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TWIN CITY INDUSTRIAL NUMBER

The

LABOR GENERAL  
**CANADIAN MANUFACTURER**

AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTERESTS OF CANADA.

VOL. 55.

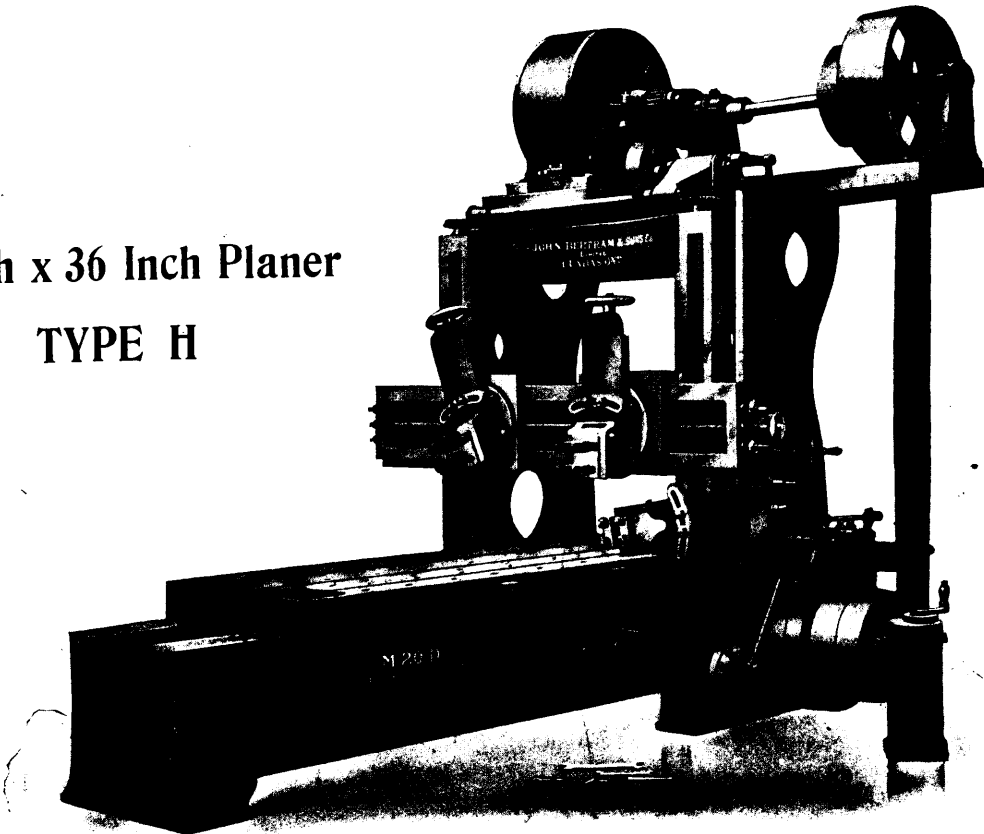
TORONTO, SEPTEMBER 20, 1907.

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# PLANERS

From 24 to 120 Inches Square—Any Length of Table

36 Inch x 36 Inch Planer  
TYPE H

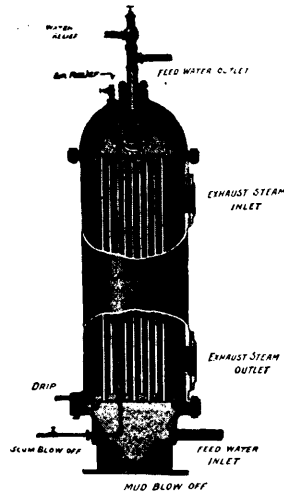


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DUNDAS, ONTARIO, CANADA

Prolongs  
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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.,**

**MONTREAL**

Limited

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

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Send for an "Imp" on 30 days trial.

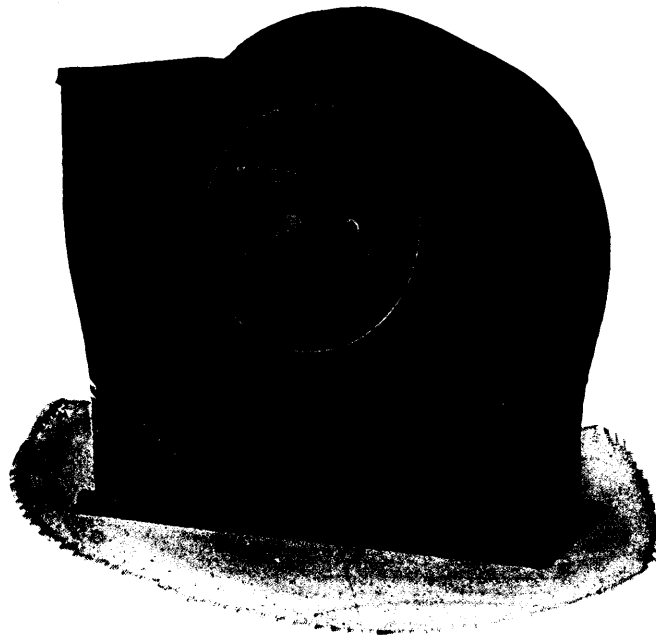
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**CANADIAN RAND COMPANY**

LIMITED

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



**HOT BLAST HEATING**

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**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**

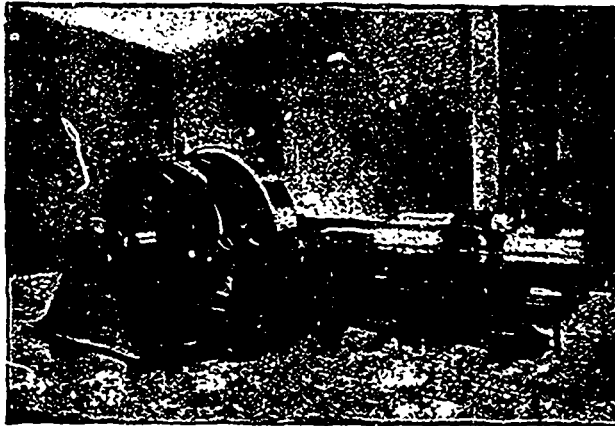
**Engineers and Manufacturers**

**GALT, ONT.**

# IDEAL HIGH SPEED ENGINES

PERFECTION IN HIGH SPEED ENGINE DESIGN, NOISELESS RUNNING,

PERFECT  
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QUOTATIONS  
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GIVEN

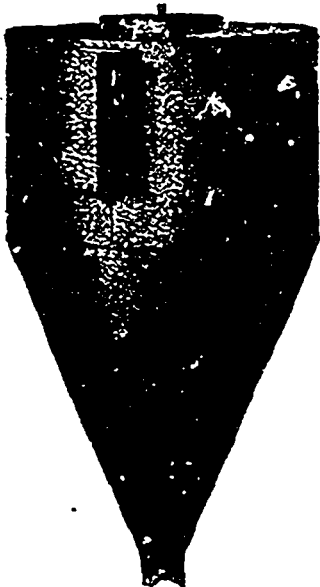
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GALT ——— ONTARIO ——— CANADA

WE MAKE Wheelock Engines, Corliss Engines, Ideal Engines, Boilers, Pumps, Flour Mill Machinery, Oat Meal Mill Machinery, Oat Meal Steam Pan Kilns, Wood Working Machinery, Iron Pulleys, Wood Rim Split Pulleys, Shafting, Hangers, Gearing, Friction Clutch Pulleys, Friction Clutch Couplings, etc., Safes, Vaults and Vault Doors. Write for Catalogue.

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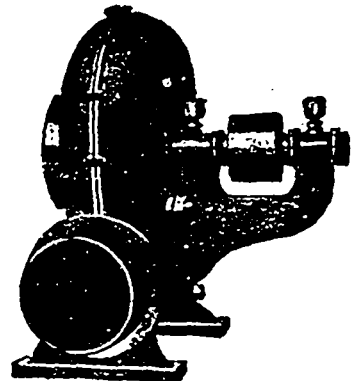
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Steel Roller-Bearing Trucks and Transfers, also Wheels and Bearings for Wood Frame Trucks.

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Write us for full particulars. We install Force and Natural Draft Kilns of latest design.



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BRICK OARS

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Successors to McEachren Heating and Ventilating Co.

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# STEEL RAILS

For delivery during the Season of 1907.

Parties intending purchasing will find it to their interests to let us have their specifications at an early date so as to ensure desired deliveries.

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OFFICE:

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Montreal, Radnor and Three Rivers

Manufacturers of the well-known

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Suitable for Car Wheels, Cylinders and Fine Castings, where the utmost strength is required.

UNSURPASSED IN STRENGTH BY SWEDISH, RUSSIAN OR AMERICAN CHARCOAL IRON.

Offices: Canada Life Insurance Building, MONTREAL.

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Angles ½" to 8"

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U.M. Plates 7x3/16 to 16x1-7/8

Boiler and Structural Rivets.

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

See our monthly stock list.

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PIG IRON,  
COKE.

Cleveland, Ohio.

Pittsburg Office,

1126 Frick Bldg.

# Nova Scotia Steel and Coal Co., Limited

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## BRIGHT COMPRESSED STEEL SHAFTING

From ¾ to 5 Inches in Diameter. Guaranteed Straight and True to within 1/500 of an Inch.

Spring. Reeled Machinery, Tire, Toe Caulk, Sleigh Shoe, Angles, Special Sections and all Merchant Bar Steel. Sheet Steel up to 48 inches wide.

**RAILWAY AND ELECTRIC RAILWAY CAR AXLES, FISH PLATES, SPIKES AND TRACK BOLTS**

Tee Rails, 12, 18, 24 and 28 lbs. per yard.

**HEAVY FORGINGS A SPECIALTY**

“SCOTIA” PIG IRON FOR FOUNDRY USE.

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HEAD OFFICE—NEW GLASGOW, NOVA SCOTIA

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HAMILTON, - - - - - CANADA.

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**FOUNDRY                      BASIC                      MALLEABLE**

**SEND US YOUR INQUIRIES.**

**HIGH-GRADE BAR IRON**

**OPEN HEARTH BAR STEEL**

ANGLES,

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AXLES,

R. R. SPIKES

**FORGINGS of Every Description**

IN ROUGH OR ROUGH TURNED.

PROMPT DELIVERIES MADE

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**CRANK SHAFTS,**

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SPECIAL WORK.

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INGOTS — SHEETS — TUBING, ETC.

*Aluminum Stamped, Cast, Spun Articles of any Description to Order.*

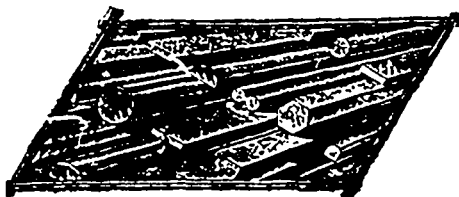
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**Cold Die-Rolled  
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**Rounds, Squares  
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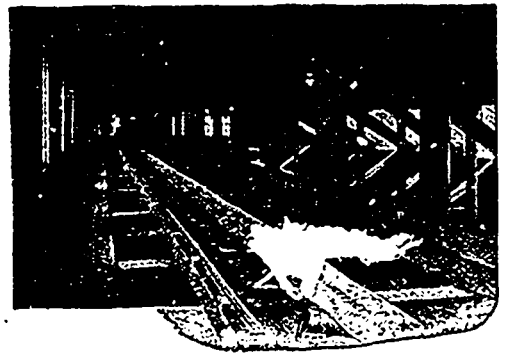
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Of Jeffrey Design, Illustrated in Elevating-Conveying Machinery.

Catalogue No. 80 Free,  
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### THE JEFFREY MFG. COMPANY

COLUMBUS, OHIO, U.S.A.

Now Canadian Branch:

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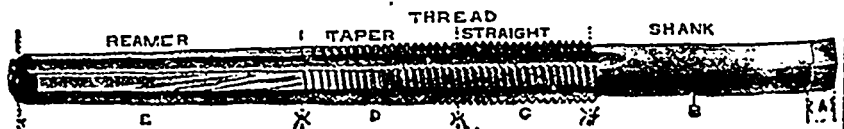
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DERBY SCREW PLATE NO. 119.**  
1/4 3/16 3/8 7/16 1/2 5/8 3/4 7/8 1"  
TAP WRENCH No. 9. AND ONE No. 11



WE MANUFACTURE

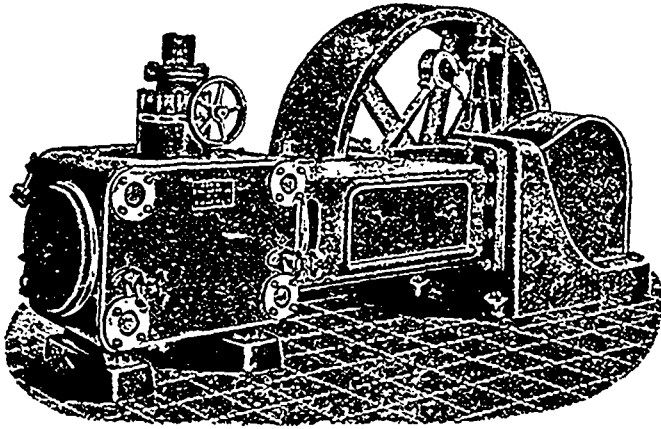
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**SPINDLE STAY BOLT TAPS** and **TAPS for Screw  
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Regular and Full Mounted Reece and Derby Plates, Bicycle  
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# ROBB CORLISS ENGINES



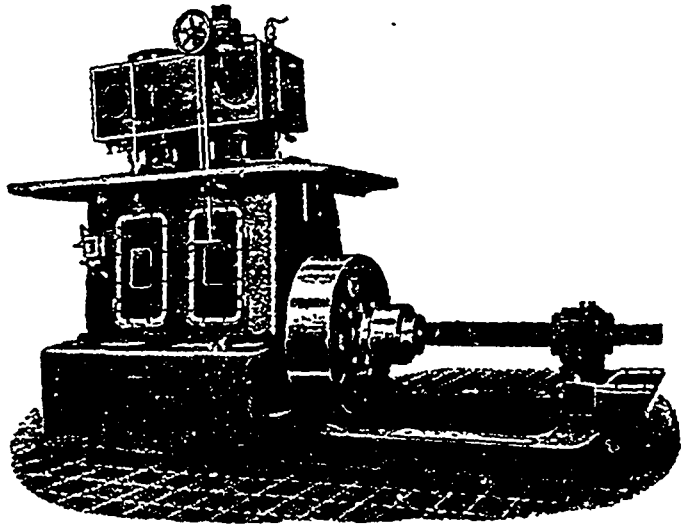
Are fitted with Robb-Armstrong Corliss valve gear, which has the following good points:

**POSITIVELY DRIVEN  
ENCASED IN OIL  
RUNS NOISELESSLY  
MINIMUM FRICTION  
MINIMUM WEAR**

We manufacture high speed vertical enclosed engines of the English type, up to 750 horse power.

The oiling system of these engines is under a pressure of 15 lbs. to the square inch, ensuring a 'copious supply of oil to all bearings.

They have Robb-Armstrong automatic governors and Sweet balanced valves giving the best regulation and highest economy.



## Complete Power Plants

# ROBB ENGINEERING Co., Limited, AMHERST, N.S.

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OFFICES } Bell Telephone Building, Montreal; Watson Jack, Manager.  
365 Carlton Street, Winnipeg; J. F. Porter, Manager.



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Manufacturers of High-Grade Roady Roofing

Viz. "Brantford Asphalt"

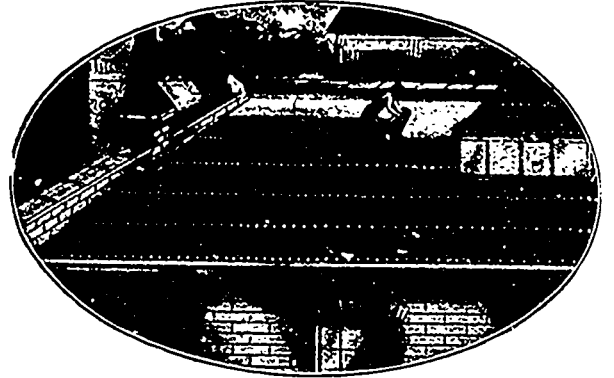
"Brantford Rubber"

Under this Trade Mark



Specially Adapted for the Roofing of  
Factories, Warehouses, Rinks, and Large  
Buildings of every Description.

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



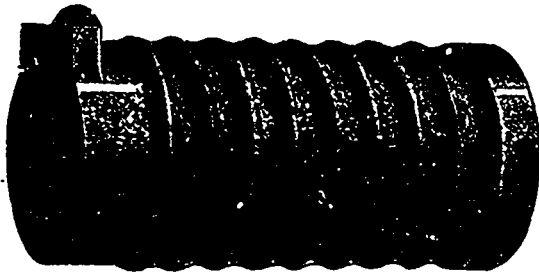
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MANUFACTURERS OF THE WELL-KNOWN

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HILLSBOROUGH, N.B., CANADA.

# MORISON Suspension Furnaces

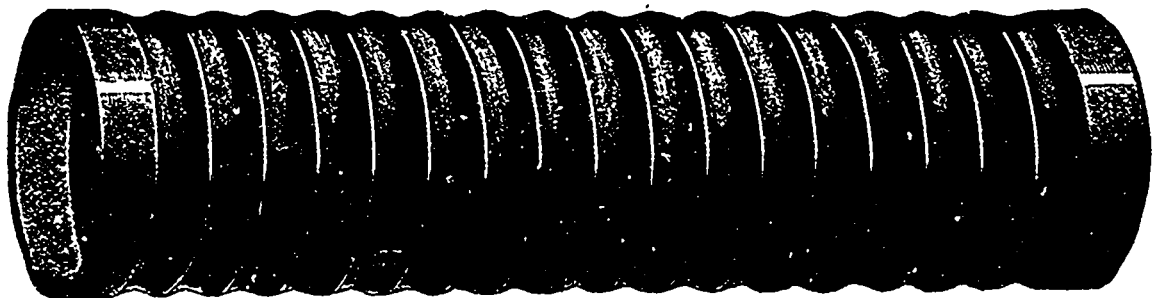


For Land and Marine Boilers

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.*



MANUFACTURED BY

**THE CONTINENTAL IRON WORKS,** WEST AND CALYER STS.,  
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Sole Canadian Agent—MR. GEORGE HOLLAND, M. C. Soc. C. E., P. O. Box 529, MONTREAL

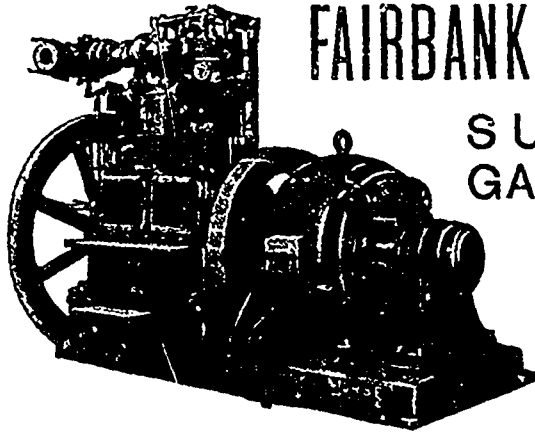
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# Reduce Your Power Cost

BY USING A

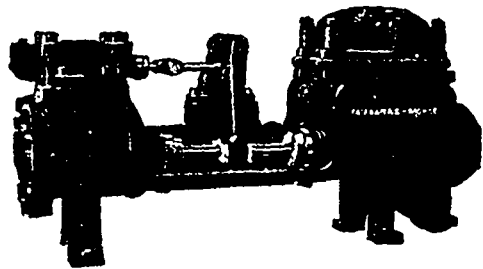
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### SUCTION GAS PLANT



Built in all sizes,  
from units of 17  
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## Machinery and Machine Shop Supplies



### STEAM PUMPS, POWER PUMPS

Combined Gasoline Driven Pumps

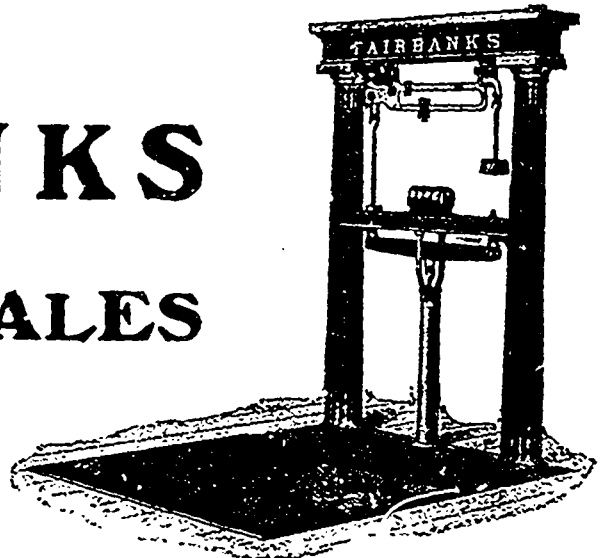
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NOW MADE IN OUR CANADIAN FACTORY

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# STANDARD SCALES

## FOR ALL PURPOSES



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## MACHINE KNIVES

For WOOD-WORKING,  
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SHEAR BLADES,

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Quality Warranted.

Send for Price List.

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Double Acting  
High Speed  
Enclosed Engines  
with forced lubrication for

ELECTRIC LIGHTING, TRACTION, TRANSMISSION of POWER, Etc.

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U.S. BATTLESHIP "NEBRASKA"



THIS BATTLESHIP IS LINED WITH SYRACUSE SMELTING WKS. "BABBITT"  
IT IS POSITIVELY THE BEST  
SYRACUSE SMELTING WORKS

### IMPROVEMENT OF THE AGE

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is lined throughout with

## SYRACUSE SMELTING WORKS' BABBITT METALS

MANGANESE ANTI-FRICTION BABBITT METAL—"The Best by Test"  
Because of its Malleability, Ductility, Toughness, Hardness,  
Plasticity, Fusibility and Fluidity

Is adapted to all purposes. Has a tensile strength of 10,000 pounds to the square inch. Has no fear of high speed and heavy pressure. One pound of the MANGANESE Brand will cover as much space as one and one-half pounds of any other metal at the same price. Will not chill in the ladle. Will cast true to the mould,

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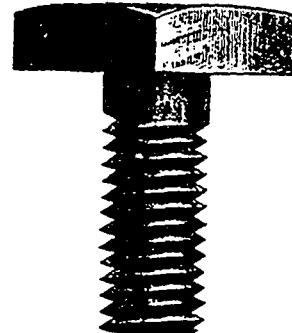
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Invaluable for convenience in the household.

**LONG DISTANCE TELEPHONE SERVICE**

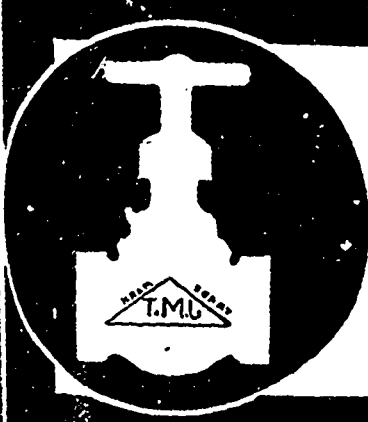
has no equal for the facility it affords in business life.  
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**The John Morrow Screw, Limited**  
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**STEAM and WATER GOODS**

We make the largest varieties in the Dominion. **WE HAVE THEM.**

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Do you furnish your own lamps?

Are you constantly renewing them?

Or increasing your light bill by burning them after they have become dim, in order to save cost of renewals?

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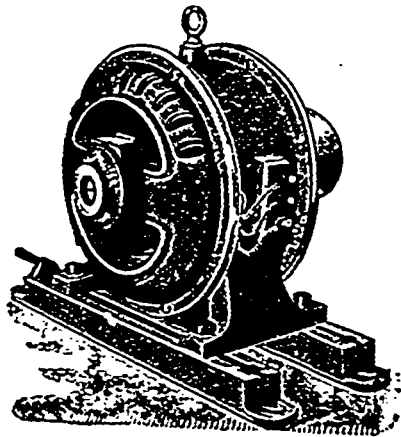
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**ALTERNATING CURRENT MOTORS  
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REPAIRS PROMPTLY EXECUTED.

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Let us quote you on units from 10 to 10,000 horse power.

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Electric Light Line Wire, Incandescent and Flexible Cords.

**Railway Feeder and Trolley Wire**

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PERFECTION TYPE

**DYNAMOS AND MOTORS**

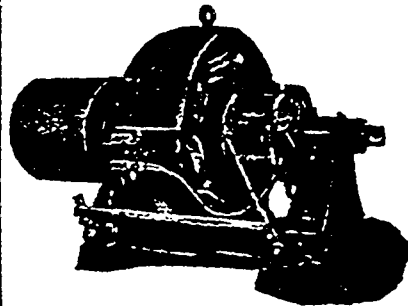
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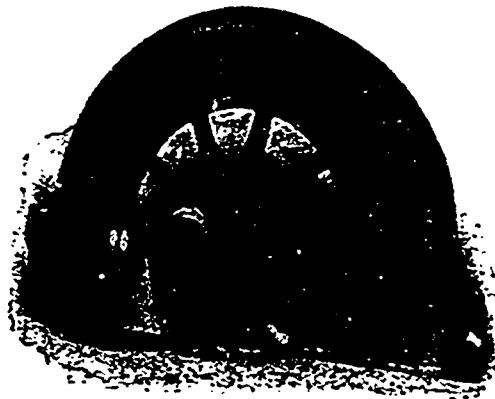


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We manufacture Direct  
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sizes and for any purpose.

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ALTERNATING CURRENT GENERATORS.

Outputs—Belt Type, 25 K.V.A. up.

