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SPECIAL EXHIBITION NUMBER

Labor Gazette

The CANADIAN MANUFACTURER

AND INDUSTRIAL WORLD
DEVOTED TO THE MANUFACTURING INTERESTS OF CANADA.

VOL. 55.

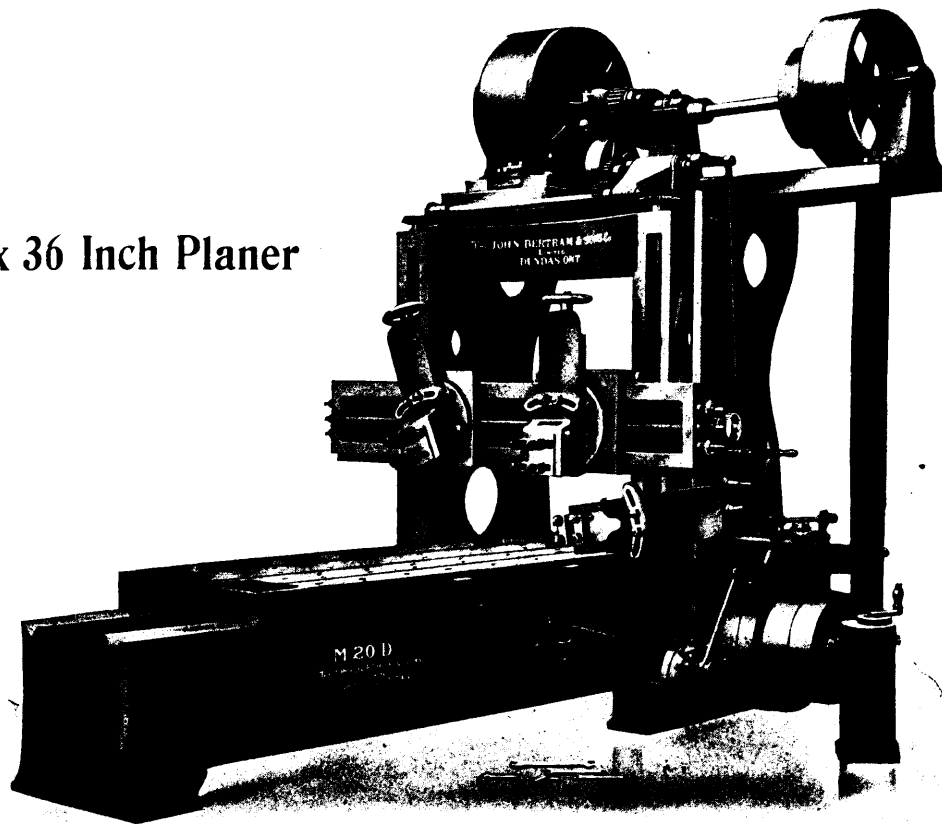
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No. 5.

PLANERS

From 24 to 120 Inches Square—Any Length of Table

36 Inch x 36 Inch Planer



The illustration shows our 36 Inch x 36 Inch Planer arranged with three cutting heads and motor drive for Locomotive & Machine Company's Shops at Montreal.

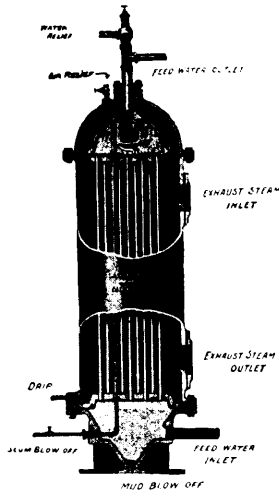
We have been building planers for nearly half a century—to-day our BEST FRIENDS are customers who have used our planers from one to forty years.

Write for Catalogue.

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Prolongs
the
Life of
Boilers



Saves
10 Per
Cent. of
Your Coal.

LAURIE

FEED-WATER HEATER AND PURIFIER

30 to 2,000 Horse Power.

Laurie Engine & Machine Co.,

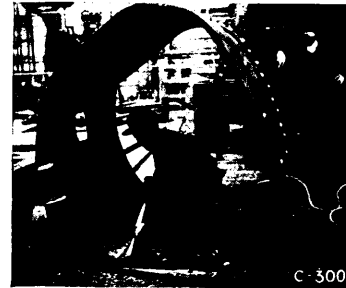
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**We don't say the "Imperial" is
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We leave that to our satisfied customers.

Are you one of them?

**Are you satisfied with the tools you are
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Send for an "Imp" on 30 days trial.

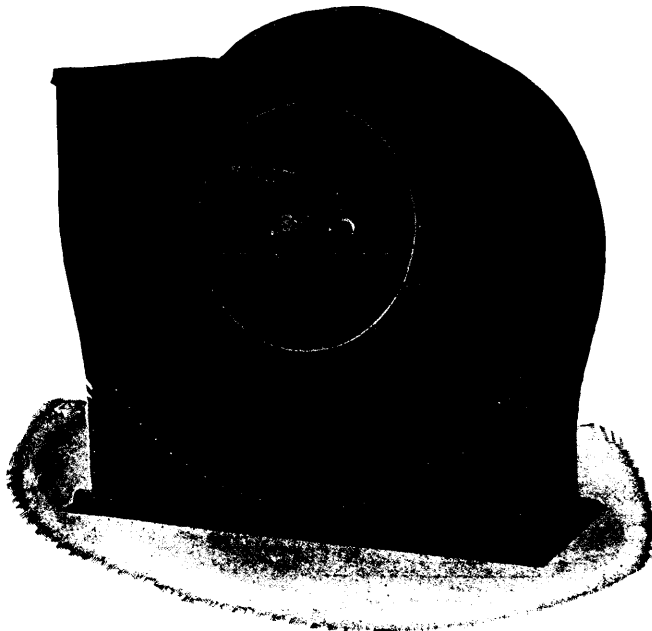
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CANADIAN RAND COMPANY

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MONTREAL, QUE.

TORONTO, HALIFAX, KENORA, ROSSLAND, B.C.



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MECHANICAL DRAFT

**DRYING SYSTEMS OF ALL KINDS
FOR DRYING ANY MATERIAL**

**SHAVINGS EXHAUST SYSTEMS
INSTALLED COMPLETE**

**Dry Kiln Trucks and Wheels, Lumber Dryers,
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**Stationary and Portable Forges, Cupola Blowers, Exhaust Fans, Planing Mill Exhausters
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SHELDONS, LIMITED

Engineers and Manufacturers

GALT, ONT.

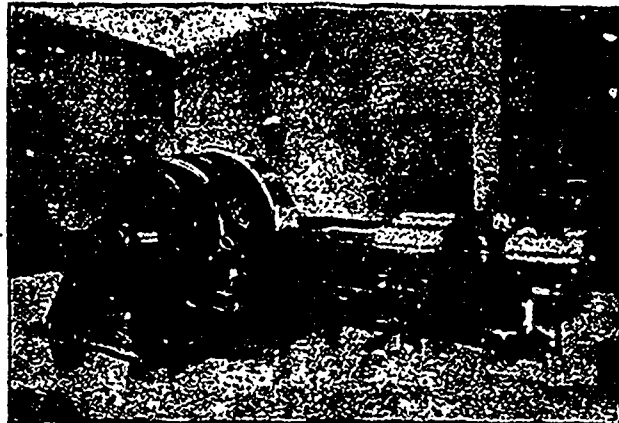
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PERFECTION IN HIGH SPEED ENGINE DESIGN, NOISELESS RUNNING,

PERFECT LUBRICATION

ACCESSIBILITY

ECONOMY



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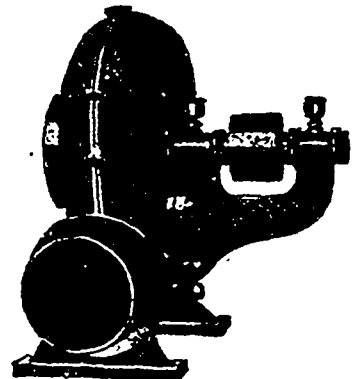
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Boiler and Structural Rivets.

Large Angles, Beams and Channels cut to any desirable length. Prompt shipments.

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IRON, STEEL,
PIG IRON,
COKE.**

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Pittsburg Office,

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BRIGHT COMPRESSED STEEL SHAFTING

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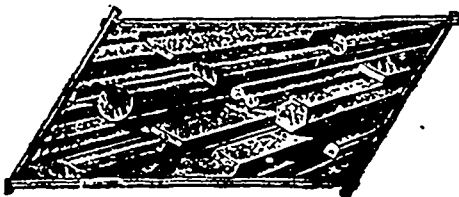
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**Cold Die-Rolled
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**For Shafting, Piston Rods, Screw
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**Rounds, Squares
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**UTILIZING A JEFFREY
RUBBER BELT CONVEYER**



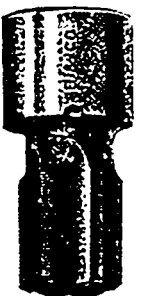
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Elevating Conveying Catalog No. 80 Mailed Free.

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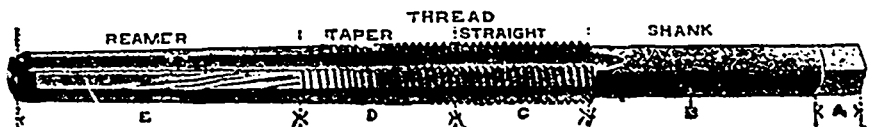


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STAY BOLT TAPS, all diameters and lengths up to 94 inches
SPINDLE STAY BOLT TAPS and **TAPS for Screw
Machines**, and **TAPS for all uses**.

Regular and Full Mounted Reece and Derby Plates, Bicycle
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—HAVE SUCCEEDED—

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And will continue to conduct the business as

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FOR

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Ornamental Iron Work,

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BRANCHES : London, Eng. ; Toronto, Ont. ; St. John, N. B. ; Winnipeg, Man.

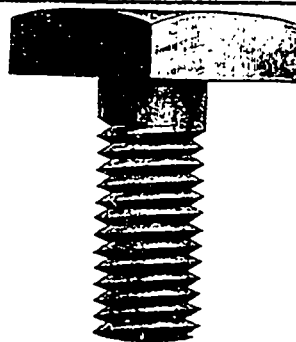
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SET and CAP
SCREWS**

**The John Morrow Screw, Limited
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Manufacturers of

MACHINE KNIVES

For WOOD-WORKING,
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MACHINES,



Quality Warranted.

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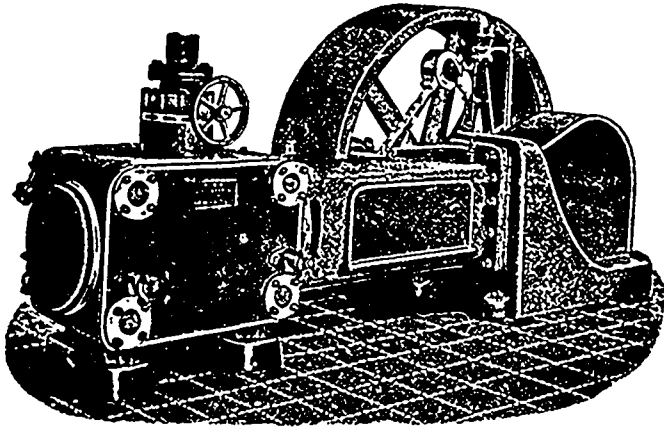
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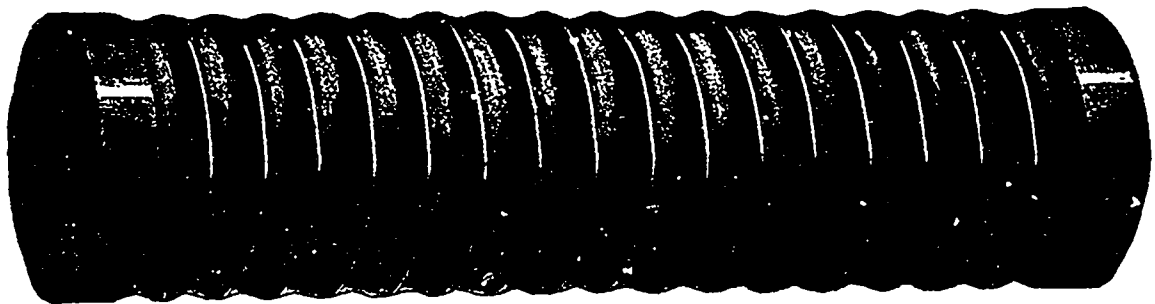
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For Land and Marine Boilers

With Plain Ends or Flanged to any required shape.

Uniform Thickness, Easily Cleaned, Unexcelled for Strength, Unsurpassed for Steaming Capacity.

The universally satisfactory record of "THE MORISON" proclaims it the best furnace made.



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Made of ALUNDUM are the hardest and sharpest known. They don't merely grind, but cut and cut fast. Best results. Longest life.

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In all sizes from $\frac{1}{4}$ to 20 tons for quick and easy hoisting.

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Viz. "Brantford Asphalt"

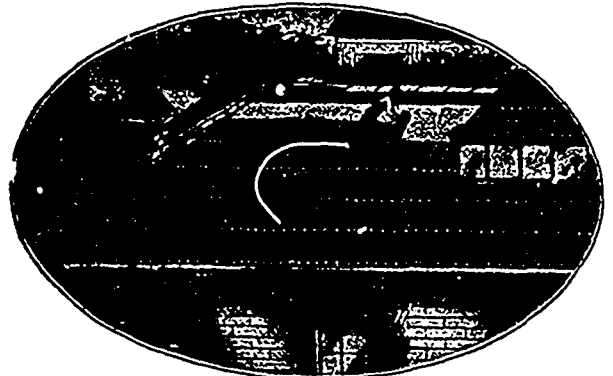
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Under this Trade Mark

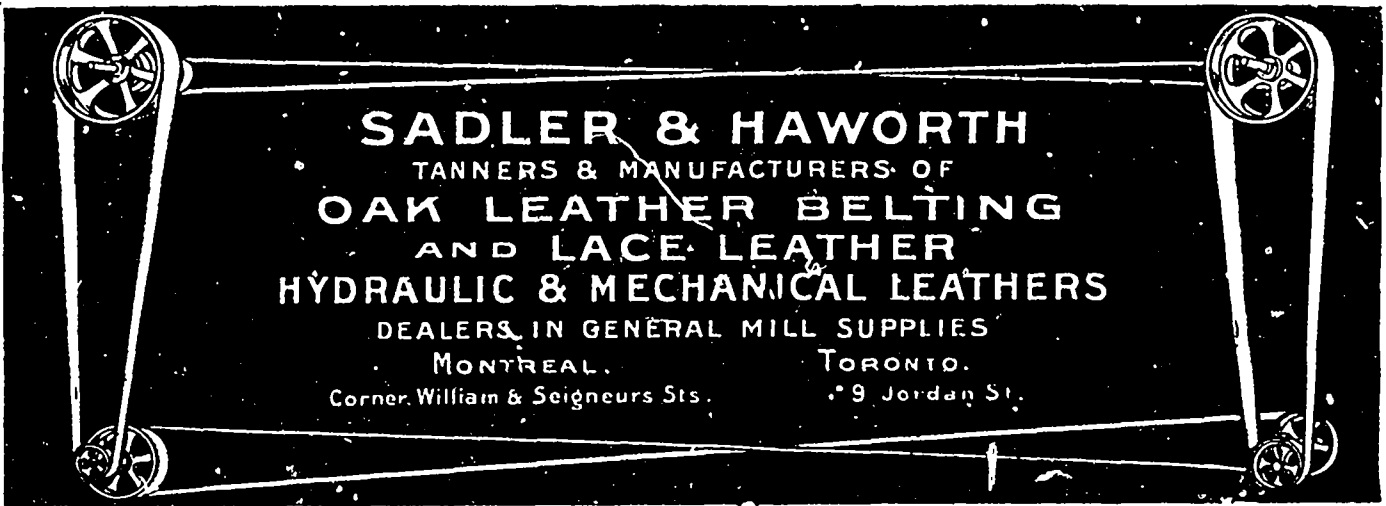


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Get a "Brantford Specification" for an A-1 Job. Write us for Tenders—on Materials Only, or Laid Complete.



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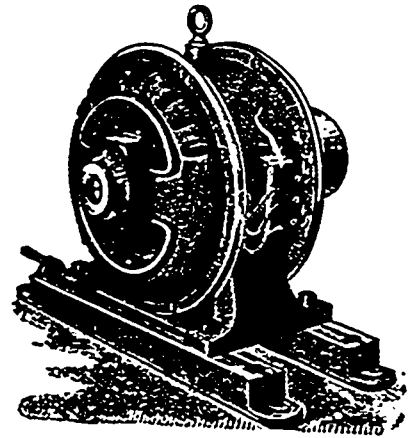
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**ALTERNATING CURRENT MOTORS
and DYNAMOS for all Circuits.**

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Suction Gas Producer Plants FOR MANUFACTURERS

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**The Electrical Construction Co. of London,
LIMITED**

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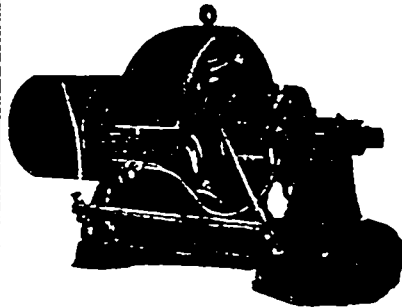
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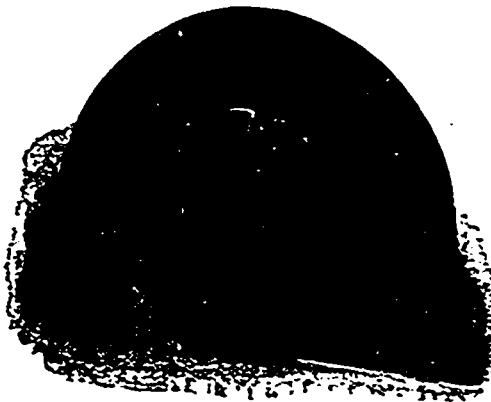


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We manufacture Direct
Current Machinery in all
sizes and for any purpose.

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Outputs—Belt Type, 25 K.V.A. up.

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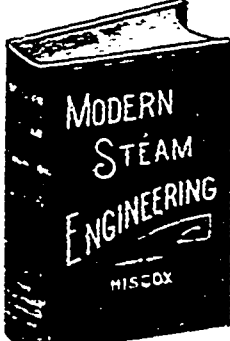
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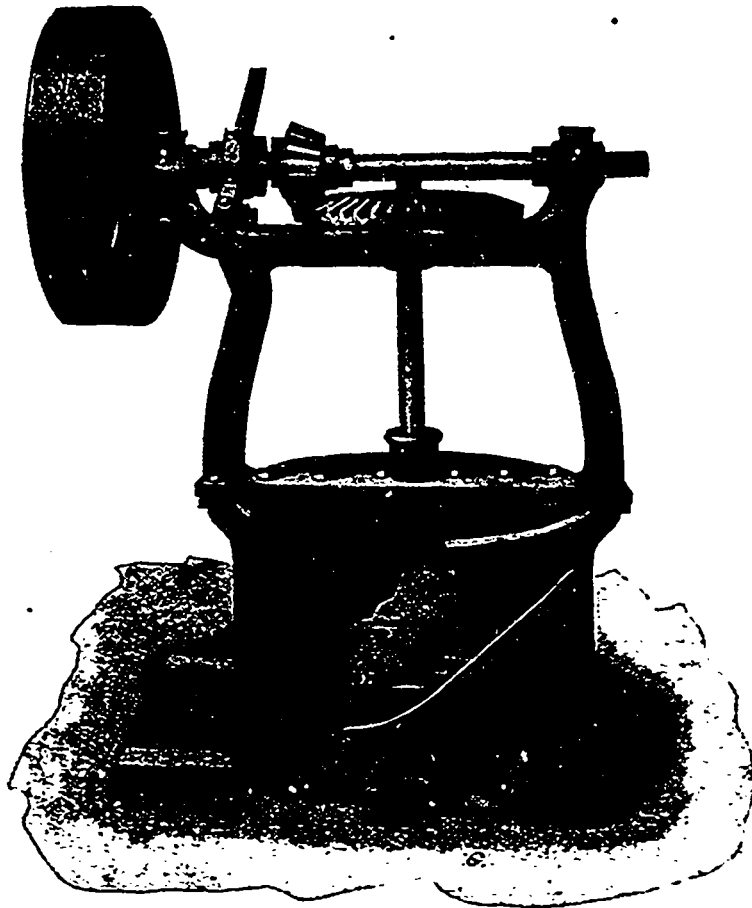
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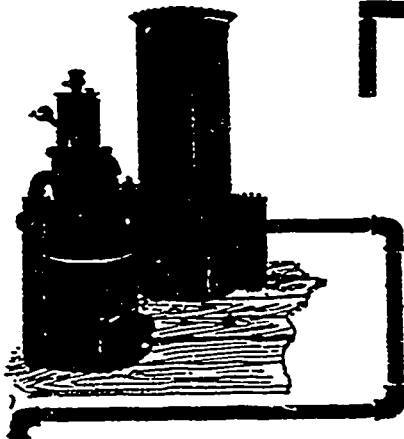
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Index to AdvertisersPage 57

THE TORONTO INDUSTRIAL EXHIBITION.

Promptly on time on the day appointed for the formal opening of the Canadian National Exhibition two weeks ago. His Excellency Earl Grey, Governor-General of Canada, "pressed the button" and the formal opening was accomplished. Of course there was the usual speech-making and congratulations, and all went as merrily as wedding bells. It was an auspicious occasion, which, without doubt, was the most elaborate and successful and satisfactory of any in the long list of exhibitions that have preceded it. Dr. Orr, the manager, was at his best, sustained as he was by Mr. George, the president of the Association, the directors, and a corps of able assistants. The exhibits were all of excellent character, particularly those of the manufacturers, many of which were of American origin; and those of machinery in motion showing processes of production, excited much attention and admiration. The event was undoubtedly the best ever attempted.

In our last issue—that of August 16 ultimo, was reproduced a view of the Toronto Industrial Exhibition grounds and buildings, reproduced from the issue of THE CANADIAN MANUFACTURER of August 3, 1888. The picture was prepared for this journal for the occasion of the opening of the Exposition that was opened with the usual eclat on September 10, 1888—nineteen years ago, and from the descriptive matter regarding it, we said:

The exhibition promises to be even more gigantic in all its proportions than any previous fair, and to meet the requirements of the increased number of exhibitors the management are now busily at work erecting new build-

ings, enlarging and altering those already there, and preparing for many new and pleasing features. The grounds embrace over sixty acres, and the cost of the buildings already erected amounts to over \$300,000.

In 1877 a successful effort was made to induce the management of the Provincial Exhibition to hold its annual fairs in Toronto. At that time there were no grounds in this city specially adapted for the purpose, no such fair ever having been held here, and application for a portion of the Garrison Common was refused. A second application was also refused; whereupon the City Council appointed a deputation of influential citizens to go to Ottawa and lay the matter before the Government. They went and their request was granted, and the land now occupied by the association was appropriated for the purpose. The sum of \$150,000 was needed for the purpose of preparing the grounds and erecting suitable buildings and conveniences; and a by-law authorizing the issue of debentures for the amount by the city was submitted to the voters and unfortunately lost. Another by-law voting \$75,000 was then submitted and lost, whereupon the City Council included \$100,000 in the estimates for that year (1878) and the exhibition became an assured success. This action was taken only about three months before the proposed opening of the exhibition, and during that time, the grounds had to be fenced, graded, drained and ornamented, and the buildings erected; and it is enough to say that at the appointed time the opening was duly performed by the Governor-General, Lord Dufferin, in September, 1878.

Under the circumstances this exposition was gratifyingly successful; and after its close the gentlemen having the matter in charge conceived the idea of trying to have the Provincial Exhibition authorities locate their fair permanently in Toronto. This proposition was not complied with, and then it was that the idea of organizing the Toronto Industrial Exhibition Association and the holding of annual fairs presented itself. To suggest was to act, and, under the generalship of Mr. John J. Withrow, the president, assisted by a host of able lieutenants, consisting of some of the best business men of the city, included among whom was Mr. H. J. Hill, the secretary, the necessary work was undertaken, an act of incorporation secured, and everything was ready at the opening of the first exhibition of the association on September 2, 1879. The opening was performed by His Excellency the Governor-General, the Marquis of Lorne, who was accompanied by Her Royal Highness, the Princess Louise, his wife, who was then making her first visit to Toronto.

From this comparatively small beginning of ten years ago, the Toronto Industrial Exhibition has achieved a renown that is not confined to Ontario, or to Canada, but is well-known in the United States and Great Britain, and exhibitors from these countries come there every year to display their merchandise.

One of the most pleasing and instructive features in the management of this exhibition is the displays of made of Canadian manufactured products; and no better idea can be had of the great diversity of our manufacturing industries than by the exhibitions of machinery in motion in Machinery Hall and in other buildings on the grounds. The processes of manufacture of many lines of goods are shown by machines and machinery in active and practical operation; and it is this feature that induces so many Canadian manufacturers to patronize the enterprise and display their products there.

INEXCUSABLE BLUNDERING.

Some weeks ago it was mentioned in these pages that at a recent meeting of the executive council of the Canadian Manufacturers' Association the most interesting

matter discussed was the admission of articles from the United States free of duty for exhibition at the Toronto Fair. Industrial Canada, reporting the transaction, says that the report of the commercial intelligence committee was presented by the chairman, Mr. T. A. Russell, and duly considered. The report read in part as follows:

Attention has been called to the fact that whereas Canada admits United States goods for exhibition purposes free of duty on the understanding that they are to be shipped out of the country again, the United States has steadily refused to accord Canadian exhibits the same privilege. This is felt to be decidedly unfair, but before making any recommendations, your committee will first consult with the Associations representatives on the Exhibition Board. The adoption of the report moved by Mr. Russell, seconded by Mr. Munro, was carried.

