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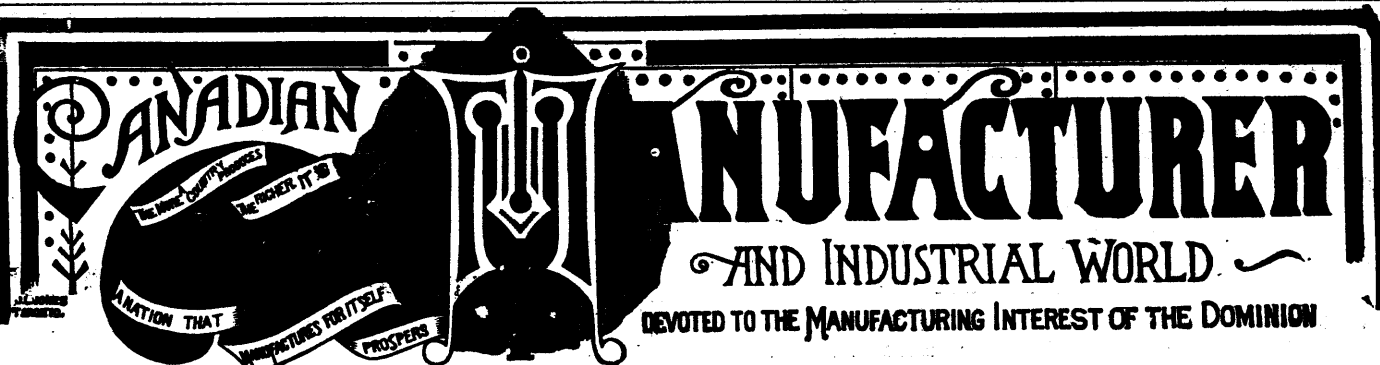
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Vol. 42.

TORONTO, APRIL 5, 1901.

No. 7.



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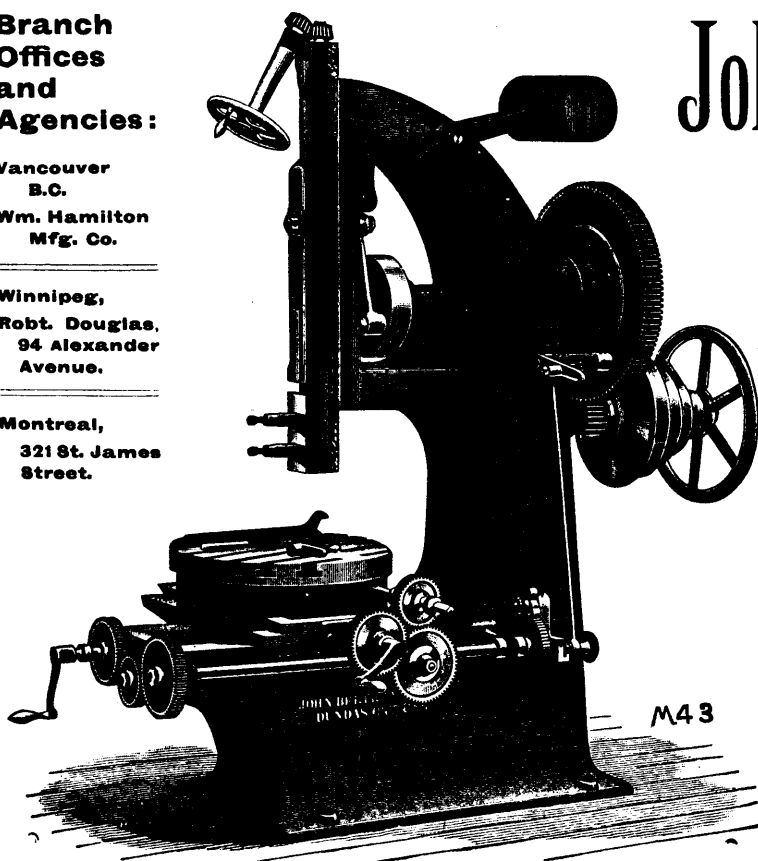
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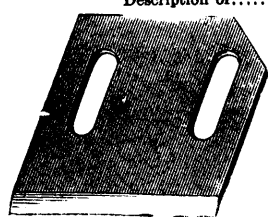


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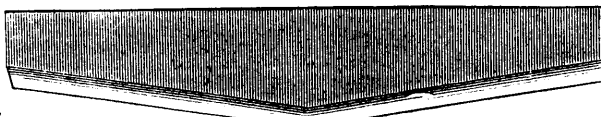
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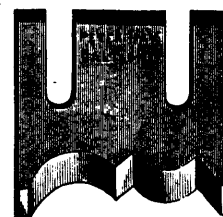
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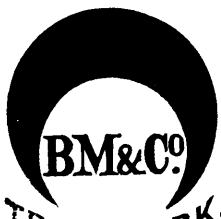
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THE BEST EQUIPPED BOILER AND ENGINE WORKS IN CANADA.

We Manufacture—

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The BROWN AUTOMATIC ENGINE, MARINE ENGINES (SINGLE, COMPOUND AND TRIPLE), Hoisting and Mining Engines

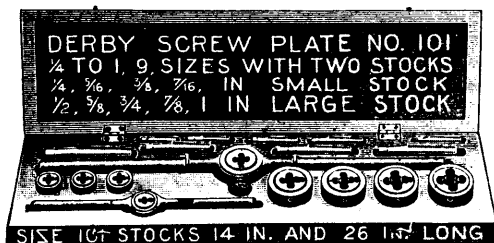
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Patent Rock Wall Plaster

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TORONTO.

Galvanizing

DONE FOR THE TRADE.

GET OUR PRICES.



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of IRONWORK

Address:

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Square and Hexagon

HOT PRESSED NUTS.

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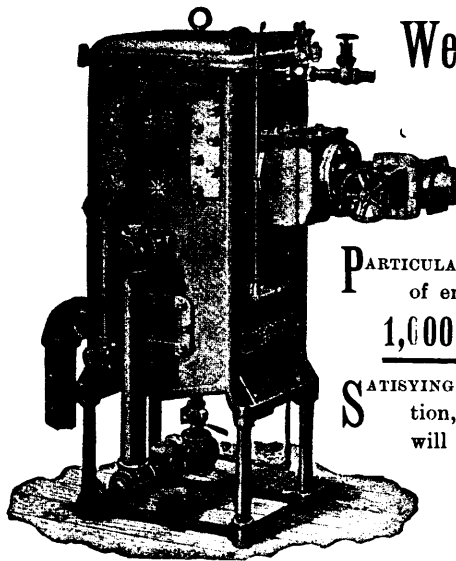


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THE JOHN MORROW MACHINE SCREW CO.

INGERSOLL, ONT.

Mfrs. of Set, Cap and Special
Screws, Studs, Finished Nuts, etc.



Webster Feed Water Heater AND PURIFIER

BEFORE PURCHASING ELSEWHERE
ENTERTAIN A BID FROM US.

PARTICULAR experience for ten years in this department
of engineering, and the fact that over
1,000 WEBSTER HEATERS are in use, is
self-explanatory.

SATISFYING particulars, embracing details of construc-
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will be sent on application.

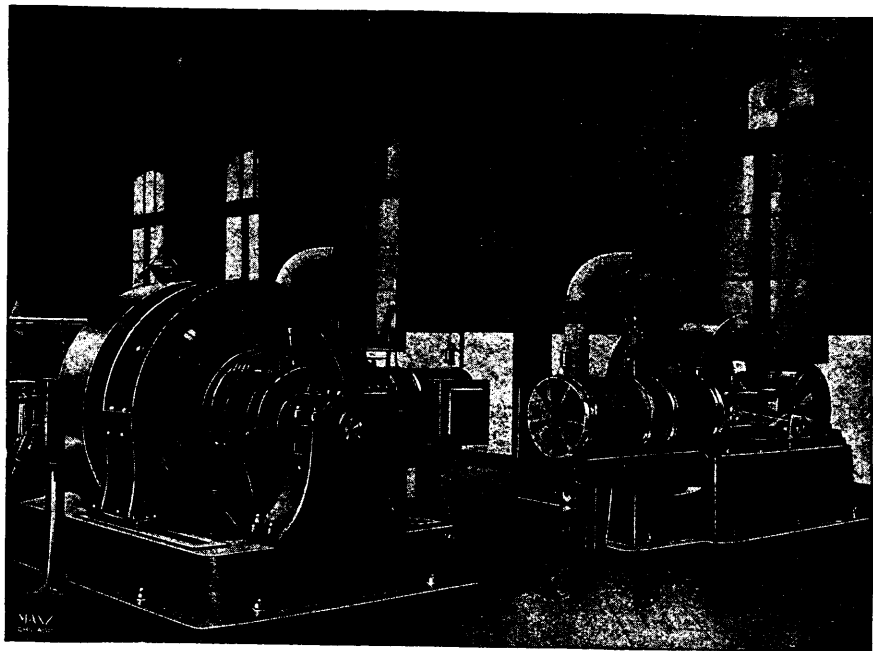
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Anilines, Dyestuffs & Chemicals

DELIVERY MADE AT NEW YORK, MONTREAL OR HAMILTON.

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BUILT BY

ROBB ENGINEERING CO., LIMITED, Amherst, N.S.

Agents { WILLIAM McKAY, - 19 McKenzie Crescent, Toronto
WATSON JACK & CO., - 7 St. Helen Street, Montreal

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. . BY GAS . .

GAS FROM WOOD—A rich permanent Gas almost equal to that of Coal Gas, can be made by using the

RICHE GAS GENERATOR

at a mere nominal cost per thousand cubic feet.

The Generator is simple in construction, and does not require skilled labor to work it. **No Purifiers required. Products being a Rich Permanent Gas and Charcoal.**

These Generators are extensively used in Europe, and are on exhibit at the Paris Exposition. Particulars by applying to

JULES DE CLERCY, Gas Expert,

ROOM 501 CARLAW BUILDING, 30 Wellington St. W., Toronto

GEORGE WARD

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RUBBER BELTING

"The large 28-inch driving belt you made for us is the admiration of everyone."

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THE
CANADIAN RUBBER Co
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WINNIPEG

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Book 8 x 10 inches. 488 Pages.

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DODGE PATENT WOOD SPLIT PULLEYS

WITH INTERCHANGEABLE BUSHING SYSTEM.

Standard of Excellence Everywhere.

OVER 2,000,000 IN DAILY USE

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We invite enquiries from engineers in need of any description of Pumping Machinery. We manufacture over five hundred varieties and sizes of Steam and Power Pumps for stationary and marine purposes. We will be pleased to furnish plans and specifications for any special types. Our Catalogue, giving a good idea of our standard patterns, sent free to all enquirers.

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To anyone requiring a compact, thoroughly reliable engine, especially suited for users of intermittent power, we recommend our Gas and Gasoline Engine. We shall be glad to furnish estimates for Gas or Gasoline operated pumps, electric light plants, etc., etc. Explanatory Booklet free on request.

Northey Mfg. Co., Limited, 1000 KING ST. SUBWAY, **Toronto, Ont.**

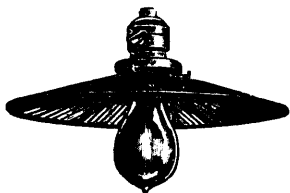
MASON REGULATORS

FOR STEAM, WATER OR AIR

**Speed Governors for Pumps. Water Pressure Regulators.
Hydraulic Damper Regulators.**

The Mason Regulator Co., - 6 Oliver St., BOSTON, MASS., U.S.A.

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Temple Bldg., - TORONTO.
Long Distance Telephone.



Reflectors, Shades, Lamps

**We Stock a Large Variety of SHADES
and REFLECTORS in**

**ALUMINUM, MIRROR, CELLULOID, PAPER, PORCELAIN,
FOR FACTORY AND OFFICE.**

Imperial Lamps and Helios Upton Enclosed Arcs Give BEST LIGHT with LEAST CURRENT
ELBRIDGE Sparking Dynamos, SAMSON Batteries and IMPERIAL Salts, for Gas or Oil Engines.

Write us about Lighting
your Factory or Office.

JOHN FORMAN, 708 and 710 Craig St., MONTREAL

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PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

SUBSCRIPTIONS :

CANADA AND UNITED STATES, - - - \$1.00 PER YEAR.
 ALL OTHER COUNTRIES IN POSTAL UNION, EIGHT SHILLINGS
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MESSRS. DAVISON & CO.,
 164 Federal Street, - Boston, Mass.
 AGENTS FOR UNITED STATES.

Index to Advertisers Page 42

J. J. CASSIDEY, - - - Editor and Manager

GOVERNMENT AID TO SCIENTIFIC EDUCATION.

For some years the financial condition of Toronto University has been very unsatisfactory in view of its standing as the leading educational institution of the province, and the growing educational requirements of the country. The great demand that has sprung up of late for practical scientific training, in view of the example of Germany and the great strides taken by that empire towards commercial and industrial supremacy, admittedly owing to the instruction given in the material sciences in German schools and colleges, has vastly increased the scope and responsibilities of the university. The endowments of the institution are completely inadequate to meet the change in the situation, and as a consequence it has been losing ground by comparison with the liberally maintained and equipped American universities, and large numbers of young Canadians have been obliged to prosecute their studies abroad in order to obtain the advantages of a modern scientific training not obtainable at home.

THE CANADIAN MANUFACTURER has long been impressed with the extreme importance to our industrial future of this question, and its close and intimate bearing upon the development of our natural resources. So much has been said and written in connection with the subject of technical training that the public mind has now become quite fully educated to the needs of our expanding industries for trained experts, who can apply their skill and scientific knowledge to the discovery of the most economical and advantageous processes in the varied operations of mining, manufacturing, engineering, etc. The opening up of New Ontario and the establishment of industries to work up the raw material of its mines and forests has greatly enlarged the field for experts in practical science, and created new openings for young men of capacity and talent outside the groove of the overcrowded "learned professions." But unless they can secure the necessary education with easy access to the best modern appliances they will be handicapped in competition with the better instructed graduates of amply endowed seats of learning in other countries.

Apart from the purely educational side of the matter, the character of the response made by the Ontario Government to the claims of the university for a substantial measure of aid must strongly commend itself to all concerned in the industrial and commercial progress of the country. Their policy is strictly in harmony with the forward movement for the expansion of settlement and production which has been so favorably received by the public, and which has already done so much to stimulate confidence and induce prosperity. The measure introduced into the Legislature which will become law in a few days, provides that the Government is to undertake the entire expense of maintaining the departments of chemistry, physiology, geology and mineralogy. The amount to be expended is not fixed, but Hon. Mr. Harcourt stated in the Legislative Assembly that it would probably be about \$25,000 a year at the outset, and would be increased from time to time as the requirements of scientific instruction were extended.

No fitter solution of the problem, how to aid the university in such a manner as to promote the general interests of the community, and conduce to its advancement in the industrial arts, could have been found than that embodied in the bill. It appropriately supplements the practical legislation of last session looking to the development of our latent wealth by giving the means for the instruction of our young men in the latest results of those branches of practical science which underlie the industries of manufacturing, mining and agriculture. With this missing link in the chain supplied, and the attention of alert and ambitious young Canadians directed to these fields of enterprise and exertion, we may reasonably anticipate that Ontario with her great natural advantages in raw material will make wonderful progress as an industrial country, and full hold her own in competition with all rivals.

In addition to the assistance thus given to the university, the Government will further promote this very essential object by erecting and equipping a new building for the School of Practical Science at a cost of at least \$200,000. It is a matter for congratulation that the province possesses in Hon. G. W. Ross, a Premier so keenly alive to the requirements of the situation, whose statesmanlike disposition of the vexed question of university aid has at once solved an embarrassing problem, and contributed in no small or stinted measure to the upbuilding of the industrial system on which the future of the country so largely depends.

At a recent discussion in the Ontario Legislature on the bill introduced by Mr. Carscallen, of Hamilton, for the protection of life and property in the use of stationary boilers and engines, and the examination and licensing of persons in charge of them, Mr. Whitney, leader of the Opposition, objected to the bill because hardship would result in compelling every person who had charge of such machinery to take a course of study which would entitle him to a certificate; that the owners of many saw-mills and factories could not afford to employ a certificated engineer. We are constantly reading of so-called "accidents," when human lives are sacrificed and valuable property destroyed for just this cause. No man should be allowed to have charge of a steam plant unless he is fully competent, and he should have a certificate to that effect.

CANADIAN IMPORTS OF MANUFACTURES OF METALS.

Following are some facts regarding the trade of Great Britain and the United States with Canada during the fiscal years 1898, 1899 and 1900, reference being had to the values of seventy-five different dutiable articles of metals, chiefly iron and steel, and thirty different non-dutiable articles of similar materials, collated from Canadian Trade and Navigation Returns for the years alluded to:—

DUTIABLE LIST.

ARTICLES.	1898.		1899.		1900.	
	GT. BRITAIN.	U. STATES.	GT. BRITAIN.	U. STATES.	GT. BRITAIN.	U. STATES.
Bells, n.e.s.	376	16,302	2,019	18,263	540	20,168
Brass	251	2,543	278	5,348	393	6,812
" Wire	1,343	16,604	1,646	28,415	2,570	21,899
" n.o.p.	23,621	243,839	31,940	300,307	36,317	341,140
Copper, Nails, Tacks, etc.	117	3,014	578	3,686	197	7,341
" Wire	248	49,137	28	45,111	2,302	150,439
" n.o.p.	3,581	25,437	3,051	28,993	2,651	63,390
Corset Clasps, etc.	306	9,087	194	3,833	138	3,407
Electric Light Apparatus	7,667	266,780	5,880	385,966	4,888	577,942
" Motors	71	129,287	566	120,299	12,231	218,494
Emery Wheels	442	14,833	399	21,692	410	25,103
" Cloth	363	33,392	1,013	40,592	1,586	47,724
Anvils and Vises	8,131	4,777	8,091	11,037	5,633	13,705
Springs, Axles, etc.	4,560	23,194	7,186	36,654	38,777	37,290
Bar Iron and Steel	48,722	313,030	61,662	382,753	175,051	339,839
Butts and Hinges	323	14,045	438	16,686	251	19,110
Castings, rough	777	79,022	1,203	110,499	1,135	295,672
Cast Iron Pipe	5,681	32,559	8,641	96,418	1,882	59,977
Chains	20,636	42,754	21,228	38,889	42,775	65,005
" Sprocket	None	19,866	29	26,624	172	24,169
" n.e.s.	8,394	8,411	9,384	14,606	1,922	33,569
Cut Tacks	135	8,375	340	11,488	18	14,761
Engine, Locomotive	None	576,091	None	398,118	None	446,097
Fire Extinguishers	None	9,481	261	30,936	609	31,589
Steam Engines and Boilers	2,002	99,051	7,967	103,187	34,071	258,168
" Engines for Ships	13,359	61,761	1,234	45,209	None	45,907
Fittings, pipe	809	84,641	901	164,467	569	235,059
Forgings	672	34,172	34	59,648	2,811	62,263
Hardware, builders'	37,312	383,085	44,103	523,007	45,362	544,709
Horseshoes	None	5,470	5	12,762	None	10,459
Bridges and Parts	None	697,811	77	281,098	None	327,180
Locks	8,509	88,223	8,359	120,419	8,730	118,487
Ore Crushers	63	38,526	None	33,780	365	35,380
Portable Engines	None	56,034	None	74,578	None	157,231
" Sawmills	None	9,583	None	15,779	None	1,555
" Threshers	None	38,002	None	78,264	None	116,277
Sewing Machines	3,254	117,147	4,360	154,753	4,359	209,659
Slot Machines	None	1,731	None	7,811	None	14,202
Typewriting Machines	103	65,268	12	91,898	None	109,667
All other Machinery n.o.p.	181,892	1,541,506	466,628	1,838,721	650,495	2,780,630
Malleable Castings	1,727	30,459	351	16,298	None	17,930
Nails and Spikes, cut	325	10,235	1,281	15,522	585	51,735
" wire	605	6,302	9	10,321	8	19,892
Iron Pumps	672	92,599	949	112,952	476	170,281
Fish and Tie Plates	9,936	161,783	7,448	123,693	43,209	183,115
Rolled Angles and Shapes	4,628	234,246	736	241,534	34,765	806,506
" n.o.p.	4,935	74,534	8,040	105,542	35,130	147,304
Safes and Doors	None	6,781	None	19,236	None	14,369
Wood Screws	499	10,066	135	17,071	395	18,892
Weighing Machines	3,045	36,937	1,627	73,125	966	85,727
Skates	111	8,502	114	13,368	None	5,246
Stoves	476	88,054	711	125,806	420	129,114
Tubing, boiler	9,180	118,911	10,281	161,064	43,364	306,158
" rolled steel	407	14,729	6	11,476	2,820	21,051
" bicycle	6,982	43,933	5,364	53,406	9,396	36,990
" galvanized	1,170	128,054	2,351	293,975	59,815	206,527
" n.e.s.	627	213,525	12,899	244,112	96,889	196,767
" n.o.p.	42	20,762	91	25,385	3,640	40,048
Ironware Enamelled	2,729	14,356	3,947	15,935	4,124	14,637
" n.e.s.	2,268	53,699	3,515	75,113	6,552	96,765
Wire Fencing	4,676	23,835	4,347	19,379	635	82,240
" Covered	40,516	168,759	13,128	290,459	11,024	456,141
" n.o.p.	5,413	99,617	13,140	135,002	16,881	144,533
Nuts, Washers, etc	2,249	67,645	1,363	76,673	625	95,300
Steel Bridge Plates	698	71,238	1,046	38,388	30,277	97,247
" n.o.p.	112,044	138,222	90,992	181,372	125,526	732,392

DUTIABLE LIST—Continued.