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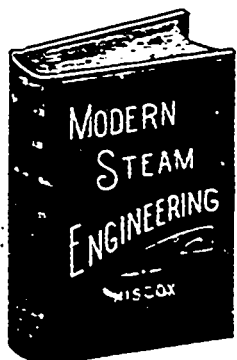
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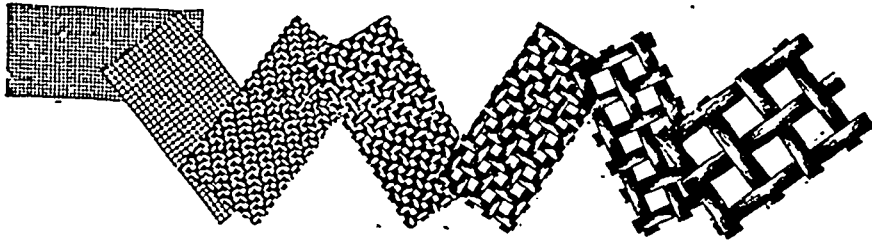
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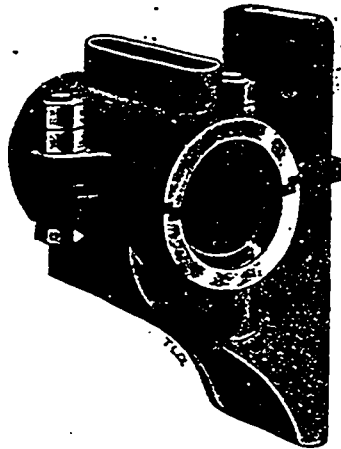
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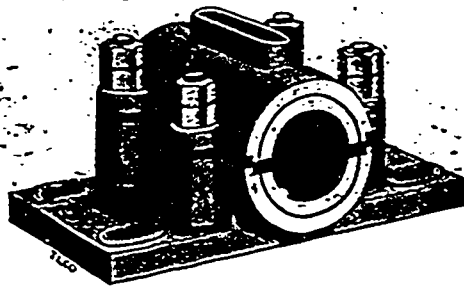


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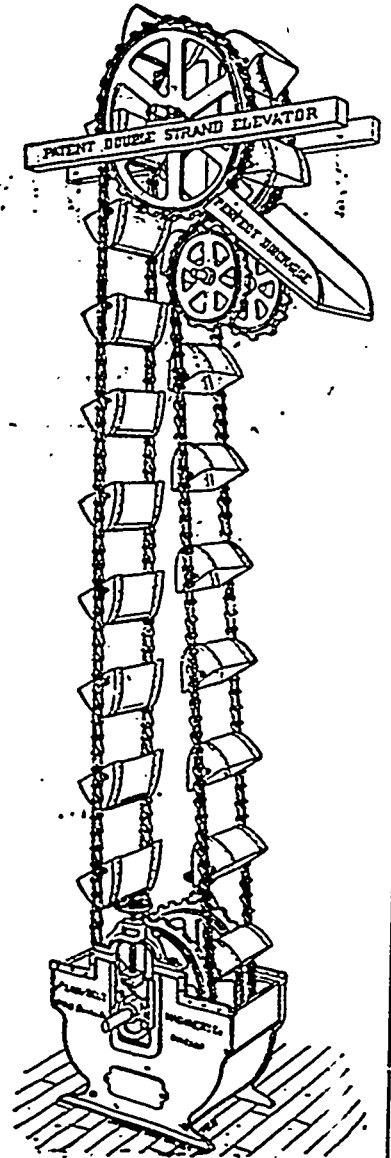
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### FOR MANUFACTURERS TO THINK ABOUT.

The next regular meeting of the Canadian Manufacturers' Association will convene at the King Edward Hotel, Toronto, on September 24 instant, to be in session three days. A large attendance is expected. No matter of equal importance can be brought before the convention than that of the tariff. As shown from time to time in THE CANADIAN MANUFACTURER, many Canadian industries are in a decadent condition, owing to the ill considered provisions of the tariff, for, according to recent government reports, between the years 1900 and 1905, about one-third of the manufacturing industries of the country show a decline in number of wage earners employed and a decline in amount of wages paid to them; and of the total number of industrial towns in Canada in 1900, 20 per cent. show great decline in value of output. This is a condition that demands the most earnest attention from every Canadian manufacturer in the country.

### FOOLS PLAYING WITH FIRE.

In the Canadian situation there are few dangers more threatening than the class antagonism which, either unwittingly or deliberately, may so readily be aroused. Fools scattering firebrands among inflammables are some, and their conduct harmless compared with the men who pose as leaders of the people, and who, sometimes ignorantly, sometimes for sordid and selfish reasons, fire the passions and aggravate the race hatreds of the crowd. The Oriental problem on the Pacific slope is an instance of fools playing with fire.—The Toronto Globe.

Truer words were never spoken. There are fools and yet fools who scatter firebrands, and some of these fools

pose as leaders of the people, and who, for sordid and selfish reasons, commit all sorts of acts, the results of which prove that they do not care who sink so long as their foolishness may be perpetuated and their desires gratified. We agree with The Globe that there was and is no sound reason for the Oriental outbreak in British Columbia by fools in that province, aided and abetted and led by other fools in American coast cities, all of whom should do long and exemplary time behind prison bars; but it is not difficult to see that some of the causes that led up to the disturbances had their origin in the Dominion Parliament and in the legislatures of some of the provinces. Class legislation is responsible for much of the trouble, and ill considered tariff laws are doing as much or more to place Canada in the unfortunate position she now occupies.

In season and out of season The Globe loses no opportunity to depreciate and destroy the fiscal policy of tariff protection that has done so much to build up every material industry of Canada; and it never seeks or takes the opportunity to denounce the policy that throws every imaginable obstacle in the way of our manufacturing progress. It advocates the bringing in of hundreds of thousands of immigrants to build railroads, and to help the farmers work and harvest crops, to which manufacturers offer no objection, although the expense thereof is paid from the general fund of the treasury to which manufacturers are liberal contributors, but it raises no voice nor helping hand to encourage and help the manufacturers in bringing in skilled labor from abroad. It approves of the action of the government in disclaiming the efforts of manufacturers to bring in skilled labor, even from Great Britain where the free trade government there has closed arsenals and workshops and left the best and most skilled workmen in the kingdom to become paupers and find refuge in work houses, while Canadian manufacturers find it impossible to fill orders because of lack of skilled workmen; and it thinks it a huge joke when foreign workmen are brought in to see them deported and the manufactures made to pay heavy fines for doing so. This is typical of the fools the country has to contend against.

And what is to be said of those who decry the tariff and deprive Canadian labor of the occupation that they should devote to the production of the millions' worth of goods that are now being rushed into Canada, the products of the pauperised labor of Great Britain, Germany, France and other countries? According to The Globe and the government it so much admires, foreign trade is made the sine qua non of Canadian commerce, and millions of wealth is paid out annually in bonuses and subsidies to foreign shipping to carry away much of the products of the country that ought to be consumed at home. and to bring in to Canada millions worth of manufactured products made by cheap foreign labor, the production of which deprives Canadian labor to that extent of their means of subsistence. This is a class of fools that are playing with fire that is destroying the prosperity of the country. It tells us with great glee that it was only a year or two ago since it was announced with exultation that the total trade of the Dominion would not be many million short of half a billion dollars—that the total trade for

the year ending June 30, 1907, was \$612,652,107—almost \$113,000,000 more than half a billion, and that a total trade of a round billion is easily within view. The statement it says, is made in no spirit of worship of the big, but solely because it is tangible and inestimable evidence that the Dominion is growing vastly, that it is keeping on growing, and by its growth is solving a lot of its own problems, besides others that arise in its character as a part of the British Empire. These, it tells us, are "proud figures."

What gives importance to the figures of which The Globe is so proud? According to the return of the Department of Trade and Commerce, for the twelve months ending with June, 1907, the imports and exports of Canada totaled \$612,652,107, an increase of foreign trade over the previous year of \$65,723,069. The total imports were valued at \$354,430,433, an increase of \$64,138,025, and the exports totaled \$258,171,674, a gain of \$4,585,044. These exports of 1906, explains The Globe, were greatly in excess of those of any previous year.

In regard to this immense foreign trade, which The Globe thinks is of such great and increasing benefit to Great Britain and to the British Empire, and of which it is so proud, the statistics show that while our imports from Great Britain in 1907 increased \$19,891,161 over 1906, while the exports declined \$5,193,179, this being the first time in many years that there has been a decrease in Canada's exports to the Mother Country. In the same year imports from the United States amounted in value to \$215,730,701, a gain of \$39,877,630, and our exports to that country in the same period were valued at \$104,260,494, a gain of \$6,453,766 over the previous year. The total imports from Great Britain in 1907 were valued at \$89,067,350, and exports to that country, \$901,683.

The net results of Canada's foreign trade in 1907 is an indebtedness of about \$100,000,000. The net indebtedness of the country to other countries previous to 1907 is vast—almost unimaginable. Where is the money or its value in home products to come from? And these are the figures that The Globe is so proud of.

#### AN UNFORTUNATE FISCAL POLICY.

In recent issues of THE CANADIAN MANUFACTURER has been published copious extracts from bulletins being sent out by the Dominion Census Bureau having reference to the manufacturing industries of Canada. In one bulletin was given the names of 203 different industries, a comparison being made of the conditions prevailing in them in 1900 and in 1905; and we showed that out of the 205 industries enumerated, 66—nearly one-third, showed a decline in number of wage earners employed in them 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 the five years there was a general gain of 47,452 employes, and in 66 of these industries there was a loss of 28,031. The in-

dustries that are enumerated in the gaining column are those relating to railroads, railroad supplies, bridge building, etc. It is also shown that, notwithstanding the cost of living had gone up most remarkably during the five years, the remuneration for services to employes in the 66 industries in 1905 was lower than in 1900.

Another bulletin made reference to the values of the manufactured products of Canadian towns and cities having a population of 1,500 and over in 1900, the comparison being with 1905. The bulletin shows that in all Canada the values of such products in the years alluded to were:

In 1900.....	\$481,053,375
In 1905.....	712,664,835

For all Canada 211 towns and cities are named, 170 of which are credited with an increase in value of production, and 41 show a decrease. These losing centres of Canadian industry constitute about 20 per cent. In 66 Canadian industries there was a fearful loss of output, loss of number of wage earners employed in them, and loss of wages paid to them; and of the 211 Canadian towns and cities in which manufacturing industries were carried on, 41 of them, or 20 per cent. produced a decreased value of goods in 1905 than in 1900. The particulars of this amazing falling off in the output of 20 per cent. of Canadian manufacturing centres of industry, of 66 per cent. in enumerated industries, in the number of wage earners employed in them, and in the remuneration paid to the employes have been published in this journal.

It is not because the goods could not be produced in Canada. The factory plants exist and in good working order; and there is a large and growing demand for the goods, as shown by the Trade and Navigation returns for the two years under consideration, which show the values of goods entered for home consumption. We enumerate as follows:

Industries.	Value of Imports.	
	1900.	1905.
Artificial flowers.....	\$172,504	\$211,243
Bags—cotton.....	23,894	57,625
Baskets.....	21,255	53,860
Batting—cotton.....	20,971	18,756
Bicycles and parts.....	331,374	130,218
Blacking.....	21,759	86,979
Boilers and engines.....	292,239	137,432
Boots and shoes.....	542,180	1,173,113
Boxes.....	65,062	127,279
Brass castings.....	393,159	636,173
Brick, tile and pottery.....	106,379	324,815
Butter and cheese.....	334,882	147,286
Buttons.....	185,557	326,349
Carriages, wagons and materials...	130,576	243,055
Clothing.....	1,364,933	1,344,573
Coffee and spices.....	67,125	71,601
Coffins and caskets.....	10,538	24,555
Corks.....	82,361	126,984
Cottons.....	675,323	264,645
Cutlery and edge tools.....	326,782	765,253
Evaporated and canned fruits and vegetables.....	185,496	237,285

Industries.	Value of Imports.	
	1900.	1905.
Glass—chimneys, globe, window, etc.....	\$742,334	\$607,198
Harness and saddlery.....	57,866	83,924
Lead—bar and pipe.....	62,066	59,245
Leather, tanned and finished.....	320,157	158,069
Liquors—vinous.....	45,069	66,330
Log products.....	432,224	479,791
Optical goods.....	235,490	307,267
Patent medicines.....	344,819	485,439
Photograph goods.....	88,835	54,273
Picture frames.....	47,499	88,649
Plaster.....	6,492	37,643
Printing presses.....	217,082	340,674
Pumps and windmills.....	188,172	52,804
Salt.....	30,180	27,106
Scales.....	88,325	94,255
Sewing machines.....	210,508	259,974
Ships and repairs.....	155,206	200,008
Starch.....	72,767	41,070
Tobacco, chewing and smoking....	67,049	146,056
Umbrellas.....	108,645	54,003
Watch cases.....	92,008	71,623
Window blinds and shades.....	25,940	51,272
Wood pulp.....	23,269	67,396

The articles here enumerated are such as enter into the homes of the people of Canada. They are essential to the comfort and convenience of the people, and the production of them in Canada would and ought to give employment to thousands and thousands of Canadians. But the people, the home workers who should be employed in their production, are deprived of the occupation, and our most benevolent and patriotic government have given the work to the poor, down-trodden paupers of other countries. Too bad!

In 1906 Canada imported of free or non-dutiable goods to the value of \$110,236,095, and of dutiable goods to the value of \$173,046,100, upon which \$46,437,440 in duties were paid, making the cost of the imports \$329,719,644. This large amount was required to pay for the wants of the people, and must be made good to the sellers, and this was in addition to the goods made in Canada consumed at home. In the same year Canada exported domestic produce to the value of \$235,483,956, leaving a deficit of \$94,235,688, and this on the transactions of one year only. What we owe on the balances due on the transactions of preceding years the Lord knows.

How and when is this enormous debt to be paid? How, except from the hoardings of the people? No wonder times are hard and money scarce.

The fiscal policy of Canada is all wrong, and should be revised, and that quickly.

#### A WANING BRITISH INDUSTRY.

In other issues of this journal we have shown that the glass industry in Canada is fast waning away and becoming of inconsequential proportions because of inadequate tariff protection. According to the free trade theory the abatement of the duties on glass should encourage the

home industry; and according to the theory of the British preferential tariff the glass trade between Great Britain and Canada should increase, to the shutting out of the glass imports from other countries. But the facts are that the lowering of the glass duties is killing off the Canadian industry; and the British preferential tariff in no wise encourages the Canadian glass trade from Great Britain. Our imports are now coming chiefly from Germany and the United States, two countries which impose higher duties on glass than any others, and which possess greater prosperity in that industry than even Great Britain.

The fact is, as shown by the recently published report of the British Tariff Commission, the glass industry in that country is in a deplorable condition, many works being put out of operation, and thousands of skilled employes made to walk the streets in idleness or find their occupation in other industries—if they can.

In reporting upon the English glass industry, as shown by official statistics recently published, United States Consul Halstead, at Birmingham, transmits to his government some interesting and important information. He says:

"The official report seems to show a bad condition of the industry generally, although exports to the United States from the Birmingham district have been steadily increasing for the past seventeen years. In the calendar year 1906 they reached \$190,178, a gain of about \$21,000 over the previous year, and of \$96,783 over 1898. For the first half of the present fiscal year the exports of glassware of all kinds aggregated \$77,305, compared with \$69,578, in the similar half of 1906, an increase of \$7,727

"The total imports of glass and manufactures thereof into the United Kingdom in 1905 were \$16,541,000, and in 1906, \$15,909,000. The exports show an increase of \$798,106, or 18 per cent., in the past twenty-five years, due almost entirely to increased trade with British possessions, which has advanced by \$875,970, or 36 per cent. in ten years, comparing 1890-1894 with 1900-1904, the exports to foreign countries having slightly declined in the same period. The largest market is still Australia, which in 1900-1904 took nearly one-fourth of the total British exports, the United States taking one-eighth, and South Africa and Canada each taking another one-eighth. In 1905 the exports to the United States were \$764,907, and in 1906, \$885,703. The British imports of flint glass of all kinds increased from \$1,688,675 in 1875-1879 to \$5,421,281 in 1901-1905, or 220 per cent., Germany supplying about 50 per cent. and Belgium about 30 per cent. during the last period.

"The British export trade is greatly restricted by foreign tariffs, particularly with the United States. The foreign import duties on bottles are stated as averaging 20 per cent. in the case of Sweden and Germany, and on white or pale glass the duties range from 30 per cent. in Switzerland and France to 40 per cent. in Germany and 80 per cent. in the United States. Exports of table glass and gauge glasses have been similarly affected. The contemplated abolition of the Canadian surtax on German goods would materially reduce the advantage which British manufacturers now have in the Canadian market over German manufacturers. German glass bottles and analogous wares are now subject to a Canadian duty of 43½ per cent., as compared with 20 per cent. on British glassware, and the abolition of the surtax would reduce the German rate to 32½ per cent. The operation of the pending Canadian intermediate tariff would further reduce the German rate to 30 per cent.

"Foreign competition is said to have driven British

manufacturers into strenuous competition for the home markets, especially so in the trade in shades used in incandescent lighting and electrical work. Net profits are said to have decreased greatly. For the past twenty years employment in the various branches of the glass industry is reported to have declined. The trade unions are large, widespread and powerful in the glass industry.

"As a remedial measure to save the declining industry, it is suggested that import duties be imposed, ranging from 10 per cent. to a series of duties equivalent to those in foreign tariffs. Such import duties, it is thought, would cause the restarting of those extensive factories that have been closed during the last five years, and the effect would be increased sales, greater security to the home trade, greater continuity, and the retention of capital in the United Kingdom."

Adequate tariff protection to the Canadian glass industry might not increase our trade with Great Britain, but it would resuscitate our Canadian glass industry, and lighten our dependence upon Germany, Belgium, and the United States.

#### STEAM NAVIGATION.

The successful performance of the steamship *Lusitania* in crossing the Atlantic from Queenstown, Ireland, to New York in less time than had ever before been required was an event that created great interest throughout the world, and is remindful of the fact that one hundred years ago, August 7, 1807, Robert Fulton's steam propelled boat, the *Clermont*, started on her trial trip up the Hudson River. According to Mr. James M. Swank, in *The Bulletin of the American Iron and Steel Association*, the start was made from New York City, and at the time appointed a large and very skeptical crowd was at hand. It is recorded that when the smoke began to pour forth, the paddle wheels to revolve, and the boat moved away from the dock, headed directly up stream, the crowd was silent in its amazement, and many were actually trembling in a superstitious fear. In a few months, however, the boat was making regular trips from New York to Albany, and was well patronized. Steamboats had been made before this time, but they were not practical. It was Robert Fulton who first built a boat propelled by steam that was not a toy.

One hundred years later the latest marvel in steam navigation, the *Lusitania*, accomplished her remarkable performance. The *Lusitania* is 785 feet long, 88 feet breadth of beam and 60.5 feet moulded depth, her displacement being 38,000 tons.

The first steamship to cross the Atlantic was the *Savannah*, which sailed from Savannah, Ga., May 24, 1819, and reached Liverpool, England, in twenty-seven days. Eighty hours of this time she was operated under steam power. She was 350 tons, 100 feet in length, and was built at Savannah, Ga., in 1819. She was intended for a sailing packet, but auxiliary engines were installed before launching. She was fitted with full sail power, and when the wind was fair or the seas were too boisterous for steaming, the paddle wheels were unrigged and taken in on deck. Subsequently the machinery was removed.

The steamer *Royal William* was the first steamer that ever crossed the Atlantic, the motive power of which was

steam entirely. She was built at the City of Quebec during 1830-31, and sailed from that port, August 5, 1833, and arrived at Gravesend, England, on September 12 following, 26 years after Fulton first navigated the first vessel propelled by steam power.

#### THE HOME MARKET.

The opening up of New Ontario has created an immense market for the products of the land in the neighborhood of Orillia, and if farmers, fruit-growers, and gardeners choose to take full advantage of the opportunity offered, wealth promises to be the reward of all intelligent efforts. The thousands who are at present attempting to take valuable minerals from the rocky country to the north require fruit, vegetables and dairy produce. For these things they are willing to pay higher prices than the ordinary consumer in the cities. In other words, the mining community, and those connected with branches of the mining industry, live expensively. They expect to pay dearly for produce, but they want the best for the money. On the other hand, here is the Orillia district just on the verge of the rocky, non-producing lands, and apparently meant by nature to have a large share in supplying the wants of the populace in the mineral area. Railway facilities have already been provided, and fruit and vegetable growers have to some extent engaged in the enterprise. That they have found it profitable goes without saying. It could hardly be expected to be otherwise.—*The Toronto Globe*.

Our esteemed contemporary, as an enterprising newspaper should do, gathers news from different parts of Canada, describing the remarkably favorable conditions that prevail, and it is not to be objected to that it claims that the prosperity is due to the policy of the political party to which it owes allegiance. There may be some difference of opinion as to the value of the political claim, but none at all as to the truth of the social and physical conditions: and what it says about Orillia may with equal truth be said about hundreds of other towns throughout Canada.

It has always been the contention of this journal that the encouragement of the home market should be the first care of all Canadians, not only of the manufacturers, but of all other industries who produce things to sell. All the wants of the people of Canada should be, as far as possible, supplied by Canadian producers, and that nothing should be exported if possible, until the domestic demand had been supplied. Therefore, we are glad to notice that the correspondents and the news reporters of *The Globe* tell many most interesting facts, which are of value to its readers, and which lead to conclusions very greatly different from those intended in its editorial sayings.

We quote some of the points contained in *The Globe's* article:—"For years," it says, "the growing of vegetables and small fruits has had its ups and downs in the Orillia district. There has always been considerable local demand, and besides, Sudbury, North Bay, and Sault Ste. Marie were points to which shipments were made. Good prices were always realized. Then came the mining boom with its results. The market suddenly became larger, and the demand increased by leaps and bounds. So far most of the garden produce has been shipped to North Bay dealers, who in turn dispose of a portion of

it farther north. These dealers can handle much more of it than the gardeners can grow. A great deal of produce also goes to the copper region around Sudbury. One of the most interested gardeners in Orillia is Mr. George McKinnell, who owns thirty acres of land. 'Last year,' he said 'We shipped six car loads of stuff, mostly vegetables, chiefly to North Bay. The prices received were much better than here in Orillia, and better than in Toronto. More than twice as much produce as is at present going in could easily be marketed in the north. There is a great future for market gardening around Orillia, and the land is suitable.' Mr. C. L. Stephens, another Orillia fruit grower told *The Globe* man: "I send quite a quantity of sweet corn to the north and get a good price for it. Other vegetables can also be grown and sold at a big profit. This market is only yet in its infancy. The amount produced is as yet not half what it should be, and small fortunes could be made by those who would work a small acreage intelligently."

We desire to impress on *The Globe* that the people who consume these products of Canadian farms are not the farmers, but people engaged in other industries. Those who produce fruits, vegetables, etc., from the soil, and the producers of butter, cheese, poultry, eggs, etc., are, in large measure, the creators of the wealth of the country, but those products would be of but very little value to the producers were it not that there are within easy reach consumers to purchase them. These consumers, many of them, are engaged in producing other forms of wealth in manufacturing things that the people of Canada need as much as they do the products of the soil and of the farm. All industries are inter-dependent each upon the other. The country that manufactures for itself, prospers. As numerous and as prosperous as Canada's manufacturing industries are, it is a fact that our imports of manufactures are increasing at a most remarkable and alarming rate, while at the same time our exports of Canadian products are falling off. Most of these imports could be and should be made in Canada. If they were it would give employment to Canadian workmen, and, as these workmen must be fed, the more there would be for Canadian farmers to do; and the demand for Canadian farming products would command higher prices. It is said that far off fields look green; but the Orillia farmers would not realize very high prices for their products if they had to send them across the ocean to find purchasers. A near-by home market is what they want.

#### EDITORIAL NOTES.

The *Toronto World*, reporting the speech of Mr. R. L. Borden, at Chatham, Ont., a few days ago, said:

It was fortunate, indeed, said Mr. Borden, that the Liberals had not attempted to enact any affirmative legislation. It would have meant a half dozen inconsistent things, such as free trade, United States reciprocity, and purely continental free trade. It was fortunate that they had kept their hands off the national policy. Sir John A. Macdonald ruled Canada to-day in its fiscal policy. . . .

Referring to the fiscal issue, Mr. Borden declared himself a strong protectionist. We have our raw material,

and this raw material must be transformed into finished product by the labor of Canadian workmen. Let our tariff be extended so as to protect the farmer and insure for him the entire home market. . . .

As far as Mr. Borden has gone in his present canvassing trip, what he is here reported as having said about tariff protection is all that he has said; and it is quite certain he is not following to any perceptible extent, the methods pursued by Sir John A. Macdonald in his advocacy of the National Policy. He does not seem to catch on. Our opinion is that since the Liberals came into power they have enacted several things, the most important being a revision of the tariff that has given a fearful blow to Canadian manufacturing industries, for, according to the bulletins recently issued by the Dominion Census Bureau, one-third of the industries of the country are in a decadent condition. Mr. Borden may declare himself a strong protectionist, but actions speak louder than words. Mr. Borden, we presume, hopes to have the active assistance of manufacturers in his campaign, but what does he do to deserve it?

An order-in-Council has been passed which directs that hereafter the "fair wage" clause shall apply not only to all government contracts, but "also to all works aided by grant of Dominion public funds." All the government contracts to which this order applies shall henceforth contain the following clauses:—"(1) Contractors shall post in a conspicuous place on the public works under construction the schedule of wages inserted in their contracts for the protection of the workmen employed. (2) Contractors shall keep a record of payments made to workmen in their employ. The books or documents containing such record shall be open for inspection by the fair wage officers of the government at any time it may be expedient to the Minister of Labor to have the same inspected."

Discussing the new Canadian-French commercial treaty, the *Paris Journal* says it hopes it will develop the kindly relations between the two countries, "united as they are by the ties of blood and friendship." It is learned that France, in giving the minimum rate on many Canadian products, gets from Canada the British preferential rates on some French products, and the minimum rates on the rest. This is another step in the free trade program which first gave a discount of 33½ per cent. in favor of Great Britain, and is now being extended to France. The true interests of Canada demand that the tariff, under all circumstances, afford adequate protection to all Canadian industries, and instead of deflecting it in favor of commercially friendly countries, give it an upward turn if necessary against commercially unfriendly countries. The nation that manufactures for itself, prospers. It is said that even the devil is kind to his own.