Although at the time of meeting of the executive council it had been announced that Dr. Orr, the manager of the Exhibition, had stated that arrangements had been made for quite a number of American exhibits at the fair, and sufficiently previous to the publication of Industrial Canada for it to have corrected the mistake of the committee, it did not do so, and the committee goes on record as objecting to conditions that never existed. The executive council of the Association includes a round dozen of gentlemen who have been presidents, every one of whom, if consulted, would have informed the commercial intelligence committee of their error; and on the board of the Toronto Industrial Association, representing the Manufacturers' Association are the names of several ex-presidents, the treasurer and other well posted gentlemen who could have given the same information. The fact is, the United States does not refuse, nor ever did, to accord to Canadian exhibitors at American fairs the privilege claimed by the commercial intelligence committee of the Association to be denied to Canadians. Never. There has never occurred in the United States what was called a "National Exposition" to which Canadian manufacturers were not most cordially invited to make exhibits of their products: and the authorities of that country have always, without exception, allowed Canadian exhibits to be entered in bond and afterwards returned to Canada, free of duty, unless in the meantime the ownership of the articles had changed hands. At the International Exhibition in Philadelphia in 1876, better known as the Centennial Exhibition, the first event of that kind in the United States, we believe, Messrs. John Bertram & Sons made an exhibit of machine tools to which was awarded a first class diploma and medal which is yet shown with much pride, but which was subjected to no such restrictions as the commercial intelligence committee of the Manufacturers' Association intimates. Canadian exhibitors at all American fairs since then have carried off prizes without number, not only in manufactures, but also for other branches of industry.

Such blunders, if not vicious, are inexcusable, and do much harm and no good.

FREE TRADE NONSENSE.

In his recent address before the Toronto branch of the Canadian Manufacturers' Association, Mr. Firstbrook,

the retiring chairman, discussing the conditions of the country, said:

While every factory in the country is working to full capacity, and orders are being declined each day, the conditions of Canada's foreign trade is far from satisfactory. For the nine months ending March 31st our imports increased \$47,506,476, or 23½ per cent., but the exports only increased at the rate of 2½ per cent. in the same period. Is our fiscal policy on a thoroughly sound basis when in the height of prosperity we import goods in ever increasing quantities? How long can we bear up against this ebbing of our capital? It is true that our tariff was framed so as to divert some of the money now going into the pockets of outsiders to those of the Canadian people?

Mr. Firstbrook spoke of the value of the home market as being the best and most valuable for the Canadian producer, that the remarkable industrial and commercial expansion of the country was due to the development of our Western wheat fields, our mines, our forests and the building of new railways; that Toronto is well to the front in her share of the general progress of the country, and that with over 1,200 industrial establishments in which 70,000 employees find profitable employment, these manufacturing interests are most important in the development of the city. But, he urged, a city could not be attractive to a manufacturer unless plenty of skilled labor is to be had, and in this respect Toronto is sadly handicapped: that in certain industries thousands of additional workers could find employment, and that notwithstanding repeated requests, the government persisted in confining its efforts to the encouragement of the immigration of agriculturists and railway laborers.

The Toronto Globe makes answer to Mr. Firstbrook—and such an answer. It says that the policy of the country that had been of so much benefit to the manufacturers was unwise; that they are the politically reluctant beneficiaries of it; that they are ungrateful in that they complain of the good fortune that is coming to them, and that their complaint leads up to the charge that there is something wrong with the fiscal system. Just what they want, says The Globe, when their factories are working to their fullest capacity, is difficult to understand, neither is it clear how a decrease of imports could confer any benefit on them. "It is told," says the Globe, "that some sailors, given by a mistake of the cook, food intended for the cabin passengers, declared that the meat was no good, because there was no chaw to it," and that it is also told that a lady whose milkman suddenly became conscience-stricken, dismissed him "because a yellow scum formed on the milk whenever she laid it away over night." "It is worries of this nature," says The Globe, "that are vexing Canadian manufacturers, and they attribute them to a defective fiscal system."

It is The Globe's old parrot-like free trade cry. Canadian manufacturers believe—know in fact—that protection enabled them to build up the industries that have contributed to such great extent to make Canada the prosperous country it now is, but The Globe says that

the protection policy was unwisdom. It is true that unexampled prosperity now prevails in Canada, but it is not true that the factories of the Dominion enjoy all the prosperity and all the good times they are capable of accepting. Not by a great deal. With greater facilities for production, with adequate numbers of skilled workmen at command, the products of our factories could be and would be correspondingly increased, but the policy of the government seems to be to discourage the coming into Canada of such immigrants. In fact the government have repeatedly disavowed any connection with any efforts by the manufacturers to bring skilled workmen into the country. When manufacturers bring skilled workmen into Canada heavy fines are inflicted on them, and the workmen are deported. That is the law, and that is the treatment the government extends in the way of discouragement. When manufacturers desire to extend and increase their facilities for greater production to meet the increasing needs of the country; because factories are now being worked to their fullest capacity, is no reason why that capacity should not be increased, nor why the government should not assist in the matter. The immigration into Canada this year is unprecedented, but not a man of them is encouraged to come because he is a good mechanic and wants to share in the prosperity of the country, as such. Is there no value attaching to the manufacturing industries? No objection can be raised to the bringing in of help for the farmers, nor for building railroads, and the government is expending millions of dollars to supply the want, but skilled labor—no. If a manufacturer brings in skilled labor he is punished by fine, and the skilled labor is punished by deportation.

And yet *The Globe* tells us that the government is too intelligently desirous of the success of Canadian manufacturers to accept the cloudy and entangled theories of tariff protection.

Bosh!

MR. BORDEN MISSES HIS OPPORTUNITY.

Mr. Borden, the leader of the Conservative party, has formulated and promulgated a political confession of faith by which he hopes to win in the next Dominion general elections. We have no comments to make at this time upon any of Mr. Borden's declarations, except the two relating to his fiscal policy and to preferential trade.

Regarding the first, in his Halifax address, when his policy was declared, Mr. Borden said:

"The fiscal policy of the Conservative party has been announced on many occasions since 1878, and while consistently adhering to the principles then laid down, it necessarily has given considerations to new conditions arising out of the developments and progress of the country.

"While recognizing the prime importance of agriculture in a country like Canada, whose natural resources comprise vast and diversified areas of richly fertile soil, suitable for the cultivation of every product of the farm, we realize also the boundless undeveloped wealth of our forests, our mines and our fisheries, and we do not forget that Providence has endowed this country with

every resource necessary for the development and support of ~~the~~ manufacturing industries.

"Our policy is based upon considerations of advantage not to any particular class or section, but to the people and the country as a whole; thus it necessarily takes account of the interests of the consumer, but it also aims at the maintenance within our borders of a large industrial population, who shall receive a fair living wage and who shall not be reduced to the low standard of living, to the hard, fierce struggle which prevails in many countries.

"In short, our policy firmly endeavors to preserve for our producers the advantage of the home market, and strongly maintains that the labor necessary to convert our natural resources into products suitable for the use and convenience of the people should as far as possible be performed in Canada, and not in foreign countries, so that our own workmen, not those of other countries, may find employment in that work. We therefore stand for a fiscal policy which will promote the production within Canada of all useful articles and commodities that can be advantageously produced or manufactured from of by means of our natural resources, having due regard to the interests of the consumer as well as to the just claims of our wage-earning population."

Regarding preferential trade Mr. Borden said:

"The Conservative party has always stood and still stands for a policy of preferential trade within the empire. The attitude of the present government has been almost negative. There has been a half-hearted reaffirmation of desire for better trade relations with the mother country, based on preferences given and received; but the prime minister and the minister of agriculture have repeatedly assured the *British* public that the people of Canada have no desire for a preference in the markets of Great Britain. It is not by such means nor by such attitude that we can expect success. The recent change of government in the British Islands has been regarded as the postponement of all hope that this great imperial scheme, propounded by a farseeing and patriotic and imperial statesman, can be consummated in the early future.

"It is nevertheless true that the British Government was returned to power not upon that issue, but upon a dozen issues which had various effects in different constituencies throughout the British Islands.

"The cause of mutual preferential trade received a great stimulus, not from the prime minister of Canada, but by the efforts of Australian, New Zealand and South Africa representatives at the recent colonial conference. The Canadian representatives adopted a policy of comparative indifference. Australia, New Zealand and South Africa, with the exception of the Transvaal, urged upon the British people the infinite importance of cementing Great Britain and the great dependencies of the empire by a system of mutual trade preferences. Our prime minister is quite ready to interfere in the domestic affairs of Great Britain when he considers that his political interests call upon him to take that course. On this great question, however, his action, or rather inaction, seems to have resulted from a singular reluctance to advocate that which he admits to be for the advantage not only of Canada, but of the empire.

"I submit to you as another article of Conservative policy: The promotion by negotiation, legislation and other constitutional means a system of mutual preferential trade within the empire."

A strong contrast presents itself between the weak and nerveless expressions of Mr. Borden regarding the fiscal policy in 1907 and what Sir John Macdonald said in 1878.

Sir John was unmistakably plain in declaring for a National Policy of tariff protection for all Canadian industries; and Mr. Borden would, we believe, have vastly strengthened his party, and the confidence of the manufacturers in him and it, had he been as plain and outspoken as Sir John was.

So, too, regarding preferential trade. The mistake of the government in this regard was in reducing the tariff duties on imports to an unnecessarily low point—too low for the welfare of the whole country, from which a further concession of 33½ per cent. was allowed in favor of British goods. Of course we all love John Bull, but we love Canada more, and it was an opportunity that Mr. Borden missed in not declaring in most emphatic language that the fiscal policy of Canada should have placed tariff duties at such a rate that under any and all circumstances they would have been high enough to afford adequate protection to every Canadian industry. There should be a high duty on goods from any country not commercially favorable or friendly towards Canada, as Germany or the United States are; and if favors are to be shown to other countries such as Great Britain and other countries of the Empire, it should have been by desirable discounts and reductions from the higher rates. Mr. Borden misses his chance in emulating the preferential trade policy of the government. Canada receives no benefit from the present policy, which ought to be modified or abandoned.

WANING CANADIAN INDUSTRIES.

The Dominion Bureau of Census and Statistics recently issued a bulletin which gives a comparison of the number of wage earners in Canada and the amount earned by them in the different industries during the years 1900 and 1905. This bulletin was published in full in the August 2 issue of THE CANADIAN MANUFACTURER. It related to some 203 different industries, and showed that in 1900 the number of wage earners in Canada was 344,035, and the wages earned \$113,246,350; while in 1905, 391,487 employes earned \$164,394,490, an increase of 12 per cent. in the number employed, and 45 per cent. in the amount earned. These increases included 47,452 in the industrial workers, and \$51,145,140 in earnings.

In our issue of August 16 we showed that in that statement of the 203 different industries enumerated, 66, or nearly one-third, show a decline in number of wage earners employed in 1905 from what they were in 1900, amounting to 28,031 persons. In 1900 there were 190,174 persons employed in 66 industries, and in 1905 there were but 162,143 persons employed in the same industries. The bulletin says that in all the enumerated industries in Canada in 1905 there were 47,452 more wage earners than in 1900. In other words there was a general gain in the five years of 47,452 employees, and in the 66 industries there was a loss of 28,000 employes. The industries that are enumerated in the gaining column are those relating to railroads, bridge building, etc.

Another bulletin issued by the Census Bureau relates to the values of manufactured products of towns and cities in Canada having a population of 1,500 and over

in 1900 for works employing five hands and over. The comparison is with the year 1905. The bulletin shows that in all Canada the values of such products in the years alluded to were, in 1900, \$481,053,375, and in 1905, \$712,664,835, divided as follows:

	Towns and Cities.	1900.	1905.
British Columbia.....	9	\$10,864,182	\$17,423,967
Manitoba.....	4	10,078,665	23,046,460
New Brunswick.....	10	12,952,481	15,421,289
Nova Scotia.....	20	13,730,099	24,884,335
Ontario.....	114	185,828,523	281,500,018
Prince Edward Island....	3	1,068,465	893,843
Quebec.....	42	126,854,596	164,966,521
The Territories.....	9	1,309,076	5,442,636

Two hundred and eleven towns and cities are named in the bulletin, 170 of which show an increase of value of production, and 41 show a decrease, as follows: British Columbia 2, Rossland and Victoria; Manitoba 1, Selkirk; New Brunswick 2, Milltown and Newcastle. Nova Scotia 4, Dartmouth, Louisburg, Parrsboro and Yarmouth; Ontario 16, Bowmanville, Cobourg, Collingwood, Hespeler, Kincardine, Merritton, Mitchell, Morrisburg, Palmerston, Perth, Portsmouth, St. Thomas, Seaforth, Smith's Falls, Trenton and Walkerton; Prince Edward Island 2, Charlottetown and Summerside; Quebec 14, Buckingham, Granby, Iberville, Lachute, Lauzon, Levis, Louiseville, Plessisville, City of Quebec, St. Jean, St. Jerome, Terrebonne, Three Rivers and Victoriaville. In The Territories no losses are recorded, but three towns are recorded in 1905 that are not mentioned in 1900. Of the 211 industrial towns and cities in all Canada, 41 or about 20 per cent. show an actual decrease of production.

In our issue of August 2 we reproduced a census bulletin in which the names of 205 Canadian industries were given, the number of wage earners employed in them and the salaries and wages paid to them in the years 1900 and 1905. In our issue of August 16 we published an enumeration of these industries and the number of wage earners employed in them, in which there were fewer such employes in 1905 than in 1900. There were 66 industries out of the 205 that suffered such decline. In this article is shown the number of manufacturing cities and towns in the different provinces of Canada and the value of the manufactured goods produced in them in 1900 and 1905. There were 211 such industrial towns, of which 41 showed the value of their products to be actually less in 1905 than in 1900. These are all official figures sent out by the Dominion Census Bureau, and they are of such startling character that the country is interested in solving the cause of the falling off of production of one-third of Canadian industries in one-fifth of our most important Canadian towns.

FOREIGN COMPETITION IN CANADA.

British manufacturers are thankful for the favors bestowed by the preferential tariff, but they are not satisfied with it. Like Oliver Twist, they want more. In the recently issued report of the British Tariff Commission, having reference to the glass industry, speaking of the competition of Germany with British manufacturers in Canada the report says:

A great deal of evidence illustrates the growth of foreign competition in Colonial markets. At one time, it is declared in the evidence, "British manufacturers were supreme here (Canada) in importing dark glass bottles, such as we make. Little by little German manufacturers, working under the protection of their tariff, have displaced English goods, until to-day they are absolute masters of this market, and no English firm except ourselves has sent dark bottles into Canada for some time. We have lately made an unsuccessful attempt to secure a footing. The same thing has been going on in Australia and other British Colonies, while we are quite shut out from the Continental markets for dark bottles." It is admitted that the Canadian surtax against Germany checked the German trade with Canada, but it is feared that the surtax is only a temporary measure. Germany has captured all the trade that a Glasgow firm of table glass manufacturers used to do with Burma, India, and the Colonies, and this firm adds: "With regard to competition in the Colonies, our experience is that we are undersold in home trade in all our articles of manufacture, compelling us to purchase instead of manufacture."

The benefits of the Canadian preference to British glass manufacturers, and their position under it are summed up by the British commission as follows:

At the same time it is generally recognized that where the Colonial preference has been granted is has been of benefit, especially in the case of Canada where the preference has been increased by one-third by the special German surtax. But the need for security in the Canadian market is emphasized. A Stourbridge firm notes: "It takes a long time for buyers of glass to change the sources of their supplies; and the cheaper foreign houses have got a considerable hold on the Canadian market." "We are quite aware," says a Lancashire firm of exporters, "that the United States and the Continent are delivering bottles to all our Colonies, and particularly Canada, at a lower price than we can, even where we get the 33½ rebate. Our opinion is that we want freer trade with our Colonies so as to give us preference over the Continental countries and the United States."

As to the 1906 changes in the Canadian duties, they are too recent to permit manufacturers to make any definite statement in regard to their operation. The contemplated abolition of the Canadian surtax on German goods would materially reduce the margin of advantage which British manufacturers now have in the Canadian market over German manufacturers. Thus, German glass bottles and analogous glasswares are now subject to Canadian duties of 43½ per cent., as compared with 20 per cent. on British glassware. The abolition of the surtax would reduce the German rate to 32½ per cent. The conclusion of pending negotiations between Canada and other foreign countries to bring into force the new Canadian Intermediate tariff would further reduce the German rate to 30 per cent. The margin, which is 23½ per cent., would thus become 10 per cent. only.

There is nothing selfish about this—not a thing. British manufacturers find that notwithstanding the concessions made to them in our preferential tariff, and the discrimination made against German manufacturers in our surtax tariff, they require more. As a British manufacturer is reported as saying, "Our opinion is that we want freer trade with our Colonies so as to give us (a more decided) preference over the Continental countries and the United States."

No words of sympathy are expressed for Canadian glass manufacturers—not one, although the industry here has been ruined by the Canadian tariff in its dis-

crimination in favor of foreign manufacturers. Glass making in Canada has never been other than a struggling industry because of lack of sufficient tariff protection, and now, while our imports of glassware are increasing at a remarkable rate, there are fewer employes engaged in the home industry at this time, and are paid less wages than in 1900.

SMOKELESS CITIES.

Harper's Weekly says: "American cities of the first class have been engaged in a campaign against the smoke nuisance for the past five years with a result that is little short of marvellous. They have achieved their point to a degree that makes the smokeless city of the near future an assured fact. Smoke is an unnecessary curse of national prosperity. Formerly it was considered a badge of great prosperity to have forests of tall chimneys belching forth clouds of sulphurous smoke. The factory which did not thus proclaim its activity was looked upon as a losing investment. Orders were slack and business lagging.

"A strange revolution has been silently worked through the activity of those engaged in suppressing the smoke nuisance. They have demonstrated their earnestness in pushing the campaign, and science has come to their aid. The steam engineer has recognized the hopelessness of his case and has proceeded to devise methods to suppress the smoke without limiting the capacity of the plants. The result is that smoke is now considered poor economy. It indicates imperfect combustion and a waste of fuel which should be avoided. The smokeless factory town is the most prosperous community.

"For decades our factories and manufacturing plants have been pouring up their chimneys in the form of smoke and unburnt coal dust about 85 per cent. of their fuel. This extravagant consumption of coal told heavily on the cost of manufacturing. The soft bituminous coals filled the air with clouds of sulphurous smoke which ruined clothes, furniture and valuable stock and clogged the delicate lungs and nasal and throat passages of all who breathed it. Physicians in recent years are agreed that the weakening effect of breathing an excess of soot has been very great in the past and that the spread of pneumonia and tuberculosis has been partly due to this nuisance. In some cities the smoke fog has been so dense that the average health has been affected through the clouding of the heavens and the consequent shutting out of the bright sunshine. Many factories engaged in making delicate laces, curtains, linens, silks and other costly fabrics have been forced to find isolated locations away from smoke-producing plants. The disagreeableness of having smoke and soot distributed in the living rooms of the home is so great that in many cities windows had to be tightly closed during the greater part of the day. Altogether the smoke nuisance has cost millions of dollars and produced much ill health and irritable nerves.

"But great as this indirect loss to property is, the direct loss through the waste of fuel heat carried up the chimney with the belching smoke is even greater. Engineering economies to-day declare that the loss is useless.

It is simply a problem of burning smoke properly. The efficiency of steam plants has been increased from 10 to 20 per cent. through the proper burning of coal. The number of devices invented for preventing smoke loss is so great to-day that it is more a problem with manufacturers to make a choice out of many than to find any at all. These devices are chiefly found in improved mechanical stokers, which give automatic and uniform action so that sudden changes in the draft cannot send up great clouds of smoke; in improved furnaces with down-drafts of air which carry the distilled gases of the fuel down through the coal when in an incandescent condition and not up the chimney."

EDITORIAL NOTES.

The Dominion Department of Labor has prepared a statistical table of changes in rates of wages and hours of labor reported throughout Canada as having gone into effect during the second quarter of the present calendar year, including the months of April, May and June. The upward tendency in wages, as shown by the table, has been more pronounced during the past spring season than during the corresponding period of any previous year of which a statistical record has been kept in Canada, with the single exception of 1903, when the number of increases was greater, although the number of employees affected was not so large as in the second quarter of 1907. The changes reported during April, May and June last were 117 in number. Of these 104 were in the nature of increases in wages, and two were in the nature of decreases in hours. In the remaining eleven cases the changes involved both an increase in wages and decrease in hours. The increases granted to maintenance of way employes of the Canadian Pacific Railway, Grand Trunk Railway and Canadian Northern Railway systems alone affected 14,000 men. In textile establishments approximately 9,000, and in the building trades approximately 7,000 employes received increases. In the mining industry the increases granted to coal miners in Alberta and British Columbia affected 4,000 men, while in the lumbering industry in Ontario and the eastern provinces over 10,000 river drivers and mill men obtained advances.

It is told that some sailors, given by a mistake of the cook food intended for the cabin passengers, declared that the meat was no good because there was "no chaw to it." It is also told that a lady whose milkman suddenly became conscience-stricken dismissed him because a yellow scum was forming on the milk whenever she laid it away over night. It is worries of this nature that are vexing the Canadian manufacturers, and they attribute them to a defective fiscal system.—The Toronto Globe.

No doubt Canadian manufacturers appreciate at its true worth a paper that prides itself on its respectability and dignity, when it likens them to people who do not know the difference between food cooked for cabin passengers and tough meat unsuitable for food; and which likens them to dishonest milkmen. The Globe no doubt thinks itself not only witty, but absolutely funny.

Just as soon as the people of Britain are susceptible of being fooled by protectionists, the protectionists will be on hand to fool them.—Toronto Globe.

The people of Britain are not fools although they may be, and we think they are, mistaken in their free trade fiscal policy. Protectionists generally are not foolers or dishonest deceivers either of themselves or of the people of Britain or of any one else. The protectionist manufacturer of Canada and protectionists generally are not dishonest as the Globe says they are. They pursue their occupation by honest methods, caring very little whether the people of Britain follow the ignis fatuus of free trade and Cobdenism or not. Great Britain is a country that pays more than £100,000 of its Civil List in annuities to its Royal family; that, in 1906, in England and Wales, supported 909,918 pauper children, in Scotland 111,202, and in Ireland 103,302 at a cost to the taxpayers of millions of pounds; and whose lands are in the hands of a grinding aristocracy. Canadian protectionists who are manufacturers are no fools as the Globe calls them, and do not want such free trade conditions as exist in Britain.

The select committee of the British House of Commons in taking testimony recently in regard to the control and regulation of the conditions under which home work is carried on heard the evidence of the president of the Women's Trade Union League. She said that the difficulty in organizing home workers was due to the fact that they were too poor to help themselves. This witness mentioned the case of a woman known to her who could only earn 75 cents a week by shirt making. She mentioned the case of another shirt maker who received only 31 cents a dozen for making shirts. The witness produced blue cotton shirts which were made for 13½ cents a dozen. She said that without charitable subsidies or poor-law relief the persons who accepted these low wages could not exist.

Those who say the Canadian preference to Great Britain amounts to very little should make a note of the fact that under it the exports of refined sugar to Canada have increased fourfold, and of confectionery fivefold.—The Globe.

Yet never a pound of sugar was ever produced in Great Britain, and Canada has plenty of sugar refineries to refine all the sugar required for home consumption, and the same may be said of confectionery factories. Why not give the labor involved in these industries to Canadians? There is something wrong with the tariff.

Hundreds of thousands of cords of pulpwood are annually exported which should be preserved, or at least converted into paper in Canada, and the annual volume of export is growing at a rapid rate. Why should Canada not have the pulp and paper mills, the skilled labor, the increase of population, the expenditure of money and the enlarged traffic which would be involved in an enlightened policy, making the most of the raw material in its forests?—St. John, N.B., Telegraph.

Manufacturing Double Ball Bearings.

NEW FACTORY OF CHAPMAN DOUBLE BALL BEARING COMPANY COMPLETE IN EVERY DETAIL.

For three years Chapman double ball bearings have been manufactured in Canada. Their reception has been such as to necessitate the building of a large new factory by the

on the raw material, it is obvious that as much care must be spent on the surfaces of the race-ways with which the balls come in contact. If you put rollers under a machine

will not stand up to the exacting conditions of high-speed, heavily-loaded machinery.

The fibre in the contacts must be as good as that in the balls. The temper of the steel in the rings must be as fine and as keen as can be got. The mere process of reaming and truing these rings on the big lathe is interesting enough, but a mere preliminary.

HARDENING AND CARBONIZING.

When the rings come off the lathe they are taken to the tempering room. On one side are a pair of huge carbonizing ovens. These are busy burning high-carbon steel properties into low carbon steel, using a stack of metal carbonizing boxes run along the wall. The two big ovens are used for the raw material coming into the factory as low-carbon sheet steel, this is cut and formed into shape by a press without the slower operations of the lathe. The rings for shaft bearings are already carbonized when they come to the furnace room.

Arrived in the tempering room the rings are placed in one of the ovens until the proper temperature is reached. On being taken out they are placed in a vat of salt water.

After a few seconds of the brine bath they are taken out, dried, and immersed in oil, which gives them the proper temper.

SOUND TESTING AND GRINDING.

