than wood, while still another point in favor of iron is the fact that the overlapping is not one-tenth that of shingles and only about one-fourth that of clapboards, so that what is practically a waste in lumber is reduced to a minimum in the case of iron. The use of corrugated iron for the purposes indicated is so rapidly.

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The Transformer can be cut out of circuit and a burned out fuse replaced without the use of any tool whatever.



**Packard Transformer Fuse Box Complete.**

(2-3 SIZE.)

**The Packard Electric Co., Ltd., MONTREAL.**  
 MAKERS OF PACKARD LAMPS AND TRANSFORMERS.



extending that one is apt to forget it has had but a comparatively recent origin. Within the last few months, galvanized iron has come forward into more general use as a substitute for the painted sheets and at a price that is but slightly above the sheets before they are painted. Galvanized costs no more than did plain iron a year ago and is so manifestly better for many purposes that it promises to supplant the other quality in a great measure. The low prices of both products have had a great deal to do with increasing the demand, but it is probable that the change in their favor would have come in time with the reduction in cost and the lesser expense as compared with lumber. This would be the case aside from the matter of first cost, since sheet iron and galvanized have a decided advantage over lumber in the way of insurance and repairs in addition to their being more substantial. The day is not far distant when wood will be sent to the background in all buildings of an industrial character. Even brick and stone have had their best days in such buildings. A new manufacturing plant in this vicinity is an evidence of this. Every thing about it is of iron or steel, except the foundations for the pillars, which are made of concrete. Even the doors and window frames are steel, while the roof and sides are covered with galvanized iron. This building is a type of the class that will come generally into use, for the very pertinent reason that they are better adapted to manufacturing purposes, are erected at a smaller comparative cost when their utility is considered and last longer and cost less in repairs than any other kind of work.—Stoves and Hardware Reporter.

#### Higher Standard of Boiler Material.

In writing to the Ohio Valley Manufacturer on the above subject, H. R. Barnhurst, secretary of the Union Iron Works, Erie, Pa., refers to his 14 years in boiler making and makes these points as the result of his observation and experience:

"Never before have boiler materials been of a better quality than to-day. The qualities of high ductility and elasticity, coupled with high tensile strength, are attained to a remarkable degree in the very cheapest grades of boiler steel. When I say this I, of course, exclude tank steel, that no honest boiler maker would permit to enter into the construction of a boiler, nor do I believe the makers of boiler steel would sell tank steel knowing that it was to be used for such purposes. A boiler maker driven to such a course would doubtless soon be listed among the black sheep, as well by the seller as by the buyer.

"Boiler plates are bought of a given tensile strength and ductility and constant tests are carried on at the mills to see that the stan-

dard is maintained. At any time the boiler maker can obtain a sworn certificate of the test of the steel entering into any given lot of plate, and if still in doubt he can have test pieces tested by disinterested parties, not connected with mills. In addition to this every boiler maker of any experience observes carefully the behavior of the steel plates under the various manipulations of the shops, and this test is so severe as to lead at once to the detection of inferior plates.

"The greatly reduced price of steel plate is not alarming, but the reverse. It shows the more complete mastery of the art and by lessening the margin between good steel and inferior, reduces the temptation to use the latter. It costs the mills as much to melt, cast, and back to the cost of the raw materials, which difference expressed in cents per pound, would make a small fraction.

"The danger in boiler making, lies less with poor material than with poor workmanship. Badly spaced tubes, rivets and braces, plates too thin for the work, deficient safety attachments, ill-proportioned settings, these are the points where the dishonest or ignorant get in their work, and for it they excuse themselves by the price they bind themselves to accept. A boiler shop fitted out with a complete equipment of modern tools costs a large sum of money and carries with it the assumption of good work. Contrary to popular prejudices, bad work in a boiler shop is the most expensive. Badly matched rivet holes take longer to rivet and caulk than true holes and the fitting up and testing, when poorly done, carry with them increased expense. Aside from this, sooner or later, bad work of any kind destroys the reputation of the shop from which it comes. In the matter of proportioning thicknesses, rivets and braces, the work usually speaks for itself to the educated eye, and, if the eye is not educated, the best plan for a purchaser is to put himself in the hands of a responsible builder, who has capital and reputation at stake, and trust him. Because a man can hammer up rivets or put a patch on a boiler creditably, is no token that he has mastered the art of boiler building. The proper proportions of all parts of a boiler, and its setting rarely found in the man that swings the hammer, and, not always in the head that governs the shop.

"The man who is always wanting something for nothing, who always 'has a lower price,' is the man who is always getting the value of his money, but not a cent more. He always buys 'cheap' goods and puts cheap men in charge of them. You can't guess where his troubles will end. I will say two things in conclusion: that never in the history of the world have boilers been as well made, and of as good material, as to-day, and second, that I don't want an iron boiler at any price."

**FOSTER MACHINE CO.**  
**Foster 1894**  
**Eighteen**  
**Ninety**  
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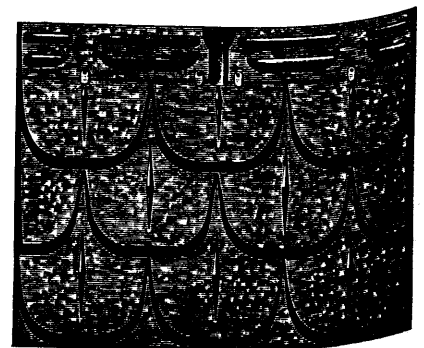
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 In answering please mention this paper.

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Are now ready. Before purchasing elsewhere send for our New Catalogue, which contains the prices and description of the above instruments, and also a list and prices of other new instruments of our manufacture.

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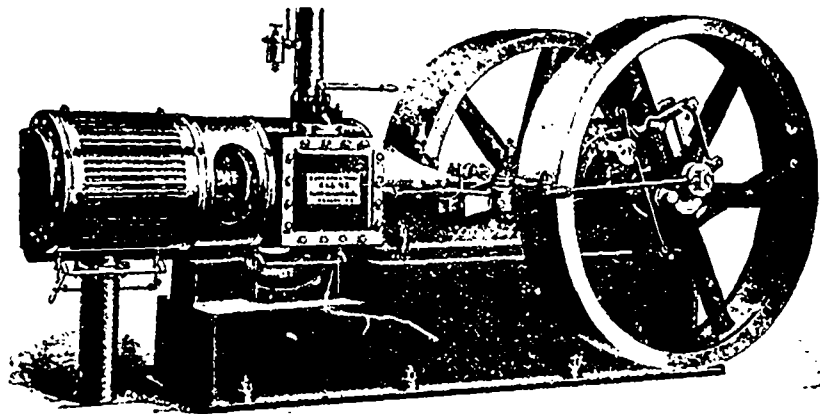
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BARRISTERS, SOLICITORS, ETC. Speciality—COMMERCIAL LAW. Toronto, Canada. Cable address, "Bentley," Toronto. Patents procured in Canada and Foreign Countries.



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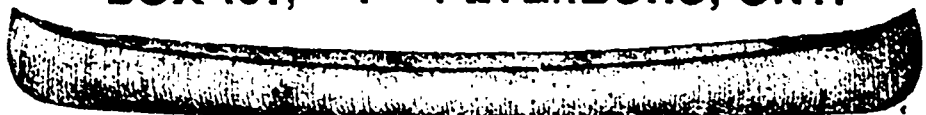
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... WRITE FOR CATALOGUE ...

**CAPTAINS OF INDUSTRY.**

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

Place Bros., Stony Creek, Ont., are building a new sash, blind and door factory at that place.

Mr. Babcock, of Odessa, Ont., will build a grist and saw mill at Bath if the village gives him a bonus of \$500.

The Niagara Central Railway Co. is applying for power to extend its line from Hamilton to Brantford, and thence to Woodstock, Ont.

Mr E.W. Stickney, Newburg, Ont., is negotiating for the purchase of the old Newburg paper mill property, for the purpose of putting in a plant for the manufacture of agricultural implements.

The McLaren Match Co., of Buckingham, Que., has been incorporated with a capital stock of \$40,000 to carry on the business of manufacturers of matches, woodenware, and articles made from wood, etc.