"The Great Wall of Australia" is the title of a *Punch* cartoon re-published in *The Globe* in which "Old Mother Country" is made to say "Deary Me! You've been and raised the wall several feet. I shall never get over it,"

to which Australia replies, "That's all right, mother. I've not forgotten you. I've put an eight-inch foot-stool there on purpose for you." The obese old lady, representing Great Britain finds herself facing the old Australian tariff wall which has been raised, the foot stool being represented as the 5 per cent. preference in her favor. Poor old lady! She finds herself unable to compete in trade in Australia with other countries, even with the assistance of the 5 per cent. preferential stool. She says that in her decadence she will never be able to get over the tariff wall like other countries do. Poor old lady!

Mr. R. W. Perks, M.P., is returning to Canada in connection with the Georgian Bay Canal. If Mr. Perks' company is willing to build the canal it ought to be allowed to do so.—The Toronto Globe.

Why should Mr. Perks be given the Georgian Bay Canal route, one of the most valuable assets of Canada, merely because he and his company are willing to build the canal? The canal, will, in time, be a most valuable waterway and means of communication between the Western provinces and the Atlantic Ocean. Unlike the St. Lawrence route, it will be entirely within Canadian territory. Owning the Georgian Bay route, the government of Canada, being abundantly able to do so, should build the canal and operate it? Why give away so good a thing?

Mr. W. J. White, Inspector of Canadian Government Agencies in the United States, while in Toronto a few days ago, was interviewed with reference to immigration from the United States into Canada. Mr. White returned recently from accompanying the Minister of the Interior on an extended tour of inspection through the States. Mr. White says that the importance of the flow of people from the United States to the Canadian West could scarcely be over-estimated as a factor in the development of that part of the country. The immigration from the United States differs radically from the European, and is indeed practically identical with the movement which is continually going on from the Eastern Canadian Provinces to the West. In dealing with immigration from the British Isles or continental Europe the constant effort must necessarily be to secure people who will go on land rather than crowd into the cities, but there is not such effort required in connection with the movement from the United States. Only people who want land to own and work for themselves have removed or are likely to remove from the States to Western Canada.

A number of municipalities in Ontario have been unable to go ahead with public improvements because they were unable to procure the money. Mr. A. Ingram of the Ontario Railway and Municipal Board stated yesterday that one city had come under their notice which had made arrangements to do a certain amount of paving, for which the civic authorities expected to borrow money. Though they offered to pay as high as 5 per cent. it was found impossible to procure any money.—The Globe.

Notwithstanding the wonderful prosperity that pre-

vails, money to carry on important municipal improvements cannot be had even at the high rates of interest that are now charged. Where has the money gone to? In 1906 Canada imported goods to the value of \$283,282,204, also paying \$46,437,440 in duty on the dutiable goods. The debt must be paid, and in 1906 Canada exported home produce to the value of only \$235,483,956, a deficit of \$94,235,688. How is the deficit to be paid? From the hoardings of the people of course, and that is how the country is drained of its money. It goes largely to support cheap labor in foreign countries. The country that manufactures for itself prospers. But Canada is buying abroad more than is made at home.

British manufacturers still have trouble in understanding our anti-dumping legislation, although many who have given up all hope of understanding it have learned to comply with its requirements. They cannot conceive of "dumping" goods abroad, for they must at all times "dump" their goods at home. Having no protection they must sell at home at the natural competitive level. Cheaper sales abroad are impossible, and consequently in a measure incomprehensible.—The Globe.

British manufacturers have learned to comply with the terms and requirements of the anti-dumping tariff act, because honesty is the best policy. The tariff requires that true values shall be given whether the imports are dutiable or free. Importers know that it is dishonest to undervalue imports, and British exporters should know the same thing, although The Globe says they have trouble in doing so. Large quantities of British goods are "dumped" into Canada, the British preference not being sufficiently large to enable the makers to compete with the manufacturers of other countries, and depend upon undervaluation to help them out.

The London Times, referring to the Franco-Canadian negotiations for a commercial treaty, states that France has successfully sought to obtain from Canada not only the benefit of the minimum tariff, but in the case of certain articles an important reduction in duties, notably on wine. France has extended the application of her minimum tariff to a number of exclusively Canadian products. Lively satisfaction is felt in French business circles at the conclusion of the agreement. The Pall Mall Gazette states that the concessions are nicely balanced in the new treaty. Canada grants concessions on the intermediate tariff, but they are framed to include articles not competing to any extent with British manufactures. France has consented to rank wood pulp as raw produce.

No doubt Canadian wine makers will be delighted at the sacrifice of their industry. It would be instructive to learn which are the "exclusively Canadian products" to which France has extended her minimum tariff. No doubt Great Britain will be delighted to learn that the concessions to France do not include articles competing to any extent with British manufactures. No doubt French paper makers are delighted to learn that wood pulp, of which they have imperative need, is to be ranked as raw material. Further need exists for a new revision of the tariff.

# CHEAP POWER -- KAMINISTIQUIA.

PLANT OF THE KAMINISTIQUIA POWER CO. AT KAKABEKA FALLS NOW SUPPLYING CHEAP POWER AT FORT WILLIAM AND PORT ARTHUR.

In this industrial age power is a prime factor. The first era of industrial power was that of steam and limited application of water power. To-day is the era of electrically transmitted power generated from the numerous natural water powers found in such abundance in the Dominion.

Added to all the immense advantages that geographical position and railway and lake commerce have given them, the Twin Cities of "Fort William and Port Arthur, at the head of the Great Lake system, have been dowered by the hand of providence so profusely with natural resources that they seem destined to be the great industrial and manufacturing centres of supply for the Great

installation, and when the time shall have arrived that further power is required, it can be produced by increasing the present plant.

### THE COST OF POWER.

The price at which this power is sold is of great interest to manufacturers considering the establishment of a factory of any kind in Fort William or Port Arthur.

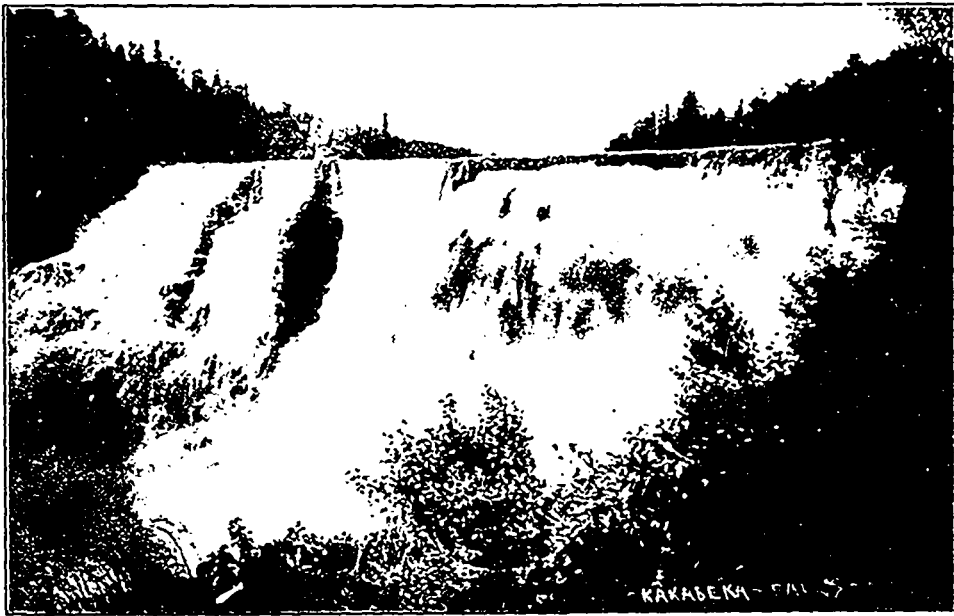
Notwithstanding the great labor and expense overcoming the natural difficulties in the construction of a modern plant and the transmission line, the cost of power is relatively low.

"The cost of our power in Fort William and Port Arthur," writes an official of the company, "is \$25 per h.p. per annum, for 24 hour service and for all sized units. This

height shut in the stream after it has made the sheer 110 foot drop which forms the fall.

Above the site of the power house, and at 180 feet elevation, is situated the forebay and reservoir, to which the water is brought in a flume a mile and a quarter in length, and built to uniform grade. Here again nature has been kind. The banks of the river are not deep, as below the falls, and the valley widens out so that no difficulty was encountered in trenching for the big supply flume. This flume, ten feet in internal diameter, and built of cement concrete, reinforced with steel, is now being duplicated, so that the full installation of power may be made.

The power house and forebay are built of reinforced concrete in substantial manner



KAKABEKA FALLS, THE SOURCE FROM WHICH ELECTRICAL ENERGY IS SUPPLIED TO FORT WILLIAM AND PORT ARTHUR AT \$25 PER H.P. PER ANNUM FOR 24 HOUR SERVICE.

Canadian West. Chief of natural facilities is water power so conveniently situated and ease of development that it would seem to have been definitely planned.

To the Kaministiquia Power Co., Limited, belongs the honor of the first great installation of power generating plant, harnessing the enormous volume of water which flows over the famed Kakabeka Falls at a distance of only twenty miles from the two cities. Easy of access from both the Canadian Pacific Railway and Canadian Northern Railway lines, Kakabeka Falls, on the Kaministiquia River have long been noted for their scenic beauty. Less than three years ago the preliminary steps were taken toward the construction of the magnificent hydro-electric plant which is now producing over 14,000 h.p. and transmitting it to the various industries of Fort William.

This power is capable of being increased to a total of 40,000 h.p. with the present initial

compares well with the prices ranging from a minimum of \$30 to \$45 for large units in Toronto and Montreal, and from \$60 to \$70 per h.p. in some of the large North American cities, where hydraulically developed power is not available—in fact, even in Buffalo, N.Y., where Niagara power is available to an unlimited extent, the rates for units from 10 to 75 h.p. run from \$40 to \$50 per h.p. per annum for ten hour service."

The Kaministiquia Power Co.'s plant is located just twenty miles from Fort William, immediately on the line of the Canadian Northern Railway, and within stone's throw of Kakabeka Falls. Indeed the power house or generating station, is situated in a basin beside the river and immediately below the falls. This basin or depression seems specially hollowed out by the hand of nature, for a more ideal site could not be selected or made. Everywhere else along the river below the falls, precipitous banks of great

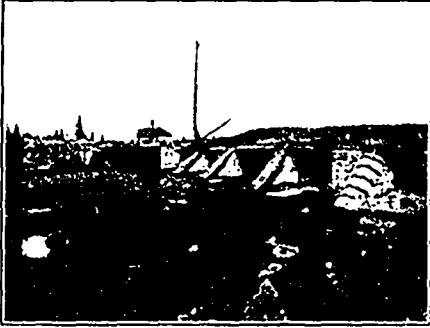
Provision is made for the development of 35,000 to 40,000 h.p., and this will all be available when the second aqueduct is completed, which will be this fall. At present 14,000 h.p. is being generated. The head of water from forebay to wheels in the power house is 180 feet, the water being brought, as previously mentioned, a distance of 1 1/4 miles from the intake works to the forebay.

The first work was done two years ago and last December the power was turned on for the first time.

The inlet and head-works have been constructed for the accommodation of the full 40,000 h.p., and the aqueduct at present in use has a capacity of half that amount. This concrete and steel aqueduct is 10 feet, 2 inches inside diameter. The forebay, which is a heavily built concrete reservoir on the brow of the hill overlooking the generating station, is arranged to receive the inflow from both aqueducts. It is also made so that the



necessary penstocks may be installed to carry the water down to the wheels in the generating station. At present two of these steel penstocks are in place and in use.



TRASH RACKS AND DAM AT INLET.

They are six feet in diameter and lean down the hill to the generating station. For protection they have been housed with frame sheds the whole way.

The power house is a building over 100

feet long by some 60 feet wide, heavily constructed of concrete. It is absolutely fire-proof. There are at present installed two generators for 7,000 h.p. each, with necessary water wheels and governors, the whole being direct connected. The wheels were manufactured by J. M. Voith, the well-known German manufacturer. They are of horizontal type, in pairs, connected together, and each pair directly connected with a generator.

affair, with eight panels, remote control type. Each of the eight panels is a 2-line panel with necessary instruments and switches for control. All the switches are oil-contact type. The five generator panels have the following instruments installed for recording and regulating the current: ammeter, voltmeter, indicating wattmeter, recording wattmeter. There is one panel for each of the two exciters, with ammeter, voltmeter and reverse current circuit-breaker. A local circuit panel completes the present switch-board. This local switch-board has ammeter and recording wattmeter for recording the power used round the plant, and in the construction of the new aqueduct now going on. Probably 200 h.p. are now consumed round the works. The concrete mixers, rock-crusher, pumps, etc., are electrically driven. Besides electric heat is supplied to all permanent buildings, including the local superintendent's residence, and those of the permanent staff.

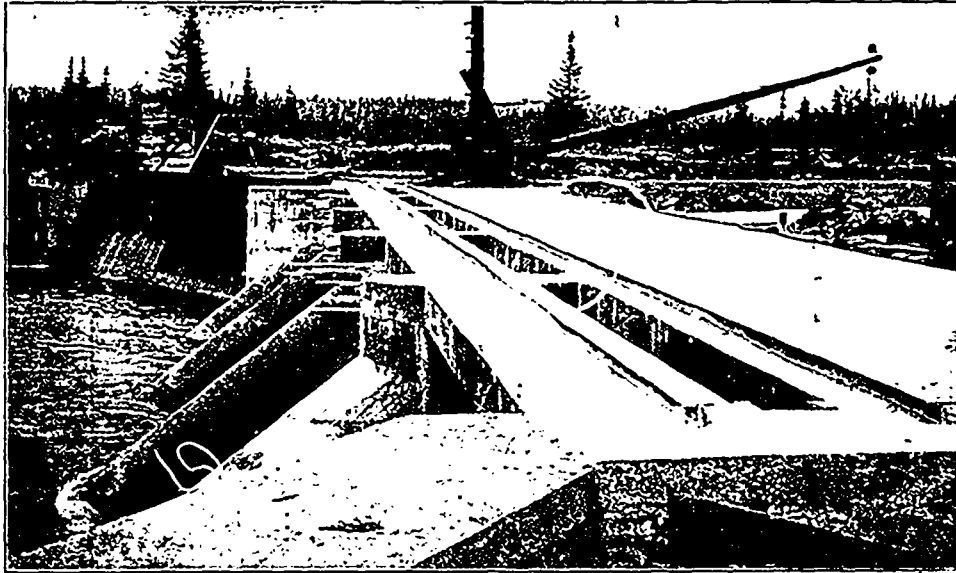
One panel of the switch contains the Tirrell regulator, for regulating the voltage. With this is a Bristol recording voltmeter, for both the A.C. and D.C. potentials. The synchronizer, which is on a panel separately,

CONCRETE REINFORCED STEEL AQUEDUCT.

As a most interesting type of modern construction is now being carried out in the erection of the second ten foot aqueduct, some description of method and material is worth being introduced here. The aqueduct is to be 1 1/2 miles in length. The quantity of material to be used may be judged from the fact that already 12,000 barrels of cement are on order for the work, and sufficient steel is required to place a bar of half inch square steel in the circumference of the flume, every seven inches of its entire length.

The shape of the flume is almost cylindrical, the bottom being flat inside, and 6 feet 8 inches across. The exact inside diameter is 10 feet 2 inches. The concrete base at the outside is 12 feet 6 inches across. The shell is to average 15 inches thick, with 6 inches on the crown. The steel rods, laid seven inches apart, which form the reinforcement, are made in two parts, of material half an inch square. One part is laid across the bottom and up the sides. The crown portion is laid across and the two are wired together. Other rods are laid longitudinally in the base.

The concrete is built up on forms of col-



KAMINISTQUIA POWER COMPANY—INLET DAM.

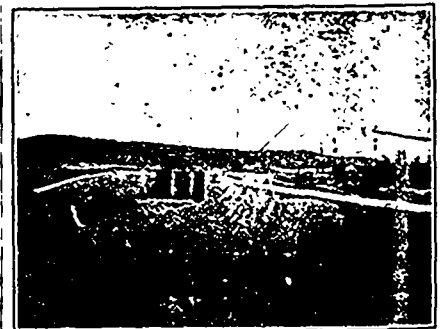
feet long by some 60 feet wide, heavily constructed of concrete. It is absolutely fire-proof. There are at present installed two generators for 7,000 h.p. each, with necessary water wheels and governors, the whole being direct connected. The wheels were manufactured by J. M. Voith, the well-known German manufacturer. They are of horizontal type, in pairs, connected together, and each pair directly connected with a generator.

The generators and all electrical equipment were specially manufactured by the Canadian General Electric Co., of Peterborough, Ont. The current generated is 4,000 volts, the generators operating on what is known as grounded neutral. There are also installed two 150 k.w. exciters. Six transformers of air-blast type receive the current and prepare it for transmission. These transformers have capacity of 1,400 kilowatts, with 50 per cent. overload capacity.

The power switch board is a very complete

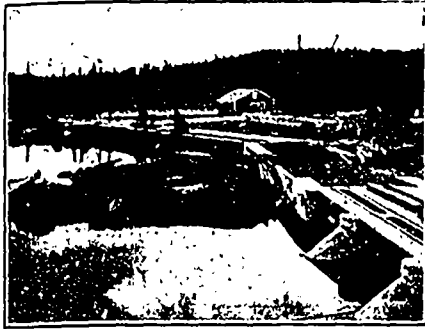
is for synchronizing the two generators. The electrical potential must be the same, and in the same phase relation as regards speed and magnetic relation of the poles. The bushbars and exciter bars are in duplicate. As there is installed a duplicate three-phase, high potential transmission line the switch arrangement is so installed that by cutting out, cross-connecting, etc., any combination of lines, transformers and generators can be had. This arrangement will be carried out when the increased installation is complete, making the plant almost immune from any complete shut-down. Indeed this system has been carried out at great expense and the installation of the second aqueduct, now going forward, is but in line with this policy of the company. By the arrangement thus effected, the plant is in duplicate throughout, and it would be almost impossible to anticipate a series of accidents which would put the plant entirely out of commission.

lapsible type run in on tracks which will be laid along as the base is built. Once the section built is set, the forms are collapsed and run back on the track and then fixed for



INLET BAY, DURING CONSTRUCTION, WITH BAYS FOR ULTIMATE DEVELOPMENT. THREE 2000 H.P. AQUEDUCTS.

another section. An interesting feature is the provision to render the shell of the aqueduct water-tight. A plastering or coating of



INLET WORKS—DAMS, TRASH RACK, INLET BAY, OVERFLOW AND INLET HOUSE.

almost pure hydraulic cement, nearly an inch thick is to be laid on the inside surface as a

duct over a depression. Over two miles of side tracks had to be laid in preparing for facilitating the contract, so that materials could be handled expeditiously. Over 250 men are employed on this work, which is presided over by W. C. Robinson, a veteran railway construction superintendent. This important piece of work is safe in the capable hands of "Stikine Bill," who has built railway from Maine to Alaska, and was in on the first construction of the Canadian Pacific Railway through the mountain section.

An interesting feature of this new aqueduct is the provision for expansion, found to be necessary. The aqueduct is built in sections of 50 feet, and at every section, lead expansion joints are to be inserted to take up the expansion and contraction due to changes of temperature. This provision was not made in the first aqueduct built, and it was found advisable to make it in this.

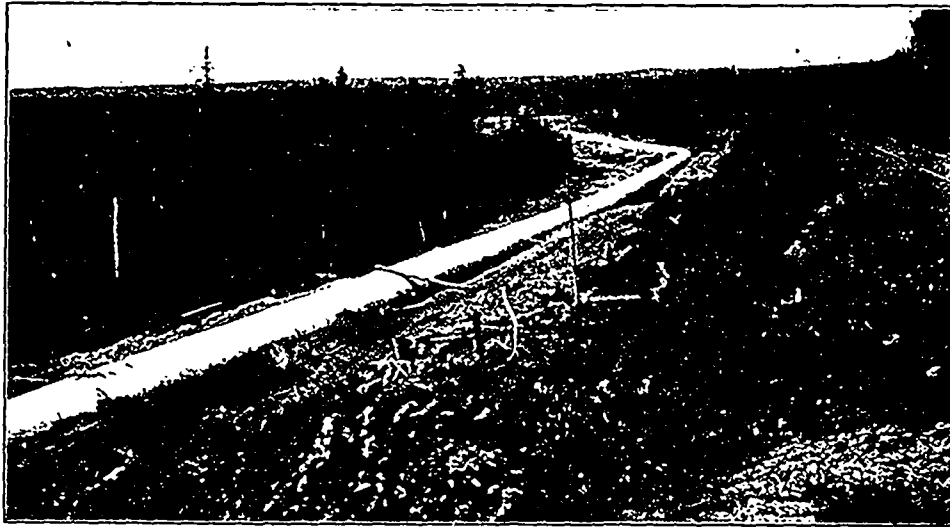
TRANSMISSION AND DISTRIBUTION.

Two pole lines, 20 miles long, each carrying

attention of the company to instal two other lines of equal capacity.

The sub-station is located in the western part of Fort William. It is a solid fireproof concrete building, 80x80 feet, three stories high. The basement is occupied with the air chambers, storage batteries and oil switches attachment. This building, like the rest of the installation out at Kakabeka is arranged for ultimate development of 35,000 or 40,000 h.p. At present the equipment installed is for about 12,000 to 14,000 h.p.

The two transmission lines lead into the sub-station through high-tension switches which are oil-contact type. Thence the current passes to the transformers where it is stepped down to 2,300 voltage, at which it is delivered to consumers. From the transformers the current goes, through the low tension switches to the distribution switch-board, for distribution to customers' lines. All switches, except on the distribution switch-board, are of oil-contact type; that



CONCRETE AQUEDUCT, 1 1/2 MILES LONG, 10 FT., 2 IN. DIAMETER. DUPLICATE NOW BEING INSTALLED, CAPACITY OF EACH, 20,000 H.P.

finish. To provide and prepare for this, a corrugated surface of expanded metal is imbedded in the interior surface of the aqueduct. This is done by tying the sheets of expanded metal to the outside of the forms before the concrete is built on. It is of course then firmly secured and when the concrete is set the strings holding the metal to the forms are cut before the forms are collapsed and run back. Then the surface is ready for plastering.

As the season is short, and this spring was exceptionally late, the work is divided in three sections to build the flume. One started at the forebay, the other two were started two-thirds of the way up the ditch, one working each way. One rock-crusher would hardly keep all going if there were not a great deal of gravel available. Three mixers are kept running to mix the gravel, rock and sand with cement to form the concrete.

Work was begun last April preparing for this big aqueduct, and excavation of over 25 000 cubic feet of earth was necessary, together with 1,300 lineal feet of rock encountered in one section of the line. At one point between 400 and 500 feet of rock base, built like riprap had to be made to carry the aque-

duct, three wires of No. 2-0 copper, transmit the electric current under pressure of 25,000 volts from the generating station to the City of Fort William, where the lines at present end. Each line has carrying capacity of 10,000 h.p. (to translate from electrical units to ordinary term) and it is the immediate in-

ter, contact is made and broken in oil, a safety protection. The switches are, as those in the power house, remote control type, electrically operated from a bench board, current for which is supplied from a small motor-generator set and from a storage battery connected with it. This arrangement is



KAMINISTIGUIA POWER COMPANY—FOREBAY.

necessary because of the fact that the high-potential electrical current is alternating, not direct.

being disposed of in the city, from 7,000 to 10,000 h.p. The first customer was the city of Fort William, which is using about 700

dian Iron & Foundry Co. now building a large plant at Westfort will take 300 h.p. A large number of small users are taking from 20 to 50 h.p. daily and other industries are in contemplation, which will be large consumers. Two planing mills each taking 20 h.p., two machine shops with about the same consumption, a cleaning elevator using 50 h.p., the Daily Times-Journal taking 30 h.p., are among the users now connected up. The Grand Trunk Pacific terminals at Westfort will take a large amount. A large wire rope factory is projected which will also avail itself of the power.

Any manufacturer who decides to locate in Fort William can make a contract with the Kaministiquia Power Co., Limited, to have a line built and power delivered before his factory is completed. The important point in this connection too, is that by the duplicate construction throughout, consumers have absolute certainty of depending on the power. The fact that the plant was started up in December and run continuously through the very severe weather of last winter was a test which proved its capability.

To operate a hydro-electric plant in the West was somewhat a pioneer project, but the experiences of last winter proved that it could be done easily and satisfactorily. The fact that the winter is steady and not liable to change has proven an advantage, and given proper equipment to commence with it is easier to operate such a plant than in eastern Canada or the eastern States, where irregular weather, sometimes frosty and sometimes mild is encountered. All sorts of provisions were made at the new plant to meet possible frost troubles, but none were needed. The arrangements at the intake and head-works have turned out so well that it

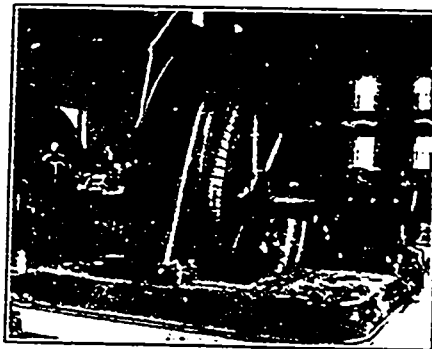


GENERAL VIEW OF POWER HOUSE, PENSTOCKS AND FOREBAY AT KAKABEKA FALLS. FROM PHOTO TAKEN JUST BEFORE COMPLETION OF PLANT.