ARTICLES.	1898.		1899.		1900.	
	GT. BRITAIN.	U. STATES.	GT. BRITAIN.	U. STATES.	GT. BRITAIN.	U. STATES.
Tools, Adzes, Hatchets, etc.	785	36,727	986	22,787	1,914	52,461
“ Axes.	9	36,697	9	41,547	None	39,905
“ Saws.	2,512	76,524	3,337	73,297	2,335	89,810
“ Files and Rasps.	9,038	63,736	10,918	65,546	13,022	88,714
“ n.o.p.	28,430	311,346	39,772	404,818	35,241	466,239
Articles Iron or Steel, n.o.p.	55,044	687,316	61,518	849,765	91,028	1,371,233
Printing Presses.	4,278	171,733	3,407	201,524	4,192	212,109
“ “ Parts of.	86	25,019	671	45,960	3,518	83,821
Tinware.	8,467	67,962	10,441	79,122	8,778	86,842
	<u>708,329</u>	<u>8,678,734</u>	<u>1,014,665</u>	<u>10,083,167</u>	<u>1,766,760</u>	<u>14,559,526</u>

The total value of these seventy-five different lines of dutiable products was :—

	Great Britain.	United States.	Total.
	\$708,329	\$8,678,734	\$9,387,063
Proportion (1898).....	7.5 per cent.	92.5 per cent.	100.0 per cent.
	\$1,014,665	\$10,083,167	\$11,097,832
Proportion (1899).....	9.1 per cent.	90.9 per cent.	100.0 per cent.
	\$1,766,760	\$14,559,526	\$16,326,286
Proportion (1900).....	10.8 per cent.	89.2 per cent.	100.0 per cent.

FREE LIST.

ARTICLES.	1898.		1899.		1900.	
	GT. BRITAIN.	U. STATES.	GT. BRITAIN.	U. STATES.	GT. BRITAIN.	U. STATES.
Bells for Churches.	5,313	10,333	2,982	11,891	6,830	24,582
Diamond Drills.	None	5,291	None	9,692	1,030	23,222
Glove Fasteners.	4,690	50,012	6,064	66,888	3,418	73,266
Metals, Aluminum, etc.	38	3,768	None	4,146	None	6,920
Brass Bolts, Bars, etc.	126	47,665	308	56,264	701	65,812
“ Strips.	2,425	80,725	1,712	121,508	3,941	132,018
“ Tubing.	8,606	40,263	11,252	49,061	7,893	72,816
Britannia Metal.	11	6,046	2,812	9,240	None	10,168
Copper, pigs, ingots.	784	79,061	7,094	200,217	24,014	138,240
“ Bolts, Bars, etc.	7,101	431,862	13,712	264,841	2,272	553,006
“ Strips.	35,227	196,711	31,533	117,061	38,397	187,859
“ Tubing.	59	23,211	164	29,128	2,530	52,198
Hoop Iron.	217	None	301	9	None	52,571
Iron or Steel, in the coil.	None	657,193	10,663	747,827	121,292	1,056,713
Steel Bowls.	54,681	75,505	75,879	152,697	65,883	150,741
Locomotive, tires of steel.	2,042	13,021	3,705	15,762	729	20,383
Mining Machinery.	22,063	176,813	16,308	281,691	43,660	678,065
Platinum Wire, etc.	261	9,198	73	9,598	None	57,910
Sewing Machine Attachments.	None	19,695	None	22,915	None	28,358
Steel Rails.	96,328	1,714,277	93,113	1,621,115	827,145	1,960,721
Steel for Saws, etc.	16,032	50,137	14,157	60,505	11,958	247,718
“ Wire for Mattresses.	204	22,426	260	7,649	605	12,212
“ for Locks.	None	2,383	None	4,571	135	5,235
“ for Files, Augers, etc.	8,493	68,631	15,457	73,386	30,074	119,714
Tin in Blocks.	125,566	133,155	90,151	188,427	194,552	307,040
Tin Foil.	594	16,411	4,608	25,896	2,042	36,151
Barbed Fence Wire.	None	None	9,802	306,484	18,329	456,318
Wire of Brass, Zinc, etc.	30	37,782	None	24,170	7	47,860
Galvanized Iron or Steel.	743	230,949	12,943	187,393	19,987	294,864
Surgical Instruments.	6,879	29,406	12,585	64,291	11,748	79,960
	<u>398,513</u>	<u>4,231,930</u>	<u>437,638</u>	<u>4,734,323</u>	<u>1,439,172</u>	<u>5,952,741</u>

The total value of these thirty different lines of non-dutiable products was :—

	Great Britain.	United States.	Total.
Proportion (1898).....	\$398,513 8.6 per cent.	\$4,231,930 91.4 per cent.	\$4,630,443 100 per cent.
Proportion (1899).....	\$437,638 8.4 per cent.	\$4,734,323 91.6 per cent.	\$5,171,961 100 per cent.
Proportion (1900).....	\$1,439,172 19.4 per cent.	\$5,952,741 80.6 per cent.	\$7,391,913 100 per cent.

The aggregate value of these seventy-five different lines of products, imported for consumption in Canada in the three years under consideration, was \$36,811,181, of which 9.5 per cent. came from Great Britain, and 90.5 per cent. from the United States.

The value of all foreign merchandise, dutiable and free, entered for consumption in Canada was :—

	Great Britain.	United States.	Other Countries.	Total.
1898.....	\$32,500,917 24.8 per cent.	\$78,705,590 60.2 per cent.	\$19,491,499 15.0 per cent.	\$130,698,006 100 per cent.
1899.....	\$37,060,123 24.0 per cent.	\$93,007,166 60.0 per cent.	\$23,984,304 16.0 per cent.	\$154,051,593 100 per cent.
1900.....	\$44,789,730 24.7 per cent.	\$109,844,378 60.7 per cent.	\$26,170,208 14.6 per cent.	\$180,804,316 100 per cent.

In the three years under consideration, the value of imports into Canada was as follows :—

Great Britain.....	\$114,350,770	28.0 per cent.
United States.....	281,557,134	72.0 "
Total.....	\$395,907,904	100 per cent.

CANADIAN IMPORTS OF WOOLEN GOODS.

Recognizing the fact that several deputations of Canadian woolen manufacturers have recently visited Ottawa to lay their views before the Government, showing how badly handicapped their industry is because of the preferential tariff, and that if some relief is not afforded it by some modification of the tariff, or of the preference, it will be unable to survive, we herewith present a statement showing the names of thirty different manufactures of wool, (which includes about all the articles embraced in the list), imported into Canada during the fiscal years ended with June 30, 1898, 1899 and 1900. The statement shows the values of each class of goods imported, distinguishing between those coming from Great Britain and from all other countries.

A summary statement shows as follows :

MANUFACTURES OF WOOL.

ARTICLES.	1898.		1899.		1900.	
	GT. BRITAIN.	ALL OTHER COUNTRIES.	GT. BRITAIN.	ALL OTHER COUNTRIES.	GT. BRITAIN.	ALL OTHER COUNTRIES.
Blankets.....	\$47,260	\$3,548	\$30,190	\$9,172	\$41,686	\$7,852
Cassimeres.....	49,277	10,649	102,498	13,709	43,112	2,734
Cloths.....	1,061,116	49,283	1,361,314	82,457	1,226,561	111,954
Coatings.....	482,797	7,868	536,307	14,744	569,581	11,589
Overcoatings.....	7,625	None	6,747	1,023	9,544	1,617
Tweeds.....	413,508	15,142	500,099	13,414	817,294	26,331
Felt Cloths, N.E.S.....	13,451	25,332	6,098	34,117	2,473	24,819
Flannels.....	52,244	38,289	54,265	10,545	56,214	22,805
Knit Goods, N.E.S.....	96,370	64,672	104,573	106,190	69,940	55,389
Bed Comforters.....	1,127	1,220	733	591	3,173	1,235
Shawls.....	43,170	13,944	62,045	15,403	59,047	14,127
Shirts.....	10,832	3,403	16,085	18,110	17,719	13,227
Socks and Stockings.....	444,262	44,402	582,314	65,843	575,924	59,315
Undershirts and Drawers.....	24,749	15,061	38,604	33,010	41,358	43,234
Yarns.....	52,053	52,847	122,816	46,994	196,298	61,356
" N.E.S.....	60,113	22,240	83,027	36,287	81,387	39,902
Fabrics, N.E.S.....	2,208,300	816,334	2,567,429	809,665	2,589,017	770,839
Dress Goods.....	51,752	22,002	25,019	23,069	48,328	39,721
Blouses and Shirt Waists.....	144	454	113	None	8,571	2,080
Clothing, N.E.S.....	430,856	465,999	476,036	549,054	448,644	545,651
Hosiery, N.E.S.....	16,755	4,565	17,432	3,230	24,455	6,994
Carpets, Brussels.....	280,447	7,868	398,960	15,728	482,618	11,171
" Damask.....	699	None	None	None	458	22
" Dutch.....	221	None	546	None	299	None
" Tapestry.....	387,319	224,561	457,381	11,535	455,180	10,468
" Turkish.....	4,646	3,918	5,032	4,289	5,545	2,865
" Two and three ply.....	11,382	2,760	13,665	5,061	12,276	2,348
" Union.....	1,419	1,350	1,267	1,041	7,025	690
Felt, pressed.....	36,763	48,713	34,099	143,984	35,099	38,300
Shoddy.....	446	976	None	717	8,439	975
	\$6,291,143	\$1,967,400	\$7,604,694	\$2,068,982	\$6,837,265	\$1,929,610

Imported in 1898.		
Great Britain	\$6,291,143	76.2 per cent.
All other countries.....	1,967,400	23.8 “
Total.....	\$8,258,545	100.0 per cent.

Imported in 1899.		
Great Britain	\$7,604,694	78.5 per cent.
All other countries.....	2,068,982	21.5 “
Total.....	\$9,673,676	100.0 per cent.

Imported in 1900.		
Great Britain.....	\$6,837,265	78.0 per cent.
All other countries.....	1,929,610	22.0 “
Total.....	\$8,766,875	100.0 per cent.

Average for three years as above, under preferential tariff:

Great Britain.....	\$6,911,034	77.6 per cent.
All other countries.....	1,988,664	22.4 “
Total.....	\$8,899,698	100.0 per cent.

Imported in 1895.

The imports of precisely the same lines of woollen goods in 1895, previous to the preferential tariff were:

Great Britain.....	\$6,616,235	83.2 per cent.
All other countries.....	1,346,193	16.8 “
Total.....	\$7,962,428	100.0 per cent.

It has been supposed that an effect of the preferential tariff would be to increase Canada's purchases of woollen goods from Great Britain, but the above shows that as between the average purchases for three years 1898, 1899 and 1900, since the coming into operation of the preference, and 1895, previous to the preference, there was a slight increase in such purchases—say \$937,270, but the relative value of them has decreased, that is to say, in 1895, before the preference, 83.2 per cent. of our purchases of woollen goods was from the Mother Country, while since the preference, our average purchases were but 77.6 per cent.

THE CANADIAN MANUFACTURERS' ASSOCIATION AND THE CANADIAN OIL REFINING INDUSTRY.

Industrial Canada, the official organ of the Canadian Manufacturers' Association, recording the proceedings of the March 15 meeting of the Executive Committee, states that the committee recommended that Mr. E. R. Clarkson's notice of motion re the removal of the duty on oil be printed in full in Industrial Canada, together with other facts bearing on the subject, and that members should be invited to express themselves in connection with the subject; and in another page Mr. Clarkson's "notice of motion" is given in full together with a letter giving his arguments why the duty should be removed. Mr. Clarkson is connected with the Sun Oil Refining Co., of Hamilton, Ont., importers of Pennsylvania lubricating and illuminating oils, manufactured, we believe, by the Cornplanter Oil Refining Co., of Warren, Pa., and he is a member of the Manufacturers' Association.

Mr. Clarkson asks the Association to believe that the Standard Oil Co. has obtained control of the Canadian oil industry and has formed a "Trust;" that the price of petroleum and its products have been unduly enhanced thereby; that in the opinion of the Association it is very undesirable, and detrimental to the interests of Canada that the Standard Oil Co. should be allowed to control the Canadian industry; that the Government should be requested to put in operation against the company the criminal law having

reference to conspiracies in restraint of trade, and desires the Association to declare that it is its firm conviction that unless the relief asked for—the removal of the duty on oil—is granted the consumers of petroleum and its products will greatly suffer.

The editor of THE CANADIAN MANUFACTURER, being a member of the Association, believing that Mr. Clarkson is mistaken in his facts, and therefore in his conclusions, has written the following letter to the Association which explains itself:

P. W. ELLIS, Esq.,
President Canadian Manufacturers' Association, Toronto.

DEAR SIR:—

In the March issue of Industrial Canada is an editorial in which attention is directed to a "notice of motion" given to the Executive Committee by Mr. S. R. Clarkson, of the Sun Oil Refining Co., of Hamilton, Ont., with reference to the removal of the duty on petroleum, and also to a letter from him giving reasons why, in his opinion, the Government should be urged to remove the duty. The editorial states that Mr. Clarkson's letter is published in Industrial Canada in the hope that any of the members who may entertain opinions on the subject will communicate them to the Association. I beg to say that I entertain opinions on the subject, and as a member of the Association desire to submit them to you.

Mr. Clarkson's "notice of motion" consists of a resolution which he desires the Association to adopt, which, if done, would require the Association to use its influence with the Government to remove the duty on oil. As a member of the Association, Mr. Clarkson has a right to ask it to consider his proposition; and it is the duty of the Association to investigate its merits; but in view of the fact that it is one of wide scope, and would be far-reaching in its effects were it decided according to Mr. Clarkson's wishes, and in view of the further fact that there are other members of the Association who have investments in the Canadian oil industry, it is to be regretted that the "notice of motion" and Mr. Clarkson's letter should have been given so much publicity, calculated as it was, to influence public opinion, while other members who are also interested in the matter, were not accorded opportunity at the same time to express their views.

An avowed object of the Canadian Manufacturers' Association, is the encouragement of Canadian manufacturing industries, therefore the greatest care should be observed in publishing anything in its official organ in which may be embodied an attack on any legitimate home industry.

My information is that in 1898 Mr. Clarkson represented the Cornplanter Refining Co., of Warren, Pa., in the sale of their oils in Canada, and that later in that year the members of that company became incorporated under an Ontario charter as the Sun Oil Refining Co., with head office in Hamilton. They do not manufacture crude oil into refined in Canada, but handle American oils.

Mr. Clarkson proposes, with the assistance of the Association, to invoke the operation of the criminal law and to inflict the punishment therein provided upon the Standard Oil Co., because, as he alleges, that company has obtained control of the Canadian oil industry, and has formed it into a "trust." The Canadian works, where the crude products of Canadian oil wells are refined, are owned and operated by the Imperial Oil Co., which was incorporated under Canadian laws and is composed largely of Canadians. It is a large employer of Canadian labor, and is in no sense a "trust." Mr. Clarkson says that this "trust," as he calls it, has obtained control of the Canadian oil producing industry, which assertion is not true in the sense that he would like the readers of Industrial Canada to believe; and while at the present time the Imperial Oil Co. is the only concern in Canada engaged in refining oil, there is nothing whatever to prevent any other concern embarking in that business. Neither is it true that the Imperial Oil Co. control all the

output of Canadian oil wells, and it is claimed to be a fact that that company and the Standard Oil Co., both combined, do not control more than about two per cent. of the output of the Canadian wells.

Mr. Clarkson says that because of the control of the Standard Oil Trust the price of petroleum and its products has been unduly enhanced to Canadian consumers, which assertion is not susceptible of proof. Some of the by-products, which are only a minor part of the output, are at this time higher in price than they were a few years ago, but the refined oil is not as high as it was in 1895 and 1896. Mr. Clarkson says that 950,000 families in Canada use annually about 11,000,000 gallons of Canadian oil, an average of about 11½ gallons per family per year. The average price to large dealers of refined Canadian oil in tank cars f.o.b. at Sarnia during a year or more past has been not exceeding 10½ cents per Imperial gallon, which would be about \$1.21 for each family; and from that should be deducted the cost of crude oil, labor, chemicals, waste in manipulation and interest on money invested in the business, the balance being the "heavy tax on the farmers of Canada" which has enlisted Mr. Clarkson's unselfish sympathies. He says "in consequence of the ownership and control of the Canadian industry by the Standard Oil Co. since 1898, and the duty imposed, the price of oil has been advanced from six to nine cents per gallon," and argues therefrom that it is no longer a Canadian industry. This statement also is not susceptible of proof. At this time Canadian oil, equal in all respects to American oil, is selling in Toronto at 12½ cents per Imperial gallon, and in other places in proportion. Compare this with prices prevailing in 1895 and 1896. In February of the latter year Toronto prices to the trade were for Canadian Prime White oil, 16½ cents; Canadian Water White 18 cents, and American Water White 21 cents, which included the value of the containing barrel, worth 70 cents, or about 1½ cents per gallon, making the net cost to the purchaser 15, 16½ and 19½ cents respectively. Compare these with present tank-wagon prices delivered, which are, for Prime White 12½ cents, Sarnia Water White, 13½ cents and American Water White, 15½ cents, which show a very material reduction. This means that the Sarnia Water White, a Canadian oil, is now very generally supplied to the trade, supplanting to large extent the American oil. In other words, Canadian oil is now sold at 13½ cents, the exact equivalent of the oil sold in 1896 at 19½ cents.

The Canadian oil industry is a legitimate one, and as such fully entitled to all the consideration possible from the Canadian Manufacturers' Association.

The importance of the subject is my excuse for the length of this communication. Very respectfully,

Toronto April 1.

J. J. CASSIDY.

PRODUCTION OF PIG IRON IN CANADA IN 1900.

The production of pig iron in the Dominion of Canada, as ascertained from the manufacturers by the American Iron and Steel Association, amounted in the calendar year 1900 to 86,090 gross tons, as compared with 94,077 tons in 1899, 68,755 tons in 1898, 53,796 tons in 1897, 60,030 tons in 1896, 37,829 tons in 1895 and 44,791 tons in 1894. The statistics of the association do not go back prior to 1894. Of the production last year 70,349 tons were made with coke and 15,741 tons with charcoal. The production of Bessemer pig iron, included above, amounted to 3,781 tons. Neither spiegel nor ferromanganese was made.