The ring is now hardened and tempered. Every ring is taken up separately and tested for tone. With a poker each one is struck after the style of a tuning fork. It has to vibrate to the tone that suits the crucial ear of the attendant or it is thrown into the scrap. Twenty rings are toned and each may ring to the exact pitch of the other, proving a uniform size, weight and temper; but the twenty-first may not vibrate to the proper degree of resonancy. It is found to have a flaw which resulted in a water check. Break that ring and you dis over the flaw; also the texture of the ring, gray as ashes and as fine in the grain as a piece of silk;



FIG 1—SHOWING METHOD OF ASSEMBLING CHAPMAN DOUBLE BALL BEARINGS.

Chapman Double Ball Bearing Co., of which illustrations showing various departments are given. Allowance has been made for further expansion. The main object of these bearings is to eliminate friction and many manufacturers throughout the Dominion can testify with enthusiasm as to what has been accomplished in that direction by equipping their shafting with these bearings.

The complete bearing consists of balls, that must be perfect, of two sizes, the principle of their rotation being shown in illustration Fig. 2. These are enclosed or held in position by a caging. The outside housing of the bearing is an iron casting which is machined in a lathe to receive a steel ring on the inside and a dust cap without. The steel ring that fits into the housing is an interesting and important feature of the bearing. This is the outside track on which the balls must race. On a bench in the raw material shop may be seen hundreds of these annular high-carbon forgings. Every one of them is the product of a special steel analysis, which is prepared by one of the leading steel engineers of America. This engineer has a formula which is the property of the Chapman people, and which enters into the composition of every ounce of steel used in the race-ways of their bearings. Not a slatch of steel is used for the Chapman race-ways that has not been analysed by this engineer before being forged. Already, then, in the raw material, quality and fibre have begun to count. Now, it must be remembered that this ring, one in each end of the bearing, is the outside track on which the balls in the bearing revolve. If such care has been spent

you reduce friction, but you are a long way from eliminating jolts. Put a microscopically exact ball on an irregular contact and you are a long way from minimizing friction. In fact, unless you make the contact surfaces as true as the balls you have an imperfect bearing.

This is equivalent to saying that once you have set out to use a double ball bearing which in principle minimizes wear and tear, you must be as careful and conscientious

over the rest of the contact mechanism as you are about the perfection of the balls, otherwise you are wasting good money, defeating your own purpose and putting out goods that

looks like a piece of metalized rubber; suggests toughness, elasticity and hardness, and capability for standing all sorts of abuse. The hardening and tempering process has

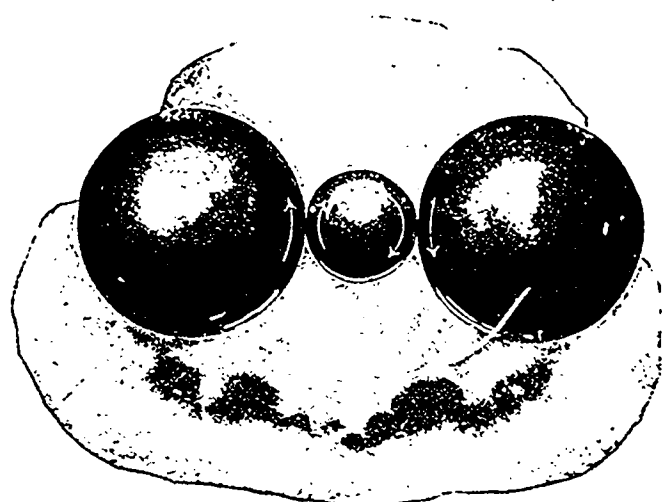


FIG. 6. SHOWING THE PRINCIPLE OF THE CHAPMAN DOUBLE BALL BEARING.

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left surfaces and minute corrugations that must be eaten off by the infinitesimal teeth of an emery wheel, till the surfaces of the ring are as smooth as the proverbial polished diamond. You begin to realize of what temper and quality that steel is when you notice the stream of fireworks that shoot out of it from under a force-pump stream of

pressure of 600 tons the work done now by several machines in turning out the cups and cones for carriage bearings. A particular feature of these carriage bearings is that they have double race-ways, having two sets of revolving balls on each end, and reducing the diameter of the bearing to half what it would be if but one set of larger balls were used on each end, thereby permitting its use in an ordinary hub.

In these bearings as in the shafting bearings nothing but the best selected and most rigidly tempered and hardened steel is used. In the furnace room the two big carbonizing ovens are busy to full capacity turning out high carbon steel fresh from the new 600 ton press. The economy of this big new press in relation to the carbonizing ovens lies in the fact that no press is able to handle high carbon steel as a milling machine or a lathe can do. So that the raw material parts are got in low carbon and pressed, and then high carboned in the ovens, and after that hardened and tempered as described elsewhere in this article.

ABSOLUTE STANDARDIZATION.

This standardizing is carried out in every detail of the factory's work. Nothing is left to chance or to conjecture. Mathematics must be used. Everything must be done to the requirements of the micrometer. Initial draughtsmanship must be mathematically accurate. Machine equipment must correspond precisely to the drawing. Every die and every tool made by the company in its own factory is as carefully and accurately made as any bearing sent out to a customer. Any other principle would be disastrous to the bearings and ruinous to the company. The utmost system is maintained in filing away every tool for every machine and every process known in the plant; as much care as is maintained in storing and classifying every individual part of the bearings made. System, speed, accuracy and mathematics, and the very best material obtainable for the purpose, are the elements that enter into the equipment and operation of the anti-friction factory.

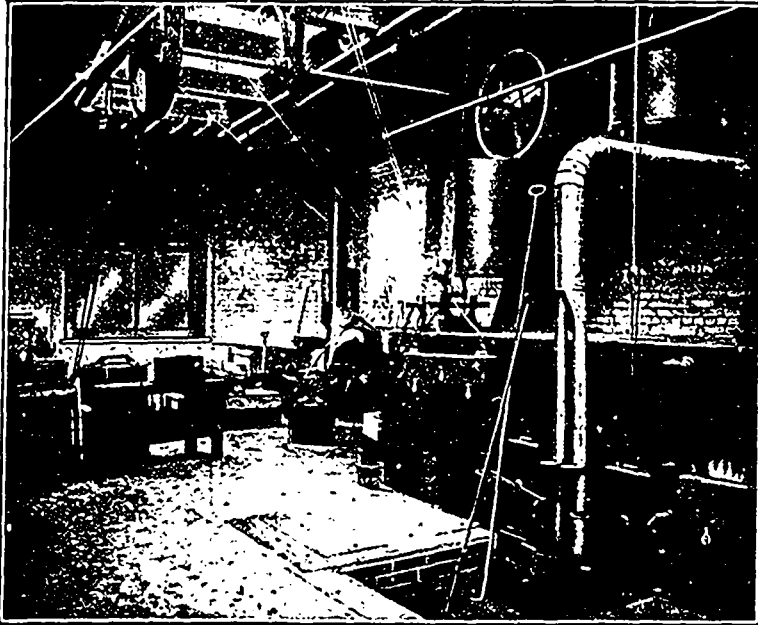


FIG. 3—A Glimpse of the Furnaces Used to Temper Steel for Chapman Double Ball Bearings.

cold water. You get a further idea of what this ring will stand up to when you follow it down to the assembling table and notice with what sledge-hammer gentility the assembler abuses it into the reamed groove in the cast-iron body. That ring is put in there to stay.

The conscientious care which goes into the making and the fitting of a ring is duplicated in the cone which fits over the sleeve and forms the other inside contact surface for the balls.

VARIOUS KINDS OF BEARINGS.

So much for the shafting bearing, which of course is the fundamental type. But the loose-pulley bearings and end thrust bearings and the street-car bearings and the mining-car bearings, and the carriage bearings and lawn-mower bearings, and any other kind of bearings that may be required, are all part and parcel of this test workmanship of man and machine in the anti-friction factory. The mining-car and construction car bearings—for railway construction—are part of the latest development in this plant, and the demand as well as the testimonials for the labor-saving and power-saving merits of this type of bearing are rolling in all the while. There is nothing at all aesthetic about the body of a mining-car bearing, just because a mining-car is not a pretty thing. Of course here the speed is a low factor and the load is a high one. The problem on a mining car or a marl car or a factory truck is to minimize either traction or push energy. How this is done may easily be observed in any of the trucks that carry the loads of the anti-friction factory trucks, which when loaded you can push about with your finger. In a general way you can see the economy

This 5,000 pound dummy has been known to revolve on its own momentum for over an hour from an initial speed of 500 R.P.M.

CARRIAGE BEARINGS A NEW FEATURE.

A new big press is being installed which will help to revolutionize one department of the factory. That is the carriage bearing department, which is rapidly pushing into prominence. This press will dispense with much of the machine work, and will do by

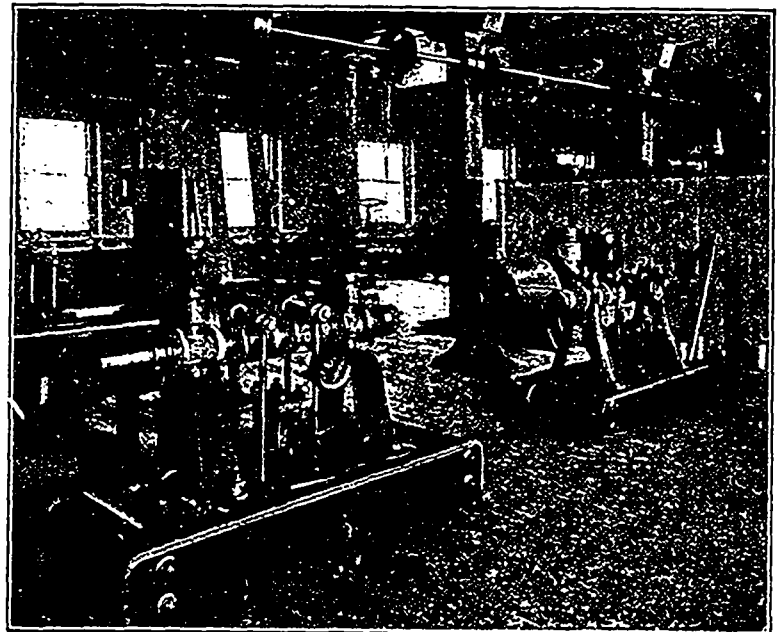


FIG. 4—A PAIR OF TESTING MACHINES ON WHICH ARE RUN, BEFORE LEAVING THE FACTORY, ALL CHAPMAN DOUBLE BALL BEARINGS.

Exhibits at the Canadian National Exhibition

A Review of Some of the Exhibits of Particular Interest to Manufacturers.

The spirit of the Canadian National Exhibition has been "Progress" and this has been maintained this year more largely than any heretofore. Advancement has been made in every direction. When the Exhibition management arrange the dates and plan for the various events it is done with an enthusiasm that betokens success, which with the fair weather that has been the rule, have enticed larger and larger crowds each succeeding year from every part of Canada and the United States and has made the Toronto Fair the most notable event in America at this time of the year.

Manufacturers are well to the fore in making the Exhibition the unparalleled success that unquestionably belongs to it. Everywhere their exhibits proclaim the fact that Canadian manufacturers are second to none in the world in the quality of goods turned out from their plants and factories. Whether in the Process Building where were shown in actual operation many processes of manufacture covering a wide range, or in the Manufacturers' Building or Manufacturers Annex where the range included everything from the practical washing machine to the grand piano and from breakfast food to costly gems, or in the Machinery Hall, where the blaze of electric lights and the whirr of revolving wheels were conspicuous; or in the numerous tents and special exhibits scattered throughout the grounds, this fact was plainly apparent. Canada has reason to be proud of the showing made by her manufacturers at the National Exhibition this year. People from every part of the country, not in touch with industrial life, are given an opportunity that is possible at no other time, of seeing the variety and grasping the extent and at the same time given some idea, though vague perhaps, of the importance attached and the position obtained by the manufacturing industry in Canada.

A notable feature this year was the larger number of exhibitors particularly in the metal lines and in this machine tools were conspicuous. Such accentuated to a greater degree than ever the immediate need for a modern building for the display of machinery. Few outside exhibitors themselves, know the trouble and expense and general annoyance experienced in placing an exhibit of heavy machinery in the present building. With a modern building equipped with cranes and convenient transportation facilities there is no doubt that many manufacturers not now showing their goods would do so. In fact we have it directly from one of the largest manufacturers of machinery in Canada that this drawback has been the reason for their not exhibiting during the past years, but with proper facilities for handling their goods at the building they would do so.

Last year the authorities were considering the building of a new Machinery Hall but the disastrous fire necessitating a new Grand Stand and a new Horticultural Building made this impossible. It cannot be too strongly impressed upon the management of the Canadian National Exhibition the immediate necessity of a modern up-to-date building for the proper exhibition of machinery as such is at present the one crying need attached to the whole organization.

Descriptions of a number of the exhibits of particular interest to the readers of CANADIAN MANUFACTURER together with illustrations are given herewith.

Pneumatic Tools and Railway Appliances.

One of the exhibits which attracted a crowd when operations were in progress was that of N. J. Holden & Co., Montreal, where pneumatic tools and electric drills were a feature.

The pneumatic apparatus was operated by

Mr. J. B. Wilson, manager of the Toronto office of the company, was in attendance and during part of the time Mr. N. J. Holden, head of the firm, was also at the exhibit.

This firm are exclusive agents for the Chicago Pneumatic Tool Co., and had exhibits of their output, compressors, Boyer hammers, little giant drills, Dumtly electric drills, and various pneumatic appliances.

Another of their agencies is the Railway Appliances Co., whose Gilman-Brown emergency knuckle, Fewing car replacers, and Q. & C. Bonzano rail joint, were on exhibition. Also the McCord Co., whose McCord journal box, McCord spring dampener, and McKim gasket, were part of the appliances seen.

The American Brake Shoe & Foundry Co. represents another of the exclusive agencies of N. J. Holden & Co., whose Perfecto, Diamond S, Strever, Lapin brake shoes, all of which are furnished by the N. J. Holden Co., with or without steel back, were noticed, as well as their locomotive, coach and car brake shoes.

Cold metal sawing machines of the Guiney, Manchester, Sargent Co., formed part of this exhibit.



Canadian National Exhibition Exhibit of N. J. Holden Co., Toronto.

means of an air compressor belted to the main shafting and the electric drills from the power line of Machinery Hall. Although not in continuous operation this exhibit was always watched by many spectators. When the drills and pneumatic tools were in motion a large concourse of people was assembled.

Other firms whose goods are sold exclusively by N. J. Holden & Co., in Canada, and which were shown at the Toronto Exhibition, are the Pantasote Co. and the Curtain Supply Co.

The showing of these goods at the Exhibition brought greatly increased interest on the part of users and many enquiries were received at the booth.

Canadian Fairbanks Exhibit

The exhibit of the Canadian Fairbanks Co. in Machinery Hall this year offered further attractions than those of other years.

The most notable feature was the exhibit of marine and stationary engines which are being turned out in large quantities by their Canadian plant. Two 2 cycle 3 port marine engines were shown of 4 and 8 h.p., single and double cylinders. During the past year the demand for these has been unusually great.

for lighting the large Fairbanks electrical sign on the wall on the background of the exhibit. This sign consisted of a great number of eight candle-power incandescent lamps and was kept going continuously morning, afternoon and evening of the exhibition.

The scale exhibit was exceptionally fine, exceeding previous years in that a number of new developments in weighing machines were shown. A very handsome personal scale

Another new feature of the exhibit was one of Pratt & Whitney's small tools which are now made at Dundas, Ont. This is the first time Canadian made tools of this make were shown. The Fairbanks Co. control the entire output of the Dundas factory for Canada.

The exhibit as a whole clearly shows the tremendous development of not only the Toronto branch but the entire Canadian business of the Canadian Fairbanks Co. A



Canadian National Exhibition—Exhibit of Canadian Fairbanks Co., Toronto.

The way and manner in which purchasers of these have been pleased with results is an index to their efficiency.

Amongst the engines was noticed one of the Fairbanks-Morse world renowned Jack of All Trades engines operating their exhibit of transmission machinery which in itself attracted considerable attention.

An electric lighting outfit was shown comprising 6 h.p. kerosene engine running Fairbanks-Morse dynamo which was used

with brass type registering beam was the centre of attraction. This was a never failing source of interest to men, women and children, who on being weighed by a genial attendant in charge, were having their weight stamped by a machine on a small card.

A chair composed entirely of Fairbanks valves was another feature of the exhibit, as well as numerous other valves of the well-known Fairbanks pattern.

large tract of land has been bought in Sherbrooke, Que., where building operations have commenced for the erection of a Canadian scale factory which will employ between two and three hundred men. It is expected that product will be turned out of this factory by January, 1908.

The exhibit was installed under the personal supervision of C. G. Brittain, manager of the Toronto branch of the Canadian Fairbanks Co.

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A Record of Progress.

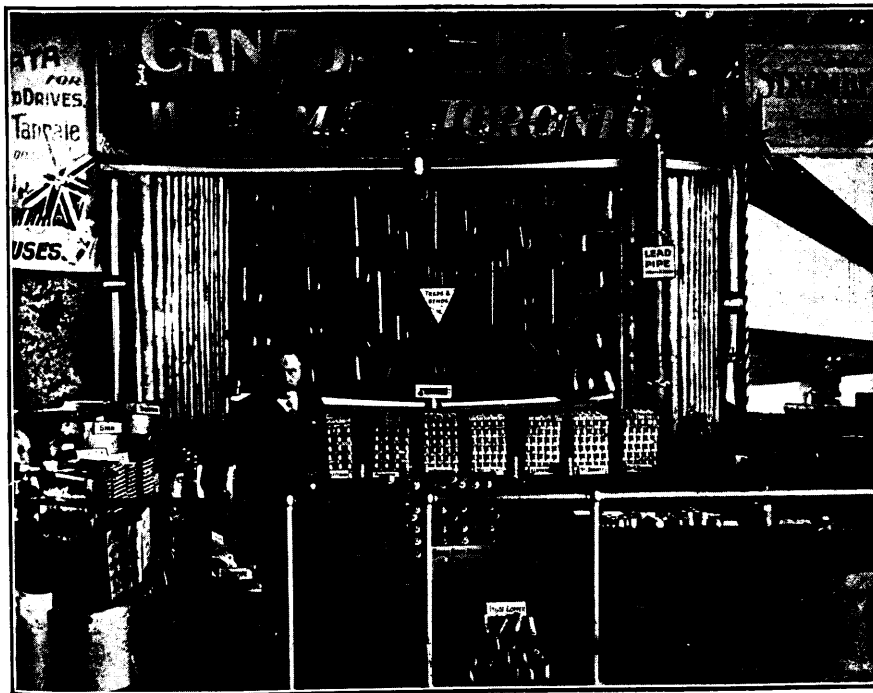
The whole history of the Canada Metal Co., Limited, Toronto, has been characterized by rapid strides forward under the skillful management of Mr. W. G. Harris, whose name is synonymous throughout Canada with all that is best in solder, babbitt metal and all white metal alloys. From a small beginning this company is to-day the largest manufacturer and handler of metals in Canada, their goods being known from coast to coast and largely in foreign countries. They have made a vigorous campaign for foreign business and in this have been particularly successful.

The Canada Metal Co. had on exhibition at the Fair a full line of bar solder, canners' and electrical wire solder, and babbitt metal of which there are many grades suitable for every requirement. A specialty is made of the Harris heavy pressure metal with every pound of which a guarantee is given,



Mr. W. G. Harris

A large galvanizing and tinning business is another department having one of the most up-to-date plants for the purpose.



Canadian National Exhibition—Exhibit of The Canada Metal Co., Toronto.

claiming for it the only all round metal giving general satisfaction. Besides these were shown coils of lead pipe varying in size from 1-16 inch to 8 inches, lead traps and bends, brass ferrules, battery zincs, fuse wire, newspaper metals and raw materials, including ingot copper, aluminum, ingot tin, antimony, pig lead and spelter. The exhibit was bright and attractive. The company's phrase, "We are the Metal Men" is characteristic and conceded by all to be particularly applicable.

Besides the lines already mentioned, their brass foundry is a creditable one, where they make any casting from the smallest to those of any size. Being in the metal business they are able to turn out this line at a reasonable rate, consequently this branch has assumed large proportions since its commencement. The completeness of the Canada Metal Co.'s plant is shown from the fact that they make even the nails used in their shipping cases.

MOSTLY SAWS.

Shurly & Dietrich, Galt, Ont., were showing a particularly fine exhibit of their saws in the Process Building occupying three large panels, comprising about one hundred feet in the north and south aisle.

The most conspicuous feature of the exhibit was a large circular saw 90 inches in diameter of razor steel tempered by their secret process.

This firm manufacture and had on exhibit band saws from 1 1/8 inch to 16 inches, both single and double; shingle saws, gang saws, hand saws of every description, racer cross-cut saws, and circular saws from 2 inches up to 90 inches.

One of the secrets of the success of this firm is the fact that all their saws are tempered by a secret process. They are the largest saw manufacturers in the British Empire, and export largely to the United States, England and New Zealand.

GOOLD, SHAPLEY & MUIR.

This firm were showing a line of gas engines from 3 to 25 h.p. and including 3, 5, 8, 13, 17, 19 and 25, nearly all of which were in operation; three grain grinders to the south of the exhibit, next which was an Acme pump operated by a gasoline engine. Another of these engines was run by a Toronto & Hamilton dynamo supplying lights for the exhibit.

Besides these were shown concrete mixers of which this firm are making a specialty. Power windmills were also a feature of this exhibit.

GALT ELECTRICAL MFG. CO.

This firm were showing in the Process Building a number of their isolated electric lighting sets, which comprise three gasoline engines of their own manufacture and three special electric generators. Two of these engines were 3 1/2 h.p. and one 5 h.p. These dynamos generate power for from twenty to fifty electric lights. The compactness of these units is at once apparent. This firm have a wide field and have every prospect of building up a large trade in these isolated electric lighting plants for which they supply the entire equipment.

BORDEN CANADIAN CO.

This exhibit adjoined the west side of Machinery Hall, where threading machines, both power and hand, were shown.

The main feature was a new Beaver die stock, the machine illustrating the new way of threading pipe. This stock threads pipe from 1 to 2 inches without changing the dies, which is a revolution in pipe threading, doing away with the annoyance and time required when changing from one size pipe to another. The ease of operation of this machine is striking. A man with one hand is able to thread a 2 inch pipe without any difficulty, whereas under the old system it really called for the strength of two men. The reason of this working easily is, the dies recede as the stock commences to advance on the pipe, thus, the further the operation is preceded with the easier it works.

Dominion Belting Co.

The exhibit of the Dominion Belting Co., Hamilton, Ont., was located on the north side of Machinery Hall, where an extensive showing of the high class belting manufactured by this company was to be seen. It consisted of various widths from 1½ inch to

Maple Leaf stitched cotton duck belting is claimed to be the strongest, most durable and best driving power belt on the market. It is used everywhere for the transmission of power where belting is used, for indoor or outdoor work, paper and pulp mills, saw and planing mills, packing houses and fertilizer works, brick yards, tanneries, rolling mills,

machine folded. It is lock stitched with special cord, each row of stitching being entirely independent of the other rows. The belting is made waterproof by a special method and rendered impervious to water, steam, oil or gases, and remains flexible under all conditions. It is made in any length desired without joints.



Canadian National Exhibition—Exhibit of Dominion Belting Co., Hamilton, Can.

60 inches, although they are prepared to supply on order up to any width. The exhibit was tastily decorated with maple leaves, the trade mark of the company.

machine shops, etc. This belting is made from duck specially woven to the company's formula, containing the least possible stretch with the greatest possible strength, and is

Maple Leaf belting is fast gaining a world-wide reputation, shipments having been made to the Argentine Republic, South Africa, Australia, and other foreign points.

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A. R. Williams Machinery.

The exhibit of the A. R. Williams Machinery Co., which is directly in front of the main entrance in Machinery Hall, was much admired by many visitors to the Fair.