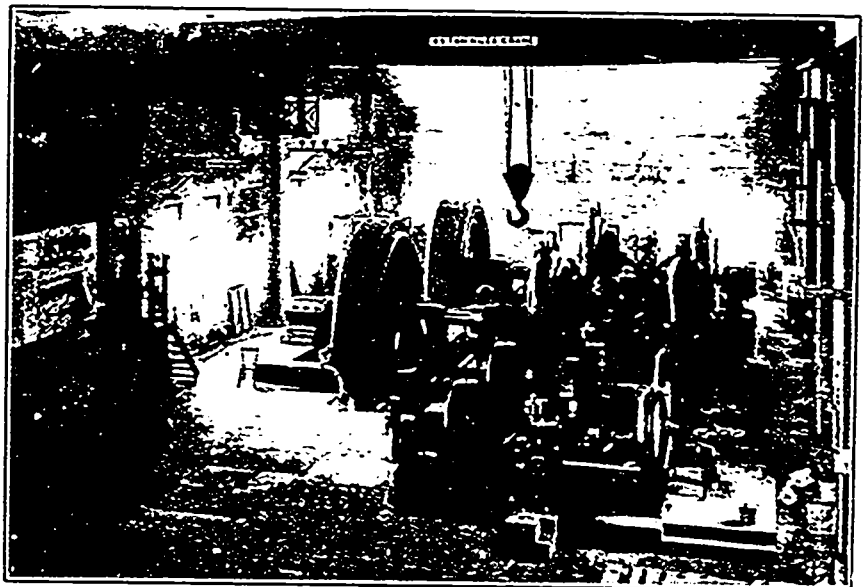
The switch-board in the sub-station is an eight-panel board at present, with provision for extending it very greatly, though even those now installed are not all yet in use. A feature of this board is the separate panels with special line circuits for large users of power. The switches on the distribution board are hand operated, but release automatically. As in the generating station, the equipment in the sub-station is duplicate. There are two banks of transformers, three in each. These are C.G.E. type. The entire equipment in the sub-station is modern and very complete throughout. A very complete system of lightning arresters is installed where the high-potential current comes into the building, and at the side where the distribution lines leave.

The work of building lines through the city of Fort William is being carried on constantly, and new work is coming up steadily

h.p. for lighting the city and various purposes. The Ogilvie Milling Co. was next to connect up. Their new flour mills and elevator are operated entirely by electricity, some 1,500 to 2,000 h.p. being used. Cir-



POWER HOUSE, SHOWING ONE OF THE 700 H.P. GENERATORS, DIRECT CONNECTED WITH TURBINE.



INTERIOR OF POWER HOUSE AT KAKABEKA FALLS, SHOWING TWIN TURBINES, EACH OF 700 H.P. CAPACITY, COUPLED DIRECT TO GENERATORS.

as the various manufacturing interests arrange to use the power. At present there is

contracts are installed and contracts closed with the Canadian Pacific Railway Co. for using the Kaministiquia Power Co.'s power in all the big terminal elevators the railway owns at Fort William, as well as in the various shops where power is required. This will take another 2,000 h.p. The Consolidated Elevator Co. is using 300 to 500 h.p., the Cana-

trouble from frazil or anchor ice, was experienced though the weather was steadily 5 degrees below zero. The dam at the intake was to regulate the flow and keep up the head but there was no appreciable difference throughout the winter, the volume of water keeping up right along, to normal flow. Some 30 miles up the river a large lake

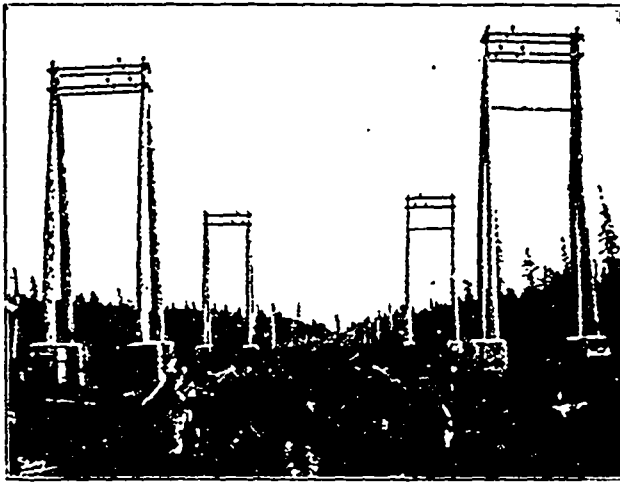
a natural reservoir which serves to keep up the regular flow. The cold weather is so too, has been eliminated from the problem. The completeness of the plant just described

gentleman in charge of the operation of this great plant as resident superintendent. He is a thoroughly practical man and has shown great adaptability, as well as aggressiveness, in successfully meeting many hitherto unknown conditions, surrounding the first season's operation.

Few companies in Canada have behind them a stronger group of business men than has the Kaminstiquia Power Co., Limited.

Mr. H. S. Holt, the well known Montreal railway man and financier is president; Mr. F. W. Thomson, of the Ogilvie Milling Co., is vice-president, and Mr. J. S. Norris, of the Montreal Light, Heat & Power Co., Limited, is secretary. Montreal is the head office of the company.

Mr. R. S. Keleh, C.E., Member American Institute Electrical Engineers, is permanent consulting engineer. Mr. Wm. Kennedy, C.E., of Montreal, was consulting engineer on the hydraulic installation and Mr. J. A. Jamieson, C.E., of Montreal, was also prominently connected with the work, many of the original and special features of the concrete aqueduct now being built having been specially designed by him. The company is carrying out the contract for this construction itself, Mr. W. C. Robinson being in charge



CROSSING C.N.R. TRACKS NEAR KAKABEKA FALLS.

steady that even the rapids freeze over, and at no time was there any trouble of any kind, such as low water in the intake, back water in the tail race or any of the dozen annoyances common to operating a water power elsewhere, where mild weather follows a cold spell.

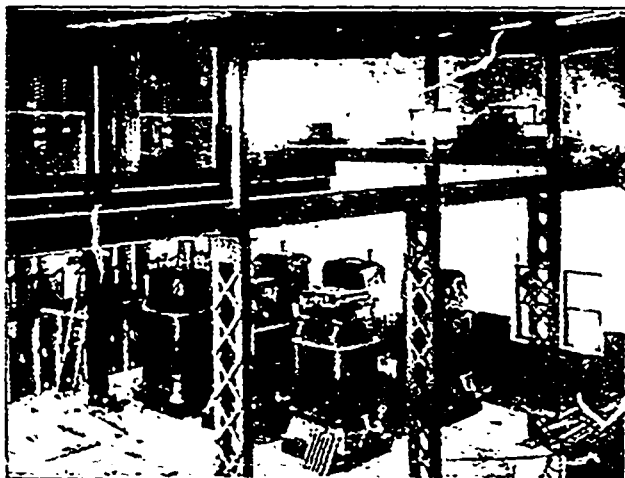
The success attending the operation of the plant is no doubt in part due to the skillful arrangement of the intake works. A double set of racks is provided for removing trash, one set being in front where logs and other heavy debris are removed and turned over the sluiceways. A second set of trash racks of iron set closely together prevents small debris and float getting into the aqueduct. These iron racks are covered to some distance below the water line and are housed in a heated building built over the intake, so no ice could possibly form on them. The sluice gates are arranged with a boom to stop floating debris and with underflow sluice for removing silt. After last winter's experiences, the company has every confidence in being able to meet all conditions of weather. That is not a factor of the problem, as water supply would no doubt be at a minimum in such an extremely cold winter, that factor,

solves the other part of the problem and not an element of uncertainty remains.



SUBSTATION AT FORT WILLIAM, HIGH TENSION END.

Mr. W. L. Bird, Associate Member American Institute Electrical Engineers, is the superintendent and Mr. R. Kyle as resident engineer.



INTERIOR OF SUBSTATION AT FORT WILLIAM.

An opera house will be erected in Moncton, N.B.

Department of Public Works, Fredericton, N.B., invite tenders up to October 14 for building substructure, approaches and covered wooden superstructure for Narrows bridge over Washademoak Lake.

The Utah Railway Paint Co., Kansas City, Mo. capitalized at about \$250,000, purpose establishing a large industry in Edmonton, Alta. The company are said to have located in the vicinity of Edmonton large beds of mineral clay called Kaolin, from which paint can be manufactured. The proposed plant will cost about \$100,000.

H. Gleiser, Oxbow, Sask., will erect a new hotel.

R. Shaw, Oxbow, Sask., is considering the erection of a large business block.

S. J. Castleman, Vancouver, B.C., will erect a six story business block at a cost of about \$100,000.

# Pig Iron Industry at Port Arthur.

NEW BLAST FURNACE, ORE ROASTING KILNS AND COKING PLANT OF THE ATIKOKAN IRON CO., LIMITED.

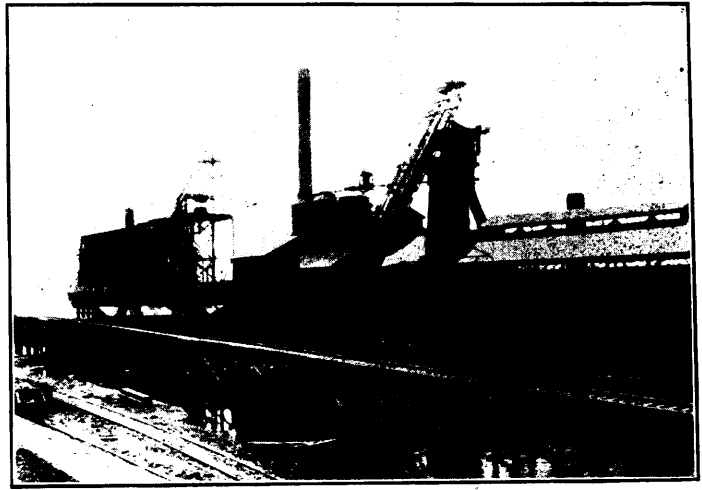
The final link to the already solid and extensive chain of metal industries in Canada is being added with the completion of the works of the Atikokan Iron Co., at Port Arthur, Ont. The past few years have seen a marvellous development in Canadian metal industries, the latest and one of the most important of which is the plant about to be described, where operations are shortly to

manufactured by the Canada Foundry Co. The blowing engine is a disconnected cross compound condensing horizontal engine manufactured by the Southwark Foundry & Machine Co., of Philadelphia. The design of the engines permits of operating either the high or low pressure side as an independent engine. Duplicate water circulating and boiler feed pump are provided.

exhaust fan for creating the draft permits of varying the supply of air according as the ore to be roasted is coarse or fine, the latter requiring a greater draft than the former. In the design adopted at Port Arthur the ore is elevated to the top of the roaster by means of a skip hoist, discharged into an automatic railroad truck of the Mead-Morrison type, and thence delivered in bins on top of the



ATIKOKAN IRON CO.—POWER PLANT, BLAST FURNACE AND ROASTING KILNS.



ATIKOKAN IRON CO.—ROASTING KILN AND BLAST FURNACE.

commence on an extensive scale for the production of high class pig iron. The market for the output is already assured. The establishment of this industry is timely and the location well chosen.

The entire plant of the Atikokan Co. consists of coal docks, a blast furnace, ore roasting kilns and coke ovens, which are situated on the water front just west of the Canadian Northern elevators, where they have a water frontage of 1,800 feet. The coal dock and unloader plant represents the best known equipment in this line, while the blast furnace and ore roasters are the most modern of their kind.

For some time past it has been known that enormous deposits of magnetic iron ore existed in Northern Ontario, both north and west of Port Arthur, but the Atikokan Co. is the first to take active steps towards the utilization of this enormous natural resource. Property owned by the company is known to contain at least 5,000,000 tons. Some of this ore can be used in the blast furnace without roasting, while that from other veins contains sulphur to such an extent that it must be roasted before being smelted.

Figs. 1 and 2 show the general arrangement of the plant, including the power house, furnaces and beehive coke ovens.

## FOR SMELTING OPERATIONS.

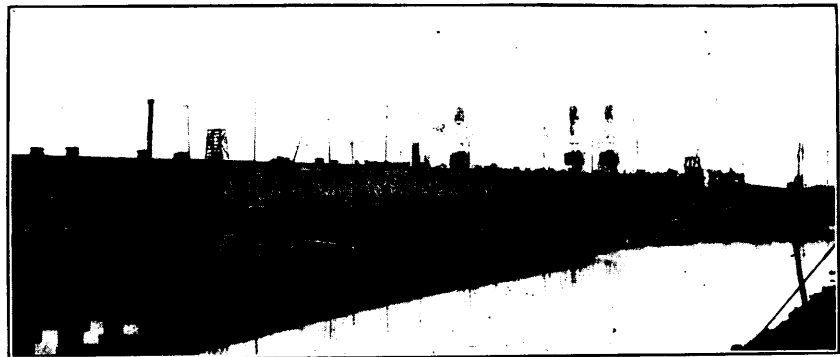
Three Roberts-Cooper stoves, 18 feet in diameter by 70 feet in height, constitute the hot blast equipment similar to those described in the CANADIAN MANUFACTURER a few weeks ago in connection with the Hamilton Steel & Iron Co. The power house equipment includes four water tube boilers of 200 h.p.,

The furnace is designed to produce 100 tons of ore a day, it being proposed to increase the capacity to 200 tons. The construction is the same as that described for the Hamilton Steel & Iron, being installed by the same firm, the Roberts Engineering Co., of Philadelphia.

## ROASTING THE ORE.

Experts on the subject advise the roasting of all magnetic ores, whether they contain

roaster. The ore "self feeds" from the bins into the roasting chambers as the roasted ore is drawn out of the roaster at the bottom. Bins are also provided at the bottom of each roasting chamber, the ore being delivered therefrom into electrically operated stock transfer cars, which in turn deliver the roasted ore to the furnace skip hoist. The bottom of the roaster is also designed so as to permit the delivery of roasted ore into ordinary rail-



ATIKOKAN IRON CO., PORT ARTHUR, ONT.—COKE OVENS.

sulphur or not so that it was decided by this company to provide roasting kilns capable of handling all the ore supply required by the furnace using the waste gas of the furnace as fuel.

The gases are consumed in a combustion chamber; the products of combustion passing through the ore to the chimney chamber, whence they are drawn by an exhaust fan delivering into a chimney. The use of the

road cars for shipment. The roaster and equipment are arranged to permit additional roasting chambers being erected later, the hoisting equipment being of ample capacity to meet possible requirements.

## COKING PLANT.

Beehive coke ovens to the number of 100 have been built each 12 feet 3 inches in diameter. The decision to put in this plant was

due to the difficulties and expense of transporting coke the great distance necessary to supply the plant. The coal is brought to the docks by vessels and delivered automatically by electrically operated transfer cars.

**MATERIAL STORAGE.**

The capacity of the stock bins is: coke, 200 tons; ore, 500 tons; limestone, 175 tons. This includes one large coke bin discharging directly into the furnace skip cars and fuel bins to discharge into an electrically operated transfer weigh car, which delivers the material to the skip hoist, and also transports the roasted ore from the roaster to the skip hoist.

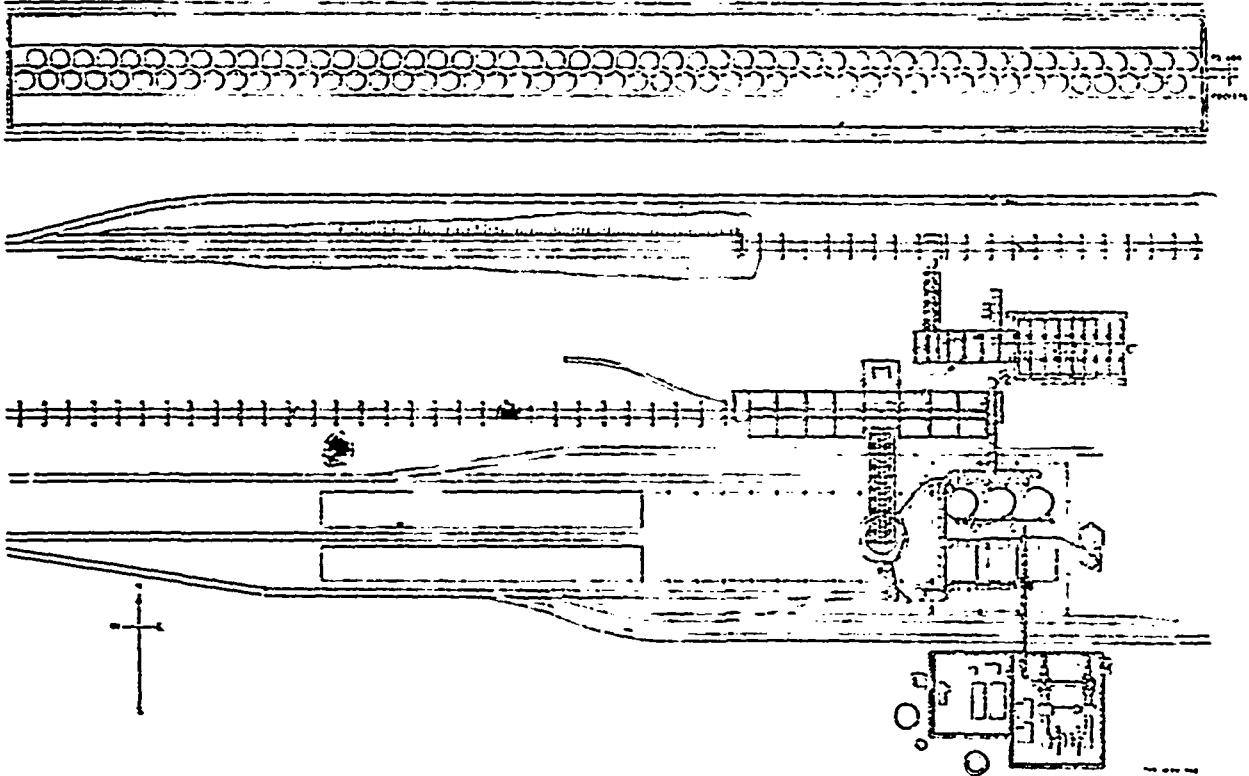
where coal bills run up into the thousands annually, and where every economy has to be practiced, managers are shaking their heads and demanding of the engineers a more economical method.

As things now stand, much of this economy is being accomplished through the installation of producer-gas plants in combination with the internal combustion engine. With the expiration of the Otto patents the development of the so-called gas engine began. Probably the most public and sensational development is to be seen in the automobile, but it is in the factories that the most marked advance really exists. Whereas, at the time

**PATENTS.**

Below will be found a list of patents recently granted to Canadian inventors in Canada and United States, which is furnished by Messrs. Fetherstonhaugh & Co., patent barristers and solicitors, etc., head office, Bank of Commerce Building, Toronto:

R. S. Worl Fort William, Ont., fastenings for stone doors and windows; L. Gervais, Berthier, Que., C. H. McIntosh, Montreal, methods of producing half tone plates; H. H. Vaughan, Montreal, Que., railways trucks; E. Windsor, London, Ont., machines for cutting barrel heading and the like;



THE ATIKOKAN IRON CO. LAYOUT OF WORKS.

Part of the output of this plant will be used in Fort William by the Canadian Iron & Foundry Co. for the manufacture of car wheels, iron pipe and iron castings.

The officers of the company are: President, D. D. Mann; vice-president and manager, J. C. Hunter; secretary, R. M. Hunter; treasurer, Hugh Sutherland.

**TO REDUCE POWER BILLS.**

That the world's greatest waste is in the combustion of coal is a fact which engineers are slowly impressing upon the manufacturing world. The present method of combustion secures but a tithe of the energy lying inert in the fuel. As it is, when a fireman shovels a dollar's worth of coal into the furnace if he get's a dime's worth of the power lying in that coal out of it by present methods he is accomplishing a miracle. Indeed the general average would be about three cents. In modern plants, conducted with unusual skill and under ideal conditions it is alone possible to deliver at the crank shaft 10 per cent. of the potential energy contained in the coal under the boilers. It is little wonder, therefore, that in plants

of the World's Fair at Chicago a 34 h.p. gas engine was a marvel, four engines of 5,400 h.p. are now being constructed for a California corporation. There is to-day in operation in the United States a gas engine plant of 40,000 h.p., another of 31,500 h.p. and a third of 21,500 h.p.

Sufficient it is to say that with the realization by the manufacturing world of the tremendous losses which they are sustaining through present methods of coal combustion, when they fully realize the thousands of dollars they are sending up the chimney under present conditions, they will demand and secure a more efficient and economical method. It may be along the lines which the engineering world is working on to-day, as indicated above. It may be along some other, but the advance must come.—The Industrial World.

**NEW GALVANIZING PLANT.**

The new galvanizing plant of the Winnipeg Galvanizing & Mfg. Co. was installed last week and the company have made an important addition to the list of Winnipeg's industries.

A. L. Mowry, St. John, N.B., rotary engines; A. J. LaVoie, Toronto, Ont., M. A. Orme, Toronto, form fashioners; J. Walker, Toronto, metal vessels; P. Binder, Winnipeg, Man., sight food lubricators; S. S. Arnold, Toronto, Ont., hinges; P. T. C. Dumais, Hull, Que., water cooler; E. MacDonald, Orangeville, Ont., J. D. McIntosh, Alexandria, Ont., W. Stephenson, Hamilton, Ont., straw separating apparatus for threshing machines.

The shops of the Intercolonial Railway of Canada have just turned out three motor coaches which were designed and constructed under the supervision of G. R. Yonghins, superintendent of motive power. These cars are 66 feet in length over end sills, and weigh 142,000 pounds complete with the motor, which latter weighs 51,000 pounds. The car seats 52 persons, has a luggage apartment 8 feet 43 inches in length, and an engine apartment 13 feet 6 inches in length.

The Packard Electric Co., Limited, St. Catharines, Ont., have supplied twenty-five 5 h.p. induction electrical motors for use in working the lock gates of the Welland Canal. Seventy-five more are to be supplied.

# The Gateway to "The Last Great West."

THE POSSIBILITIES OF FORT WILLIAM AND PORT ARTHUR AS A MANUFACTURING CENTRE.

A magazine writer some months ago referred to the great Canadian wheat belt from Winnipeg to the Rockies as "The Last Great West." For centuries the tide of civilization and industrial progress has moved steadily and resistlessly westward until the wide earth has been circled and the only land offered free of cost to the men with strength and courage to master it is in the Canadian West.

The consequent inrush of population with its need of shelter, of clothing, of food, and of implements has in turn given to manufacturers in Eastern Canada an exceptional impetus and has created in the mind of every "Captain of Industry" in Eastern Canada an intense interest in the land west of the Great Lakes.

It is not surprising then that manufacturers are studying the West. Already the great distributing centres have felt the influence of their enterprise, for warehouse after warehouse in all the leading centres is loaded from basement to roof with the products of eastern manufacturers in anticipation of each season's need.

Will the factory follow the warehouse? Shall branch plants be established to take care of Western business? Can raw material be assembled and the cost of production be kept down to a cost that would make a saving over the present charge for freight rates? These and other such questions are occupying the mind of many a manufacturer in Eastern Canada.

Many centres throughout the West are seeking the attention and the interest of eastern manufacturers in the hope of attracting industries, for it is well known that there is nothing which gives stability and permanence to a city's life like a variety of manufacturing establishments.

Up to the present moment no centre in the far West has been more successful in securing industries than the Twin Cities, at the head of navigation, Fort William and Port Arthur.

In the early decades of the nineteenth century, Grand Portage, a few miles distant from the present site of the Twin Cities, was the great centre of operations for the North West Co., the great rival of the Hudson's Bay Co. Here were held the annual meetings, when the season's harvest of furs was gathered for shipment to Montreal and when deep plans were laid to outwit and outbuy the traders of the rival company. Here, too, the men attached to each factor, met their fellows in great annual carousals.

The wheels of progress have turned onward. Grand Portage is to-day marked by one solitary fisherman's hut, while on the site of what was then a barren wilderness is to-day the nucleus of one of the great industrial centres of Canada.

When the master minds which laid the Canadian Pacific across the rocky areas of the Superior division, through the far-reaching prairie lands to the Rockies and through the difficult passes of that great range of mountain to the Pacific coast, Fort William was chosen as a divisional point. Even then there were many who prophesied this point was destined to be an important centre. Yet a full decade went by and it was still a straggling divisional point, with-

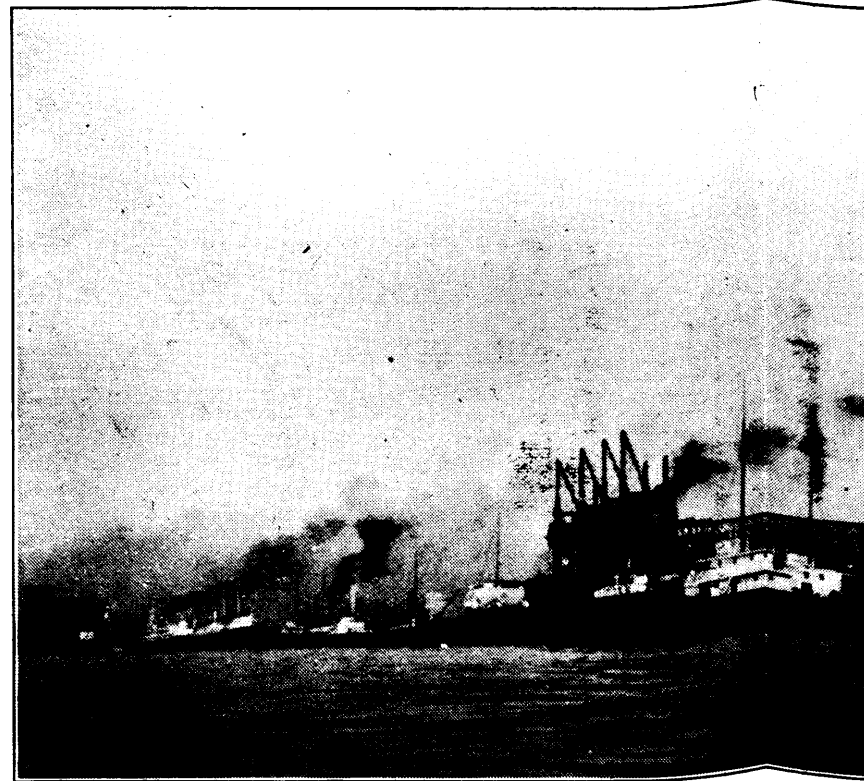
out industries and only such trade as the district immediately surrounding it created.