The attention of intending purchasers of machinery is directed to the articles offered by W. R. Scott, Toronto, in his advertisement on another page. He has bought the plants of The Empire Printing & Pub. Co., and the American Brace Co., the machinery being of the best quality and in use but a short time. Correspondence addressed to Mr. Scott re machinery, etc., of any kind will have his careful and prompt attention.

Supplementary letters patent have been issued to the Massey-Harris company, Toronto, authorizing the extension of the undertaking so as to enable the company to carry on its business "within Canada and the United Kingdom and elsewhere, and to establish branches and agencies in any foreign countries." A proviso is added, however, that the company shall have no claims against the Government if their supplementary letters patent are not recognized in any foreign country.

Lennox's planing mill, at Toronto, was destroyed by fire April 14: loss about \$7,000.

Alvarez Putney's saw and grist mill at North Hatley, Ont., was destroyed by fire March 31; loss about 1,500.

Messrs. Costello & McMoran have erected a new cannery at Steveston, B.C., which will have a capacity of 40,000 cases.

Cushing & Co.'s splendidly equipped sawmill at Union Point, St. John, N. B., was totally destroyed by fire on April 10th; loss about \$50,000.

The North American Graphite & Mining Co., Ottawa, Ont., are applying for incorporation with a capital stock of \$150,000 to carry on the business of exploring for, mining and manufacturing graphite, etc.

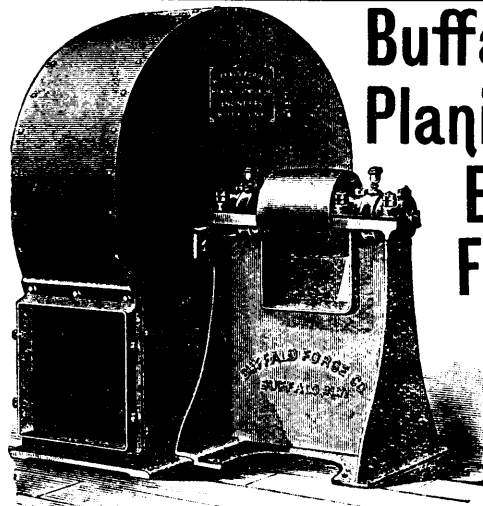
The Black Creek Hydraulic Mining Company of Cariboo, B. C., has been incorporated with a capital stock of \$300,000. The Secretary is Mr. J. W. McFarland, and the head office of the company at Vancouver.

The New Light Co., of Montreal, are applying for incorporation with a capital stock of \$60,000 to carry on the business of general manufacturers, and to manufacture appliances, apparatus, plant, etc., necessary for lighting purposes.

The Brackman & Ker Milling Co., of Victoria, B.C., will establish an oatmeal mill and elevator at South Edmonton, Alberta, of which T. W. Lines will be manager. They will also open a branch at Vancouver, of which W. H. Ker will have the management.

The Truro Casket Co., Truro, N.S., are applying for incorporation with a capital stock of \$15,000 to purchase the factory, etc., now owned by Chas. A. Kent, and to take over the business at present carried on by McLeod Bros., and to manufacture coffins, caskets, etc.

A special press telegram from Port Arthur, Ont., says:—Things are booming in the gold way in the Rainy river district. Col. Ray has refused an offer of \$25,000 for one of his locations near the now celebrated Weigand mine. A Philadelphia capitalist who is interested with Messrs. Wiley Brothers in the Lake Harold location has thirty men at work mining and building a gold mill of the latest pattern and most modern style at Lake Harold itself. The Ingersoll Drill Company have started a man in the district to sell mining, milling, and drilling machinery. Up to date hundreds of locations have been surveyed and purchased from the Crown, and literally thousands of veins have been located. These all carry gold from five to one thousand dollars per ton.



**Buffalo Planing Mill Exhaust Fans**

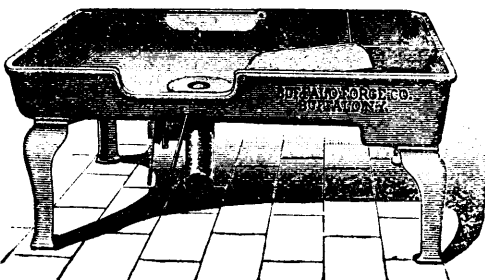
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DURABILITY UNSURPASSED  
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Blowers, Blacksmiths' Tools, etc.

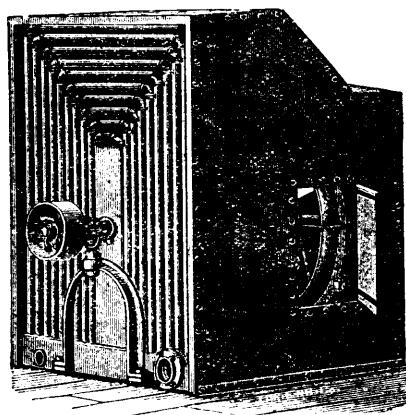
SOLD IN

TORONTO, ONT., BY H. W. PETRIE.  
BRANTFORD, ONT., BY CANADIAN MACHINERY & SUPPLY CO.  
MONTREAL, QUE., BY CANADA MACHINERY AGENCY.  
CHICAGO STORE, 22 and 24 WEST RAND OLPH STREET.

**McEachren's System of Heating, Ventilating and Drying**

**SOMETHING NEW**

Cheap and Effective.



Highly approved of by practical and unbiased men. The following is a sample of letters I get from customers.

For Particulars Address

**J. D. McEACHREN, Galt, Ont.**

Clinton, January 24th, 1895.

J. D. McEachren, Esq., Galt.

Dear Sir.—Replying to your enquiry of the 21st inst., we may say the **HOT BLAST HEATING SYSTEM** we purchased from you about 15 months ago is giving entire satisfaction. Our factories contain about 200,000 cubic feet of space which we heat with exhaust steam, except in very severe weather when we use live steam in one half of the heater in the morning only.

As regards the **DRY KILN, the Heater and 42 inch Fan** you supplied us they are doing excellent work. We dry at out 8 carloads of weather-seasoned lumber, chiefly 1, 1½ and 2 inch walnut per week. We use exhaust steam exclusively in the dry kiln and that during working hours only. It does not require much power to run the fans and they handle a very large quantity of air. We find yours to be a great improvement on the old system of heating with pipes around the factory and under the lumber in the dry kiln.

Yours truly,  
**W. DOHERTY & Co.**  
Organ Manufacturers

# ELECTRICAL SUPPLIES - - -

Do not fail to write for Prices and Quotations on all kinds of Electrical Supplies.

We carry the largest stock of high-class fittings for Electrical Work in Canada.

FANCY PORCELAIN CUT-OUTS, ROSETTES, WALL PLUGS, SWITCHES, BRACKETS, ETC.

Have you tried the I. R. G. P. Wire? We guarantee our wire to have a higher insulation resistance than any wire in Canada.

WRITE FOR PRICES ON ALL SUPPLIES REQUIRED. - - - SEND US THAT RUSH ORDER.

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AGENT for Crompton Howell Battery Co., Ediswan United Electric Co. and the India Rubber, Gutta Percha and Telegraph Works Co.

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### DO YOU EVER USE INCANDESCENT LAMPS?

IF so, do you know what a good Lamp is? We can give you Lamps at all prices, and have the best Lamp made in the world; namely: the genuine "EDISWAN," in any candle power, from one to two thousand; to fit any base. Don't buy lamps until you get our quotations.

Frosted Lamps - Colored Lamps - Mogul Lamps

SEND US THAT RUSH ORDER.