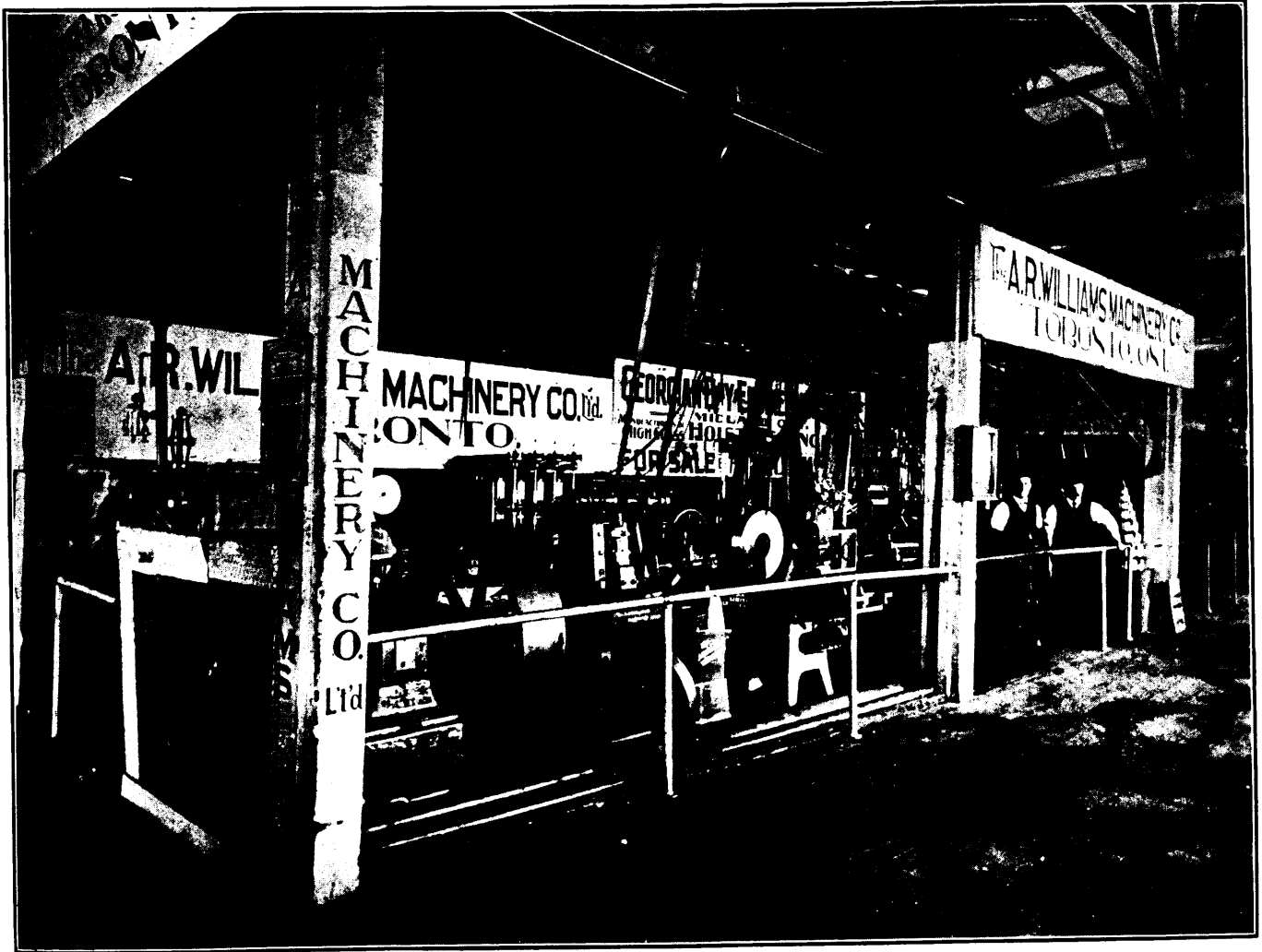
The 40 h.p. Economical Hardill compound engine running at a high rate of speed and practically noiseless was the wonder and admiration of all users of steam power.

This year's exhibit was made up largely of our Canadian home manufactures.

manufactured by Major Harper & Son, of Whitby, Ont., who make a specialty of high-class wood working machines. The one on exhibit is of the style known as the eclipse sectional roll. This machine is much in demand by wood workers looking for a perfectly smooth even surface. The work shown was done with but one operation convincing the most skeptical of its superiority to excel in this class of wood working machine.

A bolt threading and nut tapping machine made by McGregor, Gourlay Co., of Galt, Ont., was another feature.

The power metal sawing machine manufactured by Cochrane & Bly, of Rochester, is pronounced one of the finest of its kind now on the market, having a fast and slow speed and a 4 inch capacity. The perfect accuracy and almost polished surface produced with this machine, together with its mode of operation requiring no attendance when once put in operation, and short space of time it takes to perform its work is striking; it requiring only 9 minutes to cut a 3 inch steel shaft when running on slow speed and 5 minutes when operated by the higher speed.



Canadian National Exhibition—Exhibit of A. R. Williams Machinery Co., Toronto.

One machine shown was a Hale safety automatic and inclinable power press made by J. B. Hale & Son, of Toronto. Another was a power pipe cutting machine manufactured by McDougal & Co., of Galt, Ont., cutting from 1½x6 inch pipe either right or left hand. It is used by the leading firms throughout Ontario. The T. Eaton Co., Polson's Iron Works and the large plumbing and steam fitting works—Fred Armstrong & Co., the Dominion Brewery Co., all of Toronto, are users of this high class machine and speak highly of the efficiency of this Canadian tool.

The 30 inch surface planer shown is manu-

factured by the Fosdwick Mfg. Co., of Cincinnati, Ohio., is recommended by the best iron working firms in Canada and the United States.

The 22 inch sliding head power drill having back gear, self feed and automatic stop, made by W. F. & Jno. Barnes Co., of Rockford, Ill., is another favorite throughout the Dominion of Canada and United States and is extensively sold in the markets of London, England.

The 4 spindle or multiple drill for medium and light work, manufactured by the Croton Machine Co., New York, was also much admired by the visitors to the Fair.

An attractive and much admired exhibit of high grade self air hardening steel manufactured by the world famed makers, Edgar Allen Co., of Sheffield, England, was shown. Of this a full line of all sizes is carried in stock.

The few high class machines shown here are but a fraction of the many machines manufactured and carried in stock and for sale by this firm whose business extends from coast to coast, having warerooms in Toronto, Montreal, Winnipeg and Vancouver, and with expert practical management at the head and with attentive and courteous officials in all branches of the separate departments.

Pattern Making.

Pattern makers at the Exhibition as far as exhibitors and visitors were likewise concerned was an unknown feature until the Strycker Pattern Works, 87 Jarvis Street, Toronto, decided to illustrate to the public the actual operation of pattern making.

The exhibit of this firm was situated in the Process Building and a large crowd in constant attendance demonstrated the interest that was being taken by men, women and children alike in the exhibit of a manufacture so important. To many it was a revelation and the quietness and efficiency with which

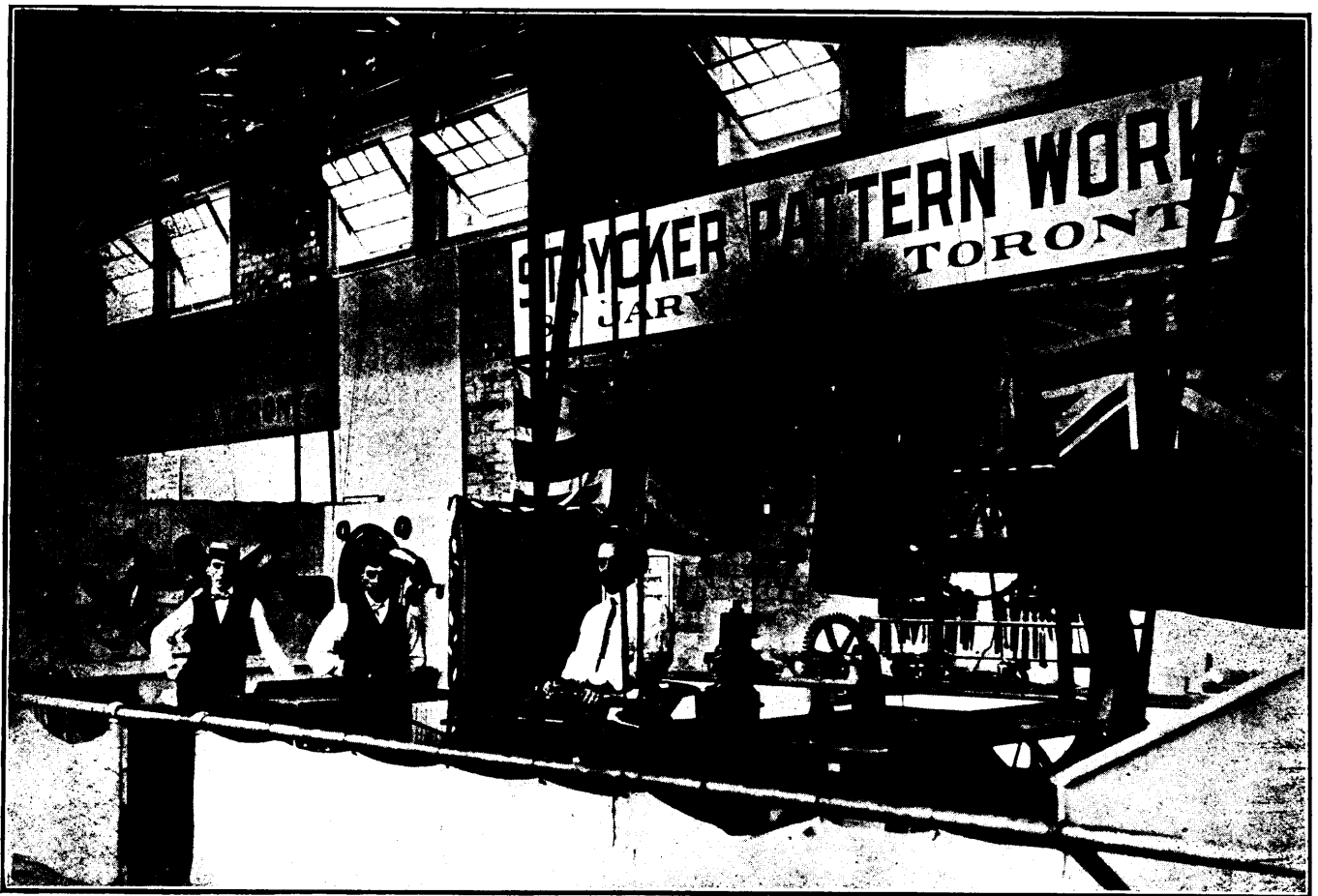
wood, brass, white metal or iron. Here the best and most skilled workmen that can be found are employed and the best materials possible to secure are used in the manufacture of patterns.

During the three years this firm have been in existence they have built up a large business in pattern making that extends from one end of the country to the other, one cause of which being the high-class work turned out on every occasion.

Some of the customers who can speak volumes for the output of this factory are the large electrical machinery companies throughout the country, makers of special high-class machinery, such as the Schofield & Holden Machine Co., and the leading ornamental iron workers and others of note.

in charge of Mr. Chas. Stambois, who is the leading spirit in the company, being an expert electrical and mechanical genius and the inventor of this improved circular saw.

This saw embraces and does the work of a circular, rip or cross cut saw and as such should fill a long felt want and prove a boon to the wood working trade. It is electrically operated and any kind of circular saw may be used. It can be used as a circular rip saw, the table can be regulated for hard or soft, thick or thin lumber, and can be adjusted for lumber of different or uneven thickness, with a 10-inch saw blade lumber up to 3 inches thick can be easily ripped. The rip gauge can be regulated so as to rip lumber from 1-8 inch to eighteen inches wide. It can be used as a cross-cut or mitre circular



Canadian National Exhibition—Exhibit of Strycker Pattern Works, Jarvis Street, Toronto.

the workmen manipulated their tools and performed the various operations was a source of never ending interest to the sightseers.

The exhibit was equipped with wood-turning lathe, band saw, circular saw, trimmer, and a full complement of tools for the making of different patterns.

On the walls of the exhibit were a large number of difficult patterns and on the floor a large motor case pattern the works of which were at once apparent. Four men in attendance illustrated to the public the high-class work done in their factory.

The factory situated on Jarvis Street is equipped with all tools for the manufacture of every kind and design and pattern whether

PAROID ROOFING.

A special building outside the Machinery Hall showed the exhibit of F. W. Bird & Son, Hamilton, where Paroid roofing was the feature. The building was roofed with this covering, also the walls.

The good points of this roofing were pointed out by a number of courteous men in charge of the exhibit who distributed a large amount of literature to many enquirers.

A NEW LABOR SAVING DEVICE.

Labor saving devices are always interesting. The many onlookers and enquirers at the booth of the Anglo-American Circular Saw Co., 36 Richmond Street, Toronto, testified to the interest that was being taken in their labor saving circular saw. The exhibit was

saw. The rip gauge mechanism can be instantly taken off, leaving the table perfectly clear for cross-cut or mitre work.

The company have purchased a large plot of ground in Toronto Junction where it is proposed to erect a factory employing some seventy-five hands and turn out over thirty complete machines a day.

DODGE PULLEYS.

An attractive exhibit was shown in the eastern end of Machinery Hall by the Dodge Mfg. Co., Toronto. It comprised various power transmission apparatus for which this firm is noted, but the special feature was the Dodge wood-split pulleys, of which many sizes were seen. Lightness and strength are the features claimed for these pulleys.

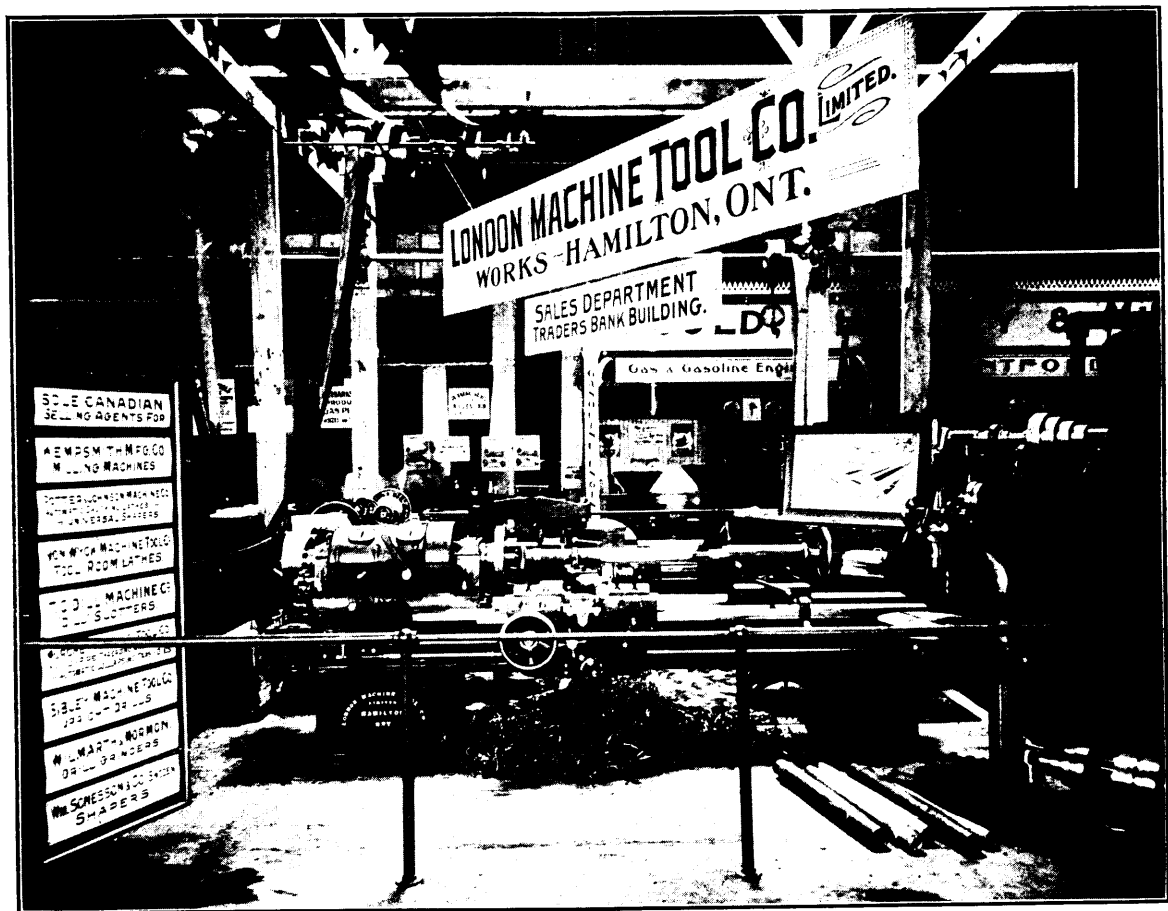
London Machine Tool Co.

In the centre aisle of Machinery Hall was located the exhibit of the London Machine Tool Co., where besides an effective display of machine tools was a thoughtfully arranged resting place for the many visitors who were desirous of getting further information or making purchases of these well known machine tools. The exhibit was in charge of

part of the lathe is the large spindle. This spindle is manufactured from high carbon crucible steel, and first bored from the solid stock, roughed out on the lathe, and after the final finishing cuts put on grinder and ground to the standard size. The end thrust is taken on ball bearings. The mechanical changes in feed and speed are another feature by which 54 changes of feed and twelve changes of speed are made possible. Machinery similar to this equipped with motor

ments and drawing-in collets manufactured by the Von Wyck Co., of Cincinnati, for whom the London Machine Tool Co., are sole Canadian selling agents.

The London Machine Tool Co. also represent in Canada the Kempsmith Mfg. Co., handling their milling machines; Potter & Johnson Machine Co., automatic chucking machines and universal shapers; T. C. Dill Machine Co., Dill shapers; Murchey Machine & Tool Co., pipe threading machines and



Canadian National Exhibition—Exhibit of London Machine Tool Co., Hamilton, Ont.

Mr. A. E. Juhler, who was in almost constant attendance. He reports a very heavy sale of machine tools during the Exhibition.

The most notable feature of the exhibit was a 22 inch by 10 foot all-g geared lathe, which is noted for its uniformity of design, ample bearings, and quick changes of speed. The fine proportions of this machine are at once apparent, its great weight, giving ample rigidity in heavy strain. The most important

drive is to be exhibited at the Canadian Electrical Exhibition to be held in Montreal as part of the Canadian Westinghouse display.

A No. 2 cold cutting off 26 inch saw for cutting beams and sections up to 24 inches was also shown. Besides these were two lathes made particularly for tool room use equipped with quick change feed, one of them being supplied with oil pan, taper attach-

automatic taps and dies; Sibley Machine Tool Co., upright drills and W. M. Sonnesson & Co., of London, shapers.

The expansion of this business has been such during the past year that large additions to the factory at Hamilton are under way and still further plans are being made for future extension. The Ontario sales office of the company is situated in the Traders Bank Building, Toronto.

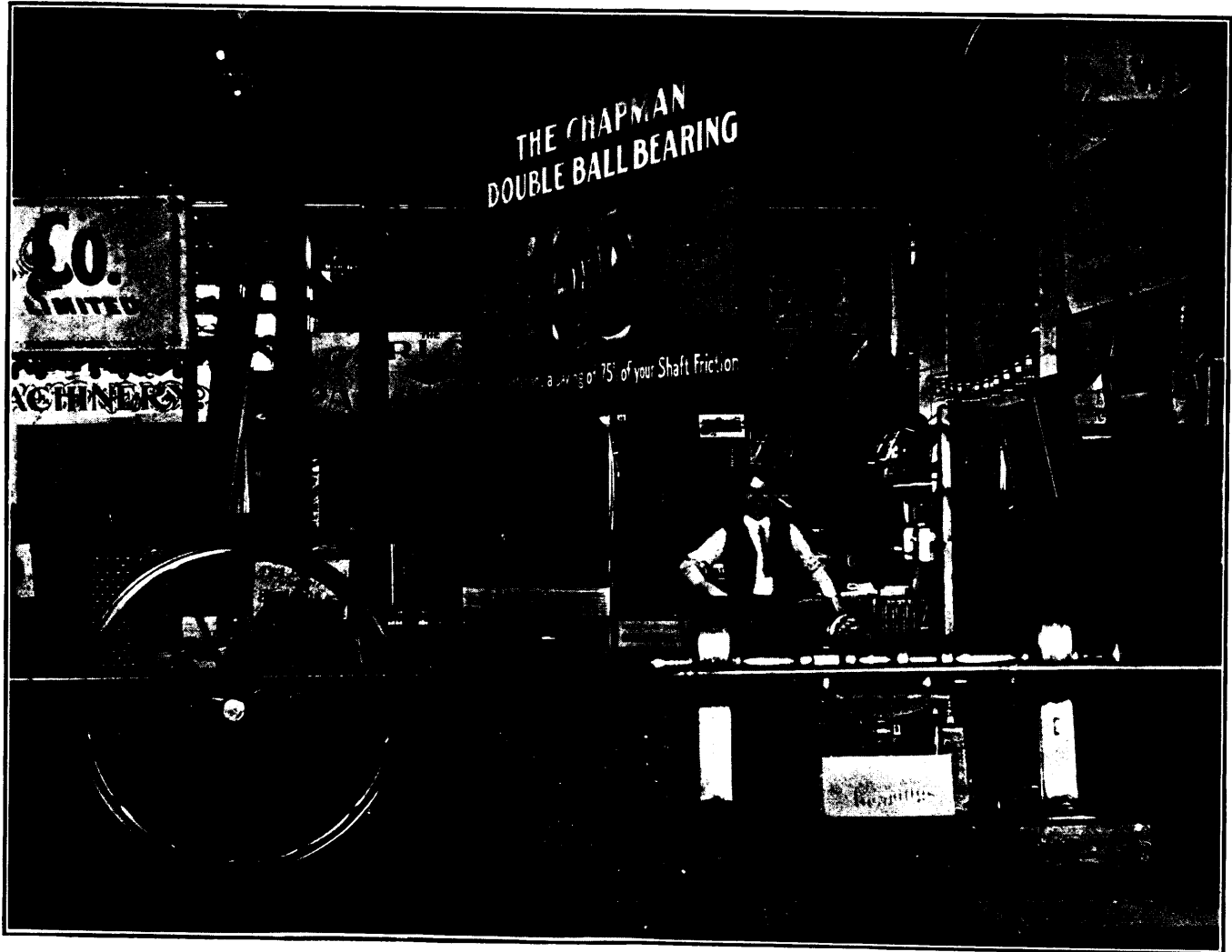
Saving on Friction.

Every visitor to Machinery Hall was made aware of the fact, by cards posted at convenient places, that the shafting throughout the building was equipped with Chapman double ball bearings. A test of this shafting in comparison with power required to overcome

with R.O. bearings from no load up to six tons, and also with Chapman double ball bearings to the same range. The shafting was run by a motor, the motor readings being taken by carefully calibrated instruments arranged on a suitable switch-board. The results of the tests are given in the following figures.

power required to run shafting with Chapman ball bearings or with the ordinary kind.

Another feature of the exhibit was a Sheldon blower equipped with ball bearings, blowing a number of red, white and blue stringers skyward, which was a source of never ending interest on the part of visitors. It was run from a counter shaft on the



Canadian National Exhibition—Exhibit of Chapman Double Ball Bearing Co., Toronto.

friction before placing these, showed a saving of 80 per cent.

At their exhibit this year situated in the centre aisle of Machinery Hall, a test was conducted which demonstrated conclusively the value of these bearings as power economizers. The testing apparatus consisted of a double set of hangers mounted on a solid base. The load was communicated to the inside pair of bearings by means of a powerful jack, consequently giving a downward bearing on the outside pair. Readings were taken

Load	R.O. Bearings	Chapman Ball Bearings.
No load	2 Amp. 200 V.	
Belt on	3.4 Amp. 200 V.	
1 Ton	4 Amp. 201 V.	3.1 Amp. 206 V.
2 Tons	6.4 Amp. 202 V.	3.3 Amp. 206 V.
3 Tons	8.7 Amp. 201 V.	3.4 Amp. 207 V.
4 Tons	1.3 Amp. 201 V.	3.7 Amp. 207 V.
5 Tons	1.6 Amp. 203 V.	4.1 Amp. 206 V.
6 Tons	18.5 Amp. 203 V.	4.6 Amp. 206 V.

It is not necessary to examine these closely as it can be seen at a glance the difference in

floor, equipped with pulleys and friction lutch belted to the shafting over-head.

Sets of bearings for almost every industrial use were shown at this exhibit, besides a wheel that had been given a very severe test in active operation and seemed to run as freely and as long when started as though perfectly new.

As usual, Mr. C. M. Murray was in charge of this exhibit, assisted by an able staff and from morning till night they were busy explaining the good points of Chapman double ball bearings.

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Carey's Roofing.

An exhibit that attracted many visitors in Machinery Hall was the small building towards the eastern end. It was built of Carey's 2½ inch pipe covering, and contained a small model of a house representing the use of Carey's roofing.

This company manufacture all kinds of asbestos and magnesium materials and carry a complete line of pipe and boiler coverings,

that after selecting the highest grade and most durable materials they are subjected to a secret chemical process which renders them practically indestructible. The roofing is unaffected by extremes of heat, cold, moisture, acids, gases, fumes, etc., and offers great fire protection.

On account of the construction of the roofing and the peculiar application of the sheathing board, the Carey roofing is proof against wind. It is of light weight, equally adapted to flat or steep surfaces, being easily

wind; is cold in winter and hot in summer and not sufficiently fire retarding.

Shingle roofing hand-made is scarce and expensive. Machine made shingles warp and decay and last about five years; can only be used on steep surfaces, offer no protection from fire, and are expensive to lay.

Slate roofing is durable but expensive, and requires strong construction on account of great weight. Cheap slate is not worth the cost of application, is for steep roofs exclusively and not desirable for factories, mills, etc.



Canadian National Exhibition—Exhibit of The Philip Carey Mfg. Co.

asbestos packings, mill board, as well as being extensive manufacturers of paints.

A special feature of the goods is their 85 per cent. magnesia cover for high pressure and superheated steam. It is the highest non-conductor known. The other 15 per cent. is pure asbestos fibre thus making it absolutely fire proof.

Some reasons given regarding the superiority of Carey's flexible cement roofing are,

laid, requiring only knife and hammer as tools.

In comparison with other roofings it is noticed that faults peculiar to various kinds of roofing are not found in Carey's. In tin, iron and steel roofing it is found that it will rust, is affected by moisture, fumes, gases, etc; breaks at joints from contraction and expansion, its application requires skilled mechanics; requires constant repainting; expensive to repair; rattles from

Tar and gravel roofing will dry out, crack and break: almost impossible to locate leaks, heavy and unsightly, unreliable roofers can put it on at almost any price, realizing a good profit, and apparently comply with the specifications. This class of roofing has degenerated. The better grade of asphalt roofing will cost double that of Carey's, without giving as good service.

The exhibit was in charge of Mr. O. A. Cole.

Machinery in Operation.