With the growth of the West came the need of better railway facilities and out of this need came the Canadian Northern from Winnipeg to Lake Superior. The engineers of this road, after examination of the entire coast line of Lake Superior, were forced to the inevitable conviction that their port must be on Thunder Bay, Port Arthur being chosen. With Port Arthur as the port for one railroad and Fort William for the other the future of the Twin Cities as an industrial and a distributing centre was assured beyond question. With the further announcement by the engineers of the Grand Trunk Pacific that their line would also make its port on Thunder Bay the last doubt vanished.

but the commencement and a small part of what the next decade will see in this direction. The first onward rush has commenced and combined with the best transportation facilities in the Dominion an industrial revolution seems inevitable.

## Port Arthur.

This town is known through the continent as the place to bring municipal ownership to the highest point of perfection. It operates successfully and on a paying basis its own telephones, water, light, sewers and electric railway, as well as the electric line connecting it with Fort William. It has one of the finest harbors on Lake Superior, being situated at the foot of Thunder Bay, where



HARBOR SCENE AT FORT WILLIAM, THE GATEWAY

Through these cities the transportation of half a continent steadily pours, much going Westward, more moving Eastward. In one year 50,000,000 bushels of grain from the great prairies of Western Canada were shipped and the enormous tonnage of freight and supplies for the whole of the Western country received and transhipped. The development of the wonderful water power at Kakabeka Falls where 100,000 h.p. of electrical energy are available, gives these towns an admirable proposition for industries looking for a suitable site and cheap power. The two magnificent metal industries, lately started, the Canadian Iron & Foundry Co., at Fort William, and the Atikokan Iron Co., at Port Arthur, by men of keen foresight and wide business interests are notable evidences of the possibilities in manufacturing. These are

the large lake vessels call and where three transcontinental lines of railway meet. The Canadian Northern Railway and Canadian Pacific Railway are yearly adding to their terminal facilities here, making them complete with docks and warehouses, and elevators. The Canadian Northern elevator here is the largest in the world. The Grand Trunk Pacific is constructing in Port Arthur a branch of their transcontinental railway. The Canadian Pacific line of steamers connect with the West at Port Arthur.

The development of the Current River water power (within the town limits) has created a most valuable asset, affording, as it does, cheap power for the operation of the various franchises owned by the town, viz., the electric railway, electric lighting, waterworks, (water from Lake Superior) and sup-

plying cheap power to small industries. These franchises and the telephone system are all paying investments, materially reducing the rate of taxation. Under the heading of municipal ownership can be placed the very beautiful and extensive park on the Lake Shore at the mouth of Current River. This also is a paying investment, the crowds frequenting this picturesque spot more than paying the annual cost of all expenditure in connection therewith.

The situation of the town is an ideal one for residences, rising in a succession of terraces to an altitude of 180 feet, affording delightful views of Thunder Cape (1,350 feet high), Pie Island, the Welcome Islands, Isle Royale (U.S.), Mount McKay (1,000 feet high), and the inner channel to Duluth with the busy inner harbor in the foreground, inside the government breakwater, where stands the largest and best equipped grain elevator in America, and the most modern "hospital" elevator on the Great Lakes, for the treat-

cheap water power, and municipal control of its franchises, the future of the town and its steady and permanent growth is assured in proportion as the great Northwest is developed.

## Fort William.

Industrial activity abounds at Fort William at the head of lake navigation. The city, which has only borne that title for about a year, has now reached to 15,000 people and is doing enough building in business blocks and residences to look like a city of larger proportions. Up to date this year the building permits as shown by the building inspector have run into \$700,000, as against \$400,000 in 1906, and in the latter year several very large works were included in the figures.

Fort William presents a very busy appearance and if there is any depression at all throughout the West you cannot see any evidences of it here. On every street work-

world of commerce stand. All incoming and outgoing freight passes through this port of an inland sea and Fort William takes toll on it all.

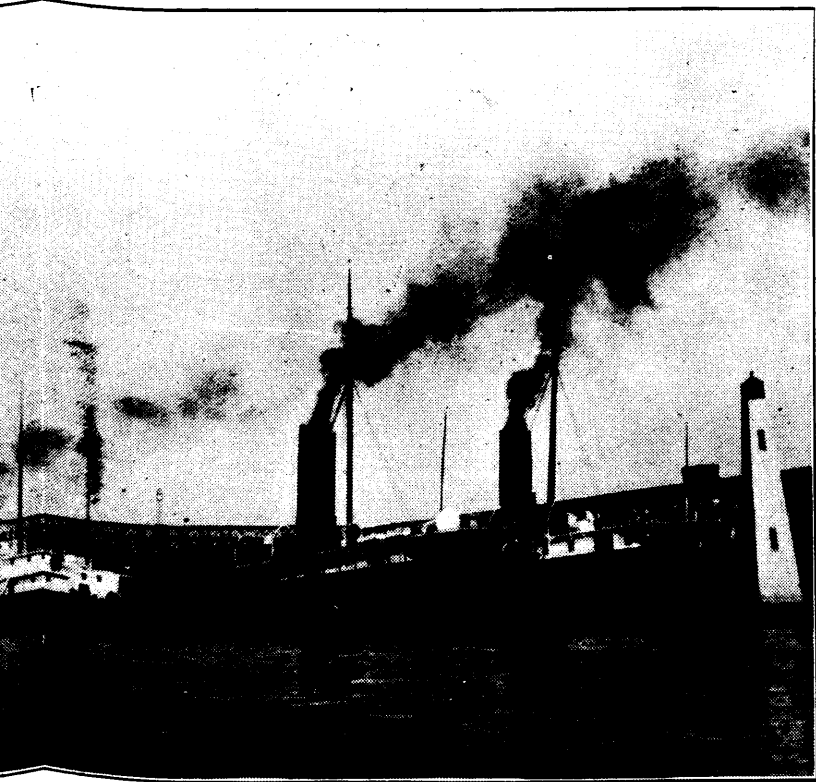
Just now the docks are ringing with the sound of steel rails being unloaded. All summer this clank, clank from vessel after vessel has gone on. The rails are for the steel line being stretched out westward by the Grand Trunk Pacific Railway. It is figured that about 80,000 tons have already arrived and still there are not nearly enough for the immense undertaking that will open up thousands of acres of new land, creating new business west of the lakes.

While one hears rumors of a possible coal shortage in the West, a visit to the immense coal docks of the Canadian Pacific Railway at this point would dissipate this idea if one did not know the great increase in the demand the West now levies on the coal field. There is room at these docks for some 800,000 tons of soft coal, costing to the manufacturer at this point only \$3.75 per ton, cheaper than at almost any point in eastern Canada. A hard coal storing plant has just been finished, which cost the Canadian Pacific Railway about \$175,000, and this plant will bring the capacity up several more notches.

To those who have never seen the mammoth elevators at Fort William in operation little can be understood of what it means to say they are the largest grain elevators in the world. In point of capacity Fort William ranks fourth largest in the world for grain handling and storing, but she ranks first in having the largest individual elevators. The Ogilvie Flour Mills Co. have just completed their new elevator adjoining the mill of 33,000 barrel capacity. This elevator cost the company in the neighborhood of \$200,000. The Consolidated elevator, which cost a quarter of a million dollars, is a huge tile structure capable of holding nearly 3,000,000 bushels. This particular elevator is about a couple of miles up the Kaministiquia River, a river that affords Fort William a natural harbor and dock site for manufacturers, for 26 miles.

Adjoining the Canadian Iron & Foundry Co.'s plant ground has been broken for a sister industry. This is the Imperial Wire & Steel Co., who have acquired ten acres of ground on which to erect their plant, which they expect to have in full blast by this time next year with a staff of 200 men.

The Grand Trunk Pacific will make Fort William its lake terminus. In fact the company had nowhere else to go. There is no other way to get in or out of the West so far as a big railway company is concerned. They need 1,600 acres of level ground for their yards and shops and they got this at Fort William. All summer surveyors have been busy laying levels and making ready for the actual work on the yards. The ground is now all cleared and the grade has been about completed running westward along Kaministiquia valley. About the middle of August work commences on the steel bridge, which is being run across the Kaministiquia river to cost \$250,000. This bridge is for the purpose of connecting the G.T.P. with their property on which yards, elevator and shops will be built. It is east of Kaministiquia river, while the city is built on the west of it. The elevator of the Grand Trunk Pacific, according to the plans prepared by the company will surpass in size any that now exist, being for 7,000,000 bushels.



THE GATEWAY TO "THE LAST GREAT WEST."

ment of unclean, smutty or damp wheat. Here many thousands of bushels are treated annually and rendered profitable, which otherwise would be of little or no value to the producer.

Extensive coal docks have been built; also a blast furnace to utilize the raw material—iron, the hard and soft ores of which are reported as excellent as they are abundant in this district. The various lumber and planing mills give constant employment to many men, and are amongst the most prominent industries of the town.

With its deep water harbor on the open lake and connection by lake and rail with the east and west by the Canadian Northern, Canadian Pacific and Grand Trunk Pacific Railways, its ideal situation for residential and factory purposes, extensive dockage and

men are busy erecting stores and dwellings; the streets are being paved with a particularly fine line of concrete blocks, which are said to be more expensive than asphalt, but can be taken up in sections at any time without damaging the entire road and the same blocks relaid. About 12 miles of new sewers are also being laid, new sidewalks put down, and when all is completed this will be about as tidy a little city as can be found in the Dominion, as for its size it is now the busiest.

Fort William is in the very heart and core of Canada. At this point you can practically feel the pulse of the whole Dominion. The great influence that Western commerce plays on the trade situation all over Canada is yearly becoming more and more of a factor in the industrial world, and it is at Fort William where one can gauge just how affairs in the



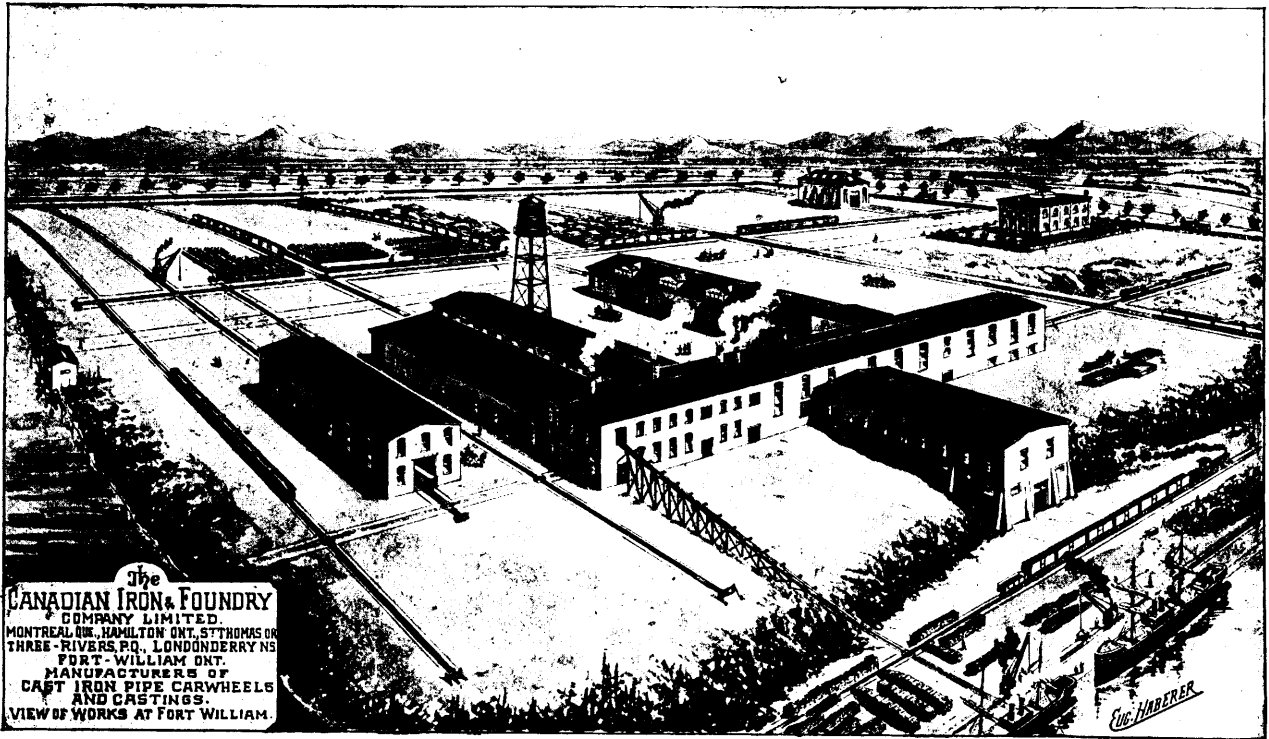
# Manufacturing Cast Iron Pipe and Car Wheels.

CANADIAN IRON & FOUNDRY CO.'S PLANT AT FORT WILLIAM, ONT., COMPLETE.  
LARGEST OF ITS KIND IN CANADA.

Cast iron pipe and car wheels are essentials to modern civilization. The completion of the new iron pipe and car wheel foundry of The Canadian Iron & Foundry Co., at Fort

THE PLANT.  
As will be seen from the birds-eye view and from the sketch showing general lay out, the plant consists of the pipe foundry, pipe

constructed by the Canadian White Co., for whom Mr. Edwin B. Tilt has been engineer in charge of construction since the turning of the first sod. The contracts for the buildings



The CANADIAN IRON & FOUNDRY COMPANY LIMITED.  
MONTREAL QUE. HAMILTON ONT. ST THOMAS ONT.  
THREE RIVERS QUE. LONDONDERRY NS.  
FORT WILLIAM ONT.  
MANUFACTURERS OF  
CAST IRON PIPE CARWHEELS  
AND CASTINGS.  
VIEW OF WORKS AT FORT WILLIAM.

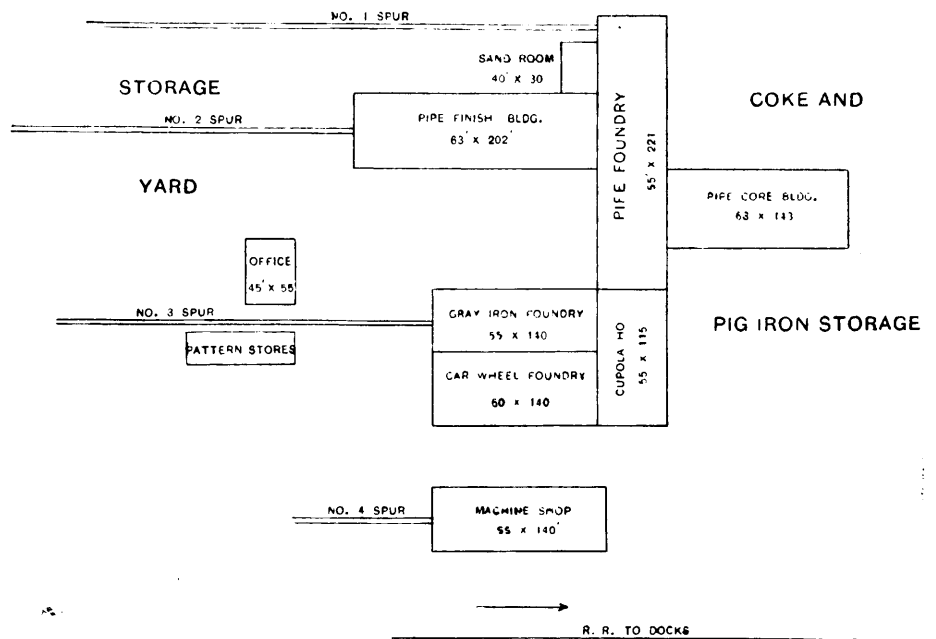
FORT WILLIAM PLANT OF THE CANADIAN IRON & FOUNDRY CO., LIMITED.

William, Ont., marks a notable industrial achievement, making the sixth plant being operated by them, the others being at Hamilton, Ont., St. Thomas, Ont., Montreal, Que., Three Rivers, Que., and Londonderry, N.S. Besides being the largest of its kind in the country, in it have been incorporated the most modern and scientific methods known for the expeditious manufacture of a perfect product, some of which are new to Canadian and United States practice and for the first time introduced into this country. Ease of application by automatic apparatus, short material haulage, and the lessening of manual labor have been a feature.

About thirty acres of land were secured in what is known as the Wayland addition with 1,000 foot frontage on the Kaministiquia River, which is navigable by large lake vessels to this point. On October 4 last year the first sod was turned by the vice-president, Mr. Thos. J. Drummond, and although adverse weather conditions hindered early progress, the plant is now ready, equipped and about to commence operations that will give employment to between two and three hundred men. The plant was designed by Mr. G. R. Duncan, formerly superintendent of the company's Three Rivers plant, whose ability as an engineer and whose expert knowledge of iron pipe manufacturing are well known

finishing shop, coremaking room, cupola room, grey iron and car wheel foundry and machine shop, all of which have been con-

amounted to over half a million dollars. They are of steel and brick on concrete foundations; and embody the latest methods known to

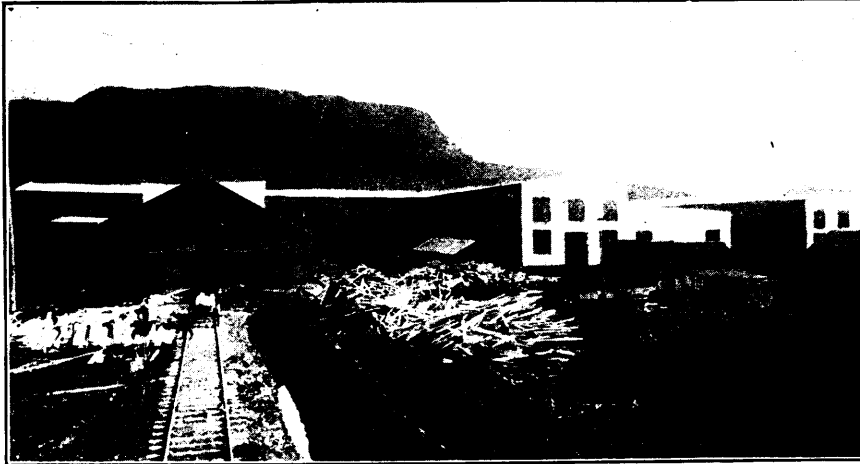


CANADIAN IRON & FOUNDRY CO.—LAYOUT OF PLANT.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

building construction. The roofs are fire proof, carrying a ten year guarantee, the former pipe moulding pit was a single trench. The one found here is in the form of a rec-

the pipe finishing room. Situated as to be at the most convenient point to serve the moulding pit is the core room from which the cores need be brought but a short distance to be placed in the moulds. It contains two sets of ovens, each of three units, the purpose of which will be mentioned later in this article. The cupola room is in direct line with the moulding pit, so that the molten metal may be carried directly by means of a powerful Niles crane and poured with no manual handling. On the opposite side of the moulding pit to the core room is situated the pipe finishing room. It is equipped with the latest apparatus and machinery for the proper finishing and making ready for the market of the highest grade of iron pipe. A Niles ten ton high speed travelling crane specially designed for the requirements of this particular plant is a feature of this department. Part of the equipment also includes two Spencer high speed lathes for cutting off the pipe to free it from the uneven end and impurities, for which allowance is made in casting. Special chain cleaning devices clean the pipe of the sand that adheres and an hydraulic testing plant allows the company to make sure that no pipe is sent out that will



CANADIAN IRON & FOUNDRY CO.—ANOTHER VIEW OF PLANT JUST BEFORE COMPLETION

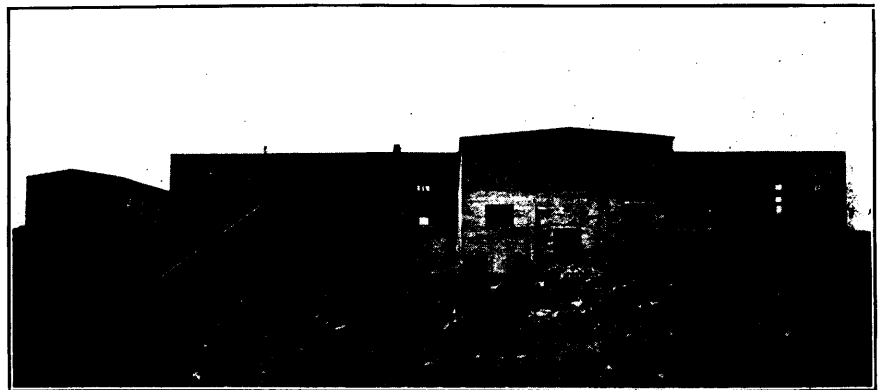
terial having been supplied by H. W. Johns-Manville Co., New York.

The dimensions of the various buildings are as follows: Pipe foundry, 221x55 feet; pipe finishing shed, 202x63 feet; coremaking room, 145x63 feet; cupola room, 116x55 feet; grey iron foundry, 141x55 feet; car wheel foundry, 141x62 feet, and machine shop, 140x55 feet, showing the enormous floor space available.

THE PIPE FOUNDRY.

The most important feature of the plant is the pipe foundry, the location of which was admirably arranged as will be seen from the sketch showing general layout. Here are manufactured all sizes of cast iron pipe at the rate of 80 to 120 tons a day, of eight hours. Heretofore all plants in America could operate only a certain number of hours a day on account of the mould being tied up in the oven. This drawback has been entirely eliminated, so that 24 hours a day operations can be carried on by the shifts of men year in and year out with no interruption of service or cessation of work. The

tangle having a continuous oven that permits of the continuous cycle of operation.



CANADIAN IRON & FOUNDRY CO.—ONE VIEW OF PLANT JUST BEFORE COMPLETION.

Intimately associated with the pipe foundry, in fact essential units in the production of pipe, are the core room, cupola room and

not stand several times the pressure required of it in commercial service.

CAR WHEEL AND GREY IRON FOUNDRY.

A glance at the sketch shows the location of these. It will be seen that like the pipe foundry they are sent on to the cupola room and in the same way are fed by the molten metal by means of Niles cranes, there being one each of 20 tons for each department.

The wheel foundry turns out 200 car wheels a day of 800 pounds each. In the manufacture of car wheels the rim is chilled by being cast in contact with iron and great precaution is taken to prevent the remainder of the wheel from cooling too rapidly. As soon as they are taken from the hot sand they are placed in fire brick lined cylinders sunk in the ground and allowed many hours to cool. It is seldom one hears of a car wheel breaking in service. This is accounted for by the fact that a most rigid test, both thermal and mechanical, is given these wheels, making it impossible that anything but perfect wheels be placed on the market.

The grey iron foundry has a capacity of about 50 tons a day and is devoted to the manufacture of high class iron castings of any size or variety.



CANADIAN IRON & FOUNDRY CO.—PIT UNDER CONSTRUCTION FOR MAKING IRON PIPE.

## MACHINE SHOP.

The machine shop comprises a separate building and is fitted up with the latest, modern machine tools for high class machine practise. It is intended to do here the machining on all the work required about the plant and on finished castings as ordered, but also to do jobbing work of every style.

## OTHER FEATURES.

All the machinery in the plant will be operated by electricity supplied by the Kaministiquia Power Co., from Kakabeka Falls. A sub-station situated at a little distance from the rest of the plant has been provided—36x36 feet.

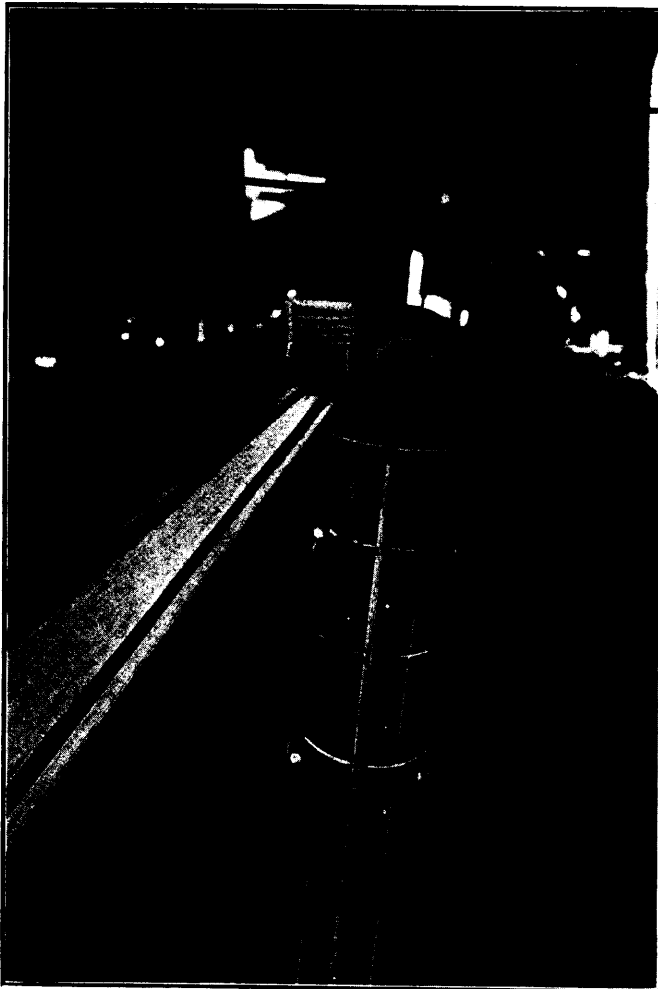
## PROCESS OF MANUFACTURING CAST IRON PIPE.

The standard method for the manufacture of cast iron pipe is to cast them in dry sand moulds in a vertical position. The illustrations given herewith will show more clearly the method. Practically all plants work on this system and vary only in the method of operations. Some plants have a certain number of moulds made each day, and set in an oven to dry over night. This limits the capacity of the plant to what will be contained in the oven.

The Fort William plant has been designed for continuous operation. Alternating and direct current and compressed air all play an

ward again to the end of the pit where a transfer car moves it across to the next track, which is parallel to the first one. A large pneumatic ram having a 12 foot stroke moves forward pushing the flasks from the transfer car into a high oven 80 feet long, 6 feet wide, and 15 feet high, located in the pit. It takes practically two hours for a mould to work its way through the oven and when it emerges from the opposite end it is thoroughly dry.