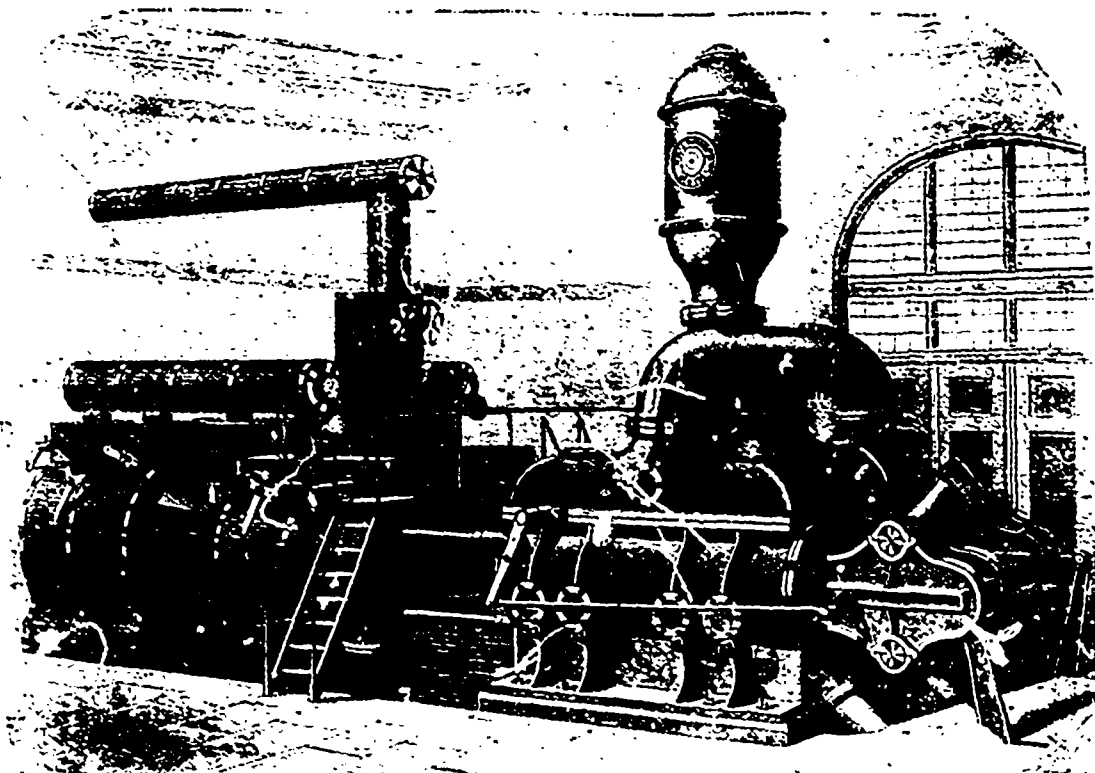
## JOHN FORMAN, 650 Craig Street, Montreal.

AGENTS:-Edison & Swan United Electric Co., and Hungarian Incandescent Lamp Co.

# JOHN M<sup>c</sup>DOUGALL,

## CALEDONIAN IRON WORKS,

## MONTREAL, QUEBEC.



General Agents

in Canada for

THE FAMOUS

Worthington

Pumps

Hydraulic

Machinery

Condensers and

Water Works

Supplies.

WORTHINGTON PUMPS ARE UNEQUALLED FOR EFFICIENCY AND ECONOMY

The Pedlar Metal Roofing Co., Oshawa, Ont., will make extensive additions to their works.

Messrs. Simpson, Hall, Miller & Co., Montreal, will shortly commence the manufacture of sterling silver goods.

The saw and grist mills of Andrew Jackson, at Strathroy, Ont., were totally destroyed by fire April 8; loss about \$5,000.

The McClary Manufacturing Company, of London, Ont., propose to establish a branch of its enameled ware manufactory in Kingston, Ont.

A new brush factory is to be established at Montreal. Those interested are R. Bickerdike, H. Laporte, Senator Desjardins, Lafontaine and F. G. Lyman.

The Featherston Piano Co., of Montreal, Que., has been incorporated with a capital stock of \$50,000 to manufacture pianos, organs, and other musical instruments.

The Anglo-British Columbian Packing Co. are erecting a new salmon cannery at Rivers Inlet, B.C., whose capacity will be about 15,000 cases. The canneries of this company are being overhauled, and some new plant introduced.

The Robb Engine Company, Amherst, N.S., are turning out drawings for a line of side crank engines, the first of which goes to the Dominion Coal Co. C. B. The object of this new venture is to turn out a cheap, strong engine for mill work, but in the above case the engine will be finished in class A style. These engines are to be graduated in 6, 12, and 15 inch strokes.

The Westminster & Vancouver (B. C.) Electric Tramway Co's line, rolling stock and property were sold a few days ago by the bondholders. The property includes the inter-urban tramway between Vancouver and Westminster, and the street railway in the latter city. The purchaser was Mr. Frank Barnard, manager of the Consolidated Railway and Light Co., the owners of the street railway at Vancouver. The price paid was \$280,000. The intention is to consolidate the whole system.

The Colonial Iron & Coal Co., of St. John, N. B., propose to erect a blast furnace at Carleton, that Province. The company has already secured coal areas in Queen's County and have also secured the right to build a railroad from the coal areas to Gibson, opposite Fredericton. The Central Railway is to build a line of railway from Chipman to the coal fields, about fifteen miles. Mr. Robt. G. Leckie and others are associated in this enterprise with English and American capitalists. The works are to have a capacity of 100 tons pig iron per day.

The Montreal Carriage Co., Montreal, Que., are erecting a large carriage factory at that place.

Harold Jarvis, formerly a clerk in the Canadian Pacific Railway offices in Toronto, now of the general freight department of the Northern Pacific Ry., in St. Paul, Minn., has applied stenographic principles to actual practice, and his invention promises to make him famous and wealthy. He claims that he is the first man of a score or more who have tried to introduce on ordinary typewriters word attachments, practicable in operation, who has been granted a patent from Washington. The word attachment is for the purpose of printing at a single stroke frequently used words or phrases, or any special words or phrases employers in the different lines of business may desire, the paper carriage skipping and setting automatically, allowing the word or phrase printed to take up its place on the line with correct spacing, thereby saving from four to fifteen strokes. Twelve additional words or phrases may be attached to the typewriter, which can be operated without interference with the other keys. There is also attached what the inventor calls a two-space lever to save the time necessary to make the space between words, which can be struck instantaneously, by the disengaged hand, with the last letter of a written word, thereby allowing the carriage to move forward two spaces. Mr. Jarvis says that he has taken an average of several days' letters, and estimates the number of strokes saved in printing at a single stroke the frequently used words (such as and, the, for, from, which, but, to, of, the, etc.) with the two-space lever also in use, from 8,000 to 12,000 per day, or an eighth of the operator's time, which, if time is worth anything, will save enough to pay for the attachment in two or three months. Mr. Jarvis says that from his tests of the movement of the automatic spacer, it is safe to say that it will never vary in the skip and set, and the operator can be assured of a very neat result by its adoption. This machine, if what its inventor claims, will revolutionize check writing by hand, and its adoption by railroads for turning out the employees' pay-check may be looked for in the near future. The checks will be printed in roller form, perforated and set in a rack behind the machine. With the first check in position to receive the imprint necessary for date, roll and line number the first throw will bring the check into position for the name, the next for the amount, and the next off on the following check for the same thing. As the printed checks are turned out and fall back, they can be torn off in sheets of four, as in ordinary writing. Two men and a boy by this means will be enabled to do the work of about ten writing with the pen. One will dictate from the pay-roll, and one operate the enumerator, so that neither will have to take their eyes off their work where there is so much time lost even in writing by hand.

.....THE.....

## Goldie & McCulloch Co.,

Limited,

Galt, Ontario,

MANUFACTURERS OF

STEAM ENGINES,

BOILERS,

WATER WHEELS,

Steam Engines, Boilers.

Water Wheels, Flouring and Saw Mill Machinery, Wood Working Machinery, Wool Machinery.

Fire and Burglar-Proof Safes, Vault Doors.

Wood Rim Split Pulleys, Friction Pulleys, Friction Clutch, Couplings, etc.

“Dumfries - Foundry,”

Galt, Ontario, Canada.

WM. & J. G. GREEY, TORONTO,

MANUFACTURERS OF

## SUPERIOR CHILLED ROLLS.

Perfect Surface, Deep Chill, Hard,  
Tough, Durable, Guaranteed  
Free From Flaw.

—FOR—

Iron Rolling Mills,  
Rubber Works,  
Paper Mills,  
Flour Mills, Etc.



For Rolling  
Iron, Steel, Cold,  
Silver, Brass, Copper  
Wire, Lead, Paper, Etc.

Have the Largest and Most Complete  
Plant of Grinding and Corrugating Machinery in Canada.

The corporate name of The Galt & Preston Street Railway Co., has been changed to that of The Galt, Preston & Hespeler Street Ry. Co.