On December 31, 1900, the unsold stocks of pig iron in Canada amounted to 12,465 gross tons, as compared with 9,932 tons at the close of 1899 and 9,979 tons at the close of 1898. Of the unsold iron on hand on December 31, 1900, 6,900 tons were coke pig iron and 5,565 tons were charcoal pig iron.

On December 31, 1900, there were ten completed furnaces in Canada and four furnaces were in course of construction. During 1900 one new furnace was completed at Midland, Ont., by the Canada Iron Furnace Co. It was blown in early in December, 1900, and was in blast in January last. The other four furnaces referred to were all being erected by the Dominion Iron & Steel Co., at Sydney, C.B., N.S. One of the furnaces was completed early in 1900 and was blown in on February 5. Another will soon be put in blast.

—The Bulletin.

EDITORIAL NOTES.

Canada for Canadians.

A Canadian Tariff for Canada.

Tariff protection for Canadian manufacturing industries.

Diversify the industries.

The more a nation produces the richer it becomes.

Let industrial independence be our boast.

"Export as much as possible; import as little as possible, and manufacture in our country everything possible."—James Kendrey.

For powers of analysis, for pure and lucid reasoning, few men are so capably endowed as A. J. Moxham, the general manager of the Dominion Iron & Steel Co. A remarkable address which this remarkable man delivered before the Cleveland Chamber of Commerce a few years ago is still fresh in the minds of Clevelanders. He was discussing the logical steel making centre, and he fixed it on the south shore of Lake Erie. The evidence of its practical quality is to be found in the excellent plant at Lorain, now a part of the Federal Steel Co., or to be more up to date, the United States Steel Corporation. Mr. Moxham has now rendered the same service to Canada that he gave to Cleveland. He has fixed upon its logical steel-making centres. If Moxham were not a great steel maker he would be a great writer. His language is as limpid as water and as clear as crystal. He is alive to the fact that Canada is in her industrial renaissance. Her home market is growing. The cry for steel is becoming louder and louder. Steel is the one commodity which does not keep an even pace with the growth of population. It grows by geometrical progression. Give a town twice its population and its demand for steel has quadrupled. The silent tide of immigration pouring into Canada is hungry for steel. The farmer wants plows, wire fences and what not, the artisan wants tools, the blacksmith, the wagon maker, the ship builder want steel—in short, the demand is incisive, insistent and constant. What is steel? Ore, coal, limestone and labor. Its cost is regulated by the cost of these materials; and the cost of these materials is regulated by the cost of their assembly. Mr. Moxham makes calculations which it is difficult to disprove, that for the central Canadian district, which includes Ontario, raw materials can be assembled more cheaply at Sault Ste. Marie than anywhere else on earth. He makes the same calculations for Sydney in its relation to the export trade. The figures which he presents are not the figures of a theorist. They are ton-mile rail and water-freight calculations on ore, coal and limestone, based upon a life experience. That people have faith in him is evidenced by the fact that a recent call for stock subscriptions has been three times over subscribed.—Marine Review.

CAPTAINS OF INDUSTRY.

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

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

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

A marine electric railway has recently been installed in Liverpool, N.S., for the purpose of hauling vessels up on a cradle out of the River Mersey to a distance of 500 feet on a grade of one-half inch to the foot. Before this installation it took from four to five hours to haul up a vessel, while on January 11, the first vessel was hauled up in twenty minutes by the electrical apparatus. The equipment consists of a thirty horse power induction motor, the motor shaft being geared to a heavy worm shaft and wheel gearing into another large wheel, on which shaft is placed a large sprocket wheel. Over this sprocket a heavy two-inch chain meshes into the teeth. It is stated that the installation is the first of its kind in America, and probably the first in the world to be electrically operated.

Messrs. Shurly & Dietrich, Galt, Ont., saw manufacturers, ask for a grant of \$40,000 to assist them in erecting new factories for the manufacture of farmers' tools.

At the annual meeting of the Robb Engineering Co., Amherst, N.S., held March 19, the following directors were re-elected:—D. W. Robb, chairman and managing director; Rev. D. McGregor, W. B. Ross, K.C.; G. W. Cole and A. G. Robb. The sales for the year 1900 have increased by about \$50,000 over the previous year, and the opening of the present year has brought increasing business, the sales for the first two months of 1901 being about \$8,000 more than for the same months of 1900, and orders are booked for fully three months' work in advance. The company, during the past year, did quite a large exporting business in engines for electric railways in different parts of the world.

La Compagnie de Pulpe Quiatchouan, Quebec City, has been incorporated with a capital stock of \$150,000, to manufacture pulp and paper. The provisional directors include Onesime Cote, Joseph Brassard and J. I. Avery.

The Crowther-Cumming Co., Toronto, has been incorporated with a capital stock of \$50,000, to manufacture wooden ware, hardware, etc. The provisional directors include P. R. Cumming, James Crowther and J. R. Bond, all of Toronto.

La Compagnie, Desjardins, St. Andre de Kamouraska, Que., has been incorporated with a capital stock of \$100,000 to manufacture agricultural implements. The charter members include C. A. Roy dit Desjardins, Joseph Paradis and John Ouellet, all of St. Andre de Kamouraska.

The Desbarats Mining Co., Desbarats, Ont., has been incorporated with a capital stock of \$500,000. The provisional directors include Edward Bayly, E. R. McHolm, and H. D. Graham, all of Toronto.

The town of Kaslo, B.C., has offered a bonus of \$50,000 and exemption from taxation for ten years to any person or corporation that will erect a smelter at that place. It is understood that a company has already been organized to build the smelter. There will be a market for machinery, materials, and supplies. The construction of the smelter must be commenced before October 1 next. Kaslo is the centre of a great silver-lead-producing district, and a smelter ought to be a good paying investment.

A company is being organized by D. W. Micewicz to erect a flaxseed mill at Edmonton, N.W.T.

Two of the largest exhaust heads in the country, one thirty inches and one thirty-six inches, were recently installed by the Edison Electric Illuminating Co., Boston, Mass., in their new station. They are of the Sturtevant centrifugal type, built by the B. F. Sturtevant Co., Boston, Mass.

The grist mill of H. & S. Smith, Durham, N.S., was recently destroyed by fire.

A new flour mill will be erected by J. A. Powell, at Fort Saskatchewan, N.W.T.

A charter has been secured by the Guelph, Ont., Railway Co., for an electric road to Hespeler, Ont., and also to Berlin, Ont.

The O'Keefe Brewery Co., Toronto, will erect a five storey malt house and kiln tower, to cost \$20,000.

A flour mill will be erected at Nelson, B.C., by B. Friel, Calgary, N.W.T.

J. N. Williams, Brampton, Ont., has been granted a bonus of \$8,000, by the rate-payers of Galt, Ont., to build a shoe factory there.

The Waterloo Mfg. Co., Waterloo, Ont., have increased their capital stock from \$100,000 to \$300,000.

The Sakoos Gold Mining Co., Ottawa, has been incorporated with a capital stock of \$300,000. The provisional directors include J. M. Munroe, Winnipeg, Man., and G. E. Foster and John Mather, both of Ottawa.

The Briggs' Ledger System Co., Ottawa, has been incorporated with a capital stock of \$35,000, to manufacture ledgers, books, stationery, etc. The provisional directors include F. W. Briggs, F. A. Heney and J. I. McCracken, all of Ottawa.

The London & Canadian Mining & Development Co., Brantford, Ont., has been incorporated with a capital stock of \$10,000. The provisional directors include Christopher Cook, Brantford, A. N. Gray, Woodstock, Ont., and C. F. Gray, Norwich, Ont.

The International Transit Co., Sault Ste. Marie, Ont., has been incorporated with a capital stock of \$200,000, to construct and operate a street railway in Sault Ste. Marie. The provisional directors include F. H. Clergue, B. J. Clergue and J. E. Irving, all of Sault Ste. Marie.

The Canadian Bronze Co., Montreal, has applied for incorporation with a capital stock of \$75,000, to manufacture bronze or brass castings, etc. The provisional directors include L. E. Tate, St. Thomas, Ont., B. M. Tate, Buffalo, N.Y., and J. S. Robertson, St. Thomas.

INGERSOLL-SERGEANT Rock Drills

FOR MINES, TUNNELS AND QUARRIES

PISTON INLET

Air Compressors

STRAIGHT LINE
 DUPLEX and
 COMPOUND.

FOR ALL DUTIES.

... COMPLETE MINE EQUIPMENT ...

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

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

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The boiler and varnish rooms of the Southam Printing & Lithographing Co., London, Ont., were destroyed by fire March 24. Loss about \$7,000.

The Rhodes, Curry Co., Amherst, N.S., are working on an order for 600 coal hopper cars of sixteen tons each, and are also building the entire equipment for the Broad Cove & Inverness Railway.

The Good Roads Machinery Co., Hamilton, Ont., has applied for incorporation with a capital stock of \$40,000, to manufacture road making machinery. The provisional directors include John Challen, W. D. Flatt, both of Hamilton, and John Robinson, Grand Valley, Ont.

Pictou, N.S., will spend \$50,000 this year on waterworks.

A new flour mill will be erected at Fort Saskatchewan, N.W.T., by J. A. Powell.

A new office building will be built this year at Winnipeg, Man., by the Lake of the Woods Milling Co.

Messrs. Hess Bros., Listowel, Ont., will erect a chain factory at that place.

A third edition of the instructive booklet, Bulletin J, relating to "Mechanical Draft; What it is, and What it Does," has just been issued by the B. F. Sturtevant Co., Boston, Mass., of whom it can be obtained upon

application. It illustrates applications under both the forced and induced methods and shows the Sturtevant Blower Works as they now appear without a chimney—a fan being employed exclusively for producing the required draft for about 400 boiler horse power.

The Georgian Bay Shook Mills, Midland, Ont., has been incorporated with a capital stock of \$40,000, to manufacture shooks, boxes, etc. The provisional directors include Peter Potvin, R. B. Little and Wm. Finlayson, all of Midland.

The Imperial Corundum Co., Toronto, has been incorporated with a capital stock of \$1,000,000. The provisional directors include L. A. Morrison, Toronto, P. S. Merrill, Buffalo, N.Y., and G. A. Sanborn, Kenmore, N.Y.

The Westport Mining & Development Co., Westport, Ont., has been incorporated with a capital stock of \$50,000. The provisional directors include W. C. Fredenburg, D. P. Alguire and J. P. Foley, all of Westport.

Wm. A. Rogers, Limited, Toronto, has been incorporated with a capital stock of \$1,350,000, to manufacture cutlery, metal letters, flat-ware, etc. The provisional directors include J. S. Lovell, William Bain and Robert Gowans, all of Toronto.

The London Fence Machine Co., London, Ont., has been incorporated with a capital

stock of \$40,000, to manufacture fence-weaving machines, steel gates, coiling wire, etc. The provisional directors include A. E. Blashell, Heber Plewes and H. G. Gray, all of London.

The Neustadt Mfg. Co., Neustadt, Ont., has been incorporated with a capital stock of \$30,000, to manufacture lumber, chairs, etc. The provisional directors include R. W. Walden, W. McN. Brown, C. W. Helwig, all of Neustadt.

The Dominion Portland Cement Co., Warton, Ont., has been incorporated with a capital stock of \$250,000, to manufacture Portland cement, bricks, tiles, etc. The provisional directors include David Porter, D. M. Jermyn, both of Warton, and John Rowland, Walkerton, Ont.

The Canada Biscuit Co., Toronto, have increased their capital stock from \$100,000 to \$150,000.

The charter of the Copland-Chatterson Co., Toronto, has been surrendered. The cancellation went into effect March 15.

The Chatham Binder Twine Co., Chatham, Ont., has been incorporated with a capital stock of \$125,000, to manufacture binder twine, rope, cordage, etc. The provisional directors include Alister McKay, D. A. Hutchison and Lawrence Howard, all of Chatham.

Transfer Ornaments, AMERICAN MADE.

TRADE MARKS, DECORATIONS, NAME PLATES, ETC.

For HARDWARE, BICYCLES, VEHICLES, POTTERY, FURNITURE, etc.

Sketches and samples submitted free of charge. Being American manufacturers enables us to make prompt delivery. Write us.

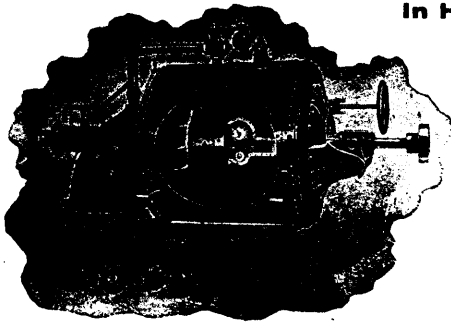
THE MEYERGORD CO., Inc., —MAIN OFFICE—

Canadian Travelling Representative,
CHAS. H. JAGGER, Hamilton, Ont.

Largest Makers in the World of Guaranteed Decalomania Transfers.

THE **Crocker Patent Turbine**

In Horizontal Setting, with Quarter Turn Elbow.



Where the nature of the location will permit its use this type has many advantages. It is very suitable for direct connection to dynamos, and many are in operation in this class of service.

Notice how complete and compact this arrangement is, and how easily it may be installed. Can you use anything of this kind? Your inquiries will receive prompt attention.

WATER POWERS examined and Reports made. Estimates submitted for Complete Equipments. - - - -

The JENCKES MACHINE CO.,
42 Lansdowne St., Sherbrooke, Que.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The works of the Toronto Casket Co., Toronto, was destroyed by fire March 25. Loss about \$4,500.

The sawmill of the Shuswap Milling Co., Kamloops, B.C., was recently destroyed by fire. Loss about \$30,000.

Messrs. G. H. & S. H. White will erect a wood-working factory at Sussex, N.B.

Mr. Potvin, Midland, Ont., has purchased the box factory at Dollartown, Ont., recently owned by Firstbrook Box Co., Toronto.

It is reported from Montreal that the Thomas Davidson Mfg. Co., propose to establish new works for the manufacture of steel ingots and castings, and will employ about 100 hands.

The Ontario Government will erect a commodious and substantial building for the science department for the Toronto University, which will cost about \$200,000, and take about two years to complete. Work will be commenced as soon as the appropriation has been passed.

Edmund Hall, who has for many years operated the Detroit sawmill at Bay City, Mich., has built a large sawmill at Sarnia, Ont., which will have a stock of 20,000,000 feet of logs, cut on Mr. Hall's timber limit on Georgian Bay.

The Northrop Loom Co., Valleyfield, Que., has changed its corporate name to The Northrop Iron Works.

The Diamond Glass Co., Montreal, employ eight hundred hands.

The Dominion Oilcloth Co., Montreal, give employment to 150 hands. During the past three years the company has constantly been adding to its factory capacity.

The Imperial Cotton Co., Hamilton, Ont., with a capital stock of \$750,000 are erecting a factory, the main building of which is three storeys high, 224x108 feet, and will contain looms, cards, etc. The finishing building is two storeys high, 88x44 feet. The raw cotton storehouse will be one storey high, and 163x62 feet. Between 300 and 400 hands will be employed.

The Penman Mfg. Co., Thorold, Ont., are erecting a brick addition to their factory, to be used as a boiler room.

The J. H. Still Mfg. Co., St. Thomas, Ont., employs over 100 men, and have to run night and day to keep up with orders.

The Hull & Ottawa Power & Mfg. Co., Hull, Que., intend erecting large factories, which will be equipped with the latest machinery, for the manufacture of paper, pulp, etc.

In a recent publication the B. F. Sturtevant Co., of Boston, Mass., described its method of heating and ventilating the largest round house in the world; that of the Chicago & North Western Railway Co., at Clinton, Iowa. Regarding a similiar arrangement in the round house of the same road at Mason City, Iowa, the Master Mechanic writes that the engine house at Mason City is heated the same as the one at Clinton, and we are very much pleased with the arrangement. While this has been a very open winter, still on two or three occasions the thermometer has registered twelve below, and at no time have we found it necessary to run the engine at its full capacity. Engines coming from the road, covered with ice and snow, are quickly thawed and inside of one hour are ready for

service. As a rule, in this country, during the winter season where engine houses are heated with steam, it is impossible to see ten feet ahead of you. At no time during the winter have we noticed anything of this nature. The plant at Mason City has been visited by quite a few railroad officials of other roads, and all are very much pleased with the arrangement.

The sulphide works of the E. B. Eddy Co., Hull, Que., are operated by electricity. The output of pulp is all sold to the United States one year ahead.

What is said to be the largest marine boiler ever turned out in this country is being built at the foundry of Marsh & Henthorne, Belleville, Ont., for the steamer Alexandria.

The Cleveland Sawmill & Lumber Co., Cleveland, Ohio, will erect a large sawmill at Sarnia, Ont.

The Richelieu & Ontario Navigation Co., Montreal, have awarded the contract for furnishing their new palace steamer Kingston to the Charles Rogers & Sons Co., Toronto.

The name of the J. R. Ayre Co., Sackville, N.B., has been changed to the Standard Mfg. Co. The firm manufactures leather goods and employs 100 hands. New machinery has been put in the shoe factory, which has been enlarged and remodeled. A power house and electric plant will be added.

The Rush Bay Golden Horn Mining Co., Rat Portage, Ont., has been incorporated with a capital stock of \$250,000. The provisional directors include Frederick Hemmings, Rat Portage, C. W. Clark, Winnipeg, Man., C. H. Hutchings, St. John, N.B.

W. A. FLEMING & CO.,

771 CRAIG STREET, - - MONTREAL.

THE STRONGEST AND MOST DURABLE



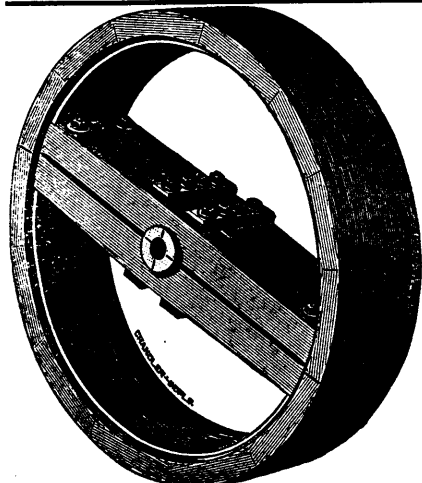
NOT AFFECTED BY DAMPNES, HEAT OR STEAM
MOST DURABLE THE BEST FOR MAIN DRIVES

"REDDAWAY"

BALATA BELTING

STRONG, DURABLE AND NOT AFFECTED BY DAMPNES.

WRITE FOR SAMPLES AND PRICES



"The Reeves"

A HIGH GRADE

Wood-Split

PULLEY

BUILT HONESTLY
BUILT RIGHT

It Does the Work. No Trouble. No Worry.

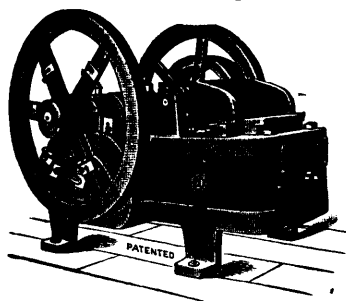
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REEVES PULLEY MANUFACTURING CO., Limited

14 Pearl Street, - Toronto, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

ROLL JAW CRUSHER.



Crushes

Large Rock

to

4 inch.

Send for Circular.

STURTEVANT MILL CO.,

**104 Clayton St.
Boston, - Mass.**

The Jones & Moore Electric Co., Toronto, inform us they are manufacturing one of the most compact direct connected electric plants on the market. They have just completed one of the 150-light size for a steamer in Owen Sound, Ont., the entire space occupied by both engine and dynamo mounted on the one base being about 3 feet high, 2½ feet wide and four feet long.

The Lincoln Electric Light & Power Co., St. Catharines, Ont., has been incorporated with a capital stock of \$400,000. The provisional directors include A. T. Duncan, Hamilton, Ont.; P. J. Crawley and D. M. Walker, both of St. Catharines.