On entering the western entrance of Machinery Hall the visitor was immediately confronted by the machinery of H. W. Petrie, where a large number of machine tools were in active operation, performing the functions that are required of them in regular shop practice.

The first machine to strike the gaze was an improved Bickford radial drill. This machine is fitted with improved drive and gear box and quick reverse and has tapping attachments, and drills to a centre of eight feet.

operation is continuous. It was made by the Simplex Engineering Co., of Manchester, England, for whom H. W. Petrie is sole selling agent for Canada.

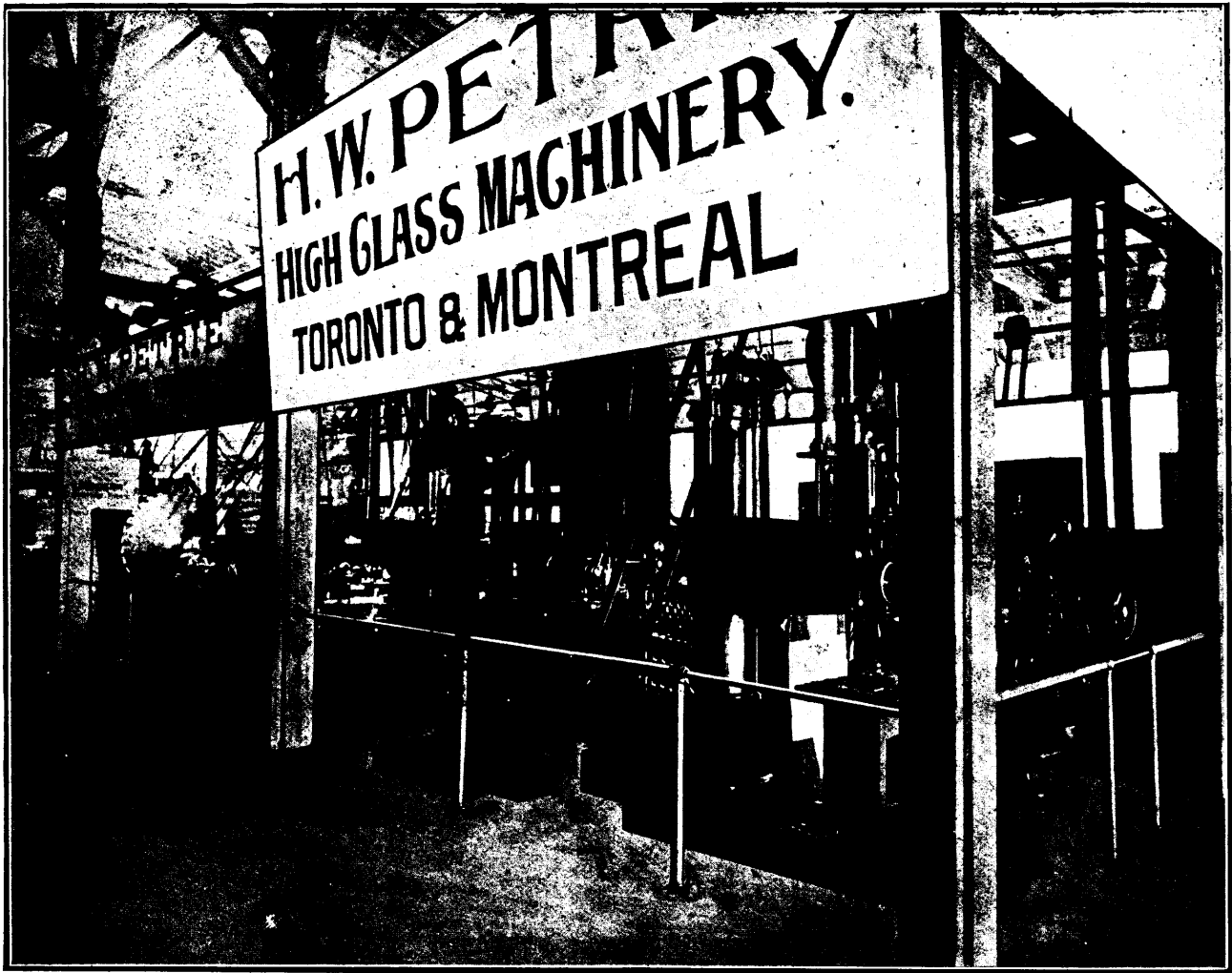
Immediately above this was a No. 2 full universal Cincinnati milling machine with power feed in every direction. It has a working surface of $40\frac{3}{4}$ inches by 10 inches. It was turning out spirals of four inch diameter.

Across the aisle of the exhibit was an automatic 24 inch back geared upright drill with tapping attachments. It was also in operation. Next this machine was a Cincinnati

The supply department was represented by an attractive display of engineers', millmen's and steam fitters' supplies, illustrating some of the lines carried, also a number of Pickering governors and a 50 inch inserted tooth saw.

Besides the literature of the company an exceedingly pretty souvenir post card showing Petrie's machinery emporium on Front Street was given away.

The exhibit was in charge of Mr. E. Holman, whose never failing courtesy was appreciated by the visitors and whose success as a salesman is already well known.



Canadian National Exhibition—H. W. Petrie, Toronto.

The machine is a substantial affair weighing 6,200 pounds. There were experts engaged morning, afternoon and evening throughout the Exhibition to operate the machinery. A skilled operator was brought from Cincinnati solely for the purpose of superintending the various operations of the machines.

Arranged alongside of this machine was a Simplex four spindle automatic lathe upon which was made $\frac{3}{4}$ to $2\frac{1}{2}$ inch hexagon head cap screws, there being one turned out every two minutes. During the exhibition this machine also manufactured 7-16 hexagon nuts at the rate of six per minute. The machine is entirely automatic, four bars being fed in at the same time so that the

No. 1 universal cutter and grinder. It was used for grinding milling cutters used on the milling machine. It is adapted for surface grinding, internal grinding as well as cylinder grinding, all of which were demonstrated at the Exhibition.

Along the front aisle was a 22 inch by 10 foot improved Lodge & Shipley engine lathe turning up stock, a 15 inch by 30 inch Cincinnati open slide shaper, being a new feature in machine tools in Canada was shown. The value of this machine is only commencing to be recognized amongst Canadian tool builders and users. There is practically no limit to the size of work that can be done in this machine.

AUTOMATIC PRODUCTS.

As part of the exhibit of H. W. Petrie was shown some of the lines turned out by Automatic Products, Limited, Orillia, Ont. These goods were of a superior grade and finish and gave a better impression the more closely they were examined. They included milled steel nuts, milled brass nuts, engine studs, set and cap screws, bright washers, etc. This company have installed in commodious premises in Orillia one of the most modern plants of automatic and hand screw machinery in Canada and are making a specialty of hexagon steel nuts.

Oil Storage System.

An exhibit showing features new to many was found in the Process Building in that of the Bowser Oil Tank Co., 66-68 Frazer Avenue, Toronto. A fine display of oil tanks and pumps was shown. It consisted of a number of tanks and pumps illustrating the features of the Bowser self-measuring pumps and oil storage equipments. Three tanks were in operation and received considerable favorable comment on account of the facility with which it was possible to measure in them any quantity from $\frac{1}{2}$ pint to 5 gallons by simple adjustment. They consisted of coal oil, heavy oil and gasoline tanks. The latter

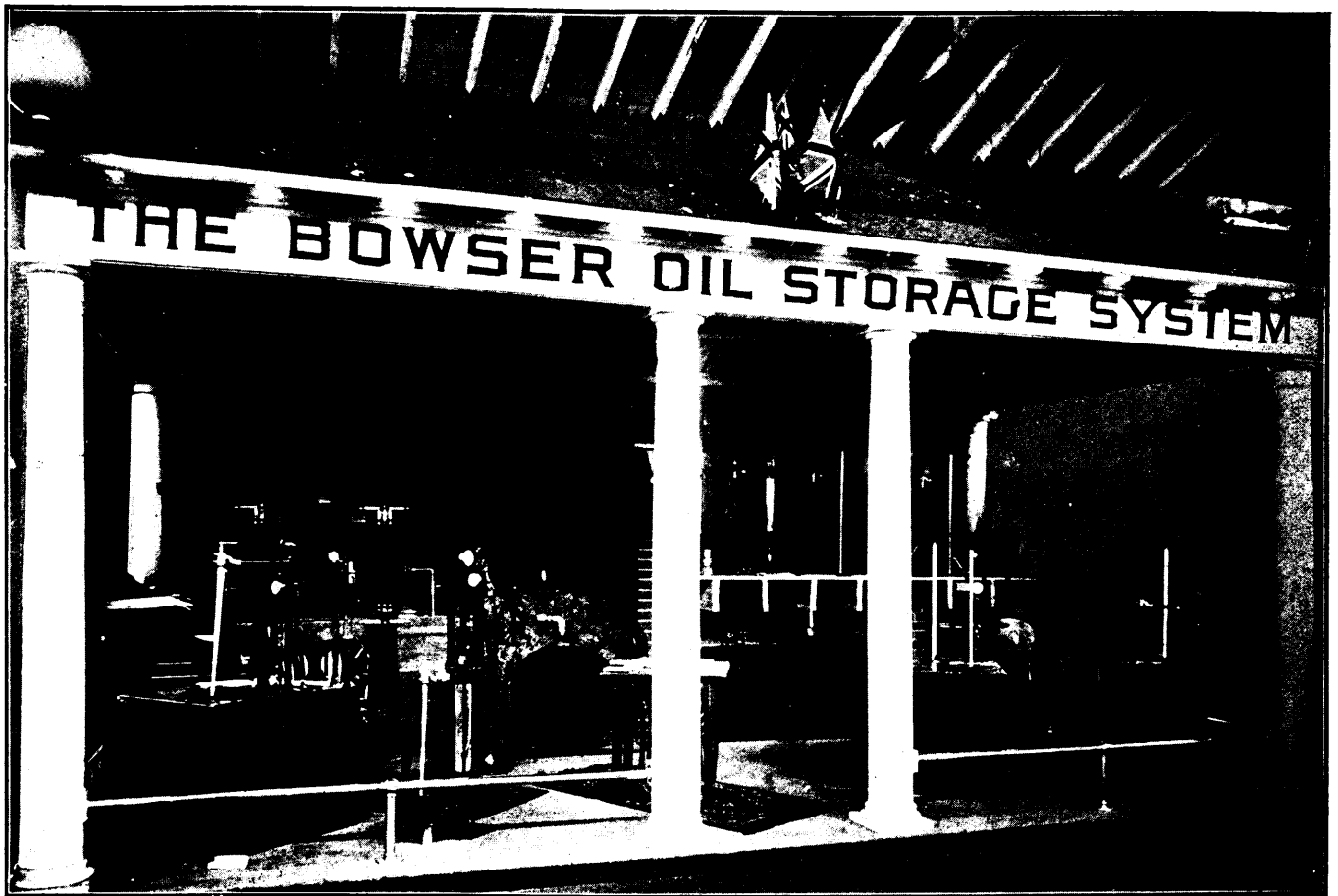
factories with tanks in outside oil house or buried in the ground having pumps placed in any part of the building desired by means of which it is possible to elevate the oil to any distance no matter whether it be light, such as gasoline, or heavy, such as lubricating oil, cylinder oil, varnishes, rubber cement, paints, polishes, or any liquid used in the process of manufacture. Thus it is possible to locate the tank wherever it can be most easily filled and the necessary space most easily available and the same true of the pump.

Bowser tanks are built to guarantee an efficiency at joints equal to 75 per cent. of that of the plate. This gives the tanks a very high factor of safety, so that if from any cause whatever the surrounding temperature of the tanks should rise, any excess pressure would

principle of a common meter, correctly registering all oil pumped, no matter how small the quantity may be.

The economy of such a system should be at once apparent to manufacturers as with it all fire risk and hazard to their oils are done away with, as fire may rage all around the tanks without getting at the oil. These tanks are endorsed by insurance companies, fire boards and building inspectors. The user has the advantage of a low fire hazard. Such an installation is economical to every manufacturer as every gallon of oil bought is accounted for. The system is convenient to locate and operate. It provides absolute cleanliness and free from dust which means a pure supply of oil.

In connection with this system is being



Canadian National Exhibition—Exhibit of S. F. Bowser & Co., Toronto.

was shown buried in the ground and the pump some distance from it. All pumps are provided with self-measuring device and are automatic. They will pump any kind of liquid without clotting.

At the back of the exhibit was an imaginary cellar showing the tanks placed in position with the pumps on the store floor.

Another feature was a very handsome piece of furniture for private garages, being a cabinet made of mission oak, all parts being copper finished. It contained a barrel tank for cylinder oil, barrel tank for lubricating oil and a long distance pump for gasoline.

This firm make a speciality of equipping

be amply provided for, the safety factor being over 100 per cent.

A feature of every tank is the storage float indicator by means of which the amount of oil in a tank at any time is shown, and it also serves as a check on the oil delivery.

On the pumps a discharge register tallies the amount of oil drawn at one operation. Each pump is equipped with a self-locking device which locks the pump when not in use. Then oil can only be drawn or the pumps operated by the persons authorized and supplied with keys.

A gallon meter keeps an accurate check on all oils pumped, working automatically on the

supplied an automatic self-measuring power pump, which offers to manufacturers using oils, varnishes, etc., in large quantities, a solution of many of the most vexing problems connected with their business. The pump can be belted or direct-connected to any outside source of power. It will accurately measure from any quantity from one to one hundred gallons. Barrels may be filled from one of these as fast as they can be handled.

Evidence of the growing popularity of these lines is shown by many manufacturers, who have, after seriously considering the proposition, installed in their plant or factory the Bowser system of oil-storage.

Pipe Threading Machines.

In the middle north section of Machinery Hall, adjacent to the Power House, was an exhibit that attracted considerable attention, being that of I. E. Shantz & Co., Berlin, Ont., where three power pipe threading machines and an assortment of stocks and dies manufactured by this progressive Berlin company, who have only recently gone into the manufacture of these lines on an extensive scale, were shown. The machines were all in operation and came in for no small amount of

machinery assembled all within a very short time before the Exhibition. It was decided at the last minute to exhibit a machine of this kind and the facility and completeness with which the work was turned out by the company's plant illustrates the efficiency and up-to-date methods of the firm. After the machine had been designed, patterns made and parts machined, as soon as assembled and oiled, and dies put in it was started to work and within twenty minutes they turned out a thread on a 6 inch pipe that was perfect throughout. This thread was shown at the

dies supplied run from 1½ inch to 6 inches. It is fitted with nine speed changes, ranging from 2 revolutions per minute to 40, which range no other machine in America can claim. All gears are cut from solid metal, also equipped with cutting attachments and fitted with Borden solid adjustable dies inserted with chasers.

During the Exhibition it was run cutting threads on 6 inch pipe. The firm make a specialty of this line of machinery and are prepared to supply work of the most modern design possible.



Canadian National Exhibition—Exhibit of I. E. Shantz Co., Berlin, Ont.

attention on the part of the visitors to Machinery Hall, where Mr. I. E. Shantz and Mr. M. E. Shantz explained the admirable points of their machines.

The largest of these was a 6 inch pipe threading machine. An interesting story is attached to this machine as the design was completed, patterns made and parts cast and

Exhibition and was admired by all. It illustrates the correctness of design of the machine as well as the workmanship placed thereon. It is built on the heavy principle weighing 4,300 pounds, and of sufficient length to give it proper bearing. It is supplied with two universal chucks and will take in from one inch to six inch pipe, although

The other machines included a No. 4 pipe threading machine cutting from 1 inch to 4 inch, and a No. 2 cutting from 1 inch to 2 inch threads.

A large business in these machines has already been built up by the I. E. Shantz Co., and the style of work turned out by them would indicate and give every belief for a largely increasing trade in the near future.

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Hardill Compound Engine.

A feature of the Toronto Exhibition which attracted no small attention was a compound engine manufactured by the Berlin Foundry Co., the invention of John Hardill, who has been working for a number of years on the perfection of this engine. The main feature of the engine is that while a compound engine it is operated with a single slide valve and steam chest.

Illustration Fig. 1 will show the operation of the cylinders. The cylinders are just taking live steam at the head end, the steam being admitted into the steam chest at (1) filling the space in the steam chest (2), and also behind the pressure plate (15). From

through the valve at (12), and thence out through the exhaust outlet at (13), and into the atmosphere or condenser.

In this way a complete cycle of operation for one stroke, the piston moving and the valve also in proper relation so that when the piston has reached the end of the stroke, the valve has moved so as to admit live steam from a second independent inlet at (14); and then the same cycle of operation is gone through for the return stroke.

That second independent inlet brings up

be closed by means of this valve, the operation of which is clearly shown in Fig. 2, thus making the engine a single acting engine. This prevents the necessity of the abnormal throttling of steam by the governor and throttling valve, which is one of the chief sources of loss of economy in throttling engines running under light load.

It is apparent that this engine is a very simple type. The valve making business has been simplified, and receiver, or intermediate piping between cylinders has been done away with.

Mr. Hardill was in constant attendance at the engine during the exhibition and

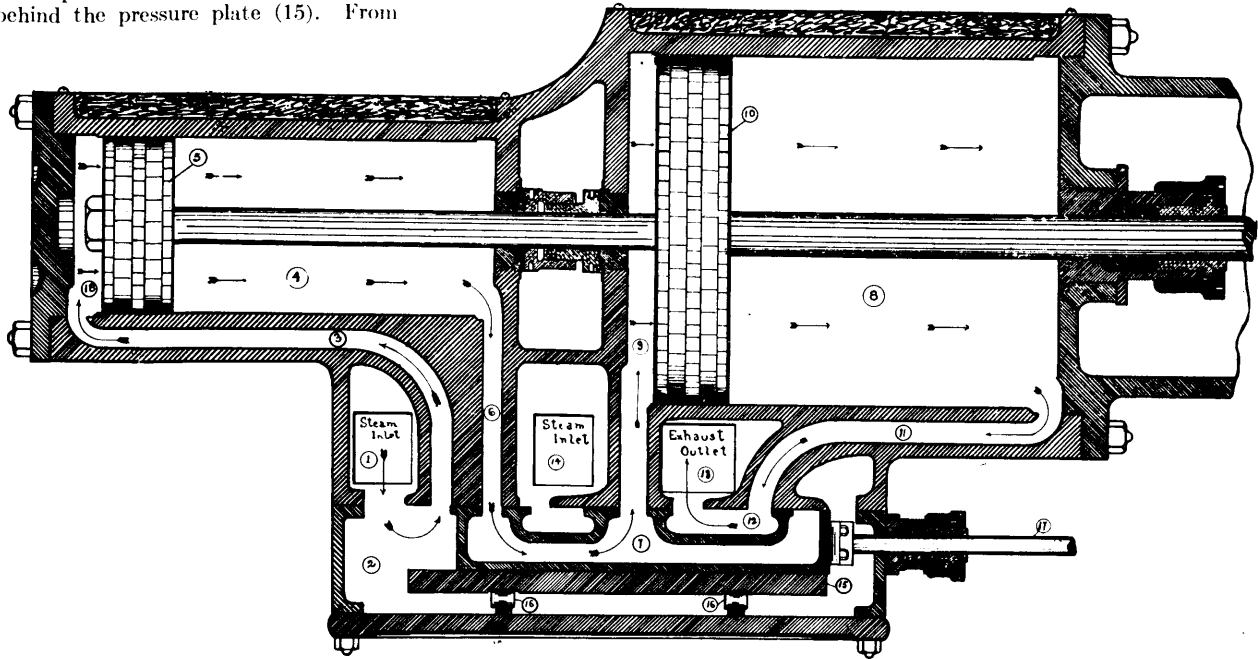


FIG. 1—SECTIONAL VIEW OF CYLINDERS, STEAM CHEST AND VALVE HARDILL ENGINE.

there we follow the steam by aid of the arrows and pass through the port (3) into the space (18) behind the small piston (5). Here the steam does its first work, forcing the piston forward; while the partly expanded steam of the previous stroke in the small cylinder at (4) is forced down through the port (6), through the passage in the valve (7), up into the space (9), behind the large piston (10). Here the steam again does the

work, and the thoroughly expanded steam in the large cylinder at (8), from the previous stroke, is passed down through the port (11),

a second distinctive feature of the engine, the operating valve, shown in Fig. 2. From this and from the other views it will be shown that there are two live steam openings (1) and (14). When the engine is operating on half load or less, one of these openings can

surprised many who had seen or heard of this type for the first time. A number of orders were taken. It is intended to immediately place it on the market and it will be manufactured in large quantities at Berlin where the engine on exhibition was made.

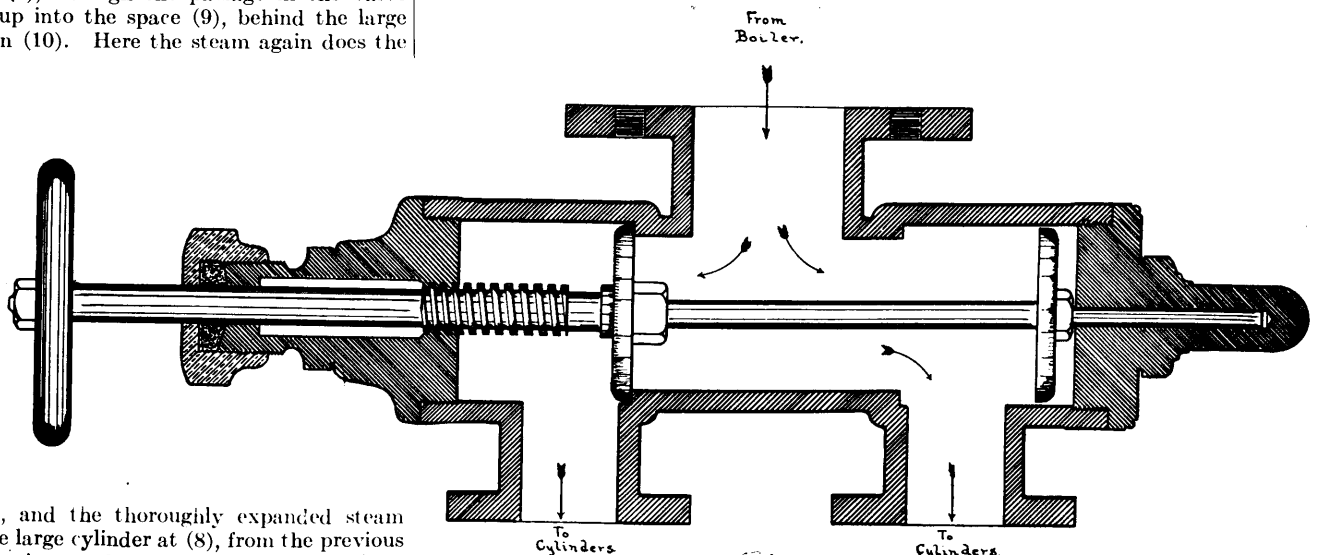


FIG. 2—SECTIONAL VIEW OF CONTROL VALVE, HARDILL ENGINE

work, and the thoroughly expanded steam in the large cylinder at (8), from the previous stroke, is passed down through the port (11),

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Photographic reproduction of The Metallic Roofing Co's, Toronto, exhibit at the Canadian National Exhibition. A building constructed entirely by themselves and of nothing but goods of their own manufacture. It forcibly illustrates the enormous possibilities of sheet metal and substantiates the company's claims that anything which is made of wood, stone or plaster, can be duplicated in sheet metal at greatly lessened cost. It is interesting to note that this exhibit was the only one in its line ever considered worthy of a Gold Medal, which has been awarded to this company three times in succession. It is undoubtedly the finest piece of architectural sheet metal work ever executed in Canada, the material used and workmanship displayed being absolutely faultless.

THE METALLIC ROOFING

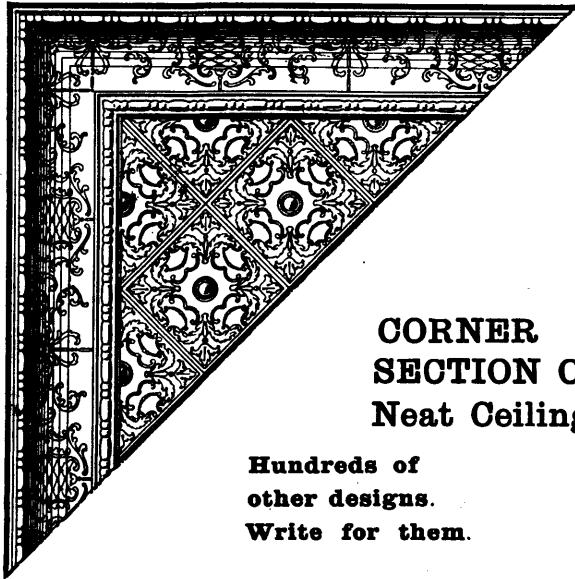
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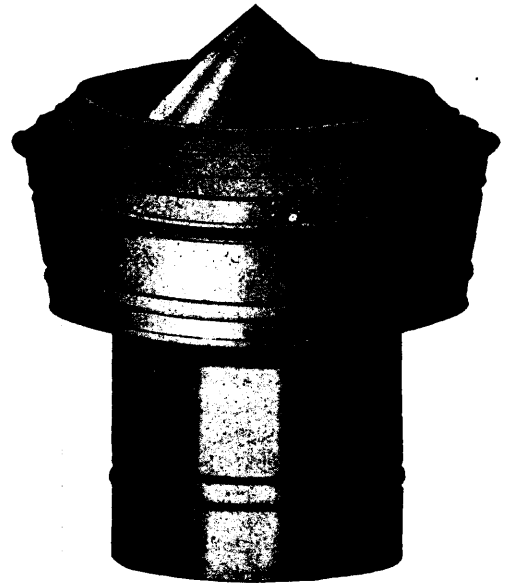
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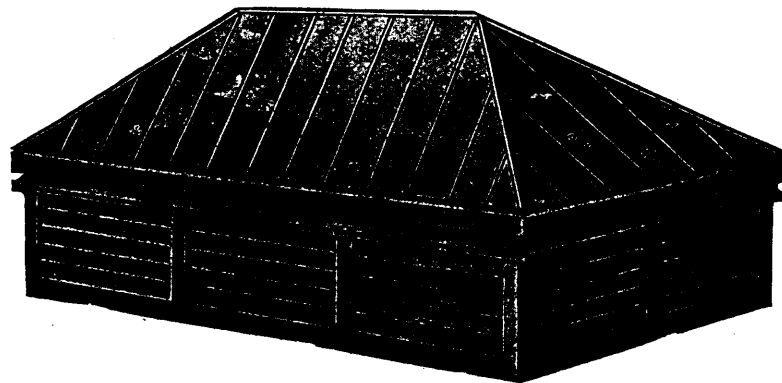
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LET US HAVE YOUR ENQUIRIES. THEY WILL BE HANDLED PROMPTLY AND BY EXPERTS.