The Kingston Chemical Fire Engine Co., Kingston, Ont., has been incorporated with a capital stock of \$30,000 to manufacture chemical fire engines, etc.

The Cork Co. of Canada, Toronto, are applying for incorporation with a capital stock of \$150,000 to engage in the manufacture of corks, and articles capable of being manufactured from corkwood, etc.

The Canada Paper Co. are enlarging their mills at Windsor Mills, Que., and a new pulp mill is being erected. The dam which is being constructed on the River St. Francis is designed to furnish increased water power.

The directors of the Nova Scotia Steel Co. (an amalgamation of the New Glasgow Iron, Coal & Ry. Co., and the Nova Scotia Steel & Forge Co.) are Graham Fraser, New Glasgow, President; Frank Ross, Quebec; John F. Stairs, M. P., Halifax, Vice-President; Adam Burns, John McNab, J. W. Allison, J. D. McGregor, J. M. Carmichael, and E. F. McKay, Directors. Mr. Thos. Conroy, New Glasgow, has been appointed Secretary of the amalgamation. A bill confirming the sale and transfer of the properties of the new company was passed at the last meeting of the N. S. Legislature.

Ex-Mayor McLeod Stewart, of Ottawa, is interested in the organization of a company for the purpose of utilizing the fish waste and oil of the Fraser River. It will be organized by Mr. Pears, a friend of Mr. Stewart, in London, for the purpose of raising the necessary capital there. Competent authorities state that 400 tons of guano and 145 tons of fish oil can be derived from one thousand tons of residual matter and waste fish. The value of the product would be £3,975, while the cost of manufacture would amount to about £2,100, leaving a net profit of £1,875. The company will ask the Province for a grant of land on Lulu Island for the purpose of erecting a factory thereupon.

T. B. STEWART, Electrical Expert. C. M. ARNOLD, M. E. F. J. CROSS, E. E.

# STEWART, ARNOLD & CO.,

CONSULTING ELECTRICAL ENGINEERS

... AND ...  
MANUFACTURERS OF **ELECTRICAL APPARATUS**

And Dealers in all kinds of Electrical Supplies.

We make a specialty of  
**ARMATURE AND ARC LAMPS.**

All Work Guaranteed.  
Repairs Promptly Executed.

**164 KING STREET WEST.**

## AUBURN WOOLEN CO.....

PETERBOROUGH, ONT.

MANUFACTURERS OF

# FANCY TWEEDS, ETC.

Selling Agents, D. MORRICE, SONS & CO., Montreal and Toronto

## HAMILTON COTTON CO.

Hamilton, Ontario

# DYERS, BLEACHERS

AND MANUFACTURERS OF

Warp Yarn, in Beam, Chain or Skein, White or Colored.  
Single and Double Yarns, Cop Yarn, Single and Double Hosiery Yarn in all Colors, including genuine "Fast Black."

## PAUL FRIND & CO., - TORONTO

Selling Agents for Beam Warps

The Auburn Woollen Co., Peterboro', Ont., has been incorporated with a capital stock of \$200,000 for the manufacture of woollen fabrics.

Nash's new sawmill at South Edmonton, N.W.T., has been completed and put in operation. Walters & Humberstone's mill at the same place will soon be completed.

The Portland cement works erected by the C.P.R. at Vancouver, B.C., have been put in operation under the management of Mr. S. Warsop, late assistant superintendent of Messrs. Francis, Sons & Co., of London, England. These works have a capacity of 600 barrels per week. All necessary ingredients are obtained in the Province, limestone being procured from Texada Island and clay from Wharrock.

## Steamboat, Railroad, Electric and Mill Supplies.



**100 Bales A1 White Cotton  
Waste 7½ cents per pound.**

FRANKLIN CYLINDER,  
ENGINE and DYNAMO **OILS**

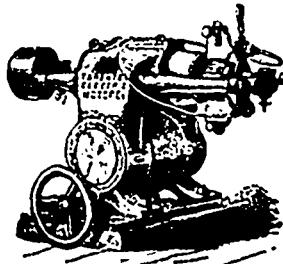
Rainbow Sheet and Gasket Ring;  
and Spiral and Square Flax Packing.

**WILLIAM G. WILSON,** 24 Front St. East,  
TORONTO.

## Toronto Electric Motor Co.

MANUFACTURERS OF

**DYNAMOS  
AND MOTORS**



Our Motors give the Best Satisfaction and are cheap.

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.... PARIS, ONT....

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**Hosiery, Shirts, Drawers  
Glove Linings and Yarns**

Selling Agents: D. MORRICE, SONS & CO., Montreal and Toronto.

## ROSAMOND WOOLEN CO.

... ALMONTE, ONT...

Fine Tweeds, Cassimeres and Fancy Worsted Suitings  
and Trouserings.

## Guelph Woolen Mill Co., Ltd.

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Manufacturers of

**UNDERWEAR, HOSE, WHEELING, FINGERING and WORSTED YARNS  
HEIDERDOWN FLANNEL, Etc.**

Selling Agents: DONALD FRASER, MONTREAL: E. H. WALSH & Co., TORONTO

**BRUNNER, MOND & CO., LTD., NORTHWICH, ENG.**

MANUFACTURERS OF  
**PURE ALKALI**

GUARANTEED 58 DEGREES.

**and BLEACHING POWDER.**

The Strongest and Purest Form of SODA ASH in the Market  
and the Most Economical Form of SODA for the Manufacture of

**SOAP, GLASS, PAPER,  
WOOD PULP AND COLORS,**

also for PRINTERS AND BLEACHERS.

**WINN & HOLLAND, Montreal**

Sole Agents for the Dominion of Canada

**... FOR SALE ...**

For quick turnover we will sell very cheap the following S. H. machinery:—2 Portable Engines good as new; 2 Oil Engines: 1 3 h.p. Upright Engine; 1 Stationary Engine and Boiler 25 and 30 h.p., good order; 1 20 x 24 Iron Planer; 1 Large Iron Drill 20"; 2 Iron Lathes 18" and 12" swing. Also new machines of every description at bottom prices.

We also have a medium size Planing-Mill in Toronto fully equipped with the most modern machinery, which we will sell on easy terms, or will give a long lease to reliable party. Address:

**THE TORONTO MACHINERY SUPPLY CO.**  
164 King Street West, Toronto,  
**A. J. LINDSAY, Mgr.**

Special agents for the celebrated Toronto Portable Oven which we guarantee to give satisfaction or no sale.

**FOR SALE**

1 plain slide valve 15 h.p. Engine with pump and heater; 1 steel Boiler 30 h.p. 10' long, 42" shell with 40.3" tubes including settings, fronts and all connections complete. Both the above are in first-class order and in use but a short time, having been very carefully used. 1 Eclipse Planer and Matcher 24" knives; 300' Shafting 1 1/2" with hangers; 100' Shafting 1 3/4" x 2" with hangers; 75' Shafting 2 1/2" with hangers. Wood and Iron Pulleys, all sizes; Belting, new and old.

**BARGAINS.** ♦ WRITE FOR FURTHER PARTICULARS AND PRICES.

**W. R. SCOTT,** MACHINERY BROKER,  
489 Church St., Toronto

**Wm. J. Matheson & Co. Limited**

423-425 ST. PAUL ST., MONTREAL

ALSO AT

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IMPORTERS AND MANUFACTURERS OF

**DYE STUFFS NATURAL AND ARTIFICIAL**

Works: Long Island City, Port of New York  
Main Office: 178 Front Street, New York

WE MANUFACTURE AND IMPORT

**Every Modern Dye Stuff**

Sole U.S. and Canada Agents for

Leopold Cassela & Co., Frankfort-on-the-Main, Germany.

W. C. Barnes & Co., London, England.

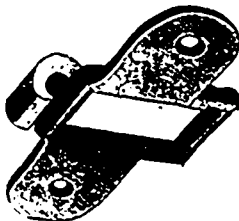
Manufacture Lyonnaise de Matieres Colorantes, Lyons, France.

Albany Coal Tar Dye & Chemical Co., Albany, N.Y.

**WM. & J. G. GREEY,**

TORONTO,

Carry full line  
of the

**LINK CHAIN BELTING AND ATTACHMENTS,**

Also Manufacture any size of



Sprockets

For

Any Chain.