The Paisley Pork Packing Co., Paisley, Ont., will increase the capital stock from \$8,000 to \$40,000.

The new Dominion steamer to replace the Newfield, will be of the following dimensions: Length of keel, 210 feet; breadth moulded, 34 feet; depth moulded, 18 feet. She is to be equipped with direct acting surface condensing tri-compound engines of sufficient power to maintain a speed of fourteen knots at sea in ordinary weather. She will have all the latest improvements and fittings and machinery, and be wired throughout with electric light. In addition to the officers', quarters will be provided for twelve seamen and twelve firemen. The boat will be fitted with apparatus for laying out, unwinding and picking up cables, as she will be used in the marine telegraph service.

Henry C. Ward, Pontiac, Mich., will erect a large tobacco-curing factory at Leamington, Ont., which will be six storeys high. The Leamington Council has passed a by-law donating the site and exempting the concern from taxation for ten years.

By reason of the death of Mr. John H. Grout, of Messrs. J. H. Grout & Co., manu-

facturers of agricultural implements at Grimsby, Ont., it has been decided by the executors to offer for sale the iron foundry and the basket factory which formed a part of the plant of the concern. The opportunity to make a profitable investment is apparent in this offer to sell. Grimsby is in the very heart of the fruit growing section of Ontario, and the demand for fruit baskets, crates, etc., upon the Grout works has been far in excess of their ability to supply.

The Dominion Government will spend \$13,000 on the Canadian building at the Pan-American Exposition at Buffalo, N.Y.

A houseboat with a capacity to hold 1,000 passengers, will be built by the Owen Sound, Georgian Bay Park & Summer Resort Co.

The Jones & Moore Electric Co., Toronto, have placed one of their 20-h.p. motors in the new foundry of C. Wilson & Son, Toronto.

The D. F. Brown Paper Box & Paper Co. have ordered from the Robb Engineering Co., Amherst, N.S., a 70 horse power Mumford Standard boiler for the new factory they are building at St. John, N.B.

The Peterborough Canoe Co., Peterborough, Ont., have shipped to W. H. Conners, Edmonton, N.W.T., the hull of a small steamer, which will be used in the Arctic waters, in the fur-trading industry. She is 55 feet long, 10 feet wide, with 5½ foot beam, and built entirely of white oak.

The Formosa Oil Co., Formosa, Ont., has been incorporated with a capital stock of \$10,000. The provisional directors include C. Weiler, E. G. Kuntz and Frank Oberle, all of Formosa.

The Men's Outfitting Co., Brockville, Ont., has been incorporated with a capital stock of \$50,000, to manufacture hats, caps, boots, shoes, etc. The provisional directors include E. H. Moles, Brockville; H. A.

Beatty and J. J. Westgate, both of Montreal.

The Swansea Forging Co., whose works are near Toronto, have surrendered their charter, which took effect March 1, 1901.

The Geo. Gillies Co., Gananoque, Ont., have surrendered their charter, which took effect March 1, 1901.

The Jones & Moore Electric Co., Toronto, have received an order from the Dominion Government for one of their electric motors for Ottawa.

The Dominion Wrought Iron Wheel Co., Toronto, has been incorporated with a capital stock of \$20,000, to manufacture wagons, agricultural implements, etc. The provisional directors include Samuel Henderson, J. E. Knox and T. H. Knox, all of Toronto.

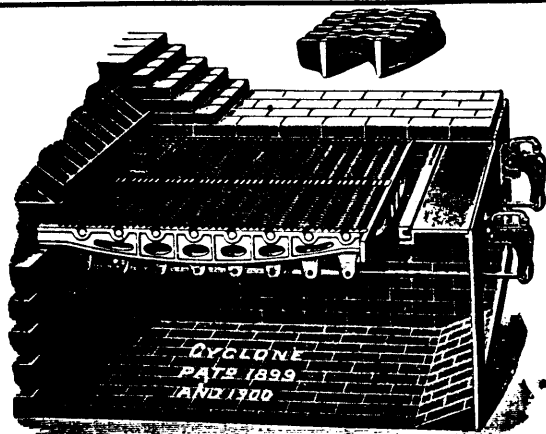
The J. H. Still Mfg. Co., St. Thomas, Ont., has been incorporated with a capital stock of \$99,000, to manufacture handles made from wood. The provisional directors include J. H. Still and George Pettit, both of St. Thomas.

The Stratford Clothing Co., Stratford, Ont., has been incorporated with a capital stock of \$40,000. The provisional directors include C. E. Tolton, James Dow, and E. T. Dufton, all of Stratford.

The buildings of the Examiner Printing Co., Peterborough, Ont., were destroyed by fire a few days ago. Loss about \$35,000.

The Hees Bros. Bent Chair Co., Listowel, Ont., expect to have their factory running in a few weeks.

The John Bertram & Sons Co., Dundas, Ont., will apply for incorporation with a capital stock of \$300,000, to manufacture machine tools, pulp and paper machinery, etc. The provisional directors will be John Bertram, Alexander Bertram, and Henry Bertram, all of Dundas.



USE CYCLONE GRATE BARS AND PRODUCE

CHEAPER STEAM

No individual consumer can regulate the price of coal, but you can regulate the amount of coal burned for a given power by installing **Grate Bars** that will produce **perfect combustion**. Write us for particulars.

E. J. PHILIP, Manager,

404 TEMPLE BUILDING, - - TORONTO, ONT.

PHONE 8682

In connection with the failure of W. J. Connors, of Buffalo, to carry out certain undertakings for the construction of elevators and warehouses at Montreal, it is announced that the scheme has been taken up by Mr. A. B. Wolvin, of Duluth, and that he is at the head of a syndicate which seeks to erect two elevators in Montreal harbor. Mr. Wolvin has already had two or three conferences with the harbor board at Montreal, and with the Dominion officials at Ottawa. It is understood that his proposition includes terminal facilities other than grain elevators, and the operation of a fleet of steamers upon the great lakes and the Canadian canals from the lakes to Montreal. The elevators are to cost about \$2,000,000, and about \$1,500,000 is the amount said to be fixed for the acquirement of vessels. The harbor commissioners are represented as being favorably impressed with the proposition, as Mr. Wolvin already is in touch with or in control of a fair share of the lake trade, and is in position to bring it to tidewater by the St. Lawrence canal route if he so desires. The harbor board has been asked to guarantee the bonds for the construction of the terminals at Montreal, holding the property as security.—Marine Review.

The city council of St. John has resolved to apply to the legislature of New Brunswick for authority to bonus ship building. Messrs. H. Harding, J. Thomson and Geo. McAvity, representing the Steel Ship Building Co., conferred with the council, and as a result of the conference a bill is to be prepared authorizing the city to grant \$200,000, half in land, for the site, or cash to pay for it, the other half as a subsidy for machinery, to be paid only after the ship building works have been established. The company proposes to produce 25,000 tons of shipping a year, and is to invest \$3,000,000.

The Anglo-American Super-Phosphate Co. is being formed in Toronto to develop some exceedingly valuable phosphate deposits in Ontario, which will include the manufacture of super-phosphates and sulphuric acid, the company having control of large deposits of pyrites of iron quite convenient to their phosphate beds. We understand that the expenditures of the company in the near future will include about \$75,000 in the phosphate mining, a

similar amount in the manufacture of sulphuric acid, and \$100,000 buildings, etc. There is certainly a wide and remunerative field in Ontario for such enterprises as this.

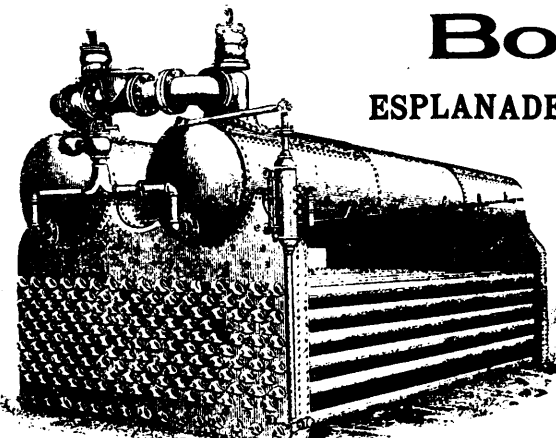
The Canadian General Electric Co. has secured a tract of thirty acres of land at the crossing of the Northern and Canadian Pacific Railroad lines, in the northwest part of Toronto, and will proceed without loss of time to erect extensive works there. These will be an extension of the Canada Foundry Co., better known as the old St. Lawrence Foundry, which the Canadian General Electric Co. controls and operates. The situation is that the Canadian General Electric Co.'s works at Peterborough and Montreal have hitherto been dependent for their castings upon various sources of supply, and that the new establishment will in the first place supply these castings, and in the second place carry on a general engineering manufacturing business. The first building will be a large general foundry, to be followed

by the pipe foundry, for the manufacture of gas and water pipes, hydrants, valves and general waterworks supplies, which the company is now making in the St. Lawrence Foundry, and the facilities for the manufacture of which will, of course, be greatly increased. Then the company will erect machine shops, structural iron shops, blacksmith shop, pattern shop, power-house, storehouse, stables, etc. Railway tracks will run through each shop, and electric cranes will be provided for handling work up to fifty tons. All the machinery in the shop will be operated by electric motors from current generated in the company's power-house. At present the company employs in Toronto, Peterborough and Montreal from 1,200 to 1,500 men, according to season. With these facilities it expects largely to increase its operations.

The London, Eng., correspondent of the Paper Mill, speaking of England's market for raw materials, says: The raw material

The Canadian Heine Safety Boiler Co.

JOHN J. MAIN,
MANAGER.



ESPLANADE (Opp. Sherbourne St.)

TORONTO

HIGH-CLASS

Water Tube Steam Boilers..

FOR ALL PRESSURES
DUTIES AND FUEL

From 75 to 600 H.P. Each

REFERENCOES :

N.B.—We do not make small Boilers

The Toronto Electric Light Co., Limited; The T. Eaton Co., Limited; The Massey-Harris Co., Limited; The Gutta Percha Rubber & Mfg. Co.; The Wilson Publishing Co., Limited; Sunlight Soap Co., Dominion Radiator Co., Central Prison, Foresters' Temple, Toronto City Hall, Canada Biscuit Co., Confederation Life Co. (all of Toronto, where Boilers may be seen working), also Orillia Asylum, Orillia, Ont., and LaPresse Publishing Co., Montreal.

The A. R. Williams Machinery Co., LIMITED, MANUFACTURERS IMPORTERS AND DEALERS

TORONTO

—IN—

Engines, Boilers
Iron Machinery
Tools
Wood-Working
Machinery

—AND—

GENERAL MILL MACHINERY and SUPPLIES



OUR NEW BELL PATENT HIGH SPEED AUTOMATIC ENGINE

Write for.....

CATALOGUE and QUOTATIONS

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

THE CUMMER DRYERS.

FOR Mechanically Drying Everything

THE F. D. CUMMER & SON CO.,

HUNDREDS IN OPERATION.

CLEVELAND, OHIO.

markets keep firm. Although there is no activity in wood pulp, consumers being slow to place contracts, yet producers adhere to their views concerning values. For sulphite pulp high prices have to be paid for prompt delivery, and the same may be said of mechanical wood pulp. Shipments from Canada have come freely to hand at British ports of late. At Manchester the Manchester City, from St. John and Halifax, recently unloaded over 10,000 bales, while at Liverpool 2,000 bales were received from Halifax on board the Damara, and 1,326 bales from St. John, per the ship Lake Ontario, and at London the Iona discharged 464 bales from Portland, and the Evangeline, 1,320 bales from Halifax. There was also received at London this week a consignment of 672 bales from Boston on board the Anglian.

The Kemp Mfg. Co., Toronto, have placed one of the Jones & Moore Electric Co's motors in their wood working department.

The pulp mills of the Canada Paper Co., River du Loup, Que., were destroyed by fire March 10.

A representative of the Davis & Pangburn Reversible Window Co., Chicago, Ill., has been in Toronto looking for a site for a branch factory. The article which the company manufacture is an ingenious arrangement of the jamb of a window, whereby for cleaning purposes the window can be easily removed and brought into the room, or reversed.

Messrs. John Campbell & Son's carriage factory, London, Ont., was destroyed by fire March 11. Loss about \$30,000.

The Peterborough Hydraulic Power Co., Peterborough, Ont., has been incorporated with a capital stock of \$250,000. The provisional directors include T. E. Wells, Chicago, Ill.; G. A. Cox, Toronto; A. P. Poussette, Peterborough; and Wm. Scott, Ottawa.

The Jones & Moore Electric Co., Toronto, have installed a motor for J. Sheddon & Co., Toronto, to operate their wood yard.

The Richardson Gold Mining Co. have ordered a 100 horse power Mumford Standard boiler for their mine at Isaac's Harbor, N.S., from the Robb Engineering Co., Amberst, N.S.

The Lake Huron & Manitoba Milling Co., Goderich, Ont., has been incorporated with a capital stock of \$400,000. The provisional directors include R. J. Megaw, F. A. Smeeth and Alexander Lawson, all of Goderich.

The Forsyth Acetylene Generator Co., Stouffville, Ont., has been incorporated with a capital stock of \$40,000, to manufacture acetylene generators and carbide. The provisional directors include J. D. Forsyth, R. P. Coulson and J. F. Lennox, all of Stouffville.

The T. Eaton Co., Toronto, have purchased four additional motors from the Jones & Moore Electric Co., Toronto, for their manufacturing department.

William McPherson has established a factory for the manufacture of steam and gasoline engines, motors, etc., at St. Marys, N.B.

IRON MINING IN BRITISH COLUMBIA.

During the past few years a great deal of attention has been paid to the iron prospects on the west coast of Vancouver Island and to those on Texada Island, with the result that a considerable amount of development work has been performed. Results so far obtained demonstrate conclusively that iron of the most superior grade is obtainable, and it is of such a character that it lends itself readily to being worked into steel by the Bessemer process.

It may not be generally known that in the hull of the United States battleship Oregon a great deal of iron from this coast enters into the construction, but such is a fact, and the Union Iron Works of San Francisco, at the yards of which company the Oregon was constructed, have expressed the opinion more than once that British Columbia iron is equal to, and in many respects superior, to the best grades of Swedish iron, which up to the present has had the monopoly of a worldwide reputation as being the best obtainable.

On the west coast of Vancouver Island extensive development has taken place latterly among the iron properties. The majority of the mines over there have passed into the control of the Sweeny Syndicate, and it is now reported that these people are about to secure control of the mines of the Puget Sound Iron & Steel Co., which are located on Texada Island. It is the intention to place a large number of men at work at Texada as soon as the transfer is completed, and the opening up of these properties will be pushed as rapidly as possible. It was expected that the Texada mines would be taken over by the representatives of the Sweeny Syndicate on the first of the present month, but there has been a slight delay. The final transfer will, however, not be affected. It is understood that so soon as the Texada mines have been transferred the Sweeny people will take over the control of the iron furnaces of the Puget Sound Iron & Steel Co., which are situated at Irondale, near Port Orchard, Washington.

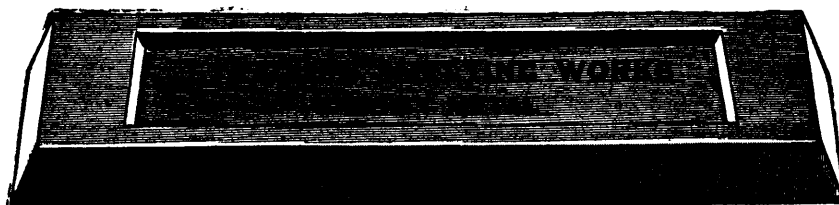
There is no reason on earth (and there never has been) why the reduction of this British Columbia iron ore should not be performed in this province, and there is every reason to believe that the shores of Burrard Inlet offer the best possible sites for smelters and refineries, not only for the reduction and conversion of iron ores but also of copper, gold and silver-lead ores.

THE BEST IS NONE TOO GOOD.

The largest machinery builders in Canada and United States use our Babbitt Metal. Is this not sufficient proof of its superiority over other anti-friction metals? If the largest users are satisfied with our Babbitt Metals, why should it not suit you? We can furnish you with numbers of testimonials.

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PIG TIN, ANTIMONY
INGOT COPPER
ALUMINUM
NICKEL, BISMUTH
IRON AND STEEL
SCRAP



Manufacturers of

BABBITT METALS, SOLDER
TYPE METALS
COLUMBIA PHOSPHOR TIN
AND
ALL OTHER WHITE METAL MIXTURES

SYRACUSE

BABBITT

BEATS
THEM ALL

SYRACUSE SMELTING WORKS

WILLIAM AND ST. THOMAS STREETS, - - MONTREAL

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

MILL VENTILATION.

Mr. Osborne, the late factory inspector in England, in referring to this matter of ventilation, has said that the use of fans, both for blowing in and exhausting air, is the cheapest and most effective system for such a building as a weaving shed, owing to the large cubic space (some containing more than 8,000,000 cubic feet), and the subsequent impossibility of bringing uncontaminated air from side inlets to the central parts.

The point here made will be appreciated when attention is called to the very wide buildings that now are a part of mill construction. It is the ventilation of the central portion that is the most difficult to obtain.

A Mr. Williams, another English factory inspector, made the remark some time ago that the figures shown for cotton weaving are of special interest in view of the prophecies freely made not long since to the effect that the increased stringency of the sanitary regulations made in 1898 by the Secretary of State for artificially humidified cotton factories would cause the occupiers of the factories to relinquish the use of artificial humidity rather than comply with the regulations.

So far from this being the case, he says, the number of cotton weaving factories with artificial humidity steadily increased, a fact which, he thinks, shows that the improved sanitation insisted upon has not had the inimical effect upon the industry that some people feared.

Mr. Williams mentions a conspicuous example of a manufacturer who installed at a great expense an improved system of

ventilation in his weaving sheds, in which nearly 2,000 operatives are employed. He took a sample of air from the middle of a number of the sheds, and found that the carbonic acid therein averaged 7.37 volumes per 10,000 only; a condition as good as that to be found in our best ventilated buildings.

The manufacturer referred to has adopted other improved methods, such as providing a purer steam for moistening purposes, and in fitting up electric lighting in place of gas.

IRON AND STEEL INDUSTRIES OF CANADA.

The attention of capitalists is being directed to the possibilities of the iron and steel industries of Canada. A few years ago the Canadian Government offered a bounty of \$3 per ton on pig iron made from Canadian ore, and \$2 per ton on that made from foreign ore. A bounty of \$3 per ton was also offered for steel ingots, and \$3 per ton for puddled bar iron made from pig iron manufactured in Canada.

This bounty stimulated the building of iron furnaces, and large steel plants have been built or are under construction at Sydney, N.S., Hamilton, Sault Ste. Marie and Collingwood, Ont., and a number of other places.

Mr. A. J. Moxham, general manager of the Dominion Iron & Steel Co., Cape Breton, N.S., in a recent address, gives figures to show that while it costs \$3.57 per ton of pig iron for assembling the materials for making steel at Pittsburg, the same materials cost only 79½ cents at Cape Breton mills and \$1.97 at the mills of the Lake Superior Power Co., at Sault Ste. Marie, Ont.

He shows further that while the mills at Cape Breton are at tide water, the Pittsburg mills must ship to tide water at a cost of about \$2 per ton to reach the European markets, and will then be about 1,000 miles farther from those markets than the Sydney mills.

Mr. Clergue, manager of the Lake Superior Power Co., says that the facilities for making steel here, particularly nickel steel, are most favorable, both iron and nickel ores being within convenient reach of the mills.

RAILWAY DEVELOPMENT IN NEW BRUNSWICK.

A railway to connect Shemogue, N.B., with the Intercolonial Railway at Shediac is being promoted. A survey has been made and the line located from Shediac to Shemogue, a distance of twenty miles, and it is intended to continue it some eighteen miles farther toward Cape Tormentine, on the Northumberland Straits, if a subsidy for the last eighteen miles can be secured from the New Brunswick government.