The dry mould upon emerging arrives in front of the core room where dry cores have been prepared as later described. The cores are now set into the moulds, clamped in, the bell end sealed with fresh sand, a platen set in and the whole equipment turned up side down. The mould is then moved forward to the end of the track where another transfer car moves it across to track number 1. Here the flasks advance a short distance and the molten metal taken from the cupola near by is poured into them. The flasks again advance and the core bars are withdrawn after which the flask is moved forward through the



CANADIAN IRON & FOUNDRY CO.—VIEW OF PIPE PIT.

A standard gauge railway track runs into each shop enabling heavy loading and unloading to be handled directly by the travelling cranes.

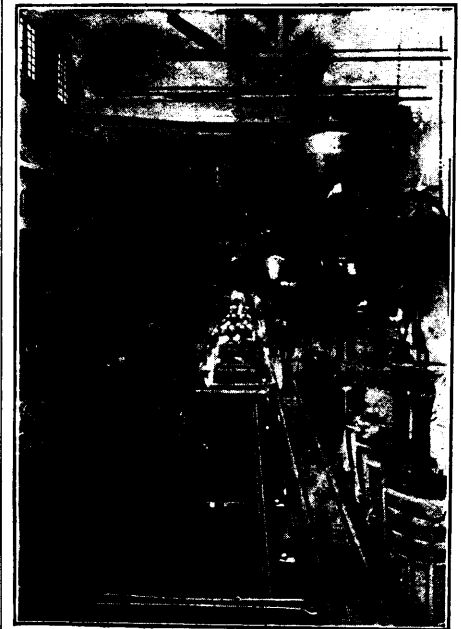
An underwriter's fire pump is part of the power house equipment, from which the company has an independent high pressure water system.

A large dock is being constructed and the company will handle its own coal and coke and ore, direct from the vessels to the plant. Connections by railway include the Canadian Pacific Railway, Grand Trunk Railway and Canadian Northern Railway.

important part in the cycle of operations.

The moulds are rammed up in front of the sand room. Cast iron flasks are equipped on trucks in a pit. The pit is the feature in connection with the manufacture of cast iron pipe. The trucks travel along tracks some eight feet above the pit floor so that the flasks are practically suspended from the middle and are fitted on trunions which enables the operator to turn the flasks either end up.

As soon as the mould is made it is moved to black-wash tanks, where the black-wash is poured in from the top, leaving a deposit of faling in the mould. It is then moved for-



CANADIAN IRON & FOUNDRY CO.—VIEW SHOWING FLASKS, CARRIAGES AND PIT TRUCKS.

ward again to the end of the pit where a transfer car moves it across to the next track, which is parallel to the first one. A large pneumatic ram having a 12 foot stroke moves forward pushing the flasks from the transfer car into a high oven 80 feet long, 6 feet wide, and 15 feet high, located in the pit. It takes practically two hours for a mould to work its way through the oven and when it emerges from the opposite end it is thoroughly dry.

## IN THE CORE ROOM.

Two complete sets of three ovens each are used. A steel tube is set on a table and revolved, while hay rope is wound on from end to end completely covering the steel. Over this rope is plastered a thick mixture of clay and sand, which adheres to the rope. At this stage the cores are set on cars and run into the first oven. Here they are dried and emerge from the opposite end of the oven. Here a second table with bearings is used for a final coating of mixture of clay and sand, which adheres to the first coat. The second

oven dries the second coat where it emerges to the space between the second and third ovens. A mixture of black-wash is now applied by dipping and the core is placed in the

Both moulding and core-making operations are continuous and the work carried any number of hours during the day. Another special feature of this system is shown as il-

and will usually be found within two inches of the top. The top six inches of the pipe are cut off on special high speed lathes. This method of manufacture, which is almost universal in Europe, but has not heretofore been adapted in this country, insures absolutely sound heads.

The needs of such a plant as this in the West are very pressing and the financial success of such an undertaking in the hands of and with the experience of the Canadian Iron & Foundry Co. seems assured beyond a doubt.

THE CANADIAN MANUFACTURER is indebted to Mr. G. R. Duncan, engineer in charge for much of the information contained herein, as well as to the courtesy of Mr. E. B. Tilt, of The Canadian White Co., for his useful co-operation.

The entire electrical machinery and apparatus for this plant has been supplied by Allis-Chalmers-Bullock, Montreal, and the fire pumps by the John McDougall Caledonian Iron Works, Montreal, being of the Worthington type. The travelling cranes, are all of the Niles pattern, purchased from the Canadian Fairbanks Co., the Canadian agents of The Niles-Bement-Pond Co.

The officers of the Canadian Iron & Foundry Co. are Edgar McDougall, president; Thos. J. Drummond, vice-president; F. G. O'Grady, secretary-treasurer; J. A. Kilpatrick, general superintendent; and G. R. Duncan, chief engineer. The executive offices of the company are at Montreal.

**SITUATION WANTED.**

Superintendent-Mechanical Engineer, with extensive English and Canadian experience, well up in modern machine shop practice, at present in good position, desires change as superintendent or manager. Can take full charge, and get results. Box 27, CANADIAN MANUFACTURER, Toronto.

**BE PRACTICAL.**

No force, however great no method, however promising, is useful until practicality reduces it to result-bringing.

Water in sluggish flow is an idle element; restrained and directed it yields industry-making power.

Fire, soaring red in a frenzy of liberty, is an element of destruction; confined and controlled, a force of production.

Brain power, diffused and impractical, is the resultless self-wearing of a wild engine; centralized, practical, it becomes the motive power of progress.

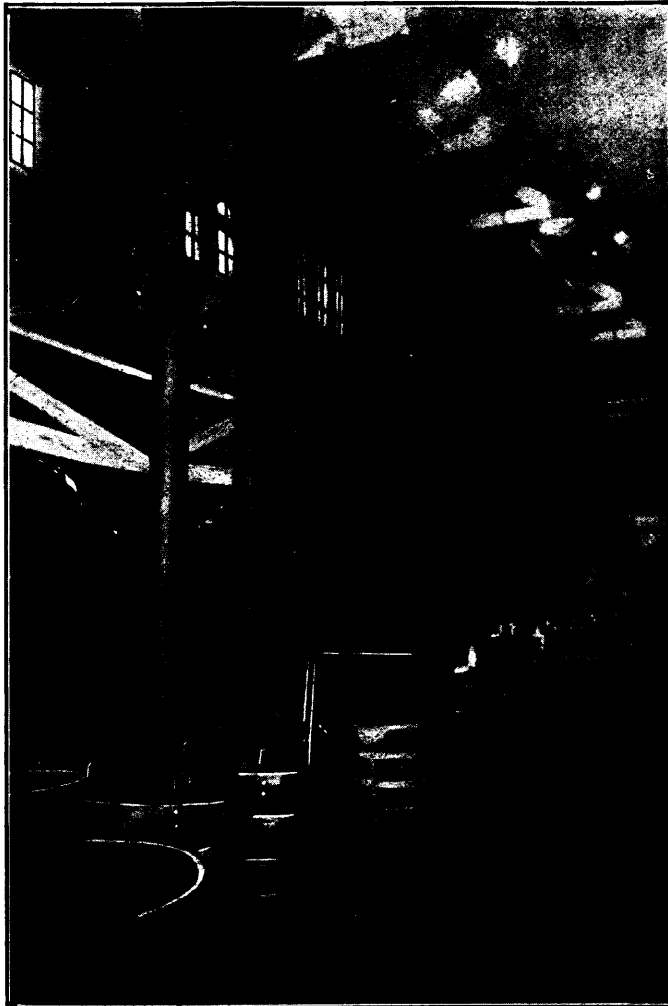
The practical guided James Watt to the improvement of the steam-engine, which wrought revolution in all industry.

It was Edison, the practical, who turned to production the dreams of a Franklin.

The practical develops inertia to energy, adapts ideas to actualities, transforms hopes to efforts, tempers ambition to judgment. It initiates the sanest, utilizes the most effective, develops the greatest results. It wins.

Be practical!—System.

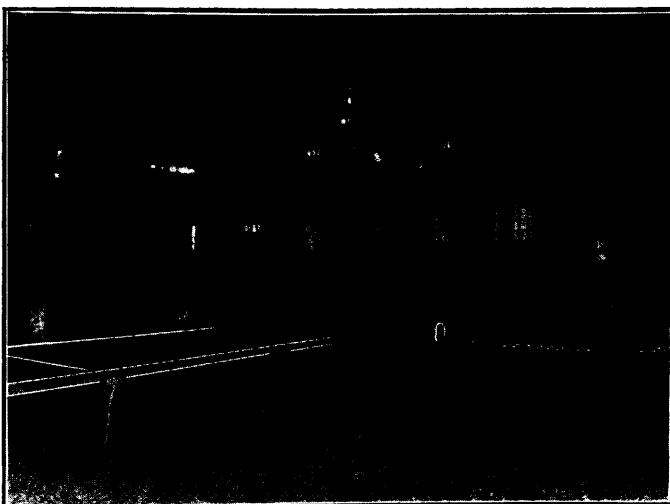
Mr. T. G. Reid, of the Colonial Engineering Co., Montreal, is to deliver an address on "The Cost of Power as a Fixed Charge" at the Thursday session of the convention of the Canadian Manufacturers' Association in Toronto next week.



CANADIAN IRON & FOUNDRY CO.—DRAWING CORE BARS.

third oven for its final drying. The pipe emerges from this oven at the side of the pipe pit where it is set into the mould as already described.

lustrated in the outline cut. The pipe is cast some six inches longer than required. It is found that any dirt or impurity which escapes into the mould will rise into the top



CANADIAN IRON & FOUNDRY CO.—CLEANING CHAIN IN OPERATION.

### AUXILIARIES FOR THE ELECTRIC TRAVELER.

Formerly the electric traveling crane was considered as a kind of auxiliary machine, acting as a sort of servant to the tools below it and waiting upon them at call. This is true in part, but at the same time it must not be forgotten that the electric crane is itself a machine tool of a high order, and that its time is chargeable to the general shop expense or to the special machine-tool expense, according to the particular system in vogue. Under such conditions it is most essential that a traveling crane should not be out of service any longer than is absolutely neces-

sary, and that any derangement which may occur should be remedied with a minimum possible delay, says Cassier's Magazine.

plant is essential to commercial success, are generally supplied with one or more reserve trolleys for the traveling cranes of each shop, so that it is only a matter of the replacement of the one which may be temporarily embarrassed by a reserve in order that the work of the machinery below may not be impeded.

When such cranes are erected in the first place there is generally available the hoisting equipment of the builder, or the men who are installing the plant, but after this temporary hoisting plant has been removed it is most desirable that an active works should be supplied with its own auxiliary hoisting plant in order that assurance

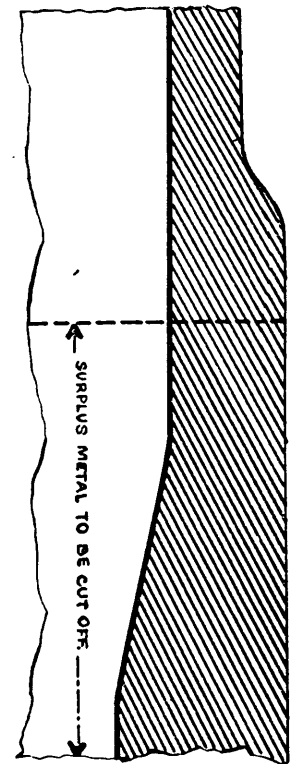
of the runway for the other cranes of the series.

The electric hoist, among its other services, therefore, has become a sort of auxiliary to the large electric traveling crane, holding itself in reserve to transfer either bridge or trolley to a place where any temporary trouble may be repaired without impeding the activity of the rest of the shop, and where a minimum of time and labor may be expended in restoring it to active service.

This principle, involved in this altogether workmanlike arrangement, is an excellent example of what has been found by extended experience to be the safest provision against any serious interruption of continuity in mechanical operations. There are certain lines of work which, when once started, must be kept continually in operation, or at least must suffer the least possible interference with continuous action. It is not possible so to construct machinery that it shall be



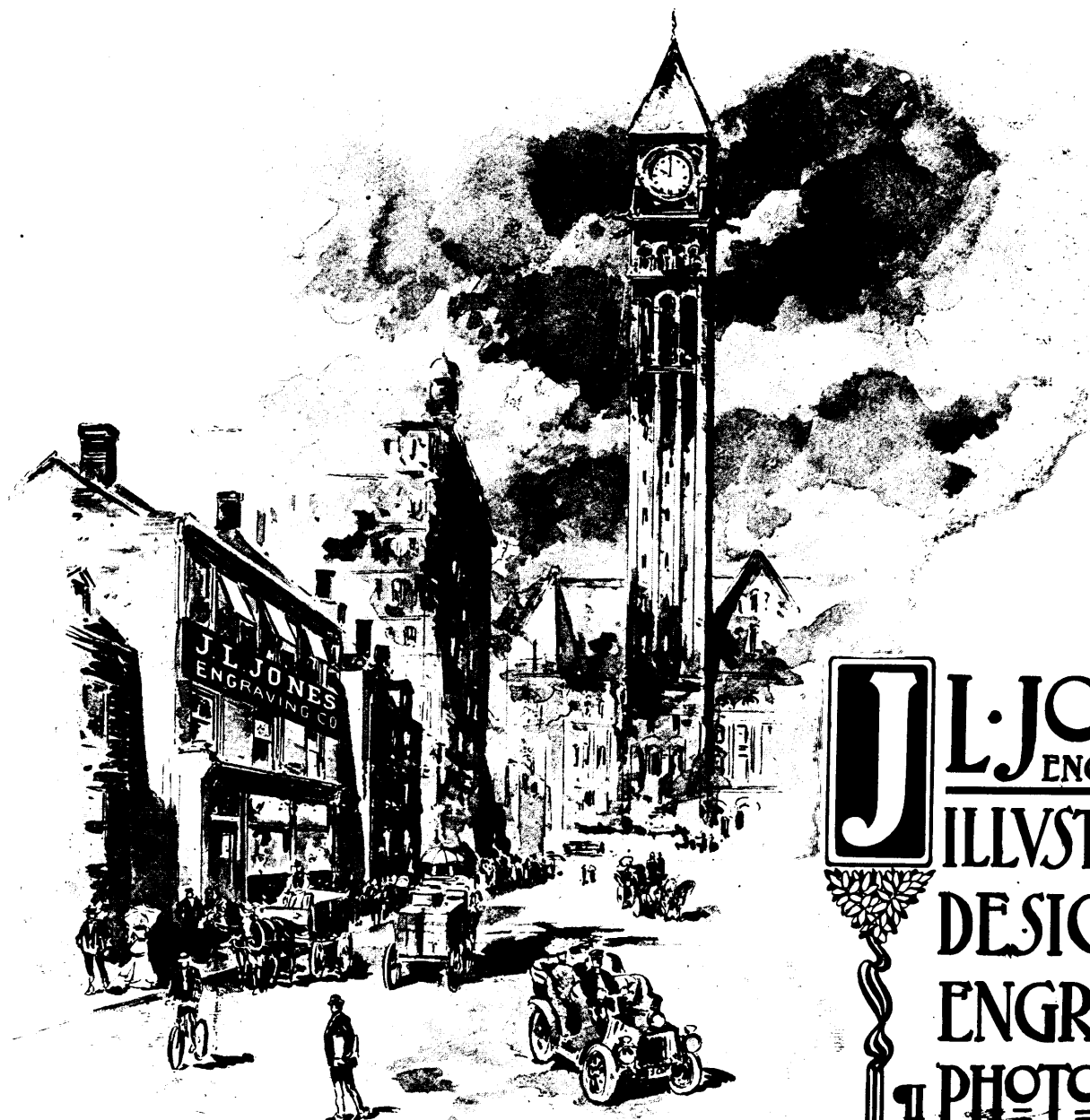
CANADIAN IRON & FOUNDRY CO.—POURING A PIPE.



CANADIAN IRON & FOUNDRY CO.—ONE PRECAUTION TO ENSURE PERFECT PIPE.

immune from temporary disability, although machines may be built so that breakdowns are few and far between. It is practicable, however, to provide for emergencies in such a manner that when interruptions do occur they may cause a minimum of delay, both to the machine immediately affected and to the remainder of the plant.

Ottawa may have its own power plant in the not distant future. The Municipal Electric Committee want authority to buy from present owners the right to develop 25,000 h.p. on the Gatineau River, at a cost of \$200,000, and on condition that the city build a dam across the entire river, capable of establishing 80 foot head at the seat of power.



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Service Quality  
 is Price

J. L. Jones Engraving Company's  
**SYMBOL OF SUCCESS**

**METALLIC ROOFING CO.'S EXHIBIT.**

The accompanying photo shows what is probably the finest exhibit of sheet metal building material that has ever been made. The workmanship could not have been excelled. This very attractive exhibit clearly shows that sheet metal can be

metallic lath, ventilators, conductor pipe, eave trough, spun zinc balusters, metallic ceiling, centre pieces, cores, moldings, etc., fire-proof wired glass windows with hollow sheet metal sash and frames, "Eastlake" and "Empire" metallic shingles, corrugated iron, both galvanized and paint-

out that theirs is the only exhibit of sheet metal building materials that has ever been considered worthy of a gold medal, and this high honor has been given no less than three years in succession. What more need be said?



Canadian National Exhibition—The Metallic Roofing Co., Toronto.

successfully used for nearly every portion of a building and produces a handsome, durable, fire and lightning proof finish.

The exhibit included cornices, skylights, finials, embossed fire-proof doors, pressed zinc ornaments. Haye patent

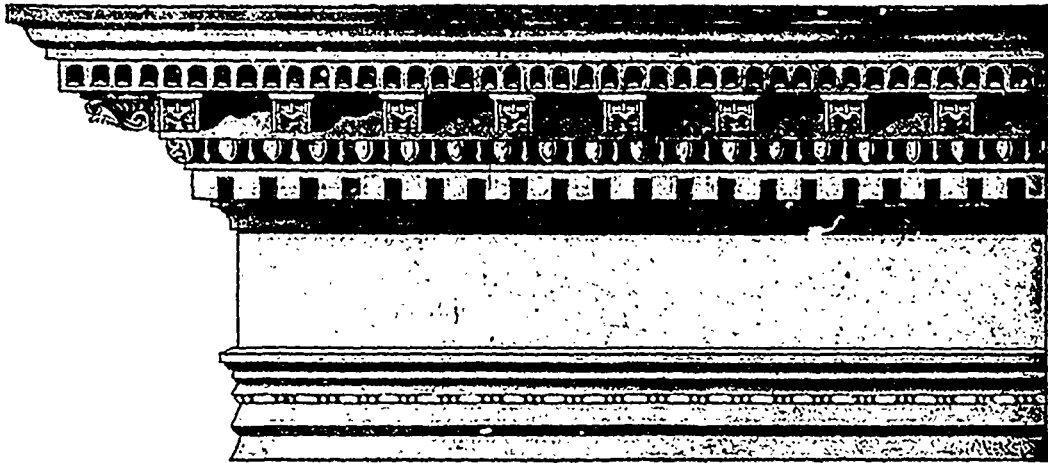
ed, straight or curved. Some of these articles are most beautifully decorated in colors and only need to be seen to be appreciated.

The company makes only reliable, artistic and durable articles, and point

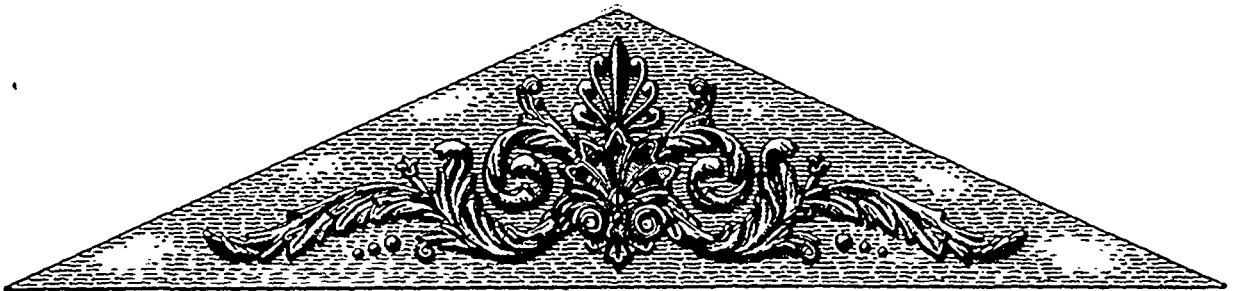
The company's products are exported to nearly all foreign countries and their Canadian trade has increased so greatly that they find it necessary to operate their factories both day and night.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

# Artistic "Metallic" Building Materials



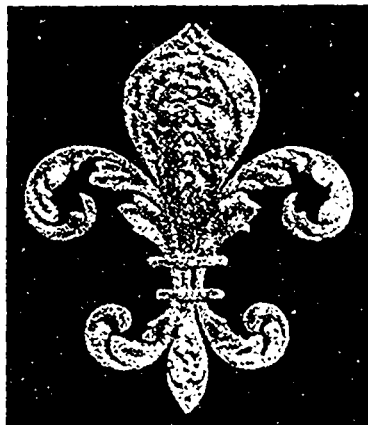
We can produce any style of "Cornice" to suit your requirements. We know how to do it right. No trouble to erect our cornices because our workmanship is so exact that the parts we send you will fit easily and accurately.



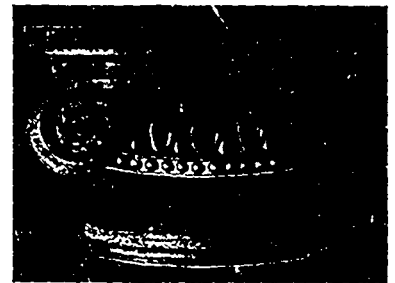
Tympanium Panels are what add a finish to every fine residence. Every builder wants them.



**Centro Pieces**  
that will not drop off like plaster.



**Pressed Zinc Ornaments**  
for all purposes. Hundreds of designs.



**Capitals**  
For either interior or exterior columns.  
Every size and design that you  
can think of.

We also make Corrugated Iron, "Metallic" Shingles, Siding, Ceiling, Lath Doors, Windows, Skylights, Finials, Cresting, Conductor Pipe, and in fact, all kinds of reliable Sheet Building Materials.

## HAVE YOU OUR CATALOGUE?

In competition with the world we received:

The Highest Award at Paris, France, 1900.  
Gold Medal, Jamaica, B.W.I., 1891.  
Silver Medal, Toronto, 1901.

Gold Medal, Toronto, 1902.  
Silver Medal, Winnipeg, 1906.  
Gold Medal, Toronto, 1908.

Gold Medal, Toronto, 1901.  
Bronze Medal, London, 1893.  
Silver Medal, London, 1890.

**22 Years' Experience**

# The Metallic Roofing Company of Canada, Limited

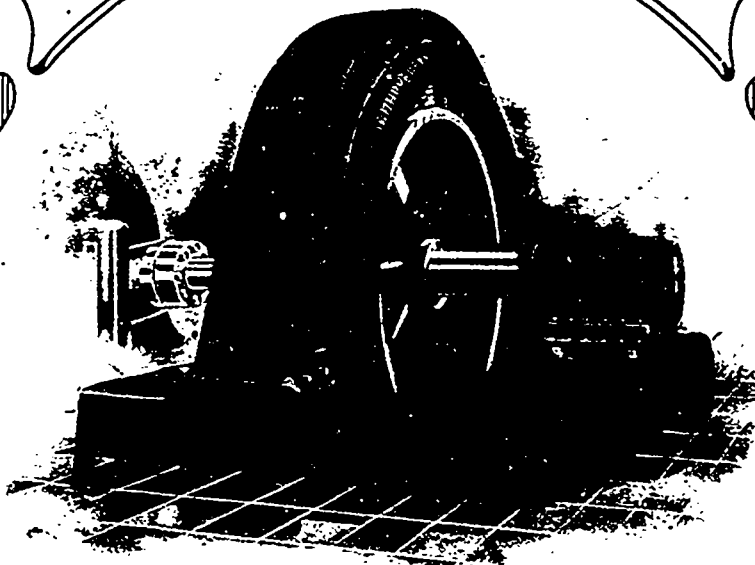
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TORONTO AND WINNIPEG, CANADA

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# LEGG BROS.

## ENGRAVING CO.

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**THE BEST PROOF OF GOOD SERVICE  
IS THE INCREASE OF DEMAND.**

Why has the circulation of THE CANADIAN MANUFACTURER doubled in fifteen months ?

Why has the amount of advertising in this paper increased 60 per cent. in eighteen months ?

Why is it that this issue carries more advertising than any previous regular issue of the paper ?

Why is it that the best friends of THE CANADIAN MANUFACTURER are those who pay to have it to read and those who pay to use its advertising columns ?

Because we have adopted the policy, and have lived up to it, of giving both reader and advertiser more for every dollar they give us than they can get in any other paper or in any other way.

Because we are investing every dollar of increased revenue in building up a bigger, stronger paper, endeavoring to make each issue more useful and efficient than the one before it.

**The Canadian Manufacturer is THE INDUSTRIAL PAPER of Canada. Since its establishment in 1880 it has been the great champion of protection for Canadian industries. To-day it reaches the big industrial leaders of Canada—the owners, managers and superintendents, the men who decide, "the men who buy."**

**Modern High Grade WOOD WORKING MACHINERY**

WE USE

**Cut Gearing**

on all our  
Machines.