**Jas. A. Cantlie & Co.**

**GENERAL MERCHANTS AND  
MANUFACTURERS' AGENTS**

ESTABLISHED 22 YEARS

**COTTONS**—Grey Sheetings, Checked Shirtings, Donhams, Cottonades, Tickings, Bags, Yarn, Twine, etc.

**TWEEDS**—Fine, Medium and Low Priced Tweeds, Serges, Cassimeres, Doeskins, Etottes, Korsors, etc.

**FLANNELS**—Plain and Fancy Flannels, Overcoat Linings, Plain and Fancy Dress Goods, etc.

**KNITTED GOODS**—Shirts, Drawers, Hosiery, etc.

**BLANKETS**—White, Grey and Colored Blankets.

WHOLESALE TRADE ONLY SUPPLIED

**ALBERT BUILDING, 290 ST. JAMES STREET, - - MONTREAL**  
**20 WELLINGTON STREET WEST, - - - - TORONTO**

Advances made on Consignments. Correspondence Solicited.



The Hammond Bros.' sawmill at Gorrie, Ont., was totally wrecked by the flooding of Maitland River on April 8; loss about \$5,000.

The George Gillies Co., Gananoque, Ont., are applying for incorporation with a capital stock of \$125,000 to manufacture wares of iron, steel, brass, nickle, copper, etc.

The Kay Electric Works, Hamilton, Ont., have been purchased by Messrs. J. S. Job and Robert Lynch, who will continue manufacturing the Kay electric motors and apparatus.

The Ontario Steam Logger Co., Toronto, Ont., are applying for incorporation with a capital stock of \$250,000 to manufacture snow traction engines for the hauling of sawlogs, etc.

The steamer Jack, recently launched at Garden Island, near Kingston, Ont., is 180 feet long, 37 feet beam, and fourteen feet hold. She has triple compound engines, 13½ and 36 inches in diameter respectively, and 36 inches stroke, proportions uncommon in this country, but very common in Great Britain. The boilers are of Siemens-Martin steel, Aetna water-tube type, and are said to be the first marine boilers of this class ever used in this country. They are to carry 160 pounds of steam to the square inch.

A deal is in progress by which, if the negotiations are successful, the Canadian directors of the Smelting Works Company will buy out the American directors and assume entire control of the enterprise. The Canadian directors are J. H. Tilden, John Milne and J. H. Landon, of this city, and W. Jaffray, of Toronto. The work on the furnaces is suspended at present, pending the completion of the deal, which is expected to be consummated shortly. If it is carried through J. J. Morehouse will continue to hold the position of superintendent under the new regime, and everything will go on as projected, except that it will become a purely Canadian enterprise. - Hamilton Spectator.

The Dorrien Plating & Mfng. Co., Toronto, has been incorporated with a capital stock of \$10,000 to manufacture articles of iron, steel, copper, brass, nickle, aluminum, etc.

The Ontario Iron & Steel Co., Kingston, Ont., are applying for incorporation with a capital stock of \$600,000 to manufacture pig iron, refined iron, steel, manganese, nickle, steel, etc.

The Milton Electric Light & Power Co., Milton, Ont., has been incorporated with a capital stock of \$15,000 to construct works for the production of electricity for heat and power purposes.

The Natural Gas & Oil Co., of Ontario, has been incorporated with a capital stock of \$500,000 to acquire machinery required in sinking wells, and to refine, and manufacture natural gas and oil, etc.

Messrs. Ahearn & Soper, electrical engineers of Ottawa, were at Oshawa, Ont., a few days ago with Captain Carter, promoter of the Oshawa Electric Railway. They went over the proposed route, and Captain Carter has arranged with Mr. E. S. Edmondson for the necessary power, and will put in his own dynamo. Work will be commenced on the road as soon as the frost is out of the ground. The railway will connect the numerous factories with the G. T. R., and the town with the depot and Lake Ontario.

The Marion Steam Shovel Co., of Marion, Ohio, propose to establish a branch in Canada that will employ from 50 to 200 men. President Huber and others of the company were at Hamilton, Ont., a few days ago looking for a suitable location. The company has an extensive establishment in Marion employing nearly 400 men. They manufacture all sorts of dredges and steam shovels. The officers state that they expect a bonus from the place in which they decide to locate, and that some local men will take stock in the enterprise. They will visit several places in Ontario before deciding upon a location.

**GEO. WHITE FRASER,** C. E., D. T. S.,  
A. Am. Inst. Elec. Eng.  
**Consulting Electrical Engineer.**

Electric Railways and Electric Light Construction Superintended.  
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Were awarded Gold Medals at the World's Columbian Exhibition Chicago, for their

INGRAIN . . . . .  
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"Imperatrix" Axminster

SEVEN QUALITIES OF INGRAINS

Kensington Art Squares, Axminster Mats, Rugs,  
Squares, Body Border and Stairs.

Esplanade and Jarvis Sts., - Toronto

**The Dominion Cotton Mills Co., Limited**

**MAGOG PRINTS**

A Full . . . . .  
Range of **.. Pure Indigo Prints**

Is now being shown to the trade.  
Ask Wholesale Houses for Samples.

All Goods Guaranteed, and Stamped "Warranted Indigo Blue"

**D. Morrice, Sons & Co. Selling Agts.**

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**Cassidy, Bonner & Co.,**

Manufacturers of

**Leather Belting, Lace Leather & Mill Supplies,**

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**ALEX. P. MENDE & COMPANY** 14 Water St.,  
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MANUFACTURING CHEMISTS.

**FAST ONE DIP COLORS, F** Dyeing and Printing of Coo-  
**BLACKS AND CHEMICALS** 0 ton, Woolen, Mixed  
Fibres, Etc., &tc.  
SHADES MATCHED.

German Finishing Paste Cordage and Carpet Size  
German Warp Dressing Shade Cloth Colors and Size  
Cotton and Merino Softeners Belt Dressing  
Wool and Cloth Scourers, etc., etc.

The Industrial Economizer Apparatus patented, for reclaiming the valuable products from waste waters. Apparatus in operation at our works. Patented June 26th, 1894.  
This means a saving to you of thousands of dollars every year.

**I. Butler & Co.** Distillers of  
Benzole, Naptha,

and Manufacturers of Carbolic Acid and Varnish.

303 Front St. East, - - - TORONTO.

**FERGUSON & PATTINSON**

PRESTON : : : ONT.

Manufacturers of....

**Finé and Medium TWEEDS.**



**Bristol's Recording Ampere Meter.**

In the accompanying illustration, Fig. 1, represents a new recording amperemeter just brought out by The Bristol Company, of Waterbury, Conn. This instrument, in connection with their recording voltmeters and wattmeters, which are already well known, makes it possible to keep a continuous record day and night, of the output of an electric lighting or power plant.

The general design of this instrument is clearly shown in Fig. 2, an interior view, from which it will be seen to consist of a stationary solenoid A, and an armature B carried by a non-magnetic shaft through the centre of the solenoid, the shaft being supported at its opposite ends on steel knife-edge spring supports C and D, the same as in the Bristol's recording voltmeter.

The recording pen arm E is secured directly to the steel spring

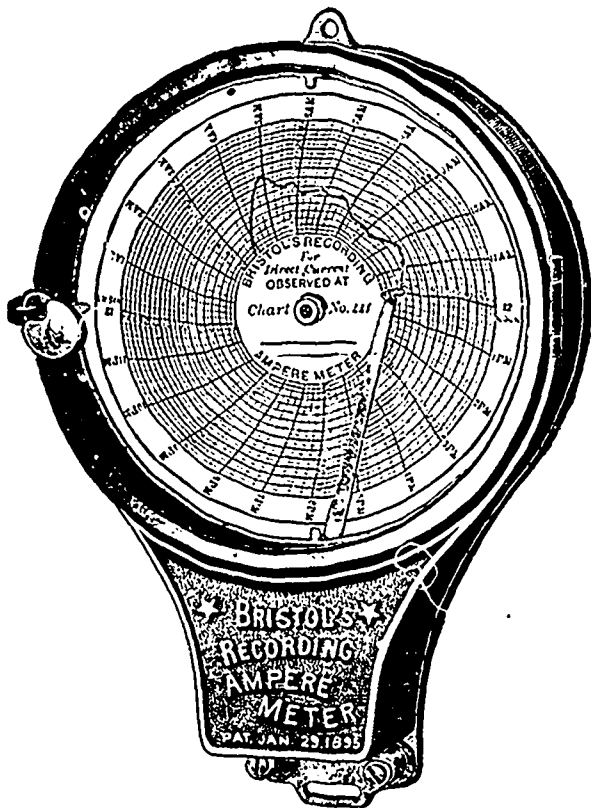


FIG. 1.

support D, and partakes of its angular motion as the armature is attracted to the coil or solenoid by a current passing through the solenoid. Although the actual distance that the armature itself moves is small, it will be observed that it transmits an angular motion to the pen arm, resulting in a wide range on the chart without employment of multiplying devices between the spring and the pen.