The Dominion Government has granted a subsidy of \$3,200 per mile for a distance not exceeding thirty-eight miles, which embraces the whole length of the line, while the New Brunswick government has granted a subsidy of \$2,500 per mile for a distance not exceeding twenty miles, which covers the distance as far as Shemogue only.

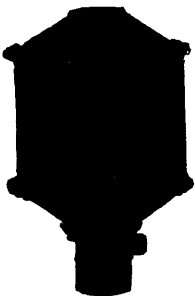
The proposed railway will run through an agricultural district, practically the whole export of which is potatoes. The farmers have been at a disadvantage in shipping these products, owing to the long haul

MORE COOLING SURFACE

The object of an Exhaust Head is to condense wet steam and prevent dripping, rotten roofs on your buildings.

The Burt Exhaust Head

Has more area, more cooling surface than any other. Nothing but dry steam escapes it. The simplest, most practical Exhaust Head on the market. Can't we send Catalogue?



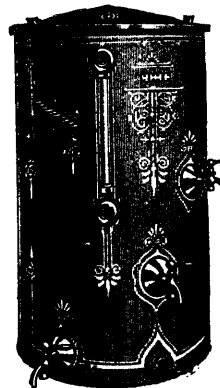
The BURT MFG. CO.

AKRON, OHIO, U.S.A.
Largest Mfrs. of Oil Filters in the World.

The Reward of Merit.

The fact that we are the largest manufacturers of Oil Filters in the world is but a fitting tribute to the true merit of

The Cross Oil Filter



An Oil Filter that saves half your oil bills; an oil filter that filters, and filters right.

Each and every Filter that leaves our factory gives the same universal satisfaction.

Shall we send one on approval, to be returned at our expense if not satisfactory?

THE BURT MFG. CO.

AKRON, OHIO, U.S.A.
Largest Mfrs. of Oil Filters in the World.

necessary to land them at a railway, and the danger of their being damaged by frost during the winter season. These difficulties will be removed by the construction of the proposed railway. In addition to the transportation of farm products, it is thought that a considerable trade can be done in the carriage of frozen smelts, large quantities of which are shipped to the American market.

It is also stated that at Cape Bald there is good, brown sandstone suitable for building purposes, which is not at present available owing to lack of railway facilities and the fact that there is no place along the coast in that vicinity suitable for loading cargo into vessels. The quarry is about one mile from the proposed station at Cape Bald, and will, it is expected, bring considerable trade to the road.

The road will be commenced in the spring and it is thought will be well advanced before the following winter. There will be two bridges of about 100 feet span, one across the Aboushagan and one across the Kouchibouguac rivers, and an arch across the Tidnish River. The alignment is very direct and the sharpest curve is not over 2,800 feet, while most of them are 5,700 feet. From the Intercolonial Railway at Shediac to Cape Bald there are only three curves in the 13 miles. The road will be built of standard gauge under Dominion specifications.

DECALCOMANIA.

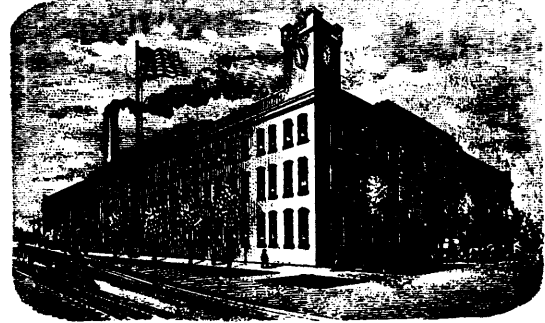
The accompanying illustration is of the new factory of the Meyercord Co., Chicago, Ill., manufacturers of guaranteed decalcomania transfers. As can be inferred from the picture, this is a very large building in

the location and construction of which much taste has been displayed, and the immensity of it indicates the extent of the business carried on within it. The growth of this business in the hands of the Meyercord Co. has been rapid and gratifying. Only about six years ago they were operating in small premises with two hand presses, whereas at this time, in their new factory, they have in constant use fourteen presses driven by steam. Included in it is one of the hand-somest lithographic plants in the United States, in which is manufactured not only their decalcomania transfers, but also the special paper used in connection therewith; and we are informed that this is the largest decalcomania plant in the world, and that it supplies a very large proportion of all the transfers consumed in both Canada and the United States.

The Meyercord Co. have recently brought out a new and valuable invention in the way of decalcomania window signs, which can be produced of any desired shape and coloring, including gold and aluminum leaf. The invention consists of the manufacture of a sign of such a combination of material that it may be dipped into water and immediately transferred to the window, where, after having dried and hardened for twenty-four hours, it becomes impervious to all ordinary wear. These opalescent signs, which any person with ordinary intelligence can apply, are exceedingly rich and beautiful, and are claimed to be superior, both in appearance and durability, to fine hand painting.

Some of the purposes for which decalcomania transfers have come into very general

use include the ornamentation of agricultural implements, plows, grain drills, farm wagons, carriages, steam engines, etc. The company also make inlaid marquetry and pearl decora-



tions for articles that are produced in large quantities, such as sewing machines, typewriters, bicycles, hardware, pottery, furniture, trade marks, name plates, and articles of similar character. They are prepared to furnish patterns of any size or style of design up to as large as twenty-six by thirty-eight inches, in any number of colors and combinations of colors.

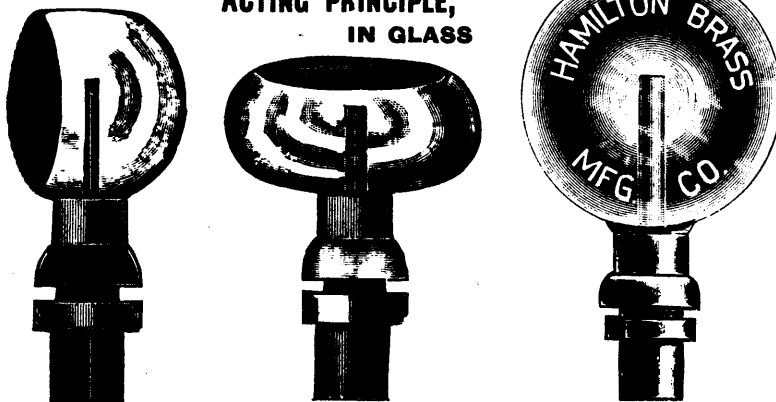
For further information apply to the Meyercord Co., Chamber of Commerce, Chicago, Ill.

AMERICAN STEAM GAUGE AND VALVE MFG. CO.

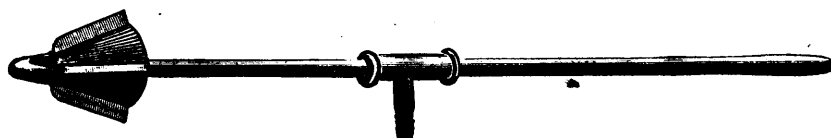
The American Steam Gauge & Valve Mfg. Co., Boston, Mass., announce that on April 1, the fiftieth anniversary of the organization of their corporation, the name would be changed from American Steam

Improved Needle Lubricators

On a PATENT PNEUMATIC and SELF-ACTING PRINCIPLE, IN GLASS



IMPROVED STEAM TUBE CLEANER



THE CLEANER THAT CLEANS CLEAN

No Moisture

No Scale

Saves Cost Quickly

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

INSTRUCTIONS for FITTING and ADVANTAGES

The Lubricators being carefully fitted by enlarging the oil hole to fit the plug part of stopper, or otherwise by reducing the plugs to fit existing oil holes, the needle must be perfectly round, smooth and clean, so as to work freely in the tube, the flatted end reaching about half-way up the inside of Lubricator, while the other end rests on the shaft or axle, will produce the following results, viz:—

- 1st. Free working of the machinery by perfect lubrication.
- 2nd. A saving of more than 75 per cent. in oil.
- 3rd. Corresponding economy in steam-power and coals.
- 4th. Cleanliness, and consequent saving in labor, engineers' stores, etc.

ALL OUR LUBRICATORS ARE FITTED WITH BRASS TUBES

WRITE FOR PRICES TO

The Hamilton Brass
Mfg. Co., Limited,

HAMILTON, ONT.

Gauge Co. to American Steam Gauge & Valve Mfg. Co.

When, in March, 1851, the company was organized, the business consisted exclusively of the manufacture of steam gauges with Bourdon springs under the United States rights of the patent of M. Bourdon, of Paris, this company being the original, and for many years thereafter the only manufacturers of these gauges in the United States. From time to time, new and meritorious specialties have been added to the product until to-day the output of this company is unsurpassed by any other manufacturer. To give the trade a more accurate idea of the extent and scope of the entire business it was therefore decided to adopt a name better suited to the present output.

Among the most noted specialties manufactured by this company in addition to its well-known line of gauges for all purposes is the Thompson improved indicator, which has been adopted by the United States and foreign navies, by the principal universities and technical institutes, as well as by the leading engineers and engine builders, and as a further proof of its merit, received the highest award at the Paris Exposition.

Another, and one of the largest lines now manufactured by this company, is the American patent pop safety valves. This line embraces the American, Board of Trade, Navy and United States Marine patent of marine pop safety valves. Also, American, special inspectors', and compound lever patent stationary valves. Also, yacht, portable, farm engine, fire engine, locomotive (plain and muffled), steam heating, house heating, cylinder relief and water relief, and the underwriter pattern of water relief valves. This latter is now used exclusively by fully

90 per cent. of the manufacturers of underwriter pumps in the United States.

In addition to the above leading specialties, this company manufactures a full line of standard appliances for measuring, recording, indicating, and controlling steam, air, gas, ammonia and other pressures.

Their new 260-page general catalogue will be ready for distribution about April 15.

ONTARIO'S PUBLIC WORKS GRANTS.

The report of the Ontario Commissioner of Public Works for 1900 has been issued. Details are given of all the work done during the year on public buildings and colonization roads, and several interesting tables are included. The total railway mileage now in operation in Ontario is 6,724 miles, of which 1,447 miles were built before Confederation, while 467 miles are now under construction, as follows:—Irondale, Bancroft & Ottawa, 8 miles; Ontario & Rainy River Railway, 280 miles; Algoma Central, Sault Ste. Marie to Michipicoten River, 136 miles; Algoma Central, Michipicoten Harbor to main line C. P. R., 28 miles, of which 12 are completed; Manitoba & North Shore, 15 miles.

The total expenditure on the maintenance, repairs, etc., of public buildings last year was \$93,879; on capital account including roads, \$328,581, and on aid to railways, \$139,869. The largest items on capital account were as follows:—Colonization roads, \$133,926; mining roads, \$9,919; Normal School, London, \$35,025; Victoria, Asylum, Coburg, \$29,186; London Asylum, \$15,876; Kingston Asylum, \$10,027.

A supplementary table shows the total expenditures on all work since Confederation. The grants to railways, which have

all been made since 1872, amount in all to \$7,000,841, out of a total expenditure of \$21,428,780. Of this \$1,380,060 was spent previous to 1872.

To colonization roads was given \$3,289,986; to mining roads, \$63,622; on the new Parliament buildings, \$1,273,930, and to equipment, grounds, roads, plant house, etc., \$227,435; Government House, \$183,860; Central Prison, \$880,352; Brock's monument, \$4,605.

NEW TARIFF IN BRITISH HONDURAS.

A new tariff, to go into effect April 1, enacting the following duties: Salted beef and mess pork, \$1 per barrel of 200 pounds; beer in bulk, 25 cents per gallon; in bottles, 25 cents per six quarts; candles, except tallow, 2 cents per pound; cigars, \$4 per 1,000 and 25 per cent. ad valorem; cigarettes, \$1.50 per 1,000; gunpowder, 5 cents per pound; lumber, rough, \$1 per 1,000 feet; dressed, \$1.50 per 1,000 feet; mineral oils above 130 degrees flash test, 3 cents per gallon; below 130 degrees, 6 cents per gallon; revolvers, \$3 each; rifles, \$1.75 each; spirits, liqueurs and cordials, \$2.50 per gallon; all other goods not elsewhere enumerated, 10 per cent. ad valorem. The free list includes agricultural implements, such as cane-bills, cane-knives, corn-shellers, harrows, hoes, hullers and polishers for coffee or rice, plows and Demerara shovels, etc.; also bee-culture appliances, books, bricks, roofing slates and tiles, carts, coal, coke and patent fuel, drain pipes, fencing wire, structural iron for buildings and bridges, machinery, manure and other fertilizers, pumps, tanks, vessels and boats.

Laurie Engine Company

MACHINERY SUPPLY HOUSE

321 ST. JAMES STREET, - - MONTREAL

MANUFACTURERS AND DEALERS

IN ALL KINDS OF

Machinery, Engines, Boilers

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MONTREAL AGENTS FOR

Austin Separators
 Ballantine & Co., Wood
 Working Machinery
 Barber's Improved Turbines
 Carpenter Tool Steel
 Curtlis' Pipe Threading
 Machines



Dodge Wood Split Pulleys
 Duval's Metallic Packing
 Lambeth Cotton Rope
 Prescott Emery Wheel Co.
 Skinner Chucks
 Spooner's Copperline

... ESTIMATES GIVEN AND DRAWINGS FURNISHED FOR ALL MECHANICAL WORK ...

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

NORTHROP IRON CO.

The Northrop Iron Co., Valleyfield, Que., which was organized about a year ago, to manufacture the Northrop loom, has added to its important establishment a line of freight and passenger elevators. The elevator is one of the most popular in the United States, and has been in use very extensively there for the past twenty-five years. The company has also added a very saleable article in the shape of a gas house-heating radiator. The manager, Mr. Bethel, went to the States a few weeks ago, and made a thorough investigation of this heater, and found it extensively used in the city of New York. After his report had been made to the board of directors, Mr. Gault, acting as chairman, it was unanimously decided to proceed with the manufacture of this important heater, and place it on the market. The system of burning gas in this heater is marvellous. Owing to the fact that it is a triple compound blue flame, the combustion of the gas is reduced to a minimum. There is no odor or soot, and in fact the combustions is so strong that it requires no flue connection. It costs less than two cents per hour for gas to heat a room of 20 x 25 feet. It is admirably adapted for use in stores, offices, cafes, halls, bath-rooms, or any room where a furnace or steam heater is either inadequate or not obtainable. Its superiority over all other gas radiators is in the use of an improved Holland burner, used in this heater only, which produces a compound triple blue flame, yielding an intense heat, and with combustion so perfect that no odor or gas is produced, and all necessity of chimney or flue ventilation is thereby avoided. One very important value

attached to the use of this radiator is that by placing it in dining rooms during the spring it will save the cost of firing furnaces. The company is perfectly willing to place one of the heaters on trial for a reasonable time. By the addition of the above-mentioned goods to the Northrop industry, it is estimated that it will give employment to 150 men. All who are interested in articles of this kind can see the same on exhibition at the company's store, 296 St. James street.—Montreal Gazette.

GERMAN MARKET FOR LUMBER.

United States Consul Dredrich, at Berlin, writes very interestingly regarding the demand for different kinds of lumber in Germany, and as most of the American woods are also indigenous to Canada, and as the remarks and suggestions the Consul makes are applicable to the conditions in this country, we have pleasure in reproducing his letter. He says:

A number of letters from American firms engaged in the lumber business have recently reached this office asking for information as to the requirements of the German lumber market and as to the best means of extending the American lumber business here. I have spent considerable time with several of the leading local dealers in lumber gathering information, and I herewith report the following:

Hickory.—There is a growing demand for strictly first-class hickory if offered in the market in proper sizes. The German Government requires a considerable amount of this wood to be used for poles to gun carriages. It must come in scantlings of 5 inches square, in lengths of 12 feet 3 inches

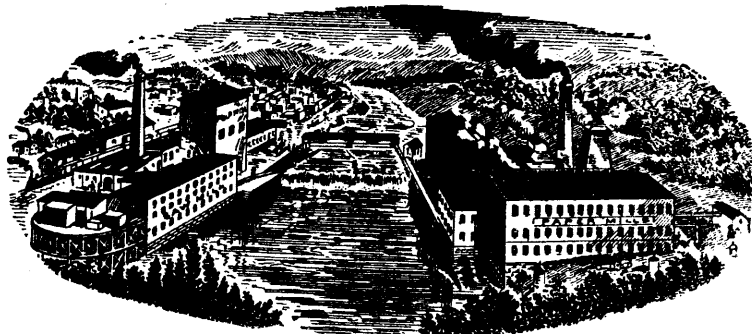
and 15 feet 9 inches and 21 feet, all measurements and thicknesses, and lengths to have overmeasurements for protection. The wood must be from trees felled in winter—that is during the months of November, December, January and February—and the shipment should be made not later than April, when the wood is not yet wholly dry. Much of this kind of wood is also in demand for whippletrees, which should be 3½ inches thick and 8 inches and upward wide. Besides these two qualities, which always find a ready sale, hickory is also in demand for all purposes for which this wood is generally used, particularly for bending, in which case it should be shipped almost green. High prices are also paid for first-class hickory spokes, hickory bent wheel rims and fellies, and hickory handles for axes, hammers, and miners' picks.

Oak.—Germany has a fairly good supply of oak, and German oak always brings a higher price than does American, because it has a very fine grain and is of good light-yellow color; and last, though not least, it is cut exactly by horizontal saws to suit the demand. Thuringia and the Spessart Mountains produce the finest oak for cabinetmaking. Much oak is imported from Slavonia, but the quality is inferior to the German. From what I learned, American oak can well compete—and does compete—with that of Slavonia. Wisconsin furniture oak is well liked, but there is room for more. However, it must be borne in mind that northern white oak is always preferred, and it must be of good light color and of fine grain. It should also be square butted to give good appearance and have no surface cracks, at least in firsts and seconds, according to New York inspection rules. All sizes are in de-

Royal Paper Mills Company, Limited

Mills —AND—
Head
Office:

East Angus,
QUE.



F. P. BUOK, - - - PRESIDENT AND GENERAL MANAGER.

WAREHOUSES:

763 Craig Street,
MONTREAL, QUE.

52 and 54 Front St. W.
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Manufacturers
OF



Paper

Fine News, Book, Lithograph, Tub and Engine Sized Writing, and Colored Cover Papers.

Pulp and

ROYAL CANADIAN BRAND
Soda and Mechanical Pulp

Lumber

SPRUCE, PINE and HARDWOOD (Dressed and in Rough.)
CLAPBOARDS and SHINGLES.

CABLE ADDRESS—"OBBAPER," EAST ANGUS—A.B.C. and Lieber's Code.

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COAL JAS. H. MILNES & CO. COKE

WHOLESALE DEALERS IN
Best Grades of STEAM COALS.
Best Grades of BLACKSMITHS' COALS.
Best Grades of FOUNDRY COKES.
 Shipments made direct from Mines to any point in
 Canada. Write for quotations.

Head Office: 78 QUEEN ST. EAST

TORONTO.

Docks: Esplanade, Foot of Yonge

mand. One inch is used largely for general purposes, with various widths, but with the average width of 10½ inches and of standard lengths. Much of this wood of 1¼ and 1½ inches and in widths of 13 inches and in lengths of 10½ and 14 feet is used for building staircases. All shipments of this kind of lumber should contain at least 70 per cent. of No. 1 quality and 30 per cent. of No. 2. As to oak logs, which are always in demand by manufacturers of agricultural machinery, they should be—at least a good part of them—from 20 feet and upward long and 22 inches and upward in diameter. Quarter-cut oak of all sizes and prime quality always find a ready sale at good prices. There is also a large business done in oak staves, and short oak staves are now being sought for wheel spokes.

Cottonwood.—This has been recently coming into favor. One inch is mostly in demand, also three-fourths of an inch and 1¼ inches; but all must be strictly of first-class quality and perfectly dry, and special care must be taken so as not to have the wood spotted or soiled during transportation.

Whitewood.—This is mostly bought in pine logs for veneering purposes by piano and cabinet makers. When shipped in lumber it should be in 1, 1¼, 1½, 2 and 2½ inches.