Metallic Skylights of every description. The cut shows one specially adapted for boiler-rooms, etc.

CO. OF CANADA, LIMITED

MANUFACTURERS

WINNIPEG

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Dominion Builders' Show.

The first annual Contractors', Builders' and Hardware Exhibition, was held in the Victoria Rink, Montreal, August 20 to 23, inclusive, under the auspices of the Builders' Exchange and the Canadian Manufacturers' Association. The total attendance for the four days was about 30,000. The exhibits were instructive, interesting and attractive; the variety program furnished afternoon and evening was good; the exhibitors and the promoters were well pleased with the success of the show and express confidence that it will be better next year.

As most of the readers of THE CANADIAN MANUFACTURER are interested in building and building equipment, and many new building materials and devices were shown, we take space to note briefly the main features of the various exhibits.

The lines shown covered almost everything for the building from roof to cellar, including even shafting and pulleys, wall paper, flooring, heaters and a hand cleaner.

BUILDING MATERIALS.

The exhibit of Francis Hyde & Co. attracted much attention on account of the many and varied lines shown. The Mimi-o Red Pressed Brick was given a prominent place. The product of the Canadian Art Stone Co., of Toronto, aroused favorable comment. This product is made from first-class Canadian cement, reinforced with steel bars, and faced with Lafarge Non-staining cement. There was also a fine showing of Adamant Wall Plaster, Iron clad and International Portland cement, a line of solid bronze cement workers' tools, and bricks and samples of furnace linings, manufactured by the Harbison-Walker Refractories Co.

Their booth was gotten up in the form of a thoroughly equipped sample room with plastered walls and ceiling, the workmanship being by the firm of Messrs. C. H. Knott & Co., and the ornaments being supplied by W. C. Metge.

The exhibit of Alex. Bremner, dealer in builders' supplies, besides being tastefully decorated, was most instructive. It included Portland cements of various kinds and qualities, Bakers patent plaster boards, drain pipes, fire bricks, fire clay, calined plaster, patent hard wall plaster, mortar colors, and Crafts cement finishing tools, for which Mr. Bremner has the Canadian agency. The Bakers patent plaster board, the manufacture of which is controlled by Mr. Bremner, consists of plasterboard in sheets ready to apply. The advantages are; no laths are required, the boards are dry, and soaking of timbers is avoided; the finishing coat is thin and dries very quickly, so that the building is ready for the occupancy much sooner than if the regular method of plastering were used.

A well arranged exhibit of builders' supplies was that of the Stinson-Reeb

Builders' Supply Co., Limited, of Montreal. Special attention was drawn to the display of wood fibre plaster now being manufactured at their new plant at St. Henry. Samples of this plaster in different colors were artistically arranged across the back of the booth. Another feature of much interest to builders was the Humphries' Patent Scaffold Bracket, which has met much success in New Zealand, and obviates the necessity of buildings affording up from the street level, besides saving greatly in storage room. Fire proof windows built by A. B. Ormsby, Limited, Toronto, were also shown.

The Montreal Terra Cotta & Lumber Co. showed some excellent samples of terra cotta.

The Laprairie Brick Co. presented something of interest to many in a brick made entirely of shale, solid and capable of resisting the greatest strength tests. In being baked the brick takes on a rich red color, which being natural color, will not fade.

E. F. Dartnell had on view samples of the building supplies which have made his name well known to the builders and contractors of Montreal.

G. A. Morrison, 1244 St. James Street, Montreal, showed "Roman" concrete building stone, "Milton" pressed brick, and "James" fire proof crushed stone of good advantage.

David McGill, Merchants Bank Building, had an attractive exhibit, including Notman acetylene gas generators, and tiles of many kinds.

The Metal Shingle & Siding Co. called special attention to their herring-bone steel lath, a metal substitute for wooden lathing, combining fire proof qualities with lightness and economy of plaster. They also showed some attractive designs in metal work.

The Standard Cement Brick & Stone Co. erected a house built of their well-known "Pyramid" stones. So natural is its finish that, it is reported a quarryman from the States was sure it was natural stone.

The Miles Concrete Building Block Machine was demonstrated by T. A. Chadburn, of 242 St. James Street, the eastern sales agent of the company. Mr. Chadburn also exhibited concrete mixers, cement pressed brick machines, and tile machines built by Wettlaufer Bros. & Sons, of Stratford, Ont.

FLOORING POINTS.

The Eadie-Douglas Co. 22 St. John Street, Montreal, had an attractive booth, and interested many in Terrano, and in the specialties of the Preservative Products Co., New York, for whom they are agents. Terrano is a jointless, elastic, warm, sanitary flooring, which can be executed in a variety of colors and designs, and is especially adapted to hospitals, factories and public buildings. A number of bricks treated with Impervo were shown to demonstrate its waterproofing qualities, and the protection it affords against alkali, acids, alcohols, or oil, when applied to concrete brick, stone, or plaster. Easo water-proofing is another product used especially for protecting ex-

terior surfaces, foundations, etc. Easo steel coating is a preservative of great merit for structural iron and steel, smoke stacks, blast furnaces, being a non-conductor of galvanic or electrical currents, and preventing corrosion from atmospheric conditions and all common acids.

The booth of the Wood-Mosaic Flooring Co. showed pretty possibilities in hardwood mosaic work.

The Canadian Doloment Co., Limited, whose product was described in a recent issue of THE CANADIAN MANUFACTURER, occupied an attractive booth floored with Doloment in different colors, and decorated with palms. A strip of Doloment from the entrance of the rink to the Canadian Doloment Co.'s booth gave every visitor an opportunity to experience the pleasure of walking on this delightfully resilient flooring.

WHERE TO BUILD.

The Mystic Wheel was a device used by the Henry Smith Promotion Co. to call attention to two properties, Northmount and Eastmount. A large drawing of the Canadian Pacific Railway Angus shops, which are near the latter property, was a prominent feature of their decorations.

Charman & Daoust, specialists in vacant lots in Montreal and suburbs, had an inviting booth. Of special interest to manufacturers were a number of factory sites with many advantages on the Lachine Canal, also on the Canadian Pacific Railway main line, near the Angus shops, one of 100,000 square feet in Hochelaga ward, and one of 210,000 square feet on the St. Lawrence.

FOR THE ROOFS AND OUTSIDE.

Messrs. Lockerby & McComb had a neat little bungalow, showing the uses of Shield brand tarred sheathing and dry paper. On the slant roof three-ply ready roofing was shown, applied vertically and horizontally. Inside was a model felt and gravel hopper roof.

The Philip Carey Mfg. Co. exhibited a model showing the application of magnesia flexible cement roofing. Samples of their 85 per cent. magnesia pipe and boiler covering, asbestos paper and cork insulating were also shown.

Alex. McArthur & Co., Limited, exhibited a model showing the different steps in laying two and three ply ready roofing, and also the use of dry and tarred goods in sheathings. In part of the booth were shown rolls of different kinds of felt and paper from the mills at Joliette. An interesting exhibit was a piece of black diamond brand of felt from a roof in use twenty five years.

A feature of the booth of the Island City Paint Co. was a series of panels, finished in early English, Flemish, fumed, light, medium, dark and golden oak, also genuine mahogany, walnut, cherry, and bird's eye maple. An iron border in the background served to show their auto-rust paint for structural iron work. Shingles showed their creosote shingle. A full line of varnishes for all interior and exterior house work, wood fillers, and varnish stains, fresco colors and dry colors were attractively displayed.

The Martin Senour Co.'s exhibit was a neat and tasteful display, quite in harmony with

Paint! Paint! Paint! Leak! Leak! Leak!

There is no reason in the world why you should buy a roof that needs painting.

The need of painting is *proof* of weakness. It is not the *roof* that protects, it's the *paint*. If you forget to put the paint on, or for economical reasons omit doing so, you have a leaky roof; and a leaky roof is always an abomination. Amatite roofing requires absolutely no painting or coating of any kind during its life. This diagram below tells you why.

You will notice that the top layer consists of a *genuine mineral* surface that will last as long as the roof, and not only makes painting unnecessary, but gives an amount of durability that is remarkable. It saves you the *cost* of paint and the *labor* of putting it on.

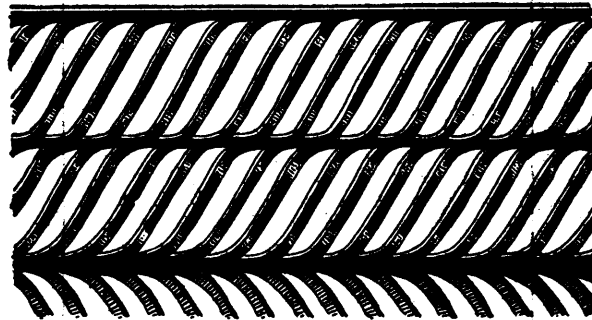
If you want the best, most economical and satisfactory ready roofing made, remember *Amatite*.

FREE SAMPLE—Booklet about it and free sample will be forwarded at once on receipt of your name and address. This is *proof positive* and you should send for it to-day.

Paterson Manufacturing Co., Ltd., Canadian Agents, Toronto, Montreal, Winnipeg, St. John, N.B., Halifax, N.S.



“Herringbone” Lath and the Housing Problem



Almost everywhere in Canada there is a scarcity of houses. The high cost of building materials also keeps down the construction of new dwellings. With many manufacturers the “housing problem” has become a serious one. It is solved by

“HERRINGBONE” LATH AND CEMENT SIDING

It's the cheapest DURABLE construction known.

Is fire-proof and everlasting—warm in winter, cool in summer.

Requires no painting, and is very handsome.

Is quickly erected and will take a variety of finish.

Write us for complete particulars.

THE METAL SHINGLE & SIDING CO., Limited - Preston, Ontario

MONTREAL, Cor. St. Catherine St. and Delorimier Ave.

TORONTO, 100 Esplanade St. East.

the high quality of paints, varnishes, etc. that is placed on the market by the company. Their line of advertisements appealed to up-to-date dealers as business getters and retainers. The booth was in charge of the sales manager, Mr. J. A. Naud, who had a nice souvenir to tender to all visitors.

An instructive feature of the booth of the Standard Paint Co., Limited, was a model roof covered with rubberoid roofing, showing the construction of flashings and gutters entirely of rubberoid, without metalli flashing or gutter work. As has previously been noted in our news columns, the Standard Paint Co. have recently erected an expensive plant at Highlands, Que., to supply the Canadian trade. The satisfaction given by rubberoid was attested by files of letters from well-known firms covering an experience up to fifteen years. An attractive sample book was furnished to visitors. Other features of the exhibit were a complete line of building and insulating papers; P. & B. paints, used extensively for preserving iron and metal work; also the famous P. & B. electrical compounds, insulating tape and armature varnish.

RELATING TO WINDOWS.

The Manufacturers' Agencies Co., Limited, A. & P. Le Marquand, importers of general French products, 319 Craig Street West, Montreal, made a nice exhibit of "Window-phany," which they have introduced into Canada, an imitation of stained glass. It is a transparent paper, in many pretty designs, which is sold at very low prices, that everybody could afford. It is easily put up and makes beautiful windows. They had also a complete line of some of the best designs of "French tiles" for covering floors and walls, at prices that could easily compete with any other make imported into this country.

The Alza Co., Limited, 207 St. James Street, Montreal, interested many visiting architects and builders with their patented window attachment, by which the ordinary English or sliding sash window is quickly and conveniently converted, for the time-being, into a hinged or casement window, allowing both sashes to be swung into the building for cleaning or repairing purposes. The sliding sash principle is not interfered with in any way, and the attachment can be applied easily and at low cost to windows now in use as well as in new work.

The Hodgson Safety Window, of which a full size model was demonstrated by Mr. Thomas Hodgson was shown. By a few simple attachments an ordinary sash is made to revolve so that both sides may easily be cleaned.

Another device of much merit for windows was that of the Window Cleaning Device Co., by which an ordinary sash could be made to swing in for cleaning purposes.

MECHANICAL.

The Canadian Fairbanks Co. showed a McKelvey mixer, which is a radical departure from the usual concrete mixer. The patented dumping device which is a feature of this mixer, is guaranteed to empty the mixer in two revolutions, and eject the last wheelbarrow load of the same consistency as the first. The chain drive eliminates gears and

much attendant trouble. The firm also showed a cement testing apparatus, including the Fairbanks slot type automatic cement testing machine, also Vicat apparatus, sieves, moulds, Gilmour needles, scales, pumps, pulleys, Barret jacks, shovels, etc.

Drummond McCall & Co. showed a sample of "Clyde" wire rope.

The coat of arms for the Bank of Montreal building, cut in natural stone, was exhibited by Dawson & Fils, stone carvers.

The International Steel Co., Limited presented an excellent exhibit of quarry equipment, railway appliances, forgings and builders' ironwork.

The Montreal branch located at 419 St. James Street, of the Dodge Mfg. Co., Limited, Toronto, had a very creditable display of conveying, elevating and power transmitting machinery. The Dodge Mfg. Co. are specialists in the above lines, and were practically the only exhibitors of this line of equipment. Their exhibit included wood pulleys, iron pulleys, hangers, friction clutches and bearings of all kinds. The uniformity of design and quality spoke well of the precision taken in their manufacture. The company carry a very large stock in Montreal, and at all other main distributing centres.

FOR HEATING.

One of the most tasteful and striking exhibits was that of the Dominion Radiator Co., Limited. Forty different designs of the famous Safford radiators, in curves, angles and circles, all heights, with the lowest in front and the highest in the rear, occupied the centre of the booth. In front, behind a fence of radiators, was shown the "Honeywell Heat Generator," connected to the water pressure, a unique feature of the exhibit. On one side was a "Triumph" steam boiler, and opposite a "Safford" hot water heater. A dark green Axminster carpet, Turkish rugs, palms and flowers, tastefully arranged, and a background draped in green and white banners showing the addresses of the various branch houses over the world, made the whole effect unusually attractive.

Warden, King & Son, Limited, had an interesting display of steam fittings and stable fittings, and Daisy hot water heaters.

A number of baby models of the New Star hot water heater, in the booth of the Jean Pacquette Hardware House (also known as the Montreal Plumbers' Supply) aroused a good deal of interest. Full size furnaces were also exhibited, and the advantages of the New Star were clearly shown. Maison Jean Pacquette are the sole agents for Canada. The same firm also showed an attractive display of bathroom and kitchen fixtures, including porcelain basins, and many new ideas in nickel plated articles.

The walls of this booth were covered with a handsome burlap supplied by the Dominion Oil Cloth Co., Limited, Montreal.

Additional brilliance was given to the above booth, as also to that of F. H. Hyde, opposite, by three 500 candle power Empire lights, exhibited by the Empire Light Co., Montreal.

RELATED THINGS.

A booth arranged with many cans of Snap was a suggestion for the man who wants clean hands quick after a greasy day's work.

Many artistic designs of unusual merit in the wall paper line were shown by W. G. R. Brown Co., Montreal, importers and dealers in wall paper.

The necessities of keeping accounts and attending to correspondence were remembered by Jos. Clément and C. C. Skilton of 101 St. Francois Xavier street, who demonstrated the advantages of the Universal Adding Machine, and the Addressograph.

The Armstrong Cork Co. had a very interesting exhibit of their corkboard insulation, making it a special attraction to all those interested in the building of cold storage plants. The back of their booth consisted of cork-board erected to the brick wall of the building, with plaster finish, and the sides of solid corkboard partitions, plastered on both sides.

The Hill Electric Co. might claim the whole rink as their exhibit, since they provided the electric lights, nearly a thousand in number, for the exhibition. Their booth was mostly devoted to the exhibition and demonstration of the Hill Automatic Electric switch, oil switches, power house and line equipments, and electrical specialties.

The W. G. Browne Co., Limited, showed some unusual possibilities of art in wall paper, delighting those who love beauty in interior decorations.

ELECTRICAL ASSOCIATION CONVENTION.

During the time of the big electrical exhibition in Montreal the Canadian Electrical Association will hold its seventeenth annual convention on September 11th, 12th and 13th. The convention room and secretary's office will be in the Assembly Hall of the Canadian Society of Civil Engineers and the information bureau in the Windsor Hotel. It promises to be the greatest and most successful convention yet held by the Electrical Association. The papers to be read are of a high order and will be of particular interest and the entertainment programme promises to eclipse anything heretofore attempted.

INDUCED DRAFT IN THE BOILER HOUSE.

In a paper by an English author, on "Notes on the Application of Induced Draft," reference was made to one case in particular of five boilers fitted with steam jets, which resulted in a coal consumption of 27.3 pounds of coal per square foot of grate, the evaporation from and at 212 degrees being 9.8 pounds of water per pound of coal, with a temperature of the economizer water of 166 degrees. With induced draft the results obtained were as follows: Coal consumption per square foot of grate, 25.4 pounds; evaporation of water, 10.2 pounds per pound of coal; and temperature of economizer water, 259 degrees. Taking measurements of the electrical output of the plant, it was found that, using the steam jets, for each unit of electricity, 3.6 pounds of coal and 30 pounds of water were consumed. With induced draft the results were 3.1 pounds of coal and 28 pounds of water per unit of current. In this case 1,800 gallons of water were simply evaporated for use by the steam jets. The net saving in this case worked out at 14 1/2 per cent.

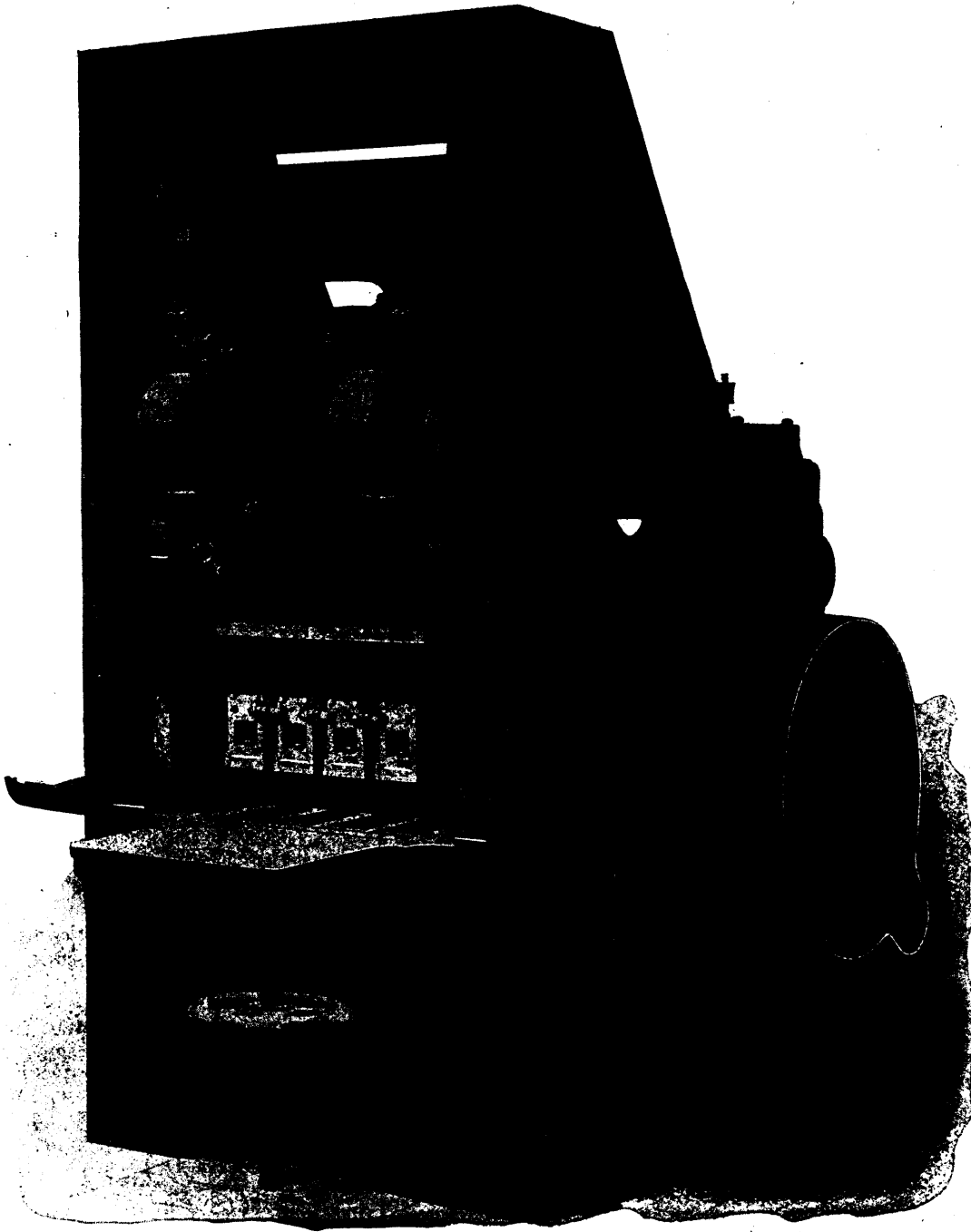
What's
in a
Name

SIMPLICITY
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ACCESS
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CREATES
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PRODUCT



IMPROVED BERG BRICK PRESS.

The BERG is built for quality, for simplicity and for strength.



The BERG is built for work; long work; hard work; steady work—and it never fails to do its work, day after day, year after year.



The Berg saves the most time and saves the most labor—and it makes the most money for the brick manufacturers.

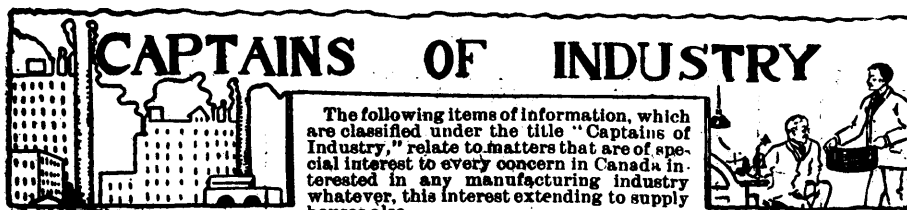


Correspondence invited.

Manufactured by its inventor in Toronto, Canada, exclusively.
Equipment for Pressed Brick Plants to make Sand Lime Brick, Sand Cement Brick, Shale Brick, Clay Brick and Fire Brick.

A. Berg & Sons, Manning Chambers
TORONTO CANADA

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.



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

The Lash Steel Process Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture iron, steel, etc. The provisional directors include J. A. Macintosh, J. G. Adair, and J. A. Gibson, Toronto.

The contract has been let for the electrical machinery that will be installed for the development of the Galetta power. The equipment will consist of a 500 h.p. dynamo with a ten mile 11,000 volt transmission line. The line will run from Galetta to Arnprior, Ont., and will have controlling apparatus at each end with a sub-station equipment at Arnprior. The cost will be about \$50,000. Among those interested in the project are Mr. Moran and Mr. D. McCuan, Arnprior, and Mr. Brennan, Sand Point.

The Ryan Storm Canopy Co., Sault Ste. Marie, Ont., desire to locate in Western Ontario, and ask a free site and a loan of \$15,000 for two years.

H. New, Hamilton, Ont., will form a company and manufacture vitrified brick and other materials. A modern plant will be erected.

A Presbyterian church will be erected at Finch, Ont.

A large school house will be erected at Haileybury, Ont.

The Robert Crean Co., Toronto, will erect a warehouse at a cost of about \$10,500.

Messrs. Gates & Carpenter, Salt Lake City, purpose erecting a large smelter in Haileybury, Ont., at a cost of about \$6,000,000.

H. Proctor and C. W. Hughes, Toronto, have formed a contracting firm in Fort William, Ont. They will construct all classes of cement work.

A waterworks system will be installed in Hintonburg, Ont., at a cost of about \$10,000.

A town hall and public library will be erected at Hanover, Ont., at a cost of about \$23,000.

The ratepayers of Wellington, Ont., will vote on a by-law to raise \$1,000 for sidewalk construction.

The Brantford Linen Mfg. Co., Brantford, Ont., will transfer their plant to Tillsburg, Ont.

The factory of the Norwich Broom Co., Norwich, Ont., was destroyed by fire August 14. Loss about \$20,000.

Dr. Waugh and E. S. Sudard, Kingston, Ont., have purchased a plant for the manufacture of cement blocks. They will commence operations at once.

The Roman Catholic Church, Sharbot Lake, Ont., which was destroyed by fire last spring, will be rebuilt.

The Rogers Mfg. Co., Kansas City, Mo., will erect a factory at Strathroy, Ont., and will manufacture malleable iron and journal boxes.