A novel feature of this instrument is the form of armature which is used to procure a chart with the divisions nearly uniform throughout its range. It consists of two parts, a flat and very thin disc of iron and a small sleeve or core of iron on a non-magnetic shaft. The sleeve is completely concealed from view within the solenoid; the disc is stiffened by a plate of non-magnetic metal.

If the armature consisted simply of the flat disc portion, the magnetic attractive force would increase very rapidly as it approached the solenoid, giving a chart with divisions as in the Bristol's record-

ing voltmeter, that is, contracted at the lower portion on the scale but very open at the upper portion; while if the armature consisted only of the core portion, the attractive force upon it would decrease as it approached the central or neutral position of the solenoid, and the divisions for the lower portion would be quite open, becoming contracted at the upper portion of the scale.

After considerable experimenting a combination disc and core armature has been found which produces the nearly uniformly divided scale as shown in the specimen section of a chart, Fig. 3, for a range of fifteen amperes.

The armature and moving parts are reduced to a minimum in size and weight to avoid magnetic lag and the effect of the inertia, when

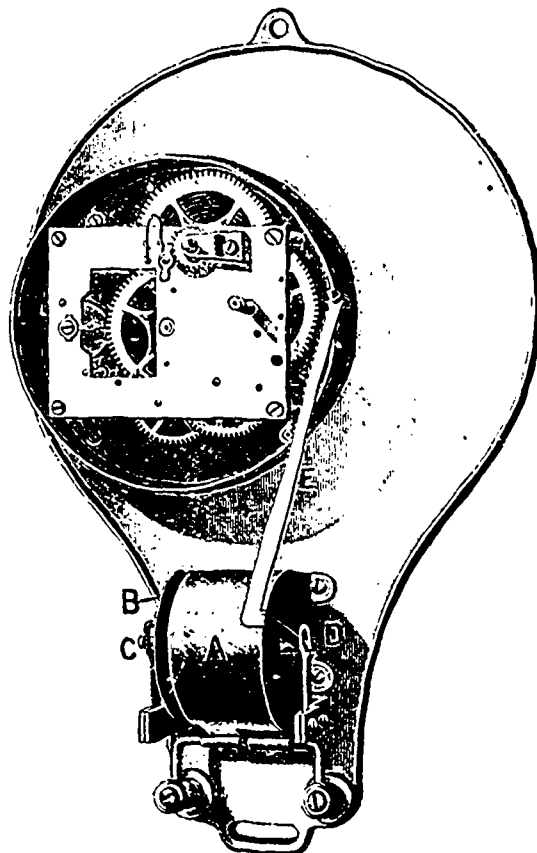


FIG. 2.

current is thrown off and on. To provide for cases where there are extremely rapid and large fluctuations in the current to be recorded, as for example on an electric railroad, a damping device is provided, which consists of a vane of aluminum, secured to the left knife edge

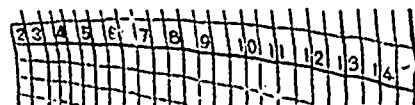


FIG. 3. SCALE OF BRISTOL'S RECORDING AMPEREMETER.

spring and immersed in a vessel of glycerine. For low ranges the solenoids are designed to carry the entire current, but for high ranges shunts are provided.

**THE PAUL FRIND  
Woolen Machinery Company, Ltd.**

.....TORONTO.....

Dealers in and Manufacturers of  
**WOOLEN MACHINERY. MILL SUPPLIES.**

Specialties:  
English H & T Steel Card Clothing.  
Williams' Heddles, Shuttles, Recds, Heddle-frames, Loom Repairs.

**DODGE WOOD SPLIT PULLEYS**  
Best Oak Tanned Belting and Lace Leather.

**Canada Chemical Mnfg. Co.**

Manufacturers of

Sulphuric, Nitric and Muriatic Acids, Commercial and Chemically Pure. Mixed Acids for Explosives, Liquid Ammonia, Glauber Salts. Copperas, Muriate Tin, Tin Crystals, Acetic Acid, Nitrate Iron, Bisulphite Soda, Acid Phosphate for Baking Powders and General Chemicals. Fertilizers, Etc.

LONDON,

ONTARIO

The figures given below of the coal output of the mines on Vancouver Island during 1894 says the Vancouver, B.C., News-Advertiser, will be considered as exceedingly satisfactory when the commercial conditions which prevailed in San Francisco, which is one of the leading markets for our coal product, are remembered. The prospects for a larger output for 1895 are encouraging:

Wellington collieries—Total, 1894.....	366,765.26
“ “ “ “ 1893.....	312,573.15
Increase.....	54,192.11
Union collieries—Total, 1894.....	221,700
“ “ “ “ 1893.....	126,438
Increase.....	95,262
New Vancouver collieries—Total, 1894.....	393,772.17
“ “ “ “ 1893.....	388,649.15
Increase.....	5,123.02

**The Fried Krupp Gas Engine.**

The accompanying illustration is one of the many forms of gas engines for electric lighting and other industrial purposes, manufactured by Fried Krupp, Magdeburg-Buckau, Germany.

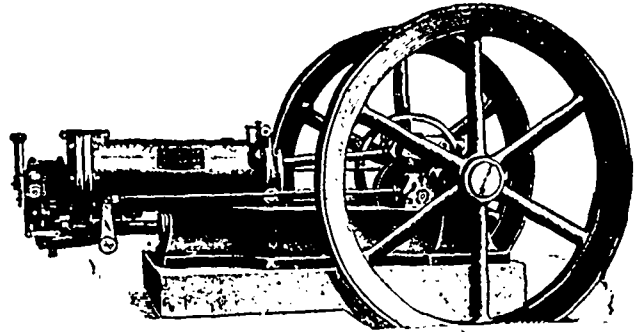
These engines are not made too cramped or too short. On the contrary it is considered an advantage to keep the piston and connecting rod long, in order to keep the surface-pressure in cylinder as low as possible. The piston has on its front end a longer guide in place of a crosshead, while the piston rod has about six times the length of crank. This reduces the wear and tear to a minimum, and in addition an automatic lubricator prevents the possibility of wear of cylinder or piston.

The larger the engine, the more favourable is the gas consumption,

and at full load the largest engines require only about 16 cub. ft. per hour per brake horse power.

The regulation of the gas as also the speed of the engine is accomplished by a simple but very sensitive patent governor. The gas consumption keeps pace with the power required. The governor gives either full gas load or shuts it off for the whole stroke according to the power required.

The speed of these engines is small; the smallest engines make 230 revolutions per minute, while the larger ones work at 200 r.p.m.



KRUPP GAS ENGINE.

tions or less. These engines are not, therefore, to be put in the same class as the highspeed engines, which make from 250 to 500 revolutions. The speed of the engines can be altered while running, which is for many industries a great advantage.

The valve gear is very simple. One rod works the governor, the



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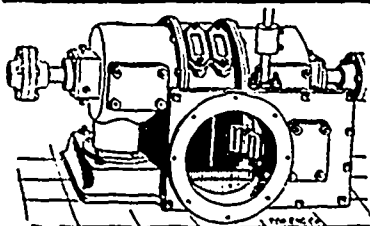
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gas supply and the igniting arrangement, while another works the exhaust valve. The igniting method is very simple and very sure in its action. The ignition is effected by an incandescent body. The explosive mixture passes to it at the right moment and is fired by coming in contact with its white hot walls. By this arrangement the continual extinction of the igniting flame, so common in other engines, is obviated. The incandescent body is made of a material which is very durable and will last for many months, if properly treated.