MATERIAL AND  
WORKMANSHIP  
THE BEST

No. 132

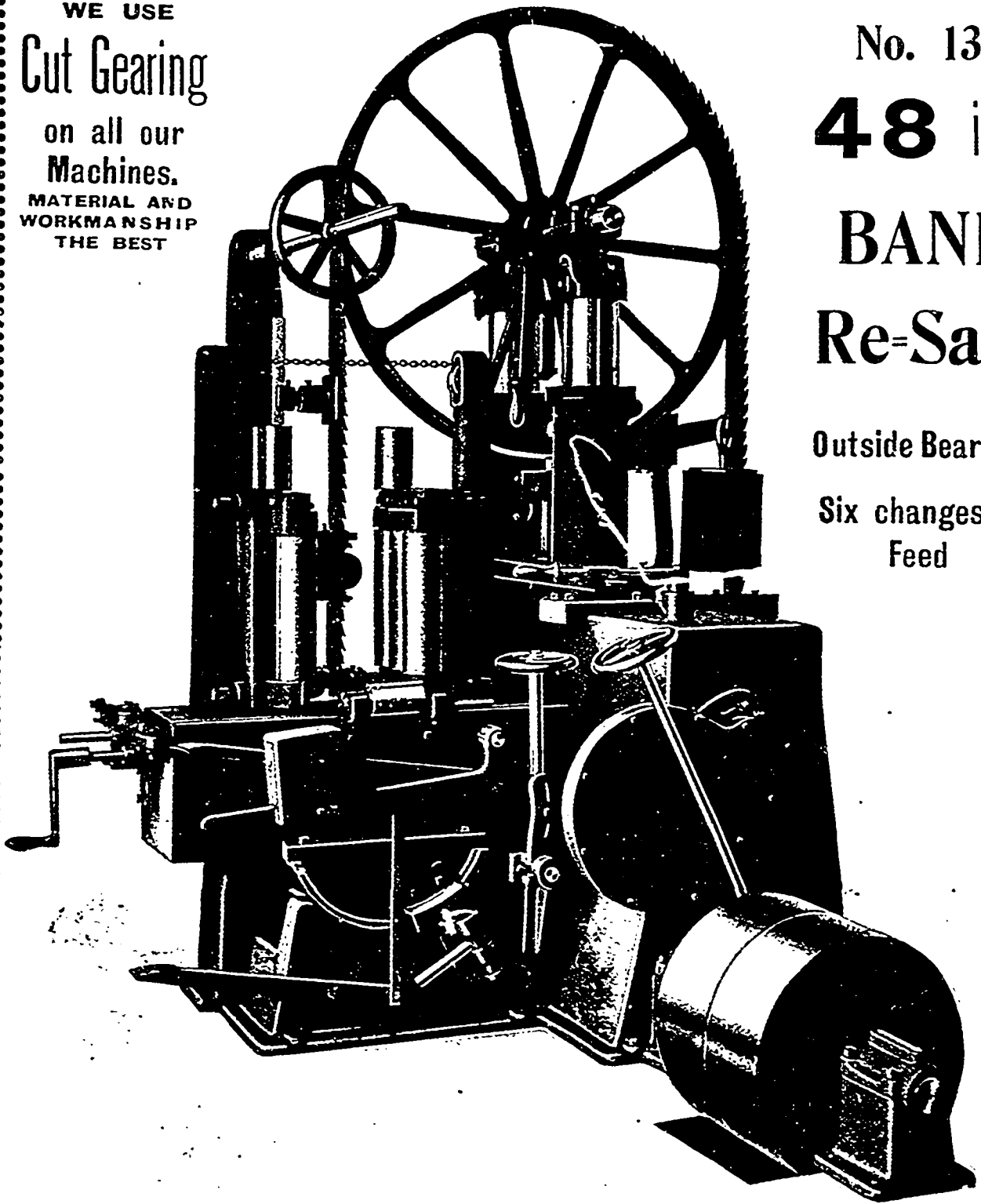
**48** inch

**BAND**

**Re-Saw**

Outside Bearings

Six changes of  
Feed



Our Factory is NEW and MODERN in every detail. Everything connected with our output HIGH CLASS. Let us know your needs in Wood Working Machinery. Prices and full description will be sent.

**CLARK-DEMILL Company, Limited, HESPELER, Ontario, Canada.**

WESTERN REP., WATEROUS ENGINE WORKS CO., LTD., WINNIPEG.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

## Electricity Direct From the Mines.

The economical development of electrical power for use in manufacturing plants need not be confined to localities where ample water power is available.

The city of Amherst, N.S., is now supplied with energy from a power plant at Chignecto mines, a distance of six and a quarter miles from the city. The fuel used is the waste screenings, which makes the cost of power so low that its use will be practicable for all manufacturing purposes.

A large party of prominent Canadians attended the formal opening, and Lieutenant-Governor Fraser turned the switch setting the machinery in operation. H. J. Logan, M.P., chairman of the board of trade committee, received an interesting telegram from Thos. A. Edison congratulating the Board of Trade and Senator Mitchell, president of the Maritime Coal, Railway & Power Co., on the inauguration of the first plant on the American continent for the generation of electricity at the mouth of coal mines and the distribution of same to a distant commercial centre.

The new power plant is interesting, not only because it is associated with the new system of electrical transmission, but on account of its intrinsic merits. It consists principally of a Robb-Armstrong cross compound, vertical enclosed high speed fore feed oiling engine, of 750 h.p. when working under its most economical load, or 1,000 h.p. for an overload. The engine was manufactured by the Robb Engineering Co., of Amherst, and is an example of the latest English type in Canada; in fact is probably the largest of the particular type in America. The moving parts are entirely enclosed and work in a continuous bath of oil, which is supplied at a pressure of from ten to fifteen pounds to each bearing.

Directly connected to the engine is a Canadian Westinghouse, alternating current, electric generator, with a rated capacity of five hundred kilowatts, delivering the current at a pressure of eleven thousand volts.

Steam is supplied to the machinery by four 200 h.p. return tubular boilers built by the Robb Engineering Co.; and the coal is fed to them automatically by Jones Underfeed Stokers. The plant is arranged with the modern system of induced draught, by means of fans and a short smoke stack. The coal and ashes are handled by power conveyors. The consulting engineer in connection with the installation is Julian E. Smith, C.E., engineer of the Shawinigan Paper Co., with Philip A. Freeman, engineer of the Halifax Tramways as assistant. The power plant is enclosed in a substantial two-story brick building, with a concrete base, and is within about sixty yards of the pit's mouth.

The bank-head is a solid structure, of modern type, admirably adapted for the most economical handling of the coal as it comes up from the mine. The coal is hauled up a slope, in trucks containing fifteen hundred pounds each, and six trucks to a train by a cable. When the trucks reach the sur-

face it is only to continue the journey upon a similar slope in the open air until they reach the top of the bank head. Here an elaborate system of tracks and switches sends each truck exactly where it is wanted, and its contents are mechanically dumped into rockers and over screens, which accomplish marvels in the way of "natural selection" before the good coal reaches the railway cars below, waiting to receive it. The final process, however, is an expert system of hand-picking, by which slates and other impurities are removed without stopping the progress of the coal for an instant. The slack or culm, is mechanically carried to holders in the boiler room by endless conveyers, where it is conveyed by gravitation to the mechanical stokers of the Jones Underfeed type.

The power is conveyed from Chignecto to the company's sub-station at Amherst on copper wires, at a pressure of 11,000 volts. At the sub-station, are three Westinghouse transformers of 150 kilowatts each, which transform the pressure from 11,000 volts to 2,000. Rhodes, Curry & Co. have also three transformers of forty kilowatts each, which in certain cases reduce the pressure from 2,000 to 220 volts.

In the evening a banquet was given by the Amherst Board of Trade to the Lieutenant-Governor, Senator Mitchell, and the other visitors. It had been intended to hold the banquet at the principal hotel, but it was found that no hotel in Amherst could accommodate all the people who wanted to be present, and it was decided to change the scene of the festivities to the Winter Fair Hall.

A. C. Lusby, president of the Board of Trade, presided, and in proposing the health of the Lieutenant-Governor remarked that Governor Fraser was making a warm place for himself in the hearts of the people of Nova Scotia by the interest he was taking in their industries and by going about among the people to assist and encourage them, more than any of his predecessors had ever done.

His Honor, after expressing in feeling terms his appreciation of the enthusiastic reception given to the toast, congratulated the people of Amherst and the capitalists outside who had succeeded in doing what had never before been accomplished on this continent, and he knew it would be the hope of all present that Senator Mitchell and his associates would have a good return for their investment.

R. Charles Smith, K.C., proposed the toast of the evening: "The Maritime Coal, Railway & Power Co. Senator Mitchell, and N. Curry, of Rhodes, Curry & Co., responded to the toast.

Hance Logan, M.P., for Cumberland County, and chairman of the Board of Trade Reception Committee, proposed the toast of "Our Guests," coupling therewith the names of the Hon. C. W. Robinson, premier of New Brunswick, the Hon. Dr. Pugsley, the Hon. Frank J. Sweeney, Mr. George Robinson, M.P.P., for St. John, Mr. Henry Dalby, of Montreal, Mr. Edgar Seymour Reade, of Ottawa, and Mr. Julian E. Smith, C.E., engineer of the Shawinigan Falls Co., and which was responded to by these gentlemen.

Enthusiastic cheers for the Lieutenant-Governor and Senator Mitchell, and the singing of "Auld Lang Syne," brought the banquet to a close.

## Copper Clad Steel Wire

MONNOT PROCESS

A substitute for pure copper, combining great tensile strength with high elasticity.

DUPLEX METALS COMPANY,

Wm. O. Hawkins, General Agent.  
Myles' Building, Hamilton, Canada.

We Have  
Ready for  
Immediate Delivery  
**FOUR**  
Hand and Foot Power  
**SAWING  
MACHINES**

Fitted with Adjustable Fence and Angle Gauge.

The diameter of these saws is 10 inches, the hole 7/8 in. One Rip and one Cross Cut is supplied with each machine. Table is built up of hardwood strips to resist warping.

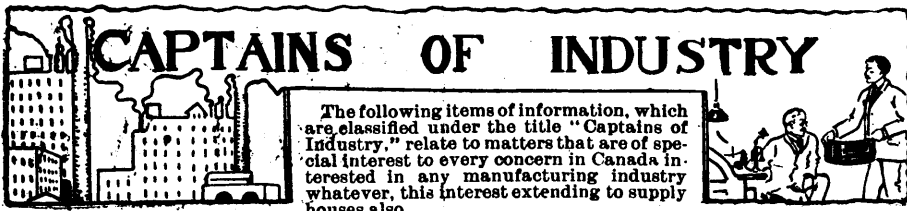
Power can be used separately or together.

**BARGAINS  
FOR CASH**

WRITE FOR PRICES.

**DYNAMIC MACHINE  
WORKS, Limited**

63 and 65 Dalhousie Street,  
Montreal.



The Sable Logging Co., Massey, Ont., have been incorporated with a capital of \$75,000, to manufacture lumber, timber, etc. The provisional directors include R. Friar, J. A. Ferguson, Massey, Ont., and W. J. Bell, Sudbury, Ont.

The Algoma Steel Co., Sault Ste. Marie, Ont., and the Dominion Iron & Steel Co., Sydney, N.S., have been awarded contracts to deliver 18,000 tons of 80 pound steel rails for use in the Eastern division of the Grand Trunk Pacific Railway.

A large smelter is to be erected at Sault Ste. Marie, Ont., with an initial capacity of 125 tons of ore per day. The capital of the company is \$1,000,000. O. Stalmann, Salt Lake City, Utah, is one of the directors.

National Oxide Paint & Color Co., Hamilton, Ont., have been incorporated with a capital of \$50,000, to manufacture paints, colors, varnishes, oils, etc. The provisional directors include G. Stroud, A. Stroud, and G. F. Webb, Hamilton, Ont.

The Tyrell Cooler & Filter Co., Ottawa, have been incorporated with a capital of \$100,000, to manufacture coolers, filters, etc. The provisional directors include H. W. Tyrell, D. T. Smith and J. Herbert, Ottawa.

The Canadian Shipbuilding Co., Bridgeburg, Ont., launched the first vessel from their large plant about four miles down the river on September 7. The boat was christened the E. B. Osler, and has the distinction of being the largest ever constructed in Canada. It has a capacity of 9,000 tons, and will be used by the St. Lawrence & Chicago Steam Navigation Co. for carrying grain and ore between Fort William and Buffalo. It is 510 feet long and 56 feet wide, and is built throughout after the most modern plans.

The Grand Manitoulin Oil Co., Toronto, have been incorporated with a capital of \$500,000, to manufacture petroleum, oil, salt, gas, etc. The provisional directors include G. B. Patteson, W. R. Skey, and C. S. MacInnes, Toronto.

The sawmill of Messrs. Mohr & Co., Killaloe, Ont., was destroyed by fire September 2. Loss about \$3,000.

The new elevator of Messrs. Muirhead & Black, Fort William, Ont., was damaged by fire September 8. Loss about \$5,000.

The Grand Trunk Pacific Railway Co. have awarded the contract for the erection of the large bridge over the Kaministiquia River, Fort William, Ont., to Wylie & Balfour for the masonry work, and the Canadian Bridge Co. for the steel work.

The Simplex Gas Co., Toronto, have been incorporated with a capital of \$40,000, to manufacture gas burners, stoves, ranges, heaters, etc. The provisional directors include H. H. York, S. King and J. Murphy, Toronto.

The Bell Foundry, St. George, Ont., has been taken over by Messrs. Chapman &

Fleury, the purchase price being \$25,000. Mr. Chapman is head of the Ontario Wind Engine & Pump Co., Toronto, and Mr. Fleury is connected with J. Fleury's Sons, Aurora, Ont.

The Canadian Gypsum Co., Toronto, have been incorporated with a capital of \$20,000, to manufacture gypsum, stone, ore, etc. The provisional directors include J. S. Lovell, R. Gowans and W. Gow, Toronto.

The new municipal telephone system at Port Arthur, Ont., is now in operation.

G. H. Gooderham, has purchased a site on Teraulay Street, Toronto, on which he will erect a five story automobile garage.

Messrs. Reid Bros., Sarnia, Ont., have succeeded in raising the dredge "Laurier," which was sunk near Port Hope about three years ago. The dredge will be brought to the Polson Iron Works, Toronto, and thoroughly overhauled.

Ideal Foundry Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture wrought iron, steel, brass, aluminum, etc. The provisional directors include H. E. Pearce, W. H. Smith, and W. Baggs, Toronto.

A proposal is under consideration to build an electric line between Wallaceburg and Petrolia, Ont.

The Canadian Northern Railway Co. intend to double the capacity of their coal docks at Port Arthur, Ont. When completed the capacity of the docks will be 600,000 tons.

The Fire, Water & Light Committee, Hamilton, Ont., will install two electric pumps at the civic waterworks plant at a cost of about \$50,000. These pumps will have a capacity of 10,000,000 gallons per day.

The Nanton Coal Fields, Limited, Ottawa, have been incorporated with a capital of \$100,000, to manufacture minerals, ores, etc. The provisional directors include A. B. West, A. N. McLean and J. A. Hawley, Ottawa.

A concrete dam will be constructed near Trenton, Ont.

The Warren Bituminous Paving Co., Toronto, have been awarded the contract for laying 7,900 square yards of pavement in Chatham, Ont.

It is stated that a \$15,000,000 smelter will be erected in North Cobalt, Ont. S. Newhouse, of the Nipissing Mining Co., is interested.

The Ottawa Pulp & Paper Co., Ottawa, have been organized for the purpose of starting a new industry at the Chaudiere for making pulp from spruce and hemlock refuse, which up to the present time has nearly all been cast aside as waste. The pulp will be sent to Massena, N.Y., where it will be manufactured into various kinds of paper.

Messrs. G. A. Rudd & Co., Toronto, have been incorporated with a capital of \$100,000,

to manufacture leather, harness, saddlery, etc. The provisional directors include G. A. Rudd, G. C. Rudd and J. E. Elliott, Toronto.

Richard Bigley, stove manufacturer, Toronto, has purchased a lot, 255 by 227 feet on Sorauren Avenue, on which he will erect a new foundry.

The Dominion Lumber Co. have moved their head office from Quebec City to Deseronto, Ont.

The name of the Elmira Interior Hardwood Co., Elmira, Ont., has been changed to the Elmira Interior Woodwork Co.

The New Liskeard Concrete Co., New Liskeard, Ont., have been incorporated with a capital of \$40,000, to manufacture cement, lime, plaster, stone, tile, brick, etc. The provisional directors include A. A. McKelvie, W. V. Cragg and J. E. Whyte, New Liskeard, Ont.

The Rainy Lake & River Boom Co., incorporated under the laws of the State of Minnesota, have been granted a license to do business in Canada. D. Robertson, Rainy River, Ont., is their attorney.

A. G. Chew is now operating the mill at Waubauskene, Ont., formerly owned by Tanner Bros. It has been considerably altered, double band saws having been substituted for the original single bands, considerably increasing the cut and the number employed. Railway sidings have also been run into the yard and extra tram built.

The Dickson Bridge Co., Campbellford, Ont., have been incorporated with a capital of \$40,000, to carry on the business of bridge builders, founders, engineers, machinists, and structural steel manufacturers. The provisional directors include J. H. Caskey, Campbellford, Ont.; W. C. Macann and F. C. Downey, Toronto.

Messrs. Symons & Rae, Toronto Street, Toronto, will erect a biscuit factory at a cost of about \$10,000.

The Canadian Ornamental Iron Co., Toronto, will erect a one story brick factory at a cost of about \$5,000.

Cobalt Silver Fountain Mines, Toronto, have been incorporated with a capital of \$500,000, to carry on a mining, milling and reduction business. The provisional directors include P. S. Hairston, J. H. Stephens and R. McKay, Toronto.

The New Liskeard Concrete Co., New Liskeard, Ont., are installing a new mixer and a concrete block machine.

A new court house and a registry office will be erected at Sudbury, Ont. M. Healy, Toronto, has been awarded the contract for the erection of the court house and the O'Boyle Construction Co., North Bay, Ont., for the registry office.

The Union Brass Goods Co., Toronto, have been incorporated with a capital of \$150,000, to manufacture brass, copper, iron, zinc, etc. The provisional directors include T. H. Best, F. J. Stanley and E. G. Smith, Toronto.

The Michigan Central Railway Co. will construct a line from Charing Cross, Ont., to Chatham, Ont.

The Canadian Pacific Railway Co. are installing telephones along the line between Fort William, Ont., Brandon and Winnipeg, Man.

The Oxford Prospecting & Mining Co., Cobalt, Ont., have been incorporated with a

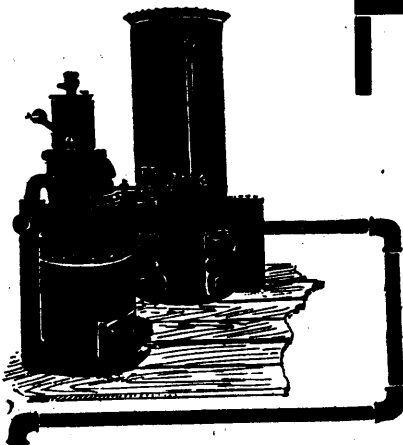
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$$\begin{array}{l} \text{H.P.} \quad \text{Hrs.} \quad \text{Days} \quad \text{lbs.} \\ 100 \times 10 \times 300 \times 5 = 750 \text{ Tons} \\ 2,000 \end{array}$$

Cost at \$4.00 = \$3,000

### 100 H.P. GAS PLANT

$$\begin{array}{l} \text{H.P.} \quad \text{Hrs.} \quad \text{Days} \quad \text{lbs.} \\ 100 \times 10 \times 300 \times \frac{1}{4} = 112 \text{ Tons} \\ 2,000 \end{array}$$

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capital of \$20,000, to carry on a mining, milling and reduction business. The provisional directors include J. M. Fortier, S. E. Lichtenheim, and M. Marchand, Montreal.

The Peel Oil & Gas Co., Toronto, have been incorporated with a capital of \$100,000, to manufacture oil, gas, minerals, etc. The provisional directors include W. E. Sampson, H. A. Menet and F. Watts, Toronto.

R. Cummings, Toronto, has been awarded the contract for the construction of a concrete station and platform at Maynooth, Ont., for the Central Ontario Railway Co.

Among the firms who have ordered standard duplex pumps from the Smart-Turner Machine Co., Hamilton, Ont., during the last few days are: The Imperial Vinegar Co., Hamilton; Sheldons, Limited, Galt, Ont.; the Grand Trunk Railway System, Montreal; W. C. Edwards & Co., Ottawa; J. B. Smith & Sons, Callendar, Ont.; Tapp Bros., Cedar Grove, Ont.; the Hamilton Cotton Co., Hamilton; the Ontario Mining & Development Co., Kaladar, Ont.; the Standard Fitting & Valve Co., Guelph, Ont.; the Sudbury Brewing Co., Sudbury.

The Clark 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 J. H. F. Blue, J. A. Strong and S. Farmer, Toronto.

Messrs. Frost & Nickel, Owen Sound, Ont., have been awarded the contract for laying 72,000 square feet of cement sidewalks in that town.

The Kennedy Carbon Light Co. have purchased a site in Port Arthur and will erect a plant for the manufacture of gasoline lamps, heaters, etc. The company ask for no concession save in the matter of power, and this only that the city shall agree to furnish electric power as required up to 250 h.p. at \$16 per h.p. per year.

Monissen Cobalt Mining Co., Cobalt, Ont., have been incorporated with a capital of \$200,000, to carry on a mining, milling and reduction business. The provisional directors include D. A. Rose, G. T. Veale and E. Gillis, Toronto.

Port Arthur, Ont., is now the headquarters of the Northern Islands Pulpwood Co.

The clothing factory of the W. S. Southgate Co., Seaforth, Ont., was destroyed by fire recently. Loss about \$21,000.

The Canadian Northern Railway Co. are considering the building of an air line between Brockville and Ottawa, making Merckville, Ont., the junction point.

Messrs. Miller & Cumming, Toronto, have been awarded the contract for the construction of the wharf at the Mimico Asylum, Mimico, Ont.

The west wall of the septic tank, Stratford, Ont., will be rebuilt this fall at a cost of about \$1,500.

Moose Horn Mines, Limited, Toronto, have been incorporated with capital of \$2,000,000, to carry on a mining, milling and reduction business. The provisional directors include A. H. Perfect, A. J. Gillies, Toronto Junction, and L. E. Anthes, Toronto.

The ratepayers of Aylmer, Ont., voted favorably on two by-laws, one to purchase the waterworks system, and the other to improve the sewerage system.

Work on the survey of the Hydro-electric Power Commission on the transmission line from Hamilton to Guelph, Berlin, St. Mary's and Stratford, Ont., is making satisfactory progress.

Anthes Foundry, Limited, Toronto, have been incorporated with a capital of \$100,000, to manufacture castings, iron pipe, soil pipe, plumbers' and steamfitters' supplies, etc. The provisional directors include L. E. Anthes, H. C. Sparling and H. Wilson, Toronto.

The Wilde Fuel Saver & Smoke Consumer Mfg. Co. have been organized with a capital of \$5,000,000. The American factory of the company will be located in Buffalo, and Hamilton has been chosen for its Canadian headquarters. C. H. Pettit, of Grimsby, Ont., is one of the biggest shareholders. The apparatus manufactured by the company is already in use at the Parisian Laundry. Gurney-Tilden Stove Co., Howell Lithographic Co., Chipman Holton Co., Hamilton Whip Co., and the McPherson Shoe Co., where it has given good satisfaction, and the heads of many of these firms will be shareholders in the new concern.—Hamilton Herald.

The buildings of the Northern Turpentine Co., Limited, at Killaloe, Ont., are completed and machinery is being installed. The plant will be in operation within a couple of months. It is the second of its kind in Canada.

Lightning struck and destroyed by fire September 5, the large barns of the McDonald Agricultural College, St. Anne de Bellevue, Que. Loss about \$35,000.

The mills of the Dominion Coffee & Spice Co. Montreal, were damaged by fire September 7. Loss about \$10,000.

Le Progres, Montreal, have been incorporated with a capital of \$20,000, to carry on a printing and publishing business. The charter members include O. Mayrand, A. Fugere, and J. E. Lablanc, Montreal.

Ingersoll Sergeant, of Canada, Montreal, have been incorporated with a capital of \$20,000, to manufacture air compressors, rock drills, pumps, pneumatic tools, motors, engines, etc. The charter members include H. D. Lawrence, W. Morris, and A. F. Plant, Sherbrooke, Que.

The Canadian Holland Gin Distillery Co., Joliette, Que., have been incorporated with a capital of \$190,000, to manufacture alcohol, liquors, chemicals, etc. The charter members include S. Vessot, C. Barrette, and S. P. Champoux, Joliette, Que.

Gowans Kent Western, Limited, Montreal, have been incorporated with a capital of \$99,000, to manufacture china, crockery, glassware, cutlery, etc. The charter members include S. F. W. Parlee, Winnipeg, Man., W. W. Boddy and G. W. Brown, Toronto.

The Harbor Commissioners, Montreal, have purchased a large floating crane for use in the harbor.

Tenders will shortly be called for the construction of a sewer for Boulevard St. Paul, Montreal, at a cost of about \$125,000.

The premises of Messrs. Caverhill & Learmont, lumber merchants, St. Peter Street, Montreal, were destroyed by fire August 23. Loss about \$15,000.

The new biscuit factory of Viau Freres, Montreal, is practically complete, and will be in full operation within a couple of months.

The Kingsbury Footwear Co., Limited, Montreal, have added 2,000 square feet to their storage space.

Dufresne & Locke, Limited, Montreal, are erecting a three story brick, addition 100x45 feet, to their factory. The new building will be used for the manufacture of Goodyear Welt shoes and fancy firms lines. It will be in operation about January 1 next. Lacroix & Piche are the architects.

The Federal Government will erect a machine shop and boiler house at Riviere-du-Loup, near Quebec, Que.

A telephone signal service is being established on the St. Lawrence River between Montreal and Quebec.

The fibrezing plant of the Dominion Asbestos Co., Limited, at Black Lake, Que., is nearing completion.

The assets of the Moseley Shoe & Leather Co., Montreal, were sold September 9th, by the liquidators, W. J. Mandall and W. J. Henderson, realizing a dividend of about 2 per cent. for the creditors. The machinery and plant, including drums, vats, etc., realized \$8,000, about 15 cents on the dollar. The chemicals and supplies realized 42 cents on the dollar, and the horses and rolling stock realized 105 per cent. of the inventory value.

The woolen factory of M. Methot, Cap St. Ignace, Que., was destroyed by fire September 10. Loss about \$20,000.

The waterworks system, Hull, Que., will be improved and extended at a cost of about \$39,800.