Spruce.—Spruce would sell in shiploads if American millers would cut it to suit the German market, and it could well compete with Riga and St. Petersburg wood. To command a high price, this wood must be perfectly clear, as much of it is used for boat oars.

Maple.—This lumber is in considerable demand for rollers used in mangles and in wall-paper printing. This material should be cut octagon, in order to economize freight, and should be shipped during the winter so as to avoid cracking. Those pieces to be

used for rollers in mangles must be 5½ inches and upward, thick and 23 and 25 inches long; those for wall-paper printing, 8 inches in diameter and 21 inches long. Special care should be taken to protect this material against air cracks, rollers with cracks are not accepted. White maple is just the thing for table tops used in kitchens and restaurants, and also for kitchen wooden ware in general.

Rock and Soft Elm.—Since boat building is assuming large proportions in Germany, there will always be a good market for this lumber if offered in choice quality.

Pitch Pine.—There is more of this lumber used in Germany than of all the others combined. It is gradually taking the place of other kinds of wood formerly in common use, and the market for this American lumber is already extending from the northern shore of Germany as far south as Switzerland. It is specially in demand for outside window casings, for wagons, freight cars, and for all purposes where the woodwork is exposed. Indoors, it is generally used for flooring, staircasing, etc. When shipped as rough-hewn logs, these should measure on the average 80, 90 and 100 cubic feet per stick. The timber should average 35 to 40 cubic feet per stick. The lumber must be free of sap and 90 per cent. of it should be entirely clear; while some 10 per cent. may be only 10 inches wide, the bulk of it should be 11 to 12 inches wide and upward, and in lengths of 12 feet and upward, averaging 18 feet. Pitch-pine lumber for flooring purposes should be 1 or 1¼ inches, and 5, 5½ and 6 inches wide. Pitch-pine saps, kiln dried, and yellow pine, and particularly North Carolina pine of 1, 1¼, 1½, 2 inches and in all widths, of first and second quality, need not go begging for buyers.

American Lumbermen at Fault.—I find German importers of wood generally ready to talk American lumber, but frequently they wind up by remarking that they would be quite willing to buy, but, from their experience with America dealers, it is useless to try. Evidently they are discouraged. It seems that many German firms have been disappointed by not getting promptly what they ordered. In fact, I know of a firm which placed an order in the United States early last year and was repeatedly informed that the wood was "in course of shipment;" but it did not reach the consignee until a few days ago. Others complain—and this is a more serious difficulty in the way of increasing the sales of American lumber—that American millers and dealers will not make up their minds to cut the wood exactly as the German market demands. If this were done, I am sure the export of American lumber would soon be doubled and trebled. There are a number of American firms who have taken the pains to closely investigate conditions here and to fully meet the requirements, and who are now doing a large and lucrative business. But my object is to show that a great deal more American lumber can be sold, and that there is a good opening for many other enterprising firms. This becomes patent at once when it is remembered that only seven per cent. of the lumber imported into Germany comes from the United States, while Austria supplies forty-three per cent.; Russia, twenty-six per cent.; and Sweden, eleven per cent.

German Consumption of Lumber.—Of course, the American dealer in lumber will always have to meet in this market a fierce competition on the part of Russian, Austrian, and Swedish rivals, who have the advantage of cheaper freights. Thus, the Government

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of Austria-Hungary last year made specially low rates on all shipments of lumber that went from Galicia and Bukowina and other points into Germany. But the demand for lumber is steadily increasing, and it is utterly out of the question for Germany to ever supply that demand. In spite of all the high import duties placed on all foreign woods, which average twenty-eight cents for every 210 pounds of rough timber or logs and \$1.15 for every 210 pounds or for one cubic meter of dressed timber, Germany has been unable to materially increase her forestry supply. In the year 1899, there were imported into Germany not less than 10,000,000 cubic meters (353,160,000 cubic feet) of timber. During the same period, Germany's own production amounted to from 16,000,000 to 17,000,000 cubic meters (565,056,000 to 600,372,000 cubic feet). If Germany were to supply this deficiency of 10,000,000 cubic meters of timber from her own soil, she would need an additional acreage of 19,768,000 acres. In other words, the percentage of soil now devoted to forestry would have to be increased from twenty-six per cent. to forty per cent.. But it is claimed that throughout all this Empire, not more than 2,471,000 acres fit for that purpose might be found. Even if every available nook and corner were thus utilized and all of the waste lands that are not well adapted for agriculture were planted in pine and other forest trees, it would require, on an average, fifty years for them to be ready for market, and then the supply would not begin to satisfy the demand. Of all sections of Germany, only Bavaria and Wurtemberg have a surplussage of home lumber, all the other districts needing a great deal more than they can ever produce. And as the United States supplies only seven per cent. of this great demand, it will be readily seen that there is an important opening in Germany for American lumber.

Railway Discrimination Against American Lumber.—But there is another great difficulty under which the American shippers of timber and lumber labor. According to the rules of the German railroads, a special freight is collected on American pitch pine, yellow pine, hickory, and black walnut, which must pay a much higher rate for inland transportation than wood coming into Germany from other countries. Thus, the freight on a carload of 2,200 pounds of American pitch pine from Bremen to Chemnitz will cost \$54.03, while the freight for the same distance and for the same amount of pine coming from Norway and Sweden costs but \$36.89, being a difference of \$17.14 in favor of the Scandinavian competitor. When it is remembered that the railroads in Germany are nearly all owned and managed by the Government, this special freight tariff is virtually a discrimination against American lumber. As the new commercial treaties are now under discussion, it might be well for American lumber merchants to take steps to have this matter settled on a basis of justice and equity. With good qualities of wood, properly cut and dressed, and with a fair chance, American lumbermen may do a much better business in Germany than at present.

Bremen as a Lumber Port.—Before closing this report, I would call attention to the fact that Bremen offers the very best facilities for the importation of American lumber, having two harbors, one on each side of the River Weser, each with ample wharfage, where vessels readily discharge cargoes of lumber, to be reloaded at will on board cars for transportation throughout the Empire.

DEVELOPMENT OF NORTHERN ONTARIO.

United States Consul H. S. Culver, at London, Ont., writing to his Government regarding the development of Northern Ontario, says:—

The people of the eastern and more densely populated portion of this Province manifest great interest in the development of northern Ontario. The territory referred to comprises that undeveloped portion of the province lying between the Great Lakes and Hudson Bay. It is a vast triangular-shaped tract, having its apex at the foot of Hudson Bay, while its western side extends along the Albany River to the Province of Manitoba; its eastern side forms the boundary line between Ontario and Quebec, and its base rests upon Lake Superior, Lake Huron and Georgian Bay. In area, this territory is somewhat larger than the States of New York, Pennsylvania and Ohio combined. The commissioner of Crown lands of Ontario, in his report for 1899, has this to say of the new Ontario:

Our knowledge of the character of its soil, the kinds of timber prevailing there, and their value; the geological formations which constitute or underlie the surface, and the existence or nonexistence of valuable mineral deposits; the possibility of raising and ripening crops of grain and of breeding cattle and sheep; in short, of the whole range of facts upon which the usefulness and value of the territory and its capability of supporting a large population depend is very limited indeed.

Those portions of new Ontario which are contiguous to the line of the Canadian Pacific Railway has been laid open to the enterprising explorer, who, aided by the network of water ways which nature has provided for his accommodation, can operate easily and over large areas of territory with the railway as his base of supplies. The search for gold, iron, nickel, and other minerals has brought to light many facts concerning the natural resources of newer Ontario, besides defining in a number of localities the limits and belts in which ore bodies of value are more likely to occur; it has thrown much light on the agricultural and pastoral capabilities of the areas explored, has made known the conditions of the forest growth, revealed the presence of valuable water powers, and in other ways contributed to our stock of information respecting the wild lands of the Province.

Not less valuable have been the results of the direct explorations made from time to time by this department and the bureau of mines under the direction of experienced surveyors and competent geologists, whose reports have been published in the annual volumes of the department and the bureau. These expeditions have accumulated a store of facts considerable in extent and reliable in character. They have shown that the resources of New Ontario in soil, minerals, timber, water powers, and the other raw materials of civilization are extensive and valuable, and, while not indicating the existence of an Eldorado, are yet sufficient to warrant the belief that the northern and western portions of Ontario are quite capable of becoming the home of a hardy, thrifty and prosperous people, many millions in number.

The climate of northern Ontario is not unlike that of northern Europe, and its soil also is equal to that of many thickly peopled portions of the Old World, while extensive spruce and pine forests and large deposits of

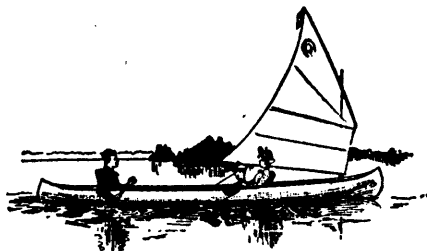
gold, iron, nickel and copper ores are provided by nature to form the basis of large industrial enterprises into whose service many of the water powers which abound there will no doubt some day be largely brought.

Since the above report was made, further and more accurate information has been obtained through explorers and prospectors, more especially through the agency of those directly interested in the mammoth industries at Sault Ste. Marie and in the Sudbury nickel-copper district, and also through the settlers who are pushing their way farther and farther into these northern wilds. The information thus accumulated verifies beyond question the almost inexhaustible richness of the soil, the forest and the mine.

Should the area of arable land be as extensive as reported, it will certainly prove a remarkable anomaly in mining and forest regions; and the fact that these lands are scattered throughout the lumbering and mining districts, instead of occurring in more compact areas, is not without its compensating advantages in that it secures to the settler or farmer certain and easy access to a first-rate market.

The natural outlet for this vast region is the Great Lakes, and the most central point is Sault Ste. Marie. Here, vast industries are rapidly developing. Millions have already been invested, and the projects already under way will, it is said, cost \$20,000,000 to complete. These include blast furnaces, pulp mills, rolling mills, etc. But not the least of the great undertakings at this point is the construction of a railroad from the Soo to Hudson Bay, a distance of 500 miles north. The road is already chartered and subsidized, and 150 miles will be completed next year. This project is certainly of far-reaching importance, for not

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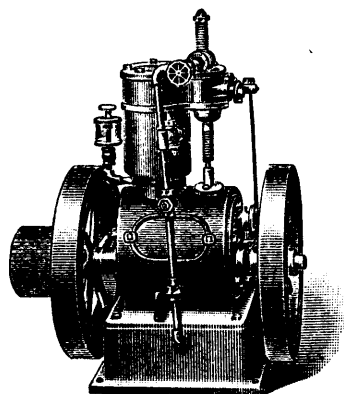
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only does it mean the opening up of the vast territory of new Ontario, but furnishes the first permanent line of communication with the region surrounding Hudson Bay and brings the civilized world in touch with the northern forests of the Dominion, which extend from British Columbia and Alaska on the west to Hudson Bay on the east, and from the North Saskatchewan on the south to the barren lands of the Arctic.

CANADA'S STEEL AGE.

The address of Mr. Moxham in the Board of Trade rotunda the other night deserves to be ranked as one of the most remarkable utterances which Canadians have listened to or read for many a day. Its significance and value arise largely from the character of the speaker. Mr. Moxham is the executive right arm of that vast capital which is transforming Sydney, Cape Breton, from a sleepy fishing port to the seat of one of the great industries of the continent. In his utterances, therefore, we have not got the dreamy prophecies of a theorist, but the observations and conclusions, founded on arithmetic, of a captain of industry, applied to the subject he knows most about. Mr. Moxham appears to have what captains of industry sometimes lack, namely, the talent to put his thoughts into clear and striking language, with the result that his address, both as to matter and manner, was a deliverance as sound as it was undoubtedly in the best sense sensational.

His treatment was methodically scientific. He first set up a measure, a standard. This was Pittsburg. There, he said, it has been shown that steel could hitherto be produced as economically as at any other point in

America. He then calculated the cost of the chief proceedings necessary to turn out a ton of steel there—the cost of bringing the ore, the flux and the fuel to the furnace. He entered into these matters in detail, and his conclusions were that pig iron could be produced at Sydney for \$2.45 per ton less than at Pittsburg. But Sydney's advantage will be still greater in cases where the ton of metal is intended for any market reachable by ocean steamer. For such a market the Pittsburg ton would have to pay \$2 for transportation to the ocean port nearest to that city. Even then, if Europe were its destination, the Sydney metal would still have the advantage of being a thousand miles nearer the point of final destination. On a ton of steel so destined Mr. Moxham calculated that Sydney would have an advantage over Pittsburg of \$6 a ton. The meaning of this economy on an article whose present price is from \$18 to \$20 a ton need not be enlarged on—the fact only needs to be stated—but it may just be said that the difference is sufficient to overcome the American tariff.

Mr. Moxham did not confine his statement to the conditions existing at Sydney. He is, no doubt, most familiar with them, but he applied the Pittsburg standard to three other centres in the Dominion, and judged that they were in a position to compete with its production. The districts he singled out were British Columbia, the northern shores of Lake Superior and older Ontario. As to market, the Sydney plant is situated at tidewater and has the world for its market. It has frequently been remarked that iron and steel industries are the basis of so many other manufacturing

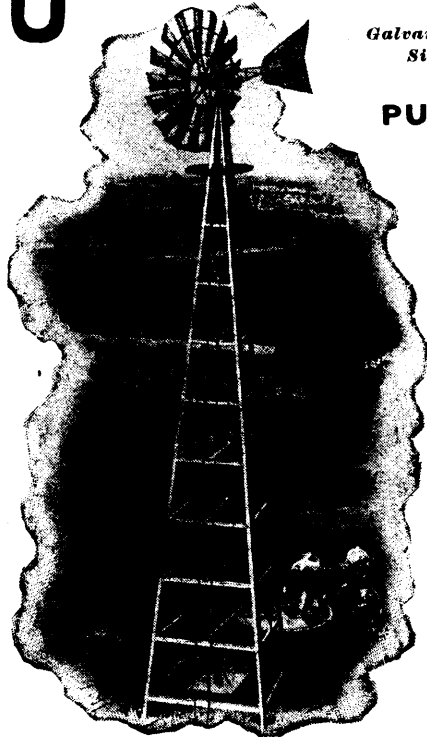
enterprises, that when they become established in a country they are invariably the forerunners of greatly increased activity, accumulations of capital and accessions to population. Mr. Moxham's address may be looked upon as expert testimony confirming the belief that has been abroad in Canada for some time, that we are at the beginning of a great forward movement in this country. We do not disguise from ourselves that ebb and flow to which the records of commerce show commercial life to be subject.

Every wise man prepares for these recurring depressions. Nowhere have they been more certain visitants than in the neighboring republic. At intervals, so regular that they might almost be stated in terms, the cycles of good times have been followed by the cycles of bad times. But the progress was never quite lost in the recessions, so that we have seen, despite the recurring depressions, the general interests of the country advance and the country steadily growing greater in wealth and population from year to year. We are not so foolish as to expect that Canada, any more than any other country, can escape these periods of stagnation, but they cannot, any more than in the case of the United States, do more than temporarily hinder the steady progress of our land towards an assured position among the considerable communities of the world.—The Globe.

The Central Milling Co., Peterborough, Ont., has been incorporated with a capital stock of \$40,000. The provisional directors include James Kendrey, and H. P. Kennedy, both of Peterborough, and Davidson Carlaw, Warkworth, Ont.

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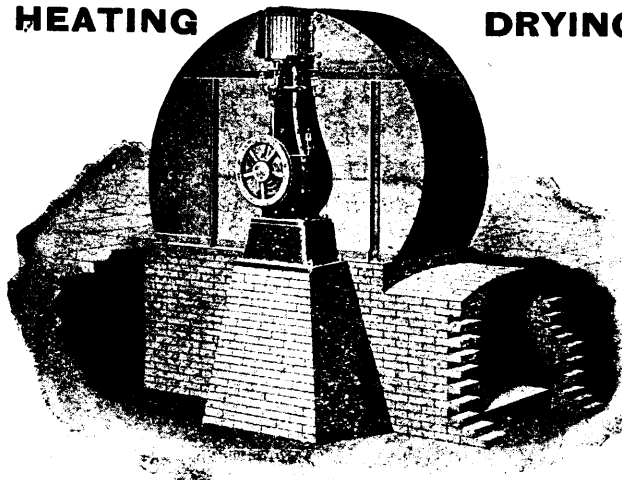
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NEW ONTARIO'S RESOURCES.

The report of the Ontario Crown Lands Commissioner for 1900 has been issued, and perhaps the most interesting portion of it refers to the recent exploration of Northern Ontario.

The result, says the commissioner, is that a tract of arable land has been found north of the height of land, stretching from the Quebec boundary west across the districts of Nipissing, Algoma, and Thunder Bay, comprising an area of about 24,500 square miles or 15,680,000 acres. The soil is a clay or clay loam, nearly all suitable for farming purposes, and the region is watered by the Moose and its tributaries, the Abitibi, Mettagami and Missinabie and the Albany and its tributaries, the Kenogami and Ogoke. Along this latter stream alone about which almost nothing was known, a tract of good land was found extending on both sides of the river for a distance of over forty miles, and in the district of Rainy River, between the surveyed townships around Dryden and Lac Seul, another extensive area of good land was found about 600 square miles or 384,000 acres in extent.

The climate of this region is reported to have no features which would prevent the ripening of grain or the growing of root crops. It lies for the most part south of the 50th parallel of latitude, which crosses the Province of Manitoba near Winnipeg, and its climate will not differ much from that of the latter province. Crops of grain, potatoes, and other vegetables and even small fruits were found growing as far north as James Bay.

A great pulpwood forest has been located north of the height of land extending

across the districts of Nipissing, Algoma, and Thunder Bay, with a depth in some places of 150 miles. The timber embraces all the common pulp woods, such as spruce, poplar, jackpine, and balsam of gilead, as well as tamarac and cedar along the banks of the streams. It is generally of good quality, usually thick on the ground and ranges in size up to three feet in diameter. In the district of Nipissing south of the height of land an extensive pine forest was explored and estimated to contain about three billions of feet B. M.

On the whole, the information brought in by these exploration parties has been extremely gratifying and the benefit to the province of conducting the exploration of so extensive a country has been abundantly demonstrated. It is now established that in this section of the province, hitherto but little known, we have illimitable quantities of pulpwoods and millions of acres of good agricultural land, which are capable of sustaining a large population of industrious people.

The report states that the timber cut of last winter was much heavier than in the previous winter. The lumber trade was in a prosperous condition; a number of new mills had been erected, and lumbermen had now come to recognize the fact that for the future pine sawlogs would have to be manufactured in this country. The report speaks in a congratulatory tone of the progress of the iron industry in the province and the beginning of ore shipments from the Helen mine to the Midland furnaces.

Of the copper and nickel business the report says:

At the Victoria mines, Dr. Ludwig Mond has acquired valuable nickel lands, and is

erecting extensive works to produce matte carrying a high percentage of metallic contents, and a plant for re-treating the Canadian Copper Co's matte is being erected by the Ontario Smelting Co., at Copper Cliff, which will also smelt ores from the latter company's mine near Massey Station now being developed. The Gertrude mine in Creighton township is being brought into producing condition by the Lake Superior Power Co., and will supply the nickel ore to be used in the manufacture of ferro-nickel and nickel steel at Sault Ste. Marie. Much interest attaches to the operations of the Nickel-Copper Co., Hamilton, which proposes to produce refined nickel and copper by the Frasch process. In addition to these the Bruce Copper Mines, an English company, is re-opening the old workings and putting up a large concentrating plant at Bruce Mines, which yielded so largely forty years ago, and at Rock Lake, the Rock Lake Mining Co. is pushing developments upon a copper vein of unusual promise, and is likewise erecting works to treat the ore. The total quantity of nickel and copper ores raised in the province during the year was 221,695 tons.

The important expenditures of the year, in addition to that for exploration, were \$12,765 in iron bounties, \$19,200 for mining schools, \$9,208 for operating the diamond drill, \$6,257 on immigration, and \$3,243 on colonization.