These machines have no slide valve. The frame is strong, the bed plate long, and the number of moving parts, as can be seen from the figure, the smallest number possible.

The cylinder cover and the frame are made in one piece, the former being sustained for one-third of its length; the cylinder itself is made of especially hard and solid material and is slid into the cylinder cover. The moving parts are made of steel and are hardened where necessary.

The special advantages claimed for these gas engines are: Simple construction, hence easy to work—repairs small; working parts accessible and easily cleaned; strong construction—best material and workmanship; easily and quickly started—no previous preparation required; economy in working, also when running light and with half load; very small gas consumption; automatic lubrication; number of revolutions small, small wear and tear; easy regulation of speed, even during motion; quiet, even, regular and almost noiseless motion; great efficiency; cheapness.

For further information regarding these engines apply to Jas. W. Pyke & Co., 35 St. Francois Xavier street, Montreal, who are the representatives of the Krupp Company in Canada.

#### CANADIAN PATENTS.

The following patents have been issued from the Canadian Patent Office, from February 1 to February 11, 1895, inclusive.

Information regarding any of these patents may be had on application as follows:—

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Copies of American patents corresponding to Canadian patents can be procured from either of these attorneys for the sum of twenty five cents each.

48,082 Hot water heater, Frederick K. Caswell, Hartford, Conn.

48,083 Range tank, Jas. J. Malley and Henry J. Brinkenkamp. St. Louis, Mo.

48,084 Selvege protector for cotton machinery, Geo. Townsend, Wm. Armitage and Hartley Spencer, New Bedford, Mass.

48,085 Artificial fuel, Ed. Fenchtwanger, Munich, Germany.

48,086 Window, Ferdinand C. Von Heydebrand and Under Lasa, and Geo. Semler, New York, N.Y.

48,087 Floor and floor blocks, Thos. A. Lee, New York, N.Y.

48,088 Telephone signalling device, Jno. E. Dalrymple, Chicago, Ill.

48,089 Telephone, Jno. E. Dalrymple, Chicago, Ill.

48,090 Rheostat, Thos. W. Shelton, St. Louis, Mo.

48,091 Lace fastener, Alex. Matchett, Pittsburg, Penn.

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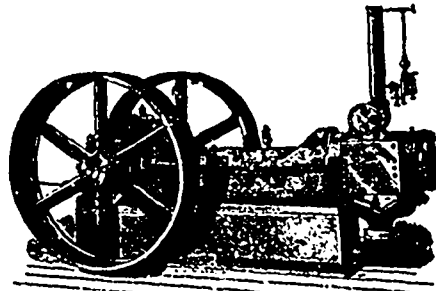
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- 48,092 Railway gate, Jas. H. Fitzgerald, Neapolis, Va.
- 48,093 Brush, Francis Jos. Clarke, Newport, R. I.
- 48,094 Car wheel, Jno. Payer, Topeka, Kan.
- 48,095 Brick kiln, Jno. Starkey Minerva, O.
- 48,096 Lock, Jno. J. Ridgway, Brooklyn, N.Y.
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- 48,098 Brick press, Ed. W. Seamans, Grand Rapids, Mich.
- 48,099 Pneumatic vehicle tire, Geo. H. Chinnock, Brooklyn, N.Y.
- 48,100 Process for making waterproof fabric, Jacob Gold, and Abraham Rudolph, Montreal, Que.
- 48,101 Apparatus for producing cold, I. and E. Hall, St. Swithuns Lane, London, Eng.
- 48,102 Grain cleaner, Lafayette Lewis and Ella Le De Mond, Paulding, O.
- 48,103 Garbage or rubbish drier, Jas. Mann, Dowagiac, Mich., and Robt. Mann, Peterboro' Ont.
- 48,104 Hoop-making machine, The Plenkharp Barrel Machine Co., Columbus, O.
- 48,105 Burglar alarm, Robt. S. Hodgins, Lucan, Ont.
- 48,106 Rope clamp for pulleys and belaying cleats, Hy. Vachon, Golden, B.C.
- 48,107 Burglar alarm, Jas. W. Horn, New Madison, O.
- 48,108 Harrow, Thos. J. Hubbell, Santa Cruz, Cal.
- 48,109 Annealing box, Wm. H. White, Apollo, Pa.
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- 48,117 Non-filling bottle, Harvey I. Leith, Providence, R.I.
- 48,118 Bottle, Jas. H. Valentine, Chatham, Ont.
- 48,119 Device for fastening dresses, Francis Morton, Toronto, Ont.
- 48,120 Mailbag lock, Donat Blondeau, Quebec, Que.
- 48,121 Plastic compound, Wm. M. Dawson, New York, N.Y.
- 48,122 Sleigh, Daniel R. McLaren, Hineckley, Minn.
- 48,123 Brush making machine, Carl Rehse, Striegau, Silesia, Germany.
- 48,124 Storage voltaic battery, Ludwig Epstein, London, Eng.
- 48,126 Process of producing an imitation of buffalo robes, The Waterloo Woollen Co., Waterloo, Ont.
- 48,127 Off-setting device for saw-mill carriages, Jas. McAllister, and Albert C. Hubbell, South Manistique, Mich.

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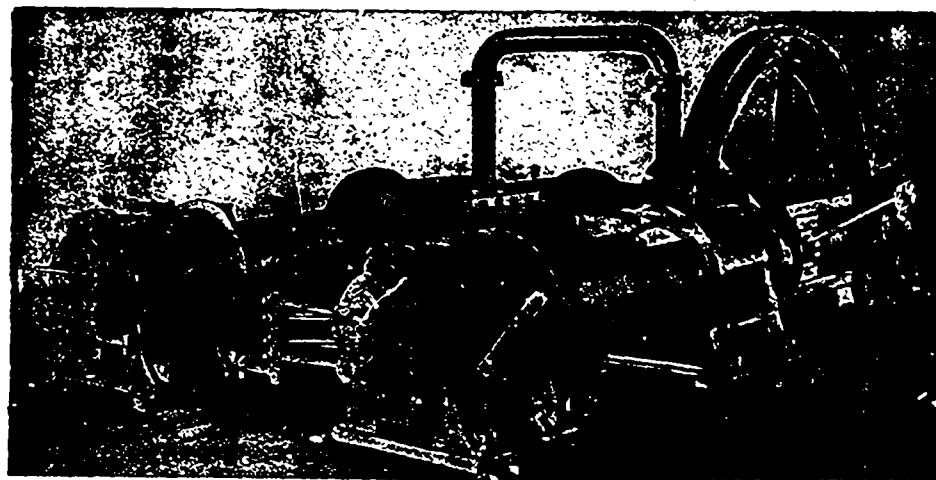