The plants of the Dominion Lumber Co., Moore & McDonald, Moulthrop Lumber Co.,

Hope Lumber Co., Morgan Lumber Co., and the White Pine Lumber Co., Blind River, near Sault Ste. Marie, Ont., were destroyed by fire August 15, loss about \$150,000.

A dry dock large enough to accommodate the largest lake steamers will be built at Port Dalhousie, Ont.

The Canadian Machine Telephone Co., Brantford, Ont., have purchased a site and will erect a fire proof office building to locate the central office of their automatic plant.

Pride of Cobalt Silver Mines, Limited, Toronto, have been incorporated with a capital of \$5,000,000, to carry on a mining, milling and reduction business. The provisional directors include H. R. Frankland, A. C. Neff and H. C. Hocken, Toronto.

The Hartleib Block, Dashwood, Ont., was destroyed by fire recently.

The planing mill of Geo. Wood & Son, Dundalk, Ont., was destroyed by fire August 18. Loss about \$6,000.

The Wettlaufer-Cobalt Mining Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include C. E. Wettlaufer, Buffalo, N.Y., F. E. Calverley, and F. B. Mosure, Cobalt, Ont.

The Library Bureau Co. of Canada, whose extensive plant was destroyed by fire, will not rebuild in New Edinburgh, Ont. They have purchased property in Ottawa for the sum of \$30,000, and no time will be lost in installing machinery and re-establishing the industry.

Johnson Mines, Limited, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. Rogers, J. D. Todd, and W. Pinkerton, Toronto.

A large part of the town of Neustadt, Ont., including the premises of the Bank of Hamilton and the furniture warehouses of John Hammer, were destroyed by fire August 16. Loss about \$5,000.

The city of Ottawa will construct a three-million gallon reservoir in the Bayswater Annex, near the experimental farm, at a cost of \$150,000.

The Ragged Falls Mining Co., Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. W. McKay, F. E. Rosser and N. J. Lander, Toronto.

A large part of the village of Janeville, near Ottawa, Ont., was destroyed by fire August 15. Loss about \$9,000.

The name of the Peterborough Boiler & Radiator Co., Hastings, Ont., has been changed to the Canadian Boiler & Radiator Co., Limited. The office headquarters of this concern will be in Toronto, while the factory will remain at Hastings.

The Dominion Telephone Mfg. Co., Toronto, have been incorporated with a capital of \$250,000, to manufacture telephones, electrical apparatus, machines, tools, etc. The provisional directors include H. G. Meir, H. H. Phillips, and A. J. Savage, Toronto.

Messrs. Richardson Bond & Wright, Owen Sound, Ont., have been incorporated with a capital of \$40,000, to carry on a printing and publishing business. The provisional directors include J. A. Richardson, A. Bond and J. F. McCallum, Owen Sound, Ont.

A new Y.M.C.A. building will be erected at Kenora, Ont. \$30,000 has been granted by the Canadian Pacific Railway Co., towards its erection.

The Niagara Falls Canning Co., Niagara Falls, Ont., have been incorporated with a capital of \$60,000, to carry on a preserving and canning business. The provisional directors include G. P. Boulter, Hamilton, Ont., F. W. Griffiths, and W. H. McGuire, Niagara Falls, Ont.

The ratepayers of Aylmer, Ont., have decided to grant to the Canadian Condensed Milk Co. a loan of \$10,000 repayable in thirty annual instalments, a free site for a factory and exemption of taxes for ten years. The company agree to erect a plant valued at \$50,000 and purchase \$25,000 worth of milk a month from the farmers.

Midas Mines, Limited, Toronto, have been incorporated with a capital of \$1,000,000, to carry on a mining, milling and reduction business. The provisional directors include G. A. McKay, J. Firstbrook and J. H. Lumbers, Toronto.

The plant, shaft buildings and blacksmith shop of the Stellar Cobalt Mine, Bucke Township, Ont., were destroyed by fire recently. Loss about \$5,000.

One of the transformer houses of the Ontario Power & Fuel Co., Welland, Ont., was destroyed by fire August 23.

The Capital Chemical Co. of Canada, Ottawa, have been incorporated with a capital of \$10,000, to manufacture drugs, chemicals, oils, alcohol, dye stuffs, etc. The provisional directors include R. E. Pineo, J. L. Rochester and W. J. Graham, Ottawa.

Ore that will make Bessemer steel has been found in the Mackenzie & Mann mines at Atikokan, near Port Arthur.

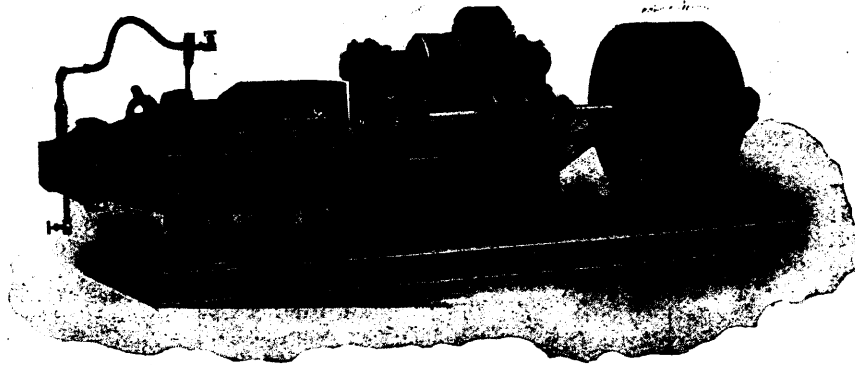
The Woods Improved Cushion Tires, Toronto, have been incorporated with a capital of \$50,000, to manufacture wheels, tires, etc. The provisional directors include C. M. Colquhoun and H. E. Irwin, Toronto.

Messrs. Hall & Holcomb, Ottawa, have been incorporated with a capital of \$25,000, to manufacture cement, brick, stone, lumber, timber, etc. The provisional directors include J. H. Hall, R. T. Holcomb and G. P. Harris, Ottawa.

A new Roman Catholic church, 130x65 feet is being erected at Moose Creek, Ont., at a cost of about \$40,000.

A by-law will be submitted to the ratepayers of Hamilton, Ont., to raise \$50,000 for waterworks pumps.

The large smelter of the Ontario Electric Smelting & Refining Co., Newark, N.J., will be removed to Ottawa and the capacity

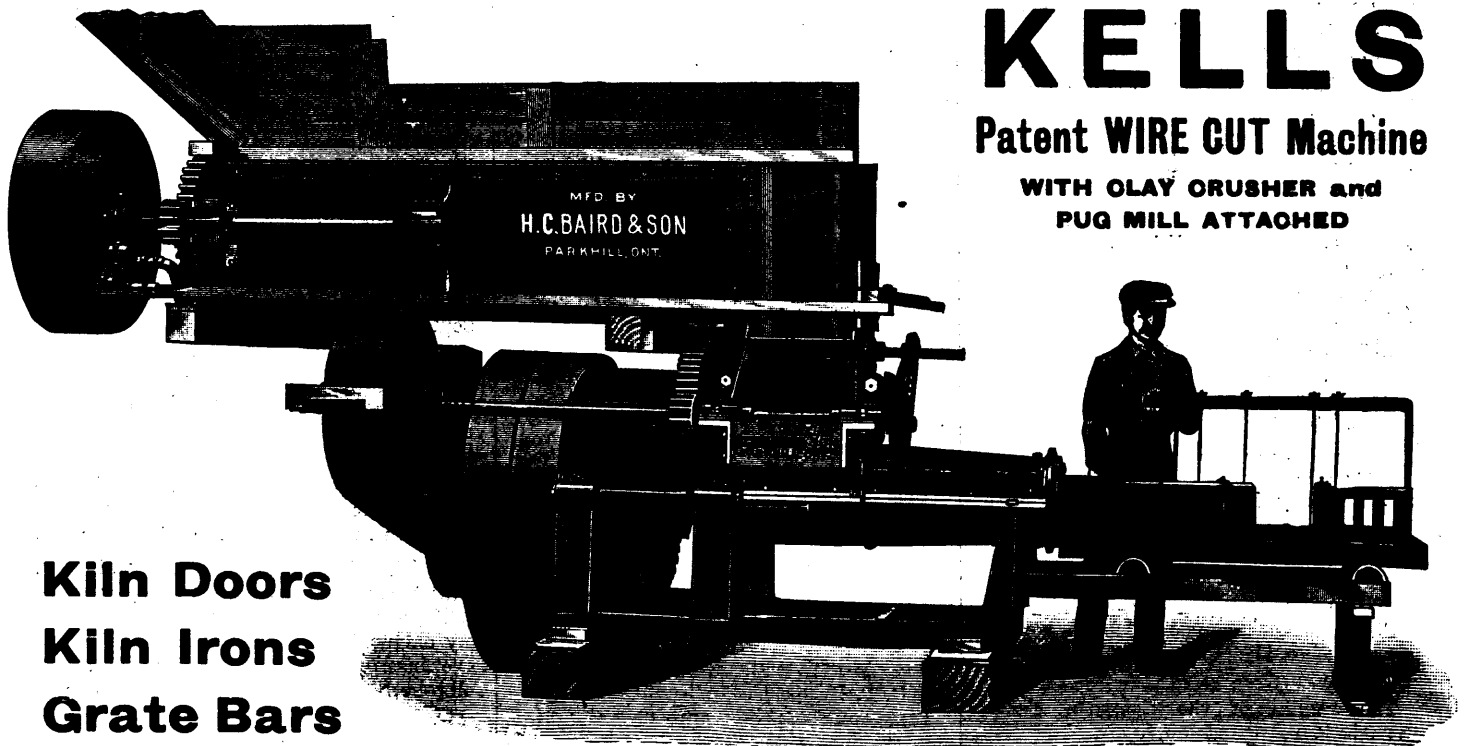


No. 555 BRICK MACHINE

This machine embodies the best ideas in the construction of Brick Machinery. Its capacity is large, only a question of the power you put behind. Without doubt this is the *STRONGEST* and *MOST SERVICEABLE BRICK MACHINE BUILT IN THE DOMINION*. It is also adapted to the manufacture of tile, fire proofing, conduits, and hollow blocks.

We install COMPLETE CLAY WORKING PLANTS. Let us send you our NEW CATALOGUE

BECHTELS, LIMITED, Waterloo, Ont., Can.



KELLS

Patent WIRE CUT Machine

WITH CLAY CRUSHER and PUG MILL ATTACHED

**Kiln Doors
Kiln Irons
Grate Bars**

FULL LINE OF BRICK AND TILE MAKING MACHINERY AND YARD SUPPLIES OF ALL KINDS

H. C. BAIRD, SON & CO., Limited, Parkhill, Ont.

doubled. The company are capitalized at \$2,000,000, and the plant will cost \$1,000,000.

The congregation of St. Andrew's Presbyterian Church, Fort William, Ont., will erect a new edifice at a cost of about \$946,500.

The congregation of Annette Street Methodist Church, Toronto Junction, Ont., will erect a new church building at a cost of about \$50,000.

The Silica Barytic Stone Co., Ingersoll, Ont., have been awarded the contract for the laying of cement sidewalks in Brantford, Ont. The contract calls for the laying of 50,000 square feet, the price being 11½ cents per square foot.

The township of Crowland, Ont., voted favorably on a by-law August 30, to fix the assessment of the Bemis Bag Co., a United States concern, for twenty years at \$20,000. The company have secured 86 acres adjoining the town of Welland, Ont., and will begin immediately the erection of a plant to cost \$1,500,000. Building operations will extend over three years.

The Port Stanley Elevator Co., Port Stanley, Ont., have been incorporated with a capital of \$1,000,000, and will erect elevators in Winnipeg, Fort William and other places, as well as materially enlarge the present elevator at Port Stanley. The purpose is to handle all grains for the Erie mills, St. Thomas Tilson mills, Tilsonburg and Goldie mills, Ayr, by boat to Port Stanley.

The congregation of the Methodist Church Finch, Ont., are erecting a new edifice.

The Cataract Power Co. have been awarded the contract for supplying power to Brantford, Ont.

The Bell Telephone Co. have installed a metallic line from Tara to Owen Sound, Ont.

According to the estimate of T. W. Sothmen, chief engineer of the Hydro-Electric Commission, it would cost \$121,000 to install a municipal lighting plant in Hamilton, Ont.

The steel dock of the Canadian Northern Railway Co. at Port Arthur, Ont., has been completed.

An extension will be made to the sheds of the Canadian Pacific Railway Co. at Toronto.

The new plant of the Hespeler Hoisting Machinery Co., Hespeler, Ont., will soon be in operation.

It is stated that the power capable of being developed at Kakabeka Falls, Ont., is 100,000 h.p.

The Stoney Lake Navigation Co., Peterboro, Ont., will build a new boat.

The electric plant on the Wabi River will soon be in operation, supplying power to New Liskeard, Ont.

The Canadian Pneumatic Tool Co., Ottawa, have replaced their producer gas plant with electric motors.

The capital of the Canadian General Electric Co., Peterboro, Ont., has been increased to \$8,000,000.

The Copeland-Catterson Co., Toronto, will take over the entire business of the Elliott-Fisher Billing Machine Co. for the Dominion.

The Bank of Commerce will erect a branch building on Yonge, opposite College Street, Toronto.

The plant of the Algoma Steel Co., Sault Ste. Marie, Ont., has been shut down on account of the lack of ore and the need of repairs.

The Grand Trunk Railway Co. will commence immediately the construction of their line from Kingston to Ottawa, Ont.

The saw mill of Kennedy & Davis, Lindsay, Ont., which was entirely destroyed by fire some months ago, is to be replaced by a modern two story brick building 72 x 60 feet. The business in the future, however, will be practically owned by Mr. Kennedy, the Messrs. Davis having withdrawn.

The Dominion District Steam Heating Co. Berlin, Ont., are installing four Jones underfeed mechanical stokers.

The Hocken Lumber Co., Falding, Ont., have been incorporated with a capital of \$50,000, to manufacture lumber, timber, etc. The provisional directors include J. C. Slater, Waterdown, Ont., and N. C. Hocken, Foley Township, Ont.

The hydraulic plant now in process of construction at the International Falls, on Rainy River, near Fort Frances, Ont., under superintendence of J. T. Fanning, American civil engineer, is now well advanced.

M. B. Perine & Co., have taken over the business of the Doon Twine & Cordage Co., Doon, Ont., and will improve the plant at a cost of about \$55,000.

The Perth County Council, Ont., will improve 210 miles of roads at a cost of \$226,000.

The Berlin Leatherette Co., Berlin, Ont., have been incorporated with a capital of \$40,000, to manufacture artificial leather, etc. The provisional directors include S. W. Hanna, C. N. Huether and M. M. Bricker, Berlin, Ont.

The Canadian Paper Bottle Co., Toronto, have been incorporated with a capital of \$125,000 to manufacture paper, pulp, etc. The provisional directors include H. W. Murray, G. M. Kelly, Toronto, and H. R. Heyl, Philadelphia, Pa.

The Jenks Dresser Co., Sarnia, Ont., have been incorporated with a capital of \$50,000, to manufacture iron and steel bridges, boilers, engines, rails, vessels, etc. The provisional directors include H. Manning, Sarnia, Ont., W. G. Jenks and A. A. Dresser, Port Huron, Mich.

Six Government dredges are at work deepening the harbor at Fort William, Ont.

The Woodstock & Ingersoll Electric Railway Co. and the Brantford Street Railway Co. will amalgamate.

The Dominion Oil Co., Hamilton, Ont., have been incorporated with a capital of \$100,000, to manufacture salt, petroleum, oil, gas, etc. The provisional directors include W. M. McClelland, H. H. Bicknell and D. P. Kappelle, Hamilton, Ont.

Canadian Condensed Milk Co., Hamilton, Ont., have been incorporated with a capital of \$150,000, to manufacture condensed milks, prepared foods, cans, boxes, jars, etc. The provisional directors include D. Marshall, Aylmer, Ont., R. L. Innis, Hamilton, Ont., and W. T. Parke, Woodstock, Ont.

The Keystone Lorrain Mining Co., Haileybury, Ont., have been incorporated with a capital of \$1,000,000, to carry on a mining,

milling and reduction business. The provisional directors include E. J. DuMee, G. T. Armitage and G. G. Thomson, Philadelphia, Pa.

The Bottle Exchange Co., Toronto, have been incorporated with a capital of \$20,000, to manufacture bottles, cans, etc. The provisional directors include J. H. Lock, A. Anderson and V. E. Vansant, Toronto.

The Wiarton Steamboat Co., Wiarton, Ont., have been incorporated with a capital of \$20,000, to build vessels, ships, scows, boilers, machinery, etc. The provisional directors include J. W. S. Rutherford, T. C. Allan, and J. J. Acres, Wiarton, Ont.

The Benson Lumber Truck Co., Port Arthur, Ont., have been incorporated with a capital of \$20,000, to manufacture lumber, machinery, wagons, trucks, etc. The provisional directors include G. S. Clark, J. H. Keefer, Port Arthur, Ont., and A. W. Benson, Minneapolis, Minn.

The Toronto Bolt & Forging Co., Swansea, Ont., will erect a plant at their present works at a cost of about \$30,000.

The Delaware Seamless Tube Co., Reading, Pa., are negotiating to erect a plant at Sarnia, Ont., at a cost of about \$200,000.

A police station will be erected on Queen Street, Toronto, at a cost of about \$25,000.

An electric light system will be installed in Pelham, Ont.

The Hamilton Steel & Iron Co., Hamilton, Ont., have been incorporated with a capital of \$5,000,000, to manufacture ores, minerals, steel, iron, etc. The provisional directors include C. E. Doolittle, J. Milne and R. Hobson, Hamilton, Ont.

The Dominion Nickel Copper Co., Toronto, have been incorporated with a capital of \$10,000,000, to carry on a mining, milling and reduction business. The provisional directors include J. H. Spence, C. E. H. Freeman and L. M. Heal, Toronto.

The Federal Government have decided to enlarge the arsenal at Quebec City. The new building will be three stories, 98x60 feet.

No. 3 wheel house of the Hamilton Powder Co., Windsor Mills, Que., blew up August 14, during a severe thunderstorm. Loss about \$500.

A new agricultural school will be established at Oka, Que.

The ratepayers of St. Felicien, Que., will vote on a by-law for a municipal telephone system.

Brandram-Henderson, Limited, will install two Jones underfeed stokers in their new white lead works at Mile End, Quebec.

The Phoenix Bridge & Iron Co., Limited, Montreal, are erecting a steel frame addition 100x80 feet to the shop, and have considerably enlarged their yard room. The offices have been moved from 6 Shannon to 83 Colborne Street.

Mr. Charles Brandeis, consulting engineer for the provincial government is preparing plans for the electric equipment of the new common jail to be erected at Bordeaux, Que.

The Montreal Union Abattoir Co., Montreal, are building a new slaughter house and cooler with a capacity of 2,800 cattle and 3,500 small stock a week. The building will be three stories and basement, 350x100 feet,

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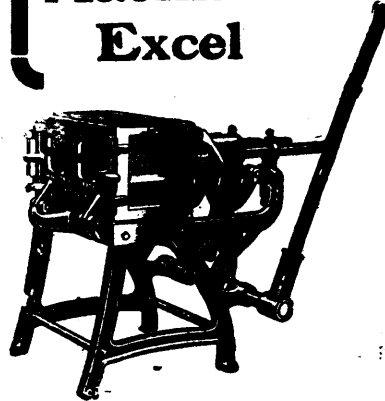
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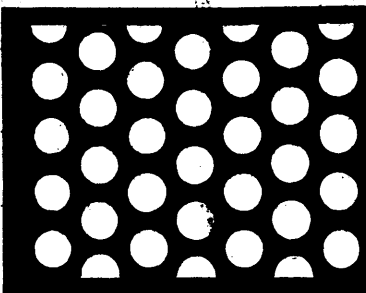
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of concrete steel construction, modern in every way and is to be completed by January. The cost will be about \$150,000. Shearer, Brown & Wills, Limited, are the contractors.

Messrs. H. C. Baird, Son & Co., Parkhill, Ont., are sending to Leonard & Levoye, Acton Vale, Que., a large "Monarch" brick machine with clay crusher and other equipment.

Up to the present time the amount expended on the aqueduct system at Levis, Que., reaches \$395,000. The amount authorized for the work was \$500,000.

A waterworks system will be installed in Notre Dame de Quebec, Que.

Messrs. Wells, Kaine & Co., Grand Bay, Que., will establish an excelsior factory.

The Saraguay Electric Light & Power Co., Montreal, are constructing a high tension transmission line from Cartierville to Notre Dame De Grace, a distance of about 8 miles. The line will be three phase 11,500 volts, supported by triple petticoat porcelain insulators mounted on steel pins with porcelain base. Charles Brandeis, C.E., of Montreal, is the consulting engineer for the company.

The King Electric Works, Limited, Montreal, have bought the plant and business of the Crescent Electric Co., manufacturers of electric lighting fixtures at 8 Chenneville Street, Montreal.

The Natural Gas Supplies Co., Limited, 22 St. John St., Montreal, whose incorporation was announced in the last issue, will operate in the district supplied by the Canadian Gas & Oil Co., who are exploiting the natural gas fields back of Three Rivers. The Natural Gas Supplies Co. will connect mains and put in gas fixtures, stoves, etc. They have secured the agency for the American Beauty Gas Stove and would like to hear from other manufacturers of natural gas supplies.

The Alliance Mfg. Co., Limited, Montreal, have just completed an addition to their building at 15 Clarke Street, making it 90x55 feet, four stories. A new Armstrong engine and a Leonard boiler have been installed, also many new machines of the latest design for shirt manufacturing. This company was formed last spring to carry on the amalgamated business of James A. McGee, Montreal, and of York & Fisher, of Valleyfield. The undershirt department at Valleyfield, has since been moved to Montreal.

The John L. Cassidy Co., Limited, Montreal, are adding two stories to their china warehouse on St. Paul Street. The building is also being strengthened. The elevators will be enclosed.

The St. Lawrence Sporting Goods Co., Limited, are fitting up the premises at 102 Notre Dame Street west, Montreal, for wholesale business. They will manufacture a number of lines of sporting goods later.

Montfort Granite, Limited, Montreal, have been incorporated with a capital of \$200,000, to carry on a mining business. The charter members include A. S. Hamelin, R. T. Leclerc and A. Archambault, Montreal.

Messrs. Dawes & Co., Lachine, Que., have been incorporated with a capital of \$600,000, to manufacture ales, porters, malts, etc. The charter members include A. J. Dawes, N. J. Dawes, and W. O. Ryde, Lachine, Que.

The Opatatca Mining Co., Montreal, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The charter members include J. M. Mitchell, J. R. Beaudry and G. E. Beauchamp, Montreal.

The ratepayers of Tetreauville, Que., will vote on a by-law to raise \$15,000 for the establishment of a waterworks system.

A line of railway has been opened between Three Rivers and Shawinigan, Que., which will be continued up the Maurice Valley.

E. & T. Fairbanks & Co., Sherbrooke, Que., have been incorporated with a capital of \$150,000, to manufacture scales, weighing instruments, machinery, implements, etc. The charter members include C. W. Cote, Sherbrooke, Que., C. C. Clark and P. F. Hazen, St. Johnsbury, Vt.

The Canada Bronze Co., Limited, Montreal, are building an addition to their offices.

The Underfeed Stoker Co., Limited, Montreal, have recently received orders for Jones underfeed stokers from the following firms: The Cosmos Cotton Co., Yarmouth, N.S., four; the Granby Rubber Co., Granby, Que., one; the Canadian Rubber Co., Montreal, one; the Canadian Pacific Railway, Montreal, one (4th order); the Chambers Electric Light & Power Co., Truro, N.S., one (3rd order); the Dominion Bridge Co., Lachine, Que., four (2nd order); Flett-Lowndes & Co., Toronto, one (2nd order); O'Keefe Brewing Co., Toronto, two; Dominion Brewing Co., Toronto, one; Williams, Greene & Rome, Berlin, Ont.; Gordon, Ironside & Fares, Winnipeg, Man., three; City of Moose Jaw, Saskatchewan, four; Crow's Nest Pass Coal Co., Coal Creek, B.C., one.

The pulp mill of the Partington Co., Union Point, Fairville, N.B., was damaged by fire August 23. Loss about \$5,000.

The sawmill and wood working factory of J. H. Simonson, Spragues Mills, N.B., were destroyed by fire recently. Loss about \$10,000.

A fish hatchery will be erected at Newcastle, N.B., at a cost of about \$5,000.

The cigar factory of A. & I. Isaac, St. John, N.B., was damaged by fire August 14. Loss about \$4,000.

The new Seaman's Institute at St. John, N.B., will cost about \$15,000.

The Miramichi Lumber Co. are negotiating for the purchase of the Clark Spool Mill, Newcastle, N.B.

A bridge will be erected across the St. John river between Bath and Wicklow, N.B.

The Canada Woodenware Co. formerly of Hampton, N.S., are considering a proposition to locate at Halifax, N.S.

The Sable Lumber Co, Liverpool, N.S., will build a six mile line of railway from Lake Wilkins Siding to join Tidney Lake, and contemplate tapping the H. & S. W. line.

The Federal Government have purchased the Cunard wharf, Halifax, N.S., and will erect modern warehouses on the site.

The ratepayers of Summerside, P.E.I., voted favorably on a by-law to extend the waterworks and sewerage systems.

The contract for the new armouries at Brandon, Man., to cost \$50,000, have been awarded to Demas & Lachance, Ottawa.

A sanitarium may be erected at Ninette, Man.

The Brandon Mfg. Co., Brandon, Man., will erect a factory at a cost of about \$2,000.