Messrs. J. P. Pauze & Co., Montreal, have been awarded the contract for the erection of the new jail in that city, their tender being the lowest at \$790,000.

Department of Public Works, Ottawa, invites tenders up to September 24, for the erection of an addition to the post office, Montreal.

The premises of the Standard Brick & Tile Co., New Glasgow, N.S., were destroyed by fire September 7. Loss about \$300,000.

The Government dredge, "Cape Breton," which was brought from Port Morien to Glace Bay, N.S., will be engaged for the next few months deepening and widening the channel from the entrance to a considerable distance beyond the Dominion Coal Co.'s shipping pier. It is the intention at present to have about 3,600 yards dredged to a depth of about 20 feet. The channel will be widened to about 180 feet, which would give the Canada and other large steamers and vessels an opportunity of turning in the harbor with perfect ease without danger of grounding.

The Warren Bituminous Paving Co., Toronto, have been awarded the contract for the laying of 5,600 square yards of bithulthic pavement at Amherst, N.S.

The Dominion Iron & Steel Co., Sydney, N.S., have received an order from an American concern for one million tons of ore.

Senator L. J. Forget, of the Dominion Iron & Steel Co., Sydney, N.S., says it has been definitely decided to undertake, as soon as convenient, further development of iron ore at Wabana, not only for the purpose of supplying the Sydney plant, but for export trade as well.

The double tracking of the Intercolonial Railway from Moncton to Painsec, N.B., will cost about \$300,000.

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Department of Public Works, Fredericton, N.B., invite tenders up to October 7, for the construction of the metal superstructure span on Cocagne Mouth Bridge, Kent County, N.B.

The Reid Newfoundland Co. have been awarded the contract for the erection of a wharf at St. Georges, N.B., at a cost of about \$2,000.

Vanderbeck & Co., an American firm, have recently completed the erection of a saw mill at Millerton, N.B. Lath and shingles will also be manufactured.

The premises of St. Joseph's Roman Catholic church, North Sydney, C.B., was destroyed by fire September 6. Loss about \$22,000.

A large concrete dam is being built by the Anglo-Newfoundland Co., at Grand Falls, Nfld.

The warehouse of Messrs. Tees & Persee, Winnipeg, Man., was damaged by fire September 14. Loss about \$20,000.

A new fire hall, 80x52 feet, is being erected in St. Boniface, Man., at a cost of about \$25,000.

The Board of Control, Winnipeg, Man., will invite tenders shortly for the \$20,000 building to be erected in connection with the waterworks plant.

An extensive addition will be erected to the Windsor Hotel, Winnipeg, Man., at a cost of about \$25,000.

The Board of Control, Winnipeg, Man., invites tenders up to October 1, for the construction of general works and supply of equipment for the hydro-electric station at Point Du Bois, Man.

The city of St. Boniface, Man., has awarded an additional contract for 1,400 square yards of bithulthic pavement to the Bithulthic & Contracting Co., Winnipeg, Man.

The question of placing all overhead wires underground is being given considerable attention in Winnipeg, Man.

A new courthouse will be erected at Macdonald, Man., at a cost of about \$40,000.

The Sharp Construction Co., Winnipeg, Man., have been awarded the contract for the construction of the new roundhouse for the Canadian Northern Railway Co., at Brandon, Man.

The Canadian Pacific Railway Co. are erecting a section house at Strathclair, Man.

The Bithulthic & Contracting Co., Winnipeg, Man., have been awarded the contract for laying 1,900 square yards of pavement in Regina, Alta.

S. Brown, Winnipeg, Man., has been awarded the contract for the construction of the roundhouse at Dauphin, Man., for the Canadian Northern Railway Co. The contract price is about \$45,000.

The ratepayers of South Battleford, Sask., voted favorably on a by-law to raise \$10,000 for a flour mill of 125 barrels capacity; also an elevator. \$20,000 stock has been subscribed and directors appointed.

The Canadian Bank of Commerce will erect a new building at Lanigan, Sask.

The King Edward Hotel, which is being erected at Saskatoon, Sask., is nearing completion.

The mayor of Revelstoke, B.C., invites tenders up to September 30 for all labor and materials necessary for the enlargement of the civic hydro-electric plant, comprising 500 h.p. producer gas plant and engines, generators and excitors, transmission machinery, switchboards, wiring, etc.

Messrs. R. P. Rithet & Co., Victoria, B.C., have awarded the contract to Wm. Lang, for the erection of a large freight shed on their new dock.

Messrs. MacDonnel & Gzowski, Vancouver, B.C., have been awarded the contract by the Canadian Pacific Railway Co. for the alteration of the main line grade at Field and the driving of the mile and a half of tunnels, three-quarters of a mile on each side the Kicking Horse River, as well as the construction of two new bridges. The work will cost over \$1,000,000.

A. McDiarmid, Winnipeg, Man., has been awarded the contract for the construction of the station at Calgary, Alta., for the Canadian Pacific Railway Co. The portion to be constructed now will be four stories in height and will cost about \$100,000. On its completion the two wings of the building will be put up.

The acetylene plant at the Royal Hotel, Yorkton, Sask., exploded recently, doing damage to the extent of about \$7,000.

J. B. Buhler, the largest tile sewer pipe manufacturer on the Pacific coast, is considering the establishment of a branch manufactory in Edmonton, Alta., and has been negotiating with the American-Canadian Oil Co. for a supply of natural gas in the event of his firm establishing in Edmonton.

The Canadian Northern Railway Co. will erect a new depot at Battleford, Sask.

W. J. Richards, Calgary, Alta., has been awarded the contract for the erection of the new warehouse for the Mooney Biscuit Co., at a cost of about \$15,000.

The Alberta Building Co., Calgary, Alta., have been awarded the contract for the construction of the new city hall in Calgary, at a cost of about \$142,000.

J. D. McArthur, Winnipeg, Man., has been awarded the contract for grading seventy-three miles of railway north-west from Moose Jaw, Sask., at a cost of about \$300,000.

E. M. Paynel, Canadian Pacific Railway telegraph inspector, is installing a "composite" between Regina and Moose Jaw, Sask., by means of which the freight departments will have telephone communication over the telegraph wires. A similar attachment is being fitted between Macleod and Calgary, Alta.

The ratepayers of Weyburn, Sask., voted favorably on a by-law to issue debentures for \$50,000 for the purpose of installing a waterworks system.

The council of Moose Jaw, Sask., are considering a plan to raise \$90,000 for improvements and extensions to the municipal electric lighting plant.

The mills of the Wapella Roller Co., Wapella, Sask., were destroyed by fire recently.

Messrs. John Gunn & Sons, Winnipeg, Man., have been awarded the contract for

the construction of the immense steel bridge of the Canadian Pacific Railway at Lethbridge, Alta.

The Railway Paint Co., Edmonton, Alta., will erect a new factory at a cost of about \$100,000.

The J. Y. Griffin Co. will erect a large office block and storage house in Edmonton, Alta., at a cost of about \$100,000.

A large plant for the manufacture of glass, tiles and pipes will be established at Morinville, near Edmonton, Alta., by a San Francisco syndicate.

Messrs. Armstrong Bros. have commenced manufacturing cement blocks at Vermilion, Alta.

The Calgary Power & Transmission Co., Calgary, Alta., are about to commence work on their power development scheme at Calgary, Alta. The first actual work to be done is to divert the water from its present course through the gorge. This will be accomplished by tunnelling through the cliff.

The Alberta Biscuit Co., Calgary, Alta., are considering the establishment of a factory in Vancouver, B.C.

The Royal Bank of Canada has opened an office at Alberni, B.C.

A stone college building will be erected in Vancouver, B.C., at a cost of about \$100,000.

The Government will have a new steamer built to act as a lighthouse tender on the British Columbia coast.

Messrs. Smith & Sherbourne, Vancouver, B.C., have been awarded the contract for the erection of the eight story warehouse for David Spencer, Limited, at a cost of about \$120,000.

The Kootenay Engineering Works, Nelson, B.C., have been awarded the contract by Alcott Payne of the Hewitt Properties, for a double continuous rope tramway, 5,600 feet in length, of a daily capacity of 240 tons.

It has been estimated that the cost of placing the electric light and telephone wires underground in Victoria, B.C., will cost about \$17,000 per mile.

The construction of the steel bridge across Seymour Creek, Vancouver, B.C., will be commenced immediately. About seventeen tons of steel will be used in the bridge.

The White Pass Railway Co. will construct a twenty mile extension of their line from White Horse, B.C., to the copper camp and expect to handle about 1,000 tons of ore per day.

Messrs. C. G. Johnson & Co., Vancouver, B.C., have commenced work on their new ocean dock, which will be 500 feet long, and have 300 feet water frontage.

The Fraser River Saw Mills, Limited, New Westminster, B.C., are building a logging railroad at Courtney, B.C.

W. Finch Page, Victoria, B.C., and several others have purchased the plant and interests of the British Columbia Mfg. Co. The concern will hereafter be known as the British Columbia Veneer Mfg. Co., Limited. The company will manufacture fruit boxes, crates,

# Morris Machine Works

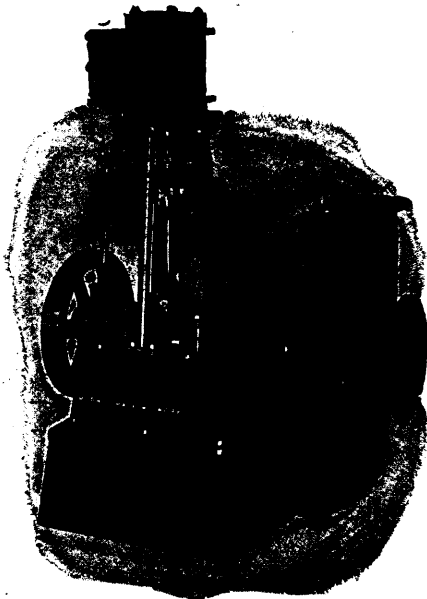
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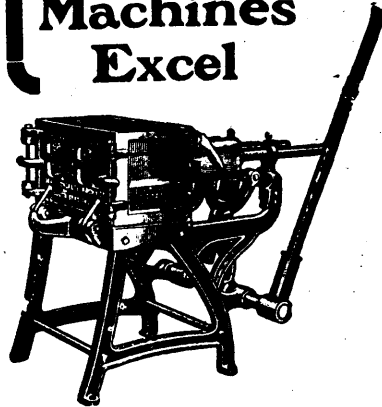
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and wood veneer of all kinds. Mr. Walter Ellis is now the manager of the new concern.

Messrs. Mitchell & Ferris, Vancouver, B.C., are remodelling the saw mill of the B. F. Graham Lumber Co., Victoria, B.C. The improvements consist of the installation of live rolls, slashers, trimmers and transfers, a 125 foot sorting table, complete chain conveyor system and lath mill outfit. The planing mill has been augmented by a Berlin re-saw. The capacity of the mill up to the present date has been increased 30 per cent. When all the machinery has been installed the plant will have a daily capacity of 50,000 feet.

H. McDonald and associates of New Westminster, B.C., intend erecting a large shingle mill there. A 25 acre site has been secured on Lulu Island, with 1,000 feet of water frontage on the Fraser River. All the running equipment will be supplied by the Schaake Machine Works, of New Westminster.

Peers Bros., Vancouver, B.C., will erect a sawmill at Port Moody, Que.

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

The Nelson Theatre Co., Nelson, B.C., will erect a large theatre in that city.

The city of Vancouver, B.C., will install a new creosoting plant for the treatment of wood blocks to be used in street paving.

D. Hall and A. Robertson will erect a large lumber and shingle mill at Chilliwack, B.C. They also intend putting in machinery for the equipment of an up-to-date box factory.

A covered concrete septic tank, 100x30 feet, will be built at Fernie, B.C.

The Canadian Northern Railway Co. are preparing plans for a new station at New Westminster, B.C.

Work has been begun on the stonework of the arch of the new bridge on the Esquimalt and Nanaimo Railway at Nanaimo, B.C. Improvements to the extent of \$100,000 are in progress on this road.

The Grand Trunk Pacific Railway Co. seem to be preparing to rush the construction of the western end of the line. In addition to building the branch from Kitamaat Arm, B.C., north to Hazelton, 180 miles, the contract for which has been let to Foley Bros. & Larson, the main line work on the section from Prince Rupert, B.C., east up the Skeena River as far as Kitselas canyon, 100 miles, will be undertaken this fall. This includes a large amount of rock work and it is expected will take two years to build. Arrangements also have been made to start work this fall on 200 miles of the section west from Edmonton, Alta., to a point 60 miles east of the summit of the Rockies.

The Perfection Power Pressed Cement Machine Co., Victoria, B.C., have erected a plant in the Spring Ridge sand pits. They manufacture power-pressed cement blocks for building. The machine puts out from 60 to 90 blocks per minute, and the company are prepared to handle large contracts. This is the second factory of its kind in British Columbia, being a branch of the Vancouver

factory, which was established about six months ago. The company claim their blocks are damp-proof, frost-proof and fire-proof.

The MacDonel Gzowsky Co., Vancouver, B.C., have been awarded the contract by the Canadian Pacific Railway Co. to reduce the heavy grades which make the hauling of trains such a costly item of transportation in the Rocky Mountains and Selkirk ranges. The cost will be about \$1,000,000.

A. D. McRae, Winnipeg, Man., and Peter Jansen, of Nebraska, have acquired the Frazer River sawmills in Vancouver and Westminster, B.C., and the mills of the Anacortes Lumber & Box Co., Anacortes, the purchase price being \$2,500,000. In addition to these purchases they have also bought 2,000,000 feet of standing timber. New mills will be erected.

**THE SMITH MARBLE & CONSTRUCTION CO., LIMITED.**

The Smith Marble & Construction Co., Limited, of Montreal, are making large increases in their capacity and facilities. The foundations for an addition to the marble cutting shed, 147x20 feet are laid, and the building will be finished by December. A large granite cutting shed, 100x50 feet, will soon be added. The capacity for handling stone work will be increased 50 per cent. The firm have recently installed several large stoneworking machines. An Anderson Double Diamond saw for interior marble work, recently installed, does the work of 40 hand cutters, and cuts marble up to a foot thick. A large type granite surfacing machine, recently installed, takes the place of seven expert granite cutters. An open side planer, 12x3x3 feet complete, built by the Patch Co., Rutland, Vermont, is probably the only one in Canada. This machine does channelling, beading and planing for all classes of marble, limestone, granite, etc., flat surfaces and columns.

The Smith Marble & Construction Co., Limited, have recently secured the contracts for the marble and granite work of the new Gazette Building, and the Eastern Townships Bank, Montreal.

**OUTPUT AND EARNINGS LARGELY INCREASED.**

At the regular meeting of the board of directors of the Monongahela River Consolidated Coal & Coke Co., Pittsburg, a few days ago, president Francis L. Robbins submitted the report of August tonnage, and the financial covering the first nine months of the fiscal year ended July 31 last. The showing was not only highly gratifying from the standpoint of stockholders, but must be reassuring from the standpoint of the general public.

So far as the stockholders are concerned the figures show that the dividend for the full fiscal year at the full rate of 7 per cent. per annum was practically earned during the nine months of the year. So far as the general public is concerned the report of tonnage for the month of August shows a total production of 738,529 tons, an increase of 211,774 tons over the corresponding month last year. The figures are a sufficient

answer to the current talk of business reaction, and prove that the coal trade, which is so closely related with other important industries, is more active than at any time last year.

President Robbins stated that the coal market is excellent, that prices are firm, and that the company have no surplus stocks on hand.

At the present rate of increase, which is practically certain to be maintained for the remaining two months of the fiscal year, the output of the River Coal Co. will exceed last year's total by more than 1,000,000 tons.

Following is a statement of the earnings and tonnage of the company for the nine months ended July 31, 1907, as compared with the corresponding period last year:

Tonnage—	River Tons.	Rail. Tons.	Total Tons.
1907.....	3,744,182	1,442,478	5,186,660
1906.....	3,383,320	1,390,526	4,773,846
Increase...	360,862	51,952	412,814
Earnings—9 Mos. end'g July 31, 1907		9 Mos. end'g July 31, 1906.	Inc.
Gross earn.	\$1,751,213	\$1,445,463	\$305,749
Less—			
Allowance for royalty	346,053	319,937	26,116
Allowance for depreciation...	248,540	234,487	14,053
Accrued Taxes estimated	90,000	89,666	333
Accrued int. on bonds..	387,485	397,138	*9,653
Net earn.	\$679,134	\$404,233	\$274,900

\*Decrease.

The tonnage for the month of August not included in the foregoing, compares as follows:

Year.	River. Tons.	Rail. Tons.	Total. Tons.
1907.....	471,529	267,000	738,529
1906.....	359,943	166,812	526,755
Increase.	111,586	100,188	211,774

Under President Robbins' management a new policy has been adopted in the matter of taking care of fire and marine losses. It was the custom formerly to wait until the close of the fiscal year and charge out of earnings the amount of losses for that period before arriving at the sum available for dividends. At President Robbins' suggestion an insurance fund had been established by the company, based upon the tables of the large fire and marine insurance companies. This fund is being accumulated out of earnings. For the first nine months of the fiscal year the sum of \$74,126 was set aside for fire losses. The actual loss from fire was \$26,179, leaving a surplus of \$47,946. For marine or "coal sinkage fund" the sum of \$242,502 was set aside, while the actual loss from this cause was only \$161,552, leaving a surplus of \$81,009. The total surplus remaining of the fund established out of earnings for fire and marine losses for the nine months' period was \$128,956. Were this sum added to the net earnings reported above, the total net earnings for the nine months would be \$807,090, or \$107,000 in excess of the total preferred dividend requirements for the year earned in nine months.

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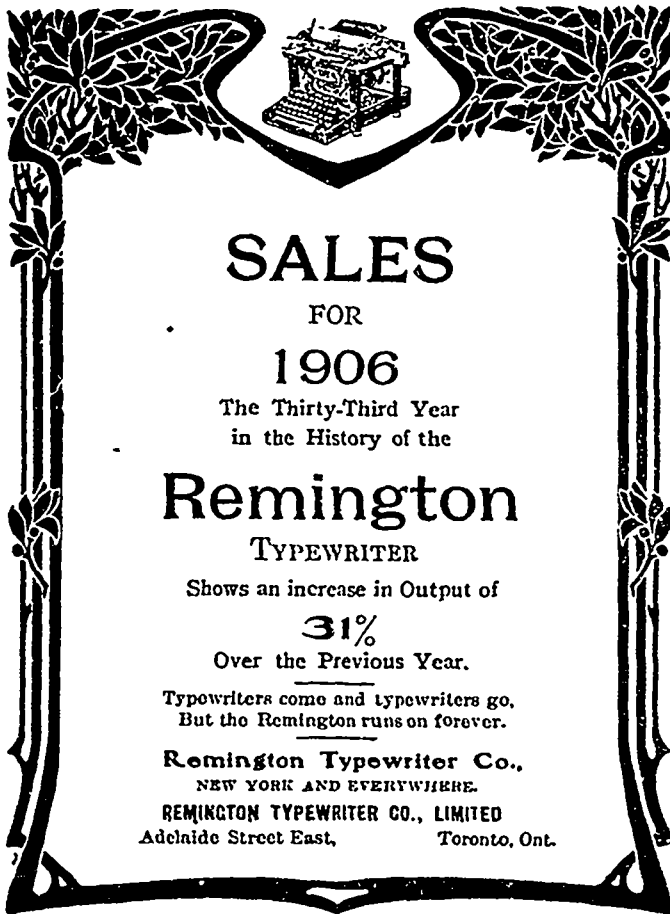
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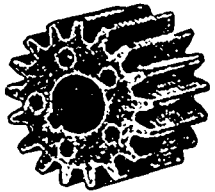
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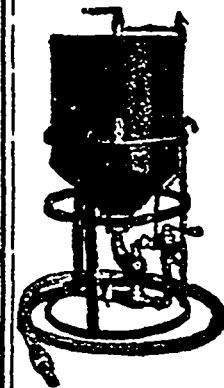
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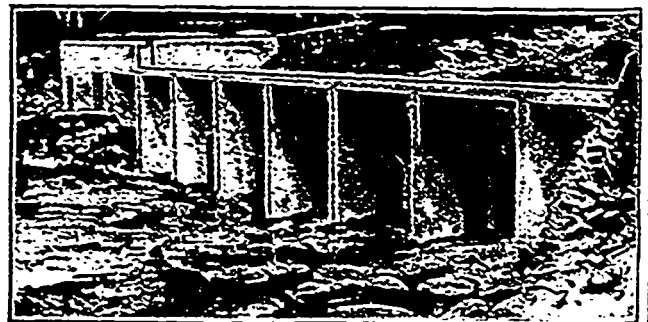
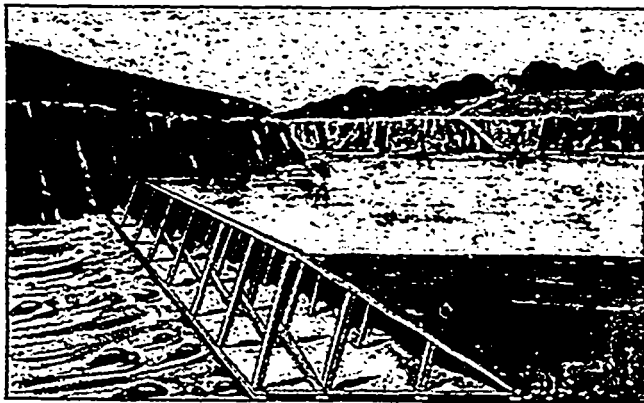
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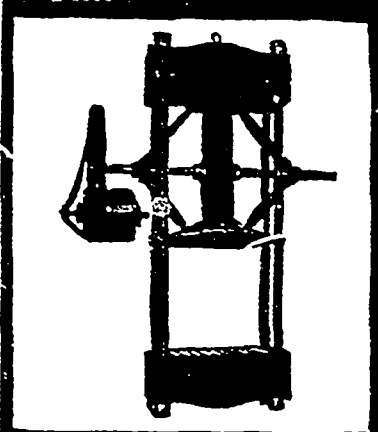
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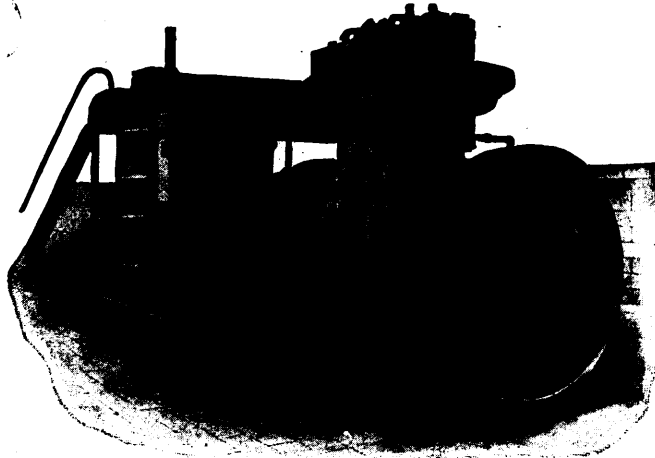
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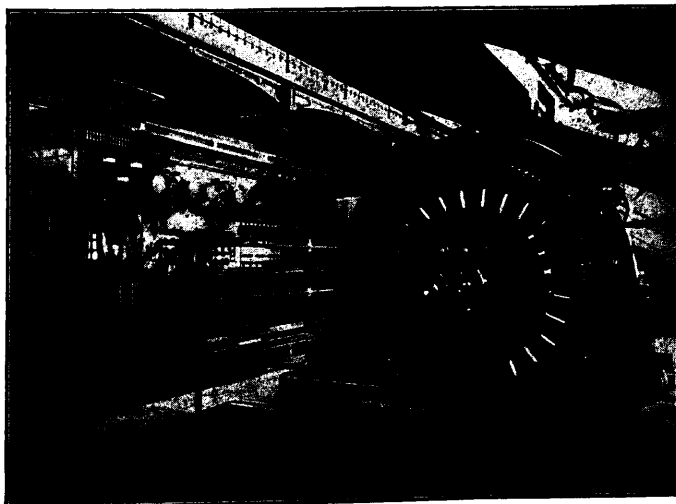
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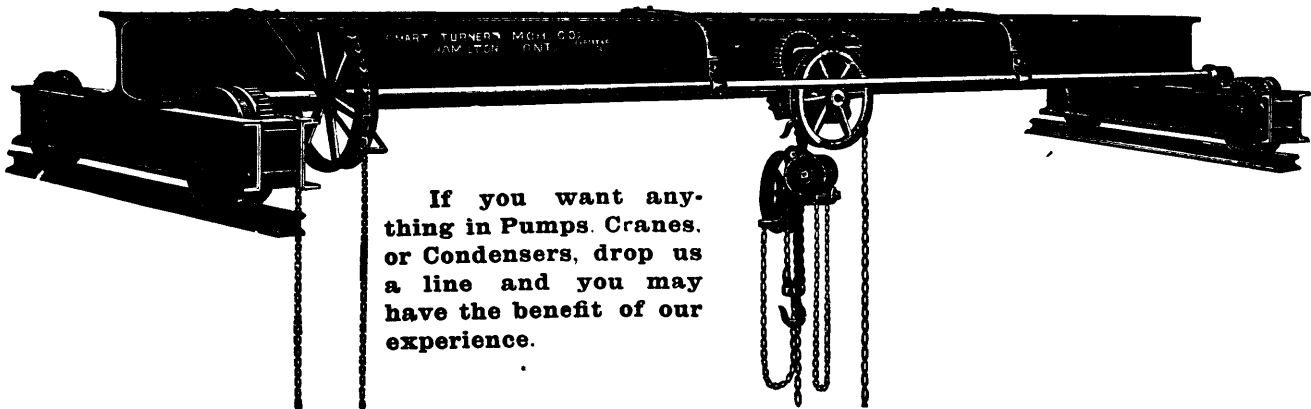
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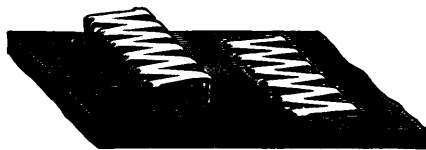
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