Mr. J. L. Richardson, 88 Bay St., Toronto, representing D. K. McLaren, Montreal, informs us that he has secured the leather belting order for the Sunlight Soap Co's new factory in Toronto.

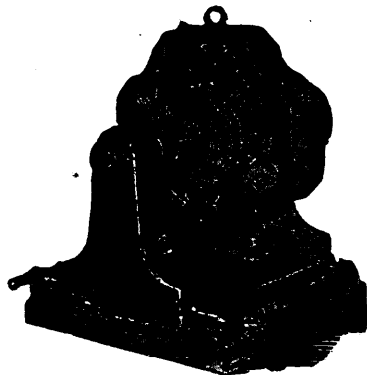
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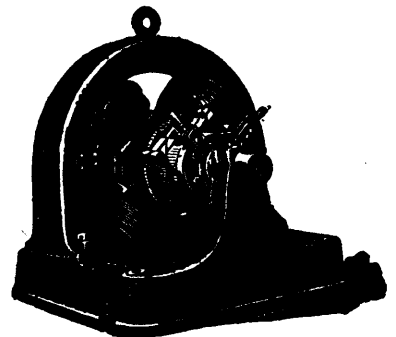
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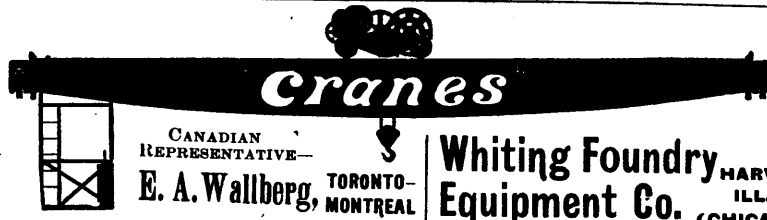
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It was not but a few years ago when the telephone was an unknown article. To-day a man can sit at his desk and transact business, which ten years ago would have taken him two days or longer, when he had to go on the railroad two hundred miles or more and return the following day.

With the telephone in less than thirty minutes, he can accomplish the same results.

The telephone is replacing even the telegraph which has not been used for such a great number of years. Some of the largest railroad systems in the country are despatching their trains by telephone instead of telegraph. They can transmit messages quicker, more accurate than with the telegraph, not only that, but they are not dependent on a certain class of men who can understand the telegraphic code. Any of their employees are able to use the telephone.

All the modern hotels are equipping their rooms or suites of rooms with a telephone in order that their guests may make known their wants at the office without waiting for a bell boy or porter to climb several flights of stairs and then return for that which they wish. It not only is a benefit to the guests, but a saving to the landlord. The landlord can do twice as much work with the same amount of boys as he could without the telephone.

Manufacturing concerns of all kinds, are to-day using what is called an interior system of telephones. The superintendent is able to sit at his desk and talk with the foremen of the various rooms without leaving his chair. He can even call various factories run by his employer which may be located miles away. Any superintendent having a responsible position, must necessarily draw a salary in proportion to his responsibility. If this superintendent should draw \$5,000 a year and he has to spend one hour of each day in traveling about the factory for information which could as readily be ascertained by a telephone at his desk, it is costing his employer in the neighborhood of \$500 a year, which in many cases could be saved on an investment of three or four hundred dollars.

An investment to-day that will pay for itself in two years is considered gilt edge. Not only does it save the time of the superintendent but many more times, the foremen's. The foreman has to leave his

room, make a trip to the office for some explanation of an order that could be given him over the telephone.

Any manufacturer wishing to know what it would cost to have a system of telephones installed, connecting the various departments of his factory, may obtain the desired information upon application to Mr. F. O. Plummer, 620 Atlantic Ave., Boston, Mass., who has made a specialty of this work for the last few years.

ONTARIO TIMBER LANDS.

One phase of the recent budget debate in the Ontario Legislature has set people speculating as to what are the actual timber resources of the province. Mr. W. A. Charlton, an expert lumberman, sees enough pine timber standing to last 150 years at the present rate of cutting and areas sold. He figures that there are 9,000,000,000 feet under license on which the Crown dues would be \$9,000,000 and 26,000,000,000 feet yet to be sold, which is worth to the province \$91,000,000. In this way he reckons that the pine timber asset is worth \$100,000,000. Figures obtained from the Department of Crown Lands indicate that Mr. Charlton was really under the mark. He left out of his estimate the Crown dues on the 26,000,000,000 feet, which would amount to \$32,000,000, and he did not consider at all the value of the pulp-wood timber. Reckoning this at five cords to the acre there are 288,000,000 cords available in the northern areas of the province explored last summer. At forty cents a cord, which is the price the Government charges to concessionaires, this would amount to \$115,000,000. Altogether the timber assets of the province figure up to \$247,000,000.

It is likely that this will be a permanent asset because the Government has adopted a policy of withdrawing lands unsuitable for farming from settlement, and setting them apart as forest reserves. There are now 4,060 square miles of forest reserve, comprising the Lamagami reserve, 2,200 square miles; the Sibley reserve on Lake Superior, 75 square miles; the eastern forest reserve in Addington and Frontenac counties, 75 square miles; the Algonquin Park, 1,700 square miles; the Rondeau Park reserve, 10 square miles. To this must be added twelve townships on the north shore of Georgian Bay, between the Whitefish and Wahnipsitae waters. The Forestry Commission has reported that this land is not

agricultural and it will probably remain a permanent forest reserve. Some people think it would be a good plan, as the licenses fall in, to acquire for forest reserve all the territory forming the Laurentian Range and running across the province. In this way Ontario would ultimately have 40,000 square miles of pine timber under forest reserve.

THE ROYAL ELECTRIC CO.

As a result of the legislation recently passed by the Quebec Legislature, Montreal will shortly see the organization of a new power and light company, which will have a capital of \$25,000,000. Mr. Rudolphe Forget, the organizer and moving spirit in the company, states that as soon as the bills just past in the Legislature are signed by the Lieutenant-Governor, they will set about the work of organizing the company. Mr. James Ross is now in London attending to the financial end of the project.

The net revenue of the gas company, the Chambly, and the Royal electric companies for the past year was over one million dollars, and Mr. Forget expects that the amalgamated companies with their enhanced powers as revenue producers, and the natural cutting down of expenses in consequence of such amalgamation, will produce a still more favorable showing, as the full effect of concentration comes to be felt. Instead of 8,000 from Chambly, they will have 35,000 horse-power, with an auxiliary steam force of 20,000 horse-power.

Mr. Forget said that the million-dollar revenue from the three companies was forthcoming with a supply of only 8,000 horse-power, yet he explained that the increased power of 30,000 could be handled and sold almost as cheaply as the smaller quantity. The first machinery for the additional power at Chambly would be installed by April 15, and the whole completed by the middle of July. The placing of the company's wires underground would probably take three seasons.

The mill of the Sissiboo Pulp & Paper Co., Weymouth, N.S., will turn out thirty tons of dry pulp per day for the British market. The company's dam at Weymouth is said to be one of the largest in the Dominion, being 74 feet broad at the base, 450 feet long and 60 feet high. From the dam the water is brought to the mills through a steel penstock 200 feet long.



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



Wire Screens for
Every Class of
Material.

Perforated Metal
of Steel, Cop-
per, Brass, Zinc
for all pur-
poses.

Special Attention
given to Miners'
Requirements

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OPPORTUNITIES FOR TRADE.

The following enquiries have been received at the offices of the High Commissioner of Canada in London, and of the Canadian Section of the Imperial Institute, London, England:

NOTE.—Those who may wish to correspond with any of these enquirers can obtain the names and addresses by applying to THE CANADIAN MANUFACTURER, Toronto. No charge for giving information. When writing refer to the numeral opposite the enquiries.

428. A firm of wholesale fish dealers would like to hear from Canadian producers of dried codfish.

429. A London house requires the services of a Canadian agent in touch with firms furnishing extract of meat.

430. A London and Calcutta house is prepared to appoint a competent Canadian representative to handle their teas.

431. The names of some first class exporters of fruit from Canada, are asked for by a correspondent at Cologne (Germany), who is in a position to dispose of large quantities.

432. A correspondent in the South of England asks to be placed in communication with parties in British Columbia from whom he can purchase Hop-sets (goldings).

433. The agent for a patent combination brake for use with cycles fitted with free wheels desires to enter into negotiation for the sale of the Canadian rights.

434. THE CANADIAN MANUFACTURER is in receipt of an enquiry from a concern in Liverpool, Eng., with connections at Manchester and Oldham, the following articles:—

Dowels: 3-16, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, and 1 inch, 36 inches long.

Broom Handles: $1\frac{1}{2}$ and $1\frac{1}{4}$ inches 52 inches long.

Chair legs: 2, $2\frac{1}{2}$ and 3 inches by 16 inches long.

Chair spindles.

Lumber; Black walnut, satin, birch, bass, oak and maple $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, 1 and $1\frac{1}{4}$, inches thick, any length.

Carriage wheels.

Sashes, doors and mouldings.

435. An Aberdeen firm of merchants are desirous of being placed in communication with shippers of Canadian cereals and produce.

436. An English firm of stylographic and fountain pen makers make enquiry respecting the opening for such goods in Canada and the appointment of agents.

437. A Northampton firm of boot and shoe manufacturers who do a small trade with Canada are desirous of extending it and wish

to get into touch with boot and shoe makers in the Dominion.

438. Enquiry is made concerning the prospect of successfully introducing to the Canadian market a new coffee extract, by a firm who propose to appoint agents on commission.

439. Enquiry come from Toronto for information concerning beet sugar machinery.

440. A correspondent at Guelph, Ontario, desires to secure the agency for an English house who export hides or pickled sheep skins to Canada. He would also like to hear from a wool exporter requiring a representative.

441. A Quebec firm ask for the names of English buyers of horse and cattle hair.

442. The proprietors of a patent bicycle brake wish to make arrangements for sale in Eastern Canada.

443. A London firm in touch with consumers of manganese ore, invites correspondence from Canadian shippers of the material.

444. A firm in Turin, Italy, wish to secure several first-class Canadian agencies in such lines as manufactures of wood, dried apples, tallow, mica, lard oil, etc.

445. THE CANADIAN MANUFACTURER has an enquiry from a Liverpool, England, concern with branch in Manchester, for address of Canadian manufacturer of office furniture. They have enquiries as follows:

- 10 oak roll top desks, 42 inches long.
- 10 oak roll oak desks, 52 inches long.
- 10 walnut roll top desks, 42 inches long.
- 10 walnut roll top desks, 52 inches long.

Manufacturers of such goods can obtain further information upon application to THE CANADIAN MANUFACTURER, Toronto.

446. A firm in Warsaw, Russia, asks for the names of Canadian houses that can supply the veneered circles used in the production of Vienna chairs.

447. An importing house in London desires quotations from Canadian producers of salted cod and ling cut into pieces, packed in boxes; smoked salmon in oil, entire; and anchovies, in 28-lb. tins.

ARGENTINE REPUBLIC.—Up to the present time nearly \$40,000,000 have been invested in electrical undertakings in the Argentine Republic, according to an eminent local engineer. The demand for electrical apparatus and machinery is growing to such an extent, that all the leading electrical engineering concerns in the United States are to-day well represented in the Argentine Republic, and especially in Buenos Ayres. Owing to the fact that British capital is usually extensively invested in the large Argentine electrical enterprises, contracts for all the requirements are closed in London, yet in nearly every instance the materials and machinery used have been ordered from the United States.

According to an estimate made by the Review of the River Plate, 50,000,000 bags will be required for the crops of the Argentine Republic this year, all of which will have to be imported.

AUSTRALIA.—Already public opinion in the new Federation is sharply divided on the question of tariff revision. The present government is in favor of protection, but with duties not so high as to be prohibitive. It is now thought that Mr. Kingston, the Minister of Customs, will prepare and present to Parliament during its present session a schedule of customs duties that will embody the views of the Administration. This course is favored by business men gener-

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The International Head.



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MILL?
STORE?

IF SO have your buildings equipped with

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And save from 30 to 70 per cent. on your insurance rates. Insurance companies approve of our system and devices.
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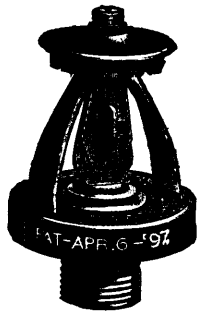
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Apart from the protection it affords, it pays as an investment to use an

AUTOMATIC SPRINKLER SYSTEM



From 40 to 70 per cent. of cost of insurance saved by putting in an

AUTOMATIC SPRINKLER EQUIPMENT

No charge for estimating
Endorsed by Insurance Companies

The General Fire Equipment Co.
72 Queen Street East,
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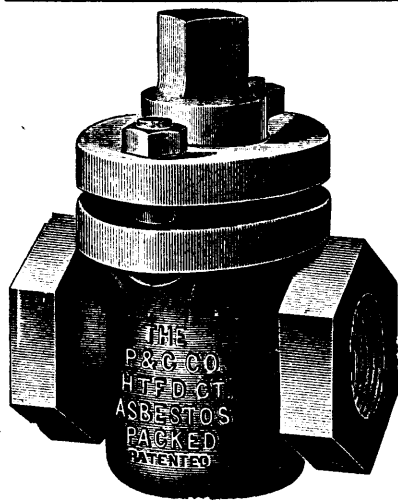
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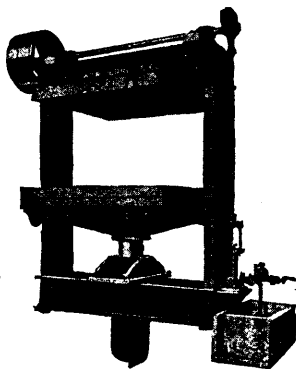
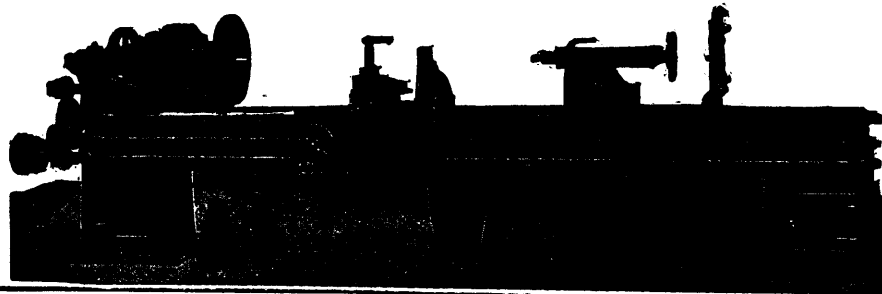
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MANUFACTURERS OF

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HAMMERS,
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PRESSES.



WM. R. PERRIN & CO.,

TORONTO, - CANADA

Hydraulic,
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-AND-

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PRESSES

SEND FOR
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NO. 7

ally, as both merchants and manufacturers dread the confusion and interruption of business that would result from holding the decision in abeyance for a year or more.

AUSTRIA.—No natural product of the earth has been so much neglected and so little esteemed as peat; yet it contains a mine of wealth for those who can appreciate its possibilities. By its adaptability as material for fuel it is of particular interest now, when the price of coal is so high in both hemispheres. It seems timely, therefore, to direct attention to this product, which exists in vast deposits throughout the temperate zone and is present in especially large quantities all over North America, the beds ranging from ten to forty feet in depth, promising an available supply for many years to come. Although as yet peat can not successfully compete as a fuel with anthracite coal, since in proportion to its heating value it is of great bulk, and hence makes transportation dearer; nevertheless, with the necessity of making practical use of it, invention can not fail to be stimulated. The problem of so saturating and compressing it into bricks as to make it replace anthracite coal for household and industrial purposes can without doubt be solved eventually.

Machines have already been constructed by means of which this valuable product can be mined with facility, and peat has been put to a variety of industrial uses. Progress in Austria in the employment of peat is shown in the manufacture of a patent artificial wood—so called peat wood. This artificial wood is especially distinguished by the property that, in moist soil, it hardens steadily owing to the formation of calcareous hydrosilicate of alumina. It is perfectly adapted as a material for street paving, being absolutely free from dust, noiseless, and exceedingly durable. Natural-wood blocks, on the other hand, do not sufficiently resist atmospheric influences and soon warp. Peat wood is also excellently suited for railroad sleepers. Screws, rivets, and nails become as firmly fastened therein as in the best of oak. Wood sleepers rot in damp soil, while moisture only renders the peat wood harder. All kinds of wood, from willow to oak, can be excellently imitated in this new material, which holds out, in suitable districts, fair promise of growing into a source of profitable business enterprise.—C. B. Hurst, United States Consul-General at Vienna.

The American consul at Trieste reports that the expiration of the tariff treaties of Austria-Hungary in 1902 will necessitate a general revision of the customs laws of the country. There is a strong element in Austria which views with great displeasure the increasing imports of American commodities that come into direct competition with the products of the Austrian soil or workshop. The representatives of the Austrian iron and steel industry have repeatedly demanded the imposition of higher import duties upon our iron and steel ware, and the owners of olive groves have combined with the refiners of edible oils to demand a material increase in the duty on all oils which are used as substitutes for olive oil. There is no doubt that the sole aim of the latter movement is to prohibit entirely the importation of American cotton-seed oil. Recently, the Austrian Butchers' and Packers' Association appealed to the various chambers of commerce in the Empire to join them in petitioning the Ministries of Agriculture and Commerce to prohibit the importation of American meat. There is certainly every indication that the new

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tariff laws of the Monarchy will be framed with a special view to prohibiting the importation of American products, unless the manufacturers, as well as the laboring classes, enter a decided protest against such a policy—the former from fear of American retaliation; the latter because of the rise in the cost of necessaries of life which would inevitably follow.

BRAZIL.—Consul Kenneday writes from Para that he is informed that the State of Amazonas, desiring to develop the rubber trade in that section, offers a reduction of ten or fifteen per cent. of the export duties on rubber, and permission to cut and pack in its own bonded stores, to a syndicate that will take charge of the trade; the price to be paid for this concession being \$2,000,000.

GERMANY.—German papers are discussing an expected revolution in the equipment of works employing tool machines, on account of the use of "Bohler's rapid" steel. New tool machines have been ordered by many German establishments, those now in use being of too light construction to meet the increased cutting velocity of the new steel.

The Statistical Bureau of the Association of German Iron and Steel Manufacturers publishes a review of the pig-iron production in the year 1900. According to this, there is to record a considerable increase in last year's production, namely, 393,537 tons, the total output for that year being 8,422,842 tons, against 8,029,305 tons in 1899. This quantity was composed of.

	tons.
Puddled pig-iron and spiegel iron.....	1,612,664
Bessemer pig-iron.....	495,790
Thomas.....	4,826,459
Foundry pig-iron.....	1,487,929

The greater part of the increase must be put to the account of Thomas iron..

The London Financier observes that one of the methods whereby the Germans are successful in competing with English firms in the United Kingdom is disclosed in the report which has just been issued by the German Wire Rod Syndicate in reference to its operations during the six months ended December 31, 1900. It appears that the syndicate, which comprises no less than eighty-two works, sold 41,831 tons of wire rods in the second half of last year. Of this quantity 22,307 tons were disposed of in Germany, while the remaining 19,524 tons were sold abroad. The profit realized from the inland sale amounted to £58,856, whereas in the case of the exports, which were only 2,783 tons less than the quantity consumed in Germany, there was a loss of £42,972. The explanation of the difference is afforded by the fact that German consumers are compelled to pay for the privilege of enabling the syndicate to conduct an export trade, they being charged £12 10s. a ton, as against £7 per ton for the exported goods. A proposal is now being made in favor of the duty on wire and wire rods being increased from 3s. to 10s. per hundredweight. If carried, this would render the Germans more completely at the mercy of the syndicate, and strengthen the competitive powers of the latter in other countries.