The Hanbury Mfg. Co., Brandon, Man., will erect a new factory at a cost of about \$4,500.

St. Boniface and Winnipeg, Man., have arranged an agreement regarding the erection of a bridge over the Red River at McDermot Avenue.

The Canadian Pacific Railway Co. will erect a new roundhouse at Dauphin, Man.

E. L. Drewry, Winnipeg, Man., will extend his large plant at a cost of about \$50,000.

A new Anglican church will be erected at Elmwood, Man., at a cost of about \$5,000.

The ratepayers of Cornwallis, Man., are petitioning for a municipal telephone system.

The West Canada Publishing Co., Winnipeg, Man., have been incorporated with a capital of \$40,000, to carry on a printing and publishing business. The provisional directors include M. Dalton, A. J. Hilger and T. J. Murray, Winnipeg, Man.

Wine & Spirit Vaults, Limited, Winnipeg, Man., have been incorporated with a capital of \$300,000, to manufacture mineral waters, etc. The provisional directors include G. F. Galt, J. Galt, and W. Jackson, Winnipeg, Man.

A new wing will be erected to the civic hospital building, Brandon, Man.

The Winnipeg Casket Co., Winnipeg, Man., are erecting a new factory at a cost of about \$40,000.

The Winnipeg Metal Culvert Co., Winnipeg, Man., have been incorporated with a capital of \$50,000, to manufacture galvanized metal corrugated culverts, etc. The provisional directors include W. H. Hamilton, W. A. Hamilton, Winnipeg, Man., and J. T. Wiggins, Oxbow, Sask.

The warehouse of Messrs. S. Hill & Son, Saskatoon, Sask., was destroyed by fire August 15. Loss about \$15,000.

The business section of the town of Oxbow, Sask., including the Palace Hotel, was destroyed by fire August 14. Loss about \$175,000.

Two additional elevators are to be erected at Leavings, Alta.

A new elevator will be erected in connection with the flour mill at Didsbury, Alta.

Work has been commenced on the tunnel for the Calgary Power & Transmission Co., Calgary, Alta.

An electric power plant is being considered for Medicine Hat, Alta., to operate the Canadian Pacific Railway works and the pusher engines.

The ratepayers of Medicine Hat, Alta., will vote on a by-law to raise \$10,000 for an isolation hospital.

The Bank of Hamilton are establishing a branch in St. Albert, Alta.

A city hall will be erected at High River, Alta.

The ratepayers of Battleford, Sask., will vote on a by-law to raise \$10,000 for a bonus to the Battleford Milling & Elevator Co.

The capital stock of the Great West Furniture Co., Saskatoon, Sask., has been increased to \$100,000.

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Work has been commenced on the construction of the new Canadian Pacific Railway depot at Saskatoon, Sask.

A. P. Burns, Medicine Hat, Alta., is adding another building 40x20 feet to his planing mill. A lot of new machinery, including a sandpapering machine, a planer, a shaper, a tenoning machine and a mortiser, will be installed.

An Oddfellow's Hall will be erected at Strathcona, Alta., at a cost of about \$30,000.

The City Council, Prince Albert, Alta., have ordered a new ferry.

Deposits of ochre have been discovered near Saskatoon, Sask.

The Mount Royal Milling & Grain Co., Victoria, B.C., have installed a 75 h.p. Allis-Chalmers-Buller induction motor to operate their large rice mills.

F. A. Walker, Victoria, B.C., states that eighteen small bridges will be erected in that city this season. One of the largest of these is the steel bridge over Beaver Creek.

The Canadian Pacific Railway Co. are considering the erection of a station, freight and oil house at Kamloops, B.C.

The Canadian Pacific Railway Co. have decided to construct a line from Kamloops B.C., to Edmonton, Alta., via the north Thompson river.

The B. C. Electric Railway Co. will supply Ladner, B.C. with light. The power is generated at Lake Buntzen.

The Anglican parish of St. Alban's, Burnaby, B.C., will erect a church at a cost of about \$2,000.

A provincial asylum will be erected at Coquitlam, B.C., at a cost of about \$200,000.

The city of Revelstoke, B.C., is calling for tenders for a 500 h.p. electric plant to be run by a producer gas engine.

T. Shadforth, ironmaster of the Newcastle-on-Tyne, and one of the organizers of the North Pacific Iron & Steel Corporation, is in Vancouver arranging for the amalgamation of the coal and iron interests preparatory to the erection of modern steel works. These will make steel of all grades, including steel rails, and ship plate, with a big ship building plant. The initial capital will be realized in British Columbia and the greater amount in Manchester and London. The company will be registered for \$15,000,000.

The smelter of the Granby Mining Co., Grand Forks, B.C., will be enlarged to handle five thousand tons daily, making it the third largest plant in the world.

A large blast iron furnace for the manufacture of iron and steel will be constructed near Kootenay Landing, B.C. The owners of the property include Sir Thomas Shaughnessy, and Chas. Hosmer, Montreal.

The Red Cliff Lumber Co., Duluth, have purchased thirty thousand acres of timber lands on the west coast of British Columbia and will erect a large sawmill at Alberni, B.C.

The Consolidated Mining & Smelting Company of Canada, have purchased the property, mining claims and assets of the Phoenix Amalgamated Copper Mines, Limited, located at Phoenix, B.C., which includes the following claims, War Eagle, Red Rock, Dandy, Dany Fraction, Pinhook, Lulu, World's Fair, Missing Link and Bald Eagle. The company have also purchased the Keystone.

R. T. Godman, Vancouver, B.C., will erect a mill between Point Atkinson and the Narrows.

The Adams River Lumber Co., Shuswap, B.C., will erect a large sawmill on little Shuswap Lake.

The North American Timber Co., St. Paul, Minn., will erect six large sawmills in British Columbia.

The shingle mill of the Valley Shingle Co., Padden, B.C., was destroyed by fire recently. Loss about \$7,000.

Messrs. McDonald, Wilson & Snyder, Victoria, B.C., have been awarded the contract for erecting the new courthouse in that city. It will cost about \$400,000.

The congregation of St. Alban's Church, New Westminster, B.C., will erect a large church.

A water system is being installed in the Snowshoe Mine, B.C.

The Otis-Fensom Elevator Co., Toronto, will erect a branch factory at Vancouver, B.C., at a cost of about \$35,000.

The Ladysmith Lumber Co. will erect a sawmill near Nanaimo, B.C., to cut 35,000 feet of lumber per day.

A municipal telephone system is being considered for Nelson, B.C.

The new college which will be erected at Point Grey, B.C., will cost about \$100,000.

The British Columbia Permanent Loan & Savings Co. will erect an office building in New Westminster, B.C., at a cost of about \$40,000.

The International Turpentine Co. will install a plant in New Westminster, B.C., at a cost of about \$30,000.

A mission school will be erected at Kitimaat, B.C., at a cost of about \$25,000.

A waterworks system will be installed in South Vancouver, B.C.

The Imperial Shingle Co., New Westminster, B.C., have installed a new drag saw rig at the mill for the purpose of cutting up cedar logs into shingle bolts. They are running at present under double shift, turning out about 170,000 shingles per day.

The Wood-McNab Lumber Co. will erect a sawmill near Fernie, B.C. The mill will be the most modern that can be installed, cutting about 45,000 feet per day, and with the most improved facilities for planing, dressing and finishing the product.

The Crow's Nest Coal Co., Fernie, B.C., will develop their mines at a cost of about \$1,250,000.

NEW CHAIN FACTORY.

The Standard Chain Co. of Canada, Limited, have recently started the erection of a large plant for the manufacture of chain at Sarnia, Ont., having secured of the old Indian reservation five acres of ground, situated between the Pere Marquette Railroad and the St. Clair River. A large force is now at work in the erection of this plant. We understand that the foundations and office building have been completed and considerable progress made in the erection of the main building. The main building is being built of brick and concrete and is

250 feet long by 44 feet wide. The power plant is in a separate building, 50x35 feet, built of the same material, with a large and commodious office. The power will be supplied by a 150 h.p. boiler and a 125 h.p. engine, and furnished by Messrs. E. Leonard & Sons, of London, Ont. The large dock is being erected by Messrs. John Gibb & Son, of Wallaeburg. The dock will be 152 feet long and extend out to deep water channel so that vessels of large capacity can dock there. Except for the special machinery the entire equipment is being installed by Canadian manufacturers. It is anticipated that the plant will be in full operation about the middle of October.

HOW TO TEST A TYPEWRITER.

Always look one over well before buying or renting.

The first test which a stenographer makes of a new typewriter is to ascertain whether all the keys work and whether the types are all perfect or not.

The sentence "The quick brown fox jumps over the lazy dog" is the one which is usually used, for it contains every letter of the alphabet. Many use "Now is the time for every good man to come to the aid of his country." But this one is not so good, for four or five letters are missing.

After punching out the test sentence on the small letters, it should be repeated using the capital letters. Then the figures should be punched in rotation, for they are often inaccurate.

The most vulnerable points in a typewriter are the keys and types; with a little use they are apt to fly off, and it is highly important to ascertain that these are all securely affixed.

Another point is the action. If the typewriter does not have a free and easy movement you are certain to have trouble with it.

In buying a second hand machine or in renting, always look carefully at the types, for usually they are worn uneven from use or have been jarred slightly out of place. If two or three types are inaccurate they will ruin the whole appearance of the typewritten sheet.

It has been found by many large firms that the renting of machines is much cheaper than the owning of them. A typewriter needs constant attention and repairs; usually the renting company includes the repairing in the rental contract, and that is where the saving comes in.

A typewriter is as delicate as a watch. Never attempt to repair a break yourself; it will probably evolve into a series of complications which will make it a costly repair job.

Always keep the machine clean; the work will be neater and cleaner if the machine is clean and well oiled, and the life of the typewriter depends directly upon the cleaning and oiling.

E. D. Arnaud, Canadian Trade Agent in Newfoundland, has reported to the Department of Trade and Commerce that a new bank, National Bank of Newfoundland, is to be established at St. John's with a capital of \$2,000,000. The Colonial Government intends to do all Government business with this bank.

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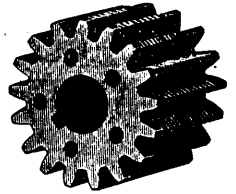
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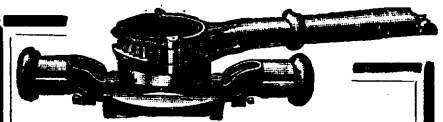
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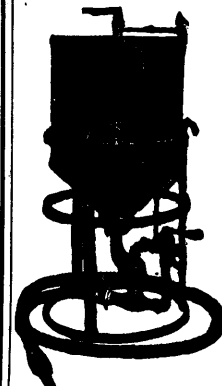
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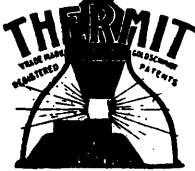
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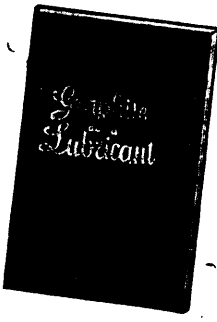
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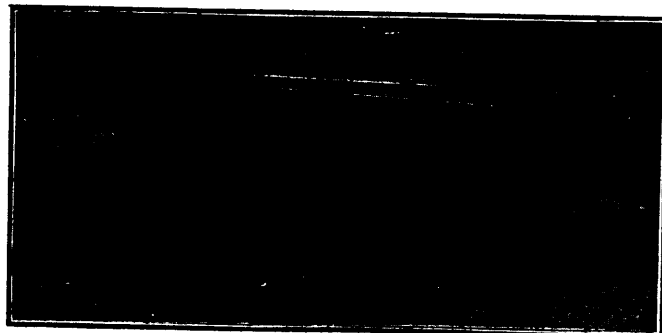
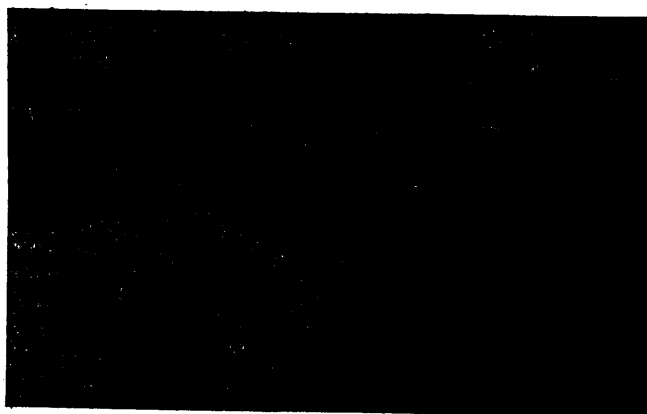
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INDEX TO ADVERTISEMENTS.

ifc inside front cover.

ibc.....inside back cover

obc.....outside back cover.

A	PAGE	PAGE	PAGE
Abbott, Wm., Montreal.....	14	Canada Iron Furnace Co., Montreal.....	4
Agriculture, Ontario Minister of, Toronto.....	56	Canadian Boomer & Boschert Press Co., Montreal	56
Aitken, K. L., Toronto.....	14	Canadian Casualty & Boiler Insurance Co., Toronto.....	14
Albert Mfg. Co., Hillsborough, N.B.....	9	Canadian Copper Co., New York, N.Y.....	11
Algoma Steel Co., Sault Ste Marie, Ont.....	4	Canadian Fairbanks Co., Montreal.....	9
Allis-Chalmers-Bullock, Limited, Montreal.....	ibc	Canadian Manufacturer Pub. Co., Toronto.....	14
Ambursen Hydraulic Construction Co., Montreal.....	56	Canadian Office & School Furniture Co., Preston, Ont.....	54
Armstrong Mfg. Co., Bridgeport, Conn.....	54	Canadian Rand Co., Sherbrooke, Que.....	ifc
		Canadian Rand Co., (C. Druekleib, N.Y.).....	54
		Cassella Color Co., New York and Montreal.....	53
		Chapman Double Ball Bearing Co., Toronto.....	8
		Continental Iron Works, New York, N.Y.....	54
		Crane, Thos. S., New York.....	13
		Crocker-Wheeler Co., St. Catharines, Ont.....	13
		D	
		Darling Bros., Montreal.....	55
		Dixon, Joseph, Crucible Co., Jersey City, N.J.....	55
		Dominion Belting Co., Hamilton, Ont.....	55
		Dominion Heating & Ventilating Co., Hespeler, Ont.....	3
		Dominion Oil Cloth Co., Montreal.....	55
		Dominion Sewer Pipe Co., Swansea, Ont.....	10
		Dowie, Eben, Montreal.....	4
		Drummond, McCall & Co., Montreal.....	15
		Dun, R. G. & Co., Toronto.....	15
		Dunbar Fire Brick Co., Pittsburg, Pa.....	15
		E	
		Eccles & Rae Machine Co., Toronto.....	54
		Electrical Construction Co., London, Ont.....	13
		F	
		Electrical Inspection Bureau & Testing Laboratory, Montreal.....	12
		Elk Fire Brick Co., St. Mary's, Pa.....	15
		Elliott Business College, Toronto.....	54
		G	
		Gartshore, J. J., Toronto.....	55
		Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.....	47
		Globe Machine & Stamping Co., Cleveland, Ohio.....	56
		Goldie & McCulloch Co., Galt, Ont.....	3
		Goldschmidt Thermit Co., Montreal.....	55
		Greening, B., Wire Co., Hamilton, Ont.....	47
		Greay, Wm. & J. G., Toronto.....	16
		Gutta Percha & Rubber Mfg. Co., Toronto.....	51
		H	
		Hall, J. B. & Sons, Toronto.....	49
		Hamilton Facing Mills Co., Hamilton, Ont.....	obc
		Hamilton Steel & Iron Co., Hamilton, Ont.....	5
		Harbison-Walker Refractories Co., Pittsburg, Pa.....	51
		Hay, Peter, Knife Co., Galt, Ont.....	7
		Heys, Thomas & Son, Toronto.....	14
		Hore, F. W. & Son, Hamilton, Ont.....	55
		Horsburgh & Scott, Cleveland, Ohio.....	54
		Hunt, Robert W. & Co., Chicago, Ill.....	14
		I	
		J	
		K	
		L	
		M	
		N	
		O	
		P	
		Q	
		R	
		S	
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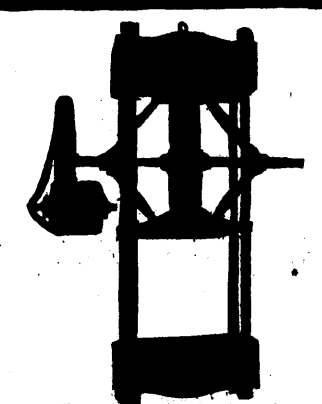
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INDEX TO ADVERTISEMENTS (Continued).

	PAGE		PAGE		PAGE
I					
Ideal Concrete Machinery Co., South Bend, Ind.	47	McDougall, John, Caledonian Iron Works Co., Montreal.	58	R	
Imperial Oil Co., Petrolia, Ont.	52	McGuire, W. J. Limited, Toronto and Montreal	52	Remington Typewriter Co., Toronto	
International-Acheson-Graphite Co., Niagara Falls, Ont.	47	McKinnon Dash & Metal Works Co., St. Catharines, Ont.	obe	Robb Engineering Co., Amherst, N.S.	8
International Steel Co., Montreal.	7	McLaren, D. K., Limited, Montreal and Toronto.	56	S	
J					
Jeffrey Mfg. Co., Columbus, Ohio	6	N			
Jones & Moore Electric Co., Toronto	13	Neff, A. C. & Co., Toronto	14	Sadler & Haworth, Montreal	10
Jones, J. L. Engraving Co., Toronto	55	Nichols Chemical Co., of Canada, Montreal	53	Senator Mill Mfg. Co., Galt, Ont.	14
K					
Kahn, Gustave, Toronto	14	Northern Aluminum Co., Shawinigan Falls, Que., and Pittsburg, Pa.	6	Sheldons, Limited, Galt, Ont.	ife
Kelly's Directories, Toronto and London Eng.		Northern Electric & Mfg. Co., Montreal	49	Smart-Turner Machine Co., Hamilton, Ont.	obe
Kerr Engine Co., Walkerville, Ont.	11	Nova Scotia Steel & Coal Co., New Glasgow, N.S.	4	Smith's Falls Malleable Castings Co., Smith's Falls, Ont.	obe
L					
Laurie Engine & Machine Co., Montreal	ife	O			
Legg Bros., Engraving Co., Toronto		Oakey, John & Sons, London, England	53	Spence, R. & Co., Hamilton, Ont.	54
Leslie, A. C. & Co., Montreal		Ontario Lime Association, Toronto	54	Stamp, W. H., Devonport, England	54
London Rolling Mill Co., London, Ont.	57	Ontario Wind Engine & Pump Co., Toronto	46	Standard Bearings, Limited, Niagara Falls, Ont.	11
Lowell Crayon Co., Lowell, Mass.	14	Orford Copper Co., New York, N.Y.	11	Stevens Mfg. Co., Galt, Ont.	55
Lysaght, John, Limited, Bristol, Eng., and Montreal	obe	Otis-Fensom Elevator Co., Toronto	58	Storey, W. H., & Son, Acton, Ont.	14
M					
Marion & Marion, Montreal	14	P			
Metallic Roofing Co., Toronto	38-39	Packard Electric Co., St. Catharines, Ont.	13	Stowe-Fuller Co., Cleveland, Ohio	51
Metal Shingle & Siding Co., Preston, Ont.	41	Park Bros., Chatham, Ont.	54	Syracuse Smelting Works, Montreal and New York	10
Mica Boiler & Covering Co., Montreal	54	Parke, Roderick J., Toronto	14	T	
Mitchell, Charles H., C.E., Toronto	14	Pennsylvania Fire Brick Co., Beech Creek, Pa.	15	Tippett, Arthur P., & Co., Montreal	52
Monongahela River Consolidated Coal & Coke Co., Buffalo, N.Y.	15	Perrin, William R., & Co., Toronto and Chicago, Ill.	57	Toronto & Hamilton Electric Co., Hamilton, Ont.	12
Morris Machine Works, Baldwinsville, N.Y.	17	Phillips, Eugene F., Electrical Works, Montreal	13	Toronto Paper Mfg. Co., Cornwall, Ont.	54
Morrison, James, Brass Mfg. Co., Toronto	11	Producer Gas Co., Toronto	16	Toronto Pottery Co., Toronto	15
Morrow, John, Screw, Limited, Ingersoll, Ont.	7	Pullan, E., Toronto	54	Trussed Concrete Steel Co., Toronto	14
Mc					
McArthur, Corneille & Co., Montreal	obe	Q			
McCullough-Dalsell Crucible Co., Pittsburg, Pa.	51	Queen City Oil Co., Toronto	obe	Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio	55
U					
V					
W					
Y					

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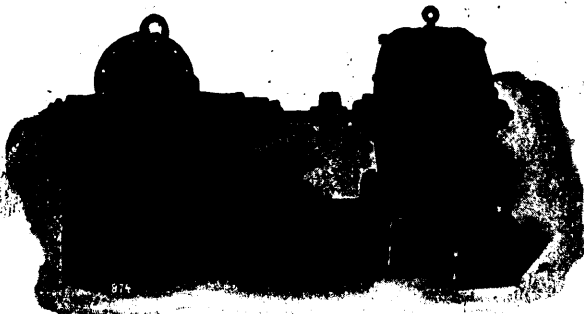
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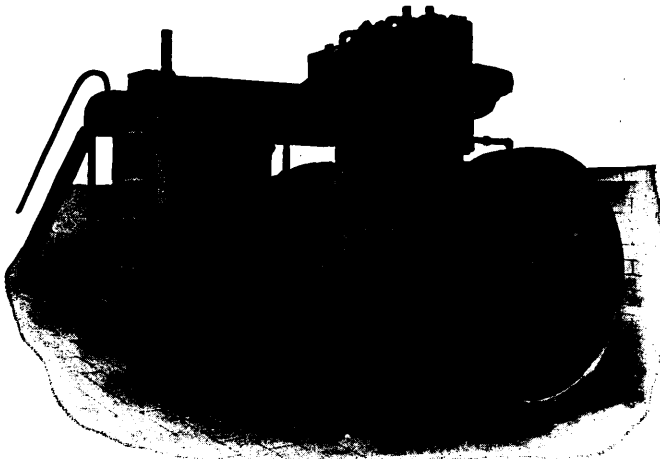
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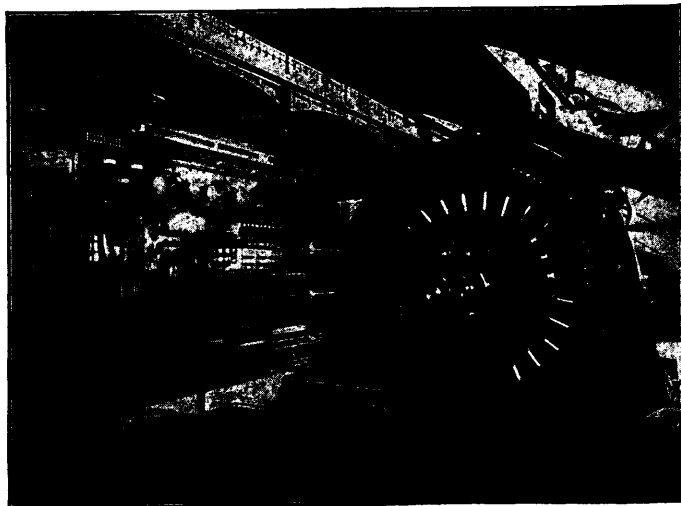
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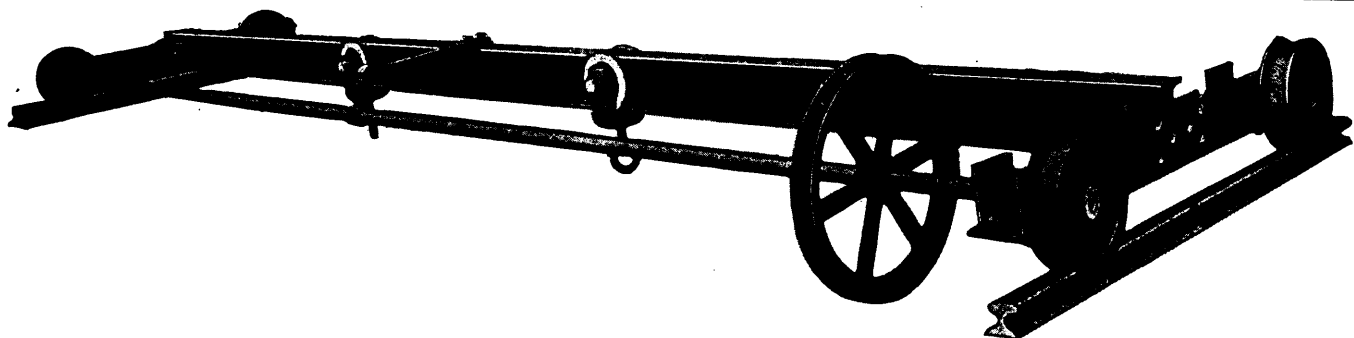
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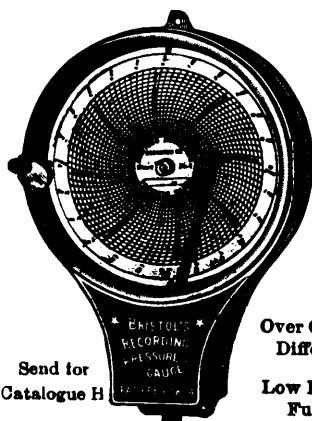
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