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- 48,144 Saucepan, Robt. B. Vanderburg, Long Beach, Cal.
- 48,145 Car buffer, The Gould Coupler Co., New York, N.Y.
- 48,146 System of bottle corking, etc., Louis Mathieu, Gustave J. Loustalot, Bordeaux, France.
- 48,147 Bob-sled, Geo. Warder, Bowmanville, Ont.
- 48,148 Saucepan, Ludovic J. Painter, Chicago, Ill.
- 48,149 Harness attachment, Allen A. Sage, Detroit, Mich.
- 48,150 Bicycle saddle, Hy. A. Christy, Chicago, Ill.
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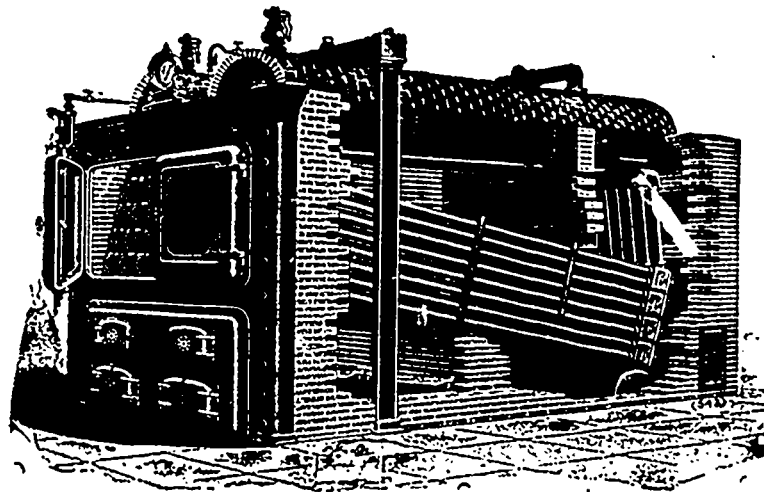
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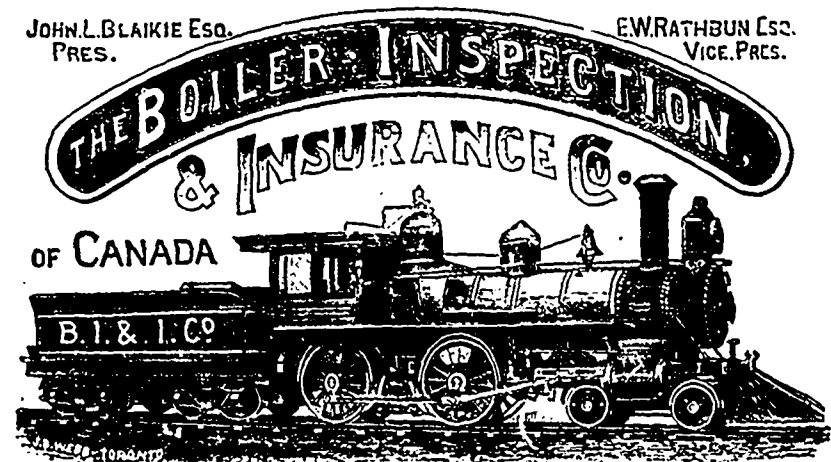
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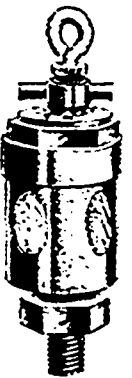
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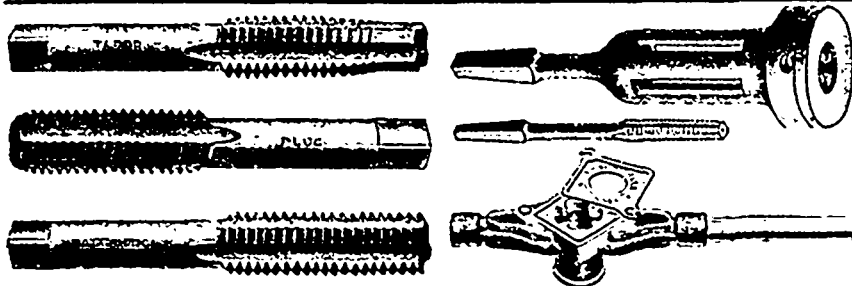
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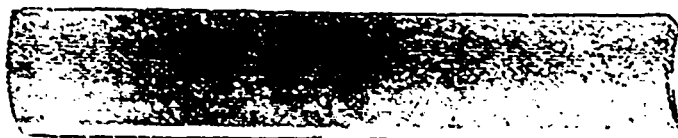


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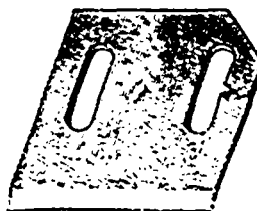
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1 1/4	1 1/4	4.13	4 1/2 cts.	2 1/4	2 1/4	18.91	4 cts.
1 3/8	1 3/8	5.01	"	3	2 7/8	22.59	"
1 1/2	1 1/2	5.94	"	3 1/4	3 1/8	26.60	"
1 3/4	1 3/4	7.46	"	3 1/2	3 1/8	30.94	"
2	1 7/8	9.83	4 cts.	4	4	42.33	5 cts.
2 1/4	2 1/8	12.53	"	4 1/2	4 1/2	53.57	"
2 1/2	2 1/8	15.55	"	5	5	66.13	"

NOTE--Shafting as per Actual Size Column, up to 3 in. dia., always kept in stock.

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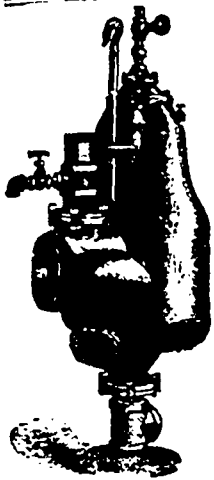
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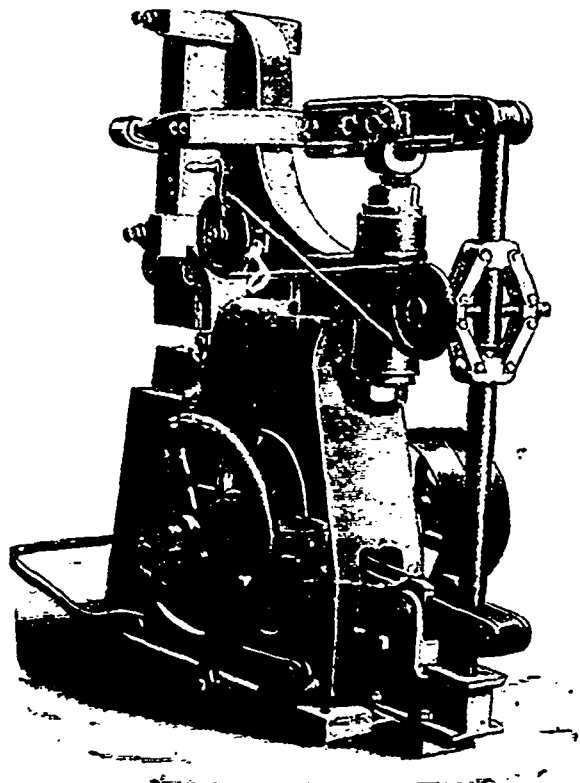
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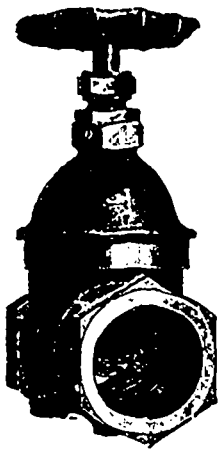
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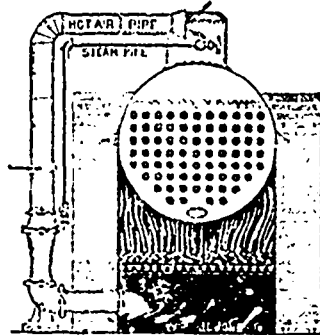
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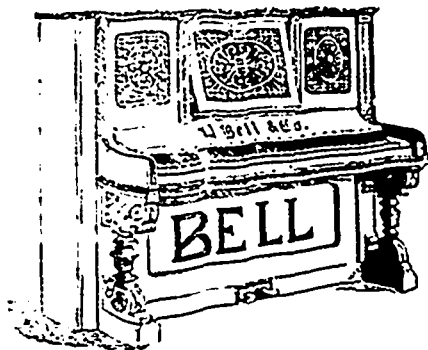
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- To secure by all legitimate means the aid of both Public Opinion and Governmental Policy in favor of the development of home industry and the promotion of Canadian manufacturing enterprises.
- To enable those in all branches of manufacturing enterprises to act in concert as a united body whenever action in behalf of any particular industry, or of the whole body, is necessary.
- To maintain Canada for Canadians.
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ASSETS.		1932.	1931.
Cash.....		\$ 2,378 11	\$ 2,210 03
Bonds and Mortgages.....		228,473 21	222,751 15
Other Assets.....		54,251 51	50,322 40
Total.....		\$275,103 83	\$275,283 58

LIABILITIES.		1932.	1931.
Reserve, and on acct. of Policyholders..		\$169,161 09	\$162,218 63
Other Liabilities.....		5,884 74	3,522 18
Net Surplus.....	NIL		39,492 72
Income.....		137,554 97	328,715 63
Expenditure, Total.....		117,152 37	153,465 37
Insurance in force.....		6,110,169 00	9,533,360 00

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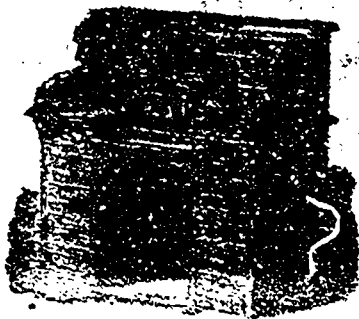
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