According to the latest census returns of Germany the inhabitants of the empire were employed in or dependent on the various industries as follows: Industries, including mines, 20,253,241, or 39.12 per cent.; agriculture, 18,501,307, or 35.74 per

cent.; trade and commerce, 5,966,846, 11.52 per cent.; army and liberal professions, 2,835,014, or 5.48 per cent.; domestic service, 886,807, or 1.71 per cent.; unoccupied, 3,327,069, or 6.43 per cent. The German empire covers 211,168 square miles, and its population is now 52,246,589, which represents an increase of more than 7,000,000 since 1882. Perhaps the most remarkable figures in the return are those showing the comparative positions of the mining and manufacturing industries in Germany, the United Kingdom, the United States and France. "Industry and mines," roughly speaking, employ 53 per cent. of the active male population of the United Kingdom, 37 per cent. of that of Germany, 27 per cent. of that of France and 24 per cent. of that of the United States.

United States Consul Warner, of Leipzig, reports that there is great need for electric heaters in the street cars of that city, the three electric street railways in and about Leipzig not having a single car which is heated either by electricity or coal on the coldest days in winter. Formerly, when horse cars were in use, they were heated by placing coals of fire in iron boxes; but, after several months' trial, the system was abandoned. It is not because there is no old weather during the winter months, says the consul, that street cars in most of the cities of Germany are not heated, but because the city authorities do not compel the street railway companies to make their cars comfortable; and, unless required to do so by law, they will not put themselves to this extra expense. Mr. Warner urges the introduction of American electric street-car heaters, but adds that, in order to meet with success, it will be necessary, first of all, to convince the authorities of the fact that the health of the general public is greatly endangered by riding in unheated cars during the winter months.

United States Consul-General Guenther, at Frankfort, writing regarding the testing of precious stones, says:

In a lecture on precious stones, recently delivered before the Industrial Association of Berlin, Dr. Immanuel Friedländer said that the testing of diamonds is comparatively simple. The common test for hardness suffices. If the stone resists strong attacks, it is certain to be genuine; if it does not, the damage is insignificant, as only an imita-

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Three years technical chemist North British Chemical Co., Clydebank, Scotland. Four years under-manager, Heath Petroleum Co., Tumbez, Peru, South America.

Five years manager Gas Plant and Oil Refinery, with charge of brickwork and tank erection at French company's mines in Grau, Peru.

On arriving in Scotland from Peru was sent as manager of the iron ore mines of the Subida Iron Ore Co., Mazarron, Spain, and left there in May to go to Mons. de Clercy's Riché Gas Co. in Canada. Address

EXPERT ENGINEER,

Care Canadian Manufacturer, Toronto

Electrical Common Sense

It is poor economy to buy a good dynamo unless your wiring is properly installed.

It will not pay you to save power at your dynamo if you lose it on the way to your lamps.

Our wires are proportioned to the power they are to carry, and we put them up to stay.

As we are not connected with any manufacturer, we are prepared to install any of the standard machines on the market.

Let us quote you prices.

R. A. L. GRAY & CO.

Electrical Contractors,

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F. W. HORE & SON, Limited, HAMILTON, ONT.
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CARRIAGE, WAGGON, AND SLEIGH WOOD WORK.

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Highest Gold Paris



Award Medal 1900

SOUTH AFRICA.

Messrs. Kelly's Directories Limited, (London, Eng.), beg to announce that a new edition of the **General Directory of South Africa** is now in course of preparation, and desire to draw the attention of Canadian Manufacturers to the importance of the work as an advertising medium for making their goods known to buyers in South Africa. Being the Standard Work it reaches the very people whom manufacturers, desirous of opening up or extending their export trade with South Africa, would desire to get in touch with—**THE ACTUAL BUYERS THEMSELVES.**

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tion has been destroyed. This test, however, is doubtful with rubies. If a ruby can be affected by a steel file or by quartz, it is surely not genuine; but such a test with a topaz is liable to injure a valuable stone.

The test for hardness is of no avail with emeralds, as this stone is not much harder

than quartz, and in addition possesses the quality of cracking easily.

For examining rubies and emeralds, the optical test is best. A glass magnifying about one hundred times suffices. Every expert knows that almost all precious stones have little flaws. Nearly every ruby and

all emeralds have many defects, which are so characteristic that the genuineness of the stones is readily established. Such a test is very necessary with rubies, because the imitations are very deceiving. Their color is absolutely durable and often much finer than that of the genuine, although it may be stated that a somewhat yellowish tint is always suspicious.

The only reliable way in which genuine rubies can be told from imitations is by the minute air bubbles of the latter, which become clearly visible under the magnifying glass. These are not to be found in the natural gem; on the other hand, the imitations lack certain defects characteristic of genuine rubies—certain vacuums, whose outlines are much more indistinct than those of the air bubbles in imitations.

True emeralds have similar characteristic defects, such as enclosures of liquids, and curious dendrites. Sapphires also show peculiar netlike formations.

United States Consul M. J. Baer, at Magdeburg, writes re artificial building stone in Germany:

Stone produced from sand and lime is destined to become an important factor in the building line. Until recently, this stone was regarded with suspicion, but experiments have resulted in the production of a perfect building stone, and the prejudice with which it has been viewed heretofore has been dispelled. The manufacture of this stone is growing to enormous proportions in Germany, and factories are springing up everywhere. Even the building-inspection police, who on account of the use of inferior stone produced by faulty systems were antagonistic until recently, have dropped all opposition.

The following is a rough sketch of the simplest and best system known for producing this stone—one which, it is said, offers an absolute guaranty of superior quality:

Hydraulic or quick lime, as well as fat or rich lime, may be used; hydraulic lime is preferred, however, if the price warrants it. Of the different kinds of sand, the cleanest is the most suitable, but a small alloy of clay is not objectionable. In fact, it can be said that all kinds of sand suitable for building purposes or for the preparation of mortar may be used. The proportions are from 4 to 6 parts of lime to 94 or 96 parts of sand, the small variation depending on the quality of the sand. After pulverizing the lime in a ball grinder (Kugelmuehle), both substances are mechanically measured and then thoroughly mixed by machinery. This mixture is then pressed into stones, which are afterwards piled on flat cars and pushed into a cylindrical boiler. The boiler is then hermetically closed and steam turned on at from eight to nine atmospheres. In about ten hours, the process of hardening is finished and the stones are ready for use.

The process of hardening the stones in the boiler is explained as follows:

By the operation of high-pressure steam on the freshly pressed stones, though the influence of the calcium hydro-oxides on the silicic acid of the sand, different kinds of calcium silicates are formed, which are the accepted standard in the process of hardening. The exact time for hardening is determined by the quantity and the nature of the silicic acid in the sand.

The erection of a plant in Germany for the manufacture of 12,000 stones per day will cost, including buildings, about \$16,000; for one of 25,000 per day, about \$22,000.

To manufacture 1,000 stones 250x120x65

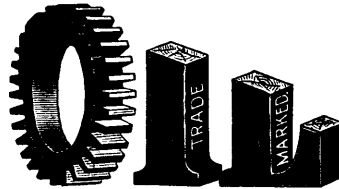
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MONTREAL, CANADA (LIMITED)

BARE and INSULATED ELECTRIC WIRE

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INCANDESCENT AND FLEXIBLE CORDS,

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RUBBER-COVERED, MAGNET, OFFICE AND
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CABLES FOR AERIAL and UNDERGROUND USE.

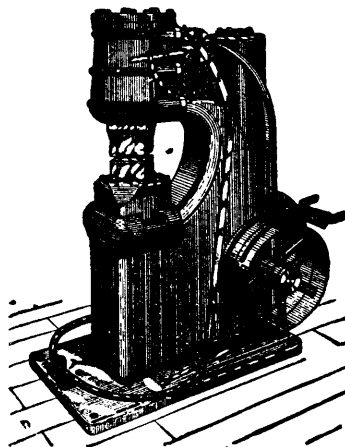
The Yeakley Vacuum Hammer.

Canadian Patent November 9, 1897.

Is now Manufactured and for Sale by
the undersigned Sole Proprietors
of the Canadian Patent:

George Brush

EAGLE FOUNDRY,
MONTREAL.



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YOUR OWN PAPER—YOUR OWN LABEL—YOUR OWN BANDS.
NO NEED TO BUY FOREIGN GOODS.
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Large Four Storey Brick

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Cheese Box Bands and Rims
Box Shooks (Small and Light)
also Crating Material

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Send for rates.

millimeters (98.4x46.6x25.6 inches), there are required, beside the sand, one workman, 450 pounds of lime, 200 pounds of coal, and about ten cents worth of grease and oil.

With this same material, face and fancy stone may also be produced. While these bring a much higher price, the common lime-and-sand stone in Germany commands a price of from \$5 to \$9 per thousand, in accordance with the prices paid for clay-brick stone in the several districts.

From various sources, I have learned that the net cost for 1,000 stones ranges from \$2.25 to \$3, but does not exceed the latter sum.

The essential points of advantage in the manufacture of the lime-and-sand over the clay-brick building stone are:

- (1) The cost of production is much lower.
- (2) With a smaller investment, considerably more stone can be produced.
- (3) The production can take place in all seasons of the year and at all hours.
- (4) The stone has a much higher compressive strength—about 550 pounds per square centimeter (0.155 square inch).
- (5) Colored, face, and fancy stone can be produced.

(6) The stone has a much better and smoother appearance, and there is no loss on account of breakage.

(7) All drying sheds and brick kilns necessary for the production of clay brick are done away with. A space of 65x65 feet is all that is needed for the building of a lime-and-sand stone factory producing 12,000 stones per day.

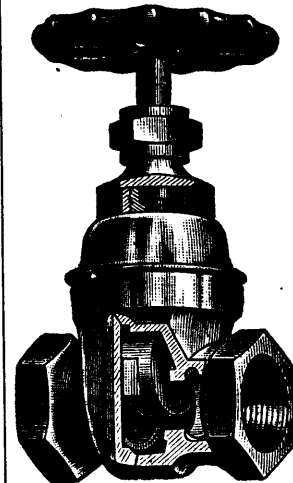
Another factor of great importance in this system is that, instead of sand, the granulated cinder from the blast furnaces may be used when the mode of manufacture is identical with that of the lime-and-sand stone. Waste of all kinds of sand and of building stones, which contain silicic acid, are equally useful and make a good stone.

The lucrative nature of the manufacture of lime-and-sand stone is apparent; there is no doubt that a net profit of from 40 to 50 per cent. and more can be gained by proper calculations.

United States Consul Hughes, at Coburg, writes:

I am informed that a commission of the German Board of Trade has considered the question of the establishment of an information office for foreign commerce. In some quarters, it is doubted whether such an institution can be of any real service, as it may compete with bureaus already existing. Its promoters urge that the United Kingdom, United States, and France having anticipated Germany in this respect, this country dare not long remain behind. The new organization is not to supersede, but to complete, the old one. To finance the affair, it is proposed that three thousand firms should each subscribe annually \$25; the commercial chambers, two per cent of their receipts; from unions, from the Empire, from the city of Berlin, an approximate sum of \$50,000 is expected. The work of the information office would consist in furnishing information on laws and decrees relating to trade with foreign lands, duties on each single article, regulations as to certificates of origin, agents, commercial travelers, protection of patents, information as to means of transport, cost of freight to districts where goods are required, or from which goods may be obtained. It is especially urged that reliable information should be given as to the addresses of respectable foreign solicitors. It is also expected that

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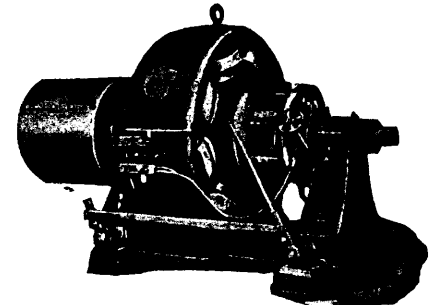
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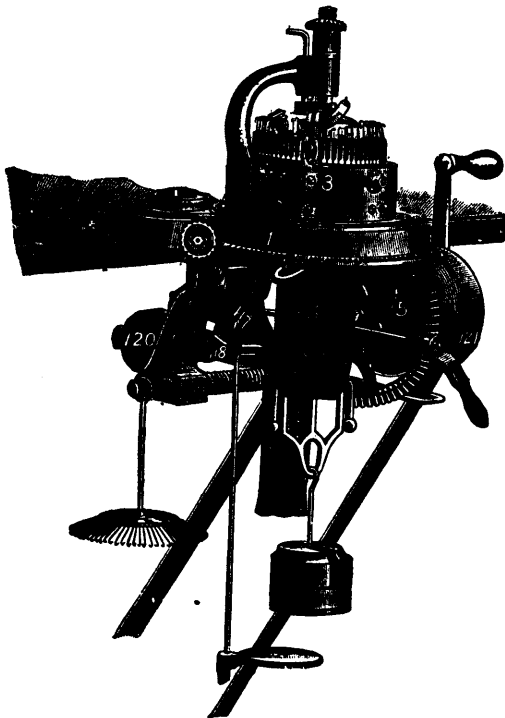
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the German consular corps will help the project in every way in their power.

Consul-General Guenther, of Frankfort, reports the appearance at Nuremberg of the first automobile sleigh. The vehicle glides along with great speed and a perfectly easy motion. It was constructed by the Nuremberg Motor-Vehicle Factory Union.

GREAT BRITAIN.—There is considerable dissatisfaction among consignees in Great Britain on account of the so-called London clause in North America bills of lading. Under the provisions of the Merchant Shipping Act merchants are entitled to free delivery of goods from ship, but the acceptance of the London clause by the shipper binds the consignee to pay this charge. The charge at present ranges from 1s. 3d. to 2s. 9d. per ton, according to the class of goods. It is especially objectionable to British merchants because it is difficult for them to get their customers to understand it, and also because the freight should include all costs of delivery by the ship. The real origin of the trouble lies in London's antiquated dock system, which led to the imposition of the charge in the first place, but as the steamship companies are powerless in the matter there seems to be no remedy except to ship to other ports than London.

The returns for February, as given in the monthly accounts relating to trade and navigation, show a still larger balance against the United Kingdom than in January. The following table shows the summaries of exports and imports for the year thus far, and the corresponding figures for 1900:

	Exports.	
	1901.	1900.
January	£24,753,531	£23,583,682
February	21,037,455	23,219,849
Two months.	£45,790,986	£46,803,531
	Imports.	
	1901.	1900.
January	£45,987,516	£44,555,914
February	39,714,439	37,644,808
Two months.	£85,701,955	£82,200,722

Exports for February, it will be noticed, fell off no less than £2,182,394, while imports for the same month increased by £2,069,631, making the balance of trade for the month more unfavorable than a year ago by £4,252,025, or \$20,664,841.50. In January exports increased by a little over a million pounds, but imports also increased by about the same amount. Exports of foreign and colonial merchandise, which are not included in the above totals, show an increase for February of £390,963; the sum of these exports having been £5,966,288 this year, as compared with £5,575,325 in 1900. The total exports of foreign and colonial merchandise for the year thus far have been £11,017,595, as compared with £11,057,790 a year ago, a decrease of £40,195. The balance of trade for the year thus far is against Great Britain by £39,710,969 (\$192,995,310.34), as compared with an adverse balance last year for the same period of £35,397,191 (\$172,030,248.26). The increase of £4,313,778 (\$20,954,961.08) is almost wholly due to returns for February.

The Board of Trade returns for February make unsatisfactory reading. Imports still continue to rise, but the healthiest items on the import side, those referring to imports of raw material for our textile and other industries, show a decline of £500,000 for the month. On the export side sales of coal are seen to be falling off, for we exported less value by £613,664 than in 1900;

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indeed we are now selling less coal than in 1899. It is when we turn to exports of our domestic manufactures that we find most cause for misgiving, however. Yarn and textiles fell £179,264; machinery and mill-work, £150,385; new ships, £207,191; chemicals, £220,269; and last but not least, metals and metal articles, £1,210,997. With regard to this last item, the falling off was about one-third of the whole, i.e., from £3,856,669 to £2,645,672, truly remarkable figures. On the other side of the account it is not pleasing to see that while we imported less iron ore than in either February, 1899, or February, 1900, we purchased considerably more pig-iron and steel. Altogether, the figures, as we have indicated, are not cheerful, and close examination shows that in many important items we are not only doing worse than in 1900, but worse than in 1899.—Commercial Intelligence.

GREECE.—In his report from Thessaly, Mr. Consul Merlin declares that the wants of the Thessalian population in regard to all kinds of appliances and refinements of civilized life, especially agricultural machines and implements, are likely to increase steadily during coming years. Little is manufactured either in the district or in other parts of Greece. In the meantime, it appears that although the bulk of British manufactured imports is less than that of goods from Austria-Hungary and Germany, the value is almost, if not quite equal, orders where quality is the main consideration being nearly invariably placed in England.

INDIA.—The Calcutta Statesman, speaking of the rapid development of the use of electricity in that city, says:

The past year has been marked by a great development of electrical enterprise in India. The most novel, if not the largest, scheme is that at Mysore, where the waters of the Cauver Falls are being harnessed for the benefit of the Mysore gold mines. Large turbines, driving dynamos requiring 700 horse power to work them, will be required for the Cauvery power scheme. Here, in Calcutta, the Tramways Co. will shortly adopt electric traction, and will require dynamos of the same size as those ordered for Mysore; but there is no water power available in Calcutta, no one as yet having essayed to chain the mighty Hooghly. But the largest dynamos yet ordered for India are those for the Calcutta Electric Supply Corporation, whose engineer, Mr. Scott Moncrieff, has just returned from England, having arranged for the delivery of two sets of engines and dynamos, each of 1,100 horse power.

The electric fan, driven by current from the corporation's mains, has already acquired great popularity in Calcutta. It makes some two hundred revolutions per minute, giving a slow, steady breeze of great volume. These fans are in most cases placed fifteen feet apart where more than one is required, but opinions vary as to their effective scope. In the cathedral, which is pronounced the coolest place in Calcutta in the hot weather, they are placed ten feet apart. The central telegraph office and the high court have adopted the fifteen foot standard, and private installations vary in their number of fans according to the ideas and pecuniary resources of the householders. The Electric Supply Corporation have introduced a system of hiring out fans at a charge of four rupees (\$1.28) per month for each fan, which is likely to prove popular. The elec-

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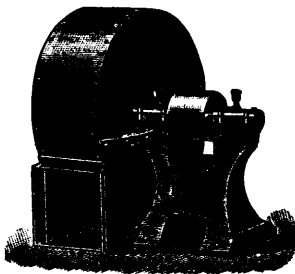
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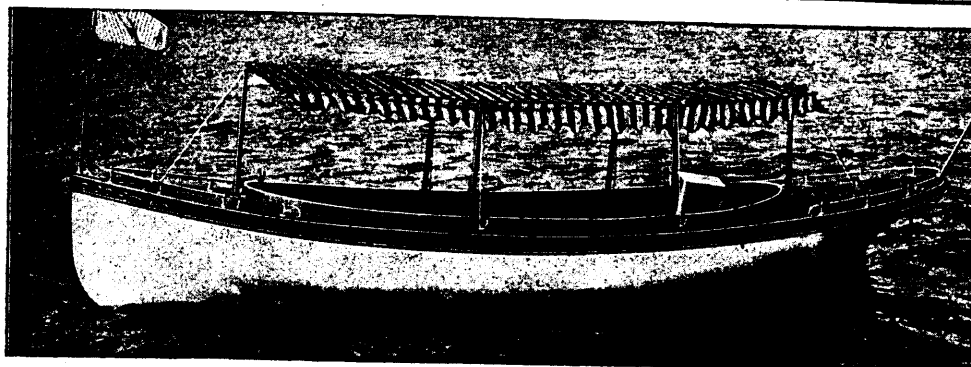
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tric light is also particularly useful in India, and its widespread use in Calcutta shows how well it is appreciated.

In addition to the above instances of the use of electricity, we understand the workshops of the East Indian Railway and of the Bengal-Nagpore Railway will shortly be driven by electricity. The old and time-honored arrangement of shafting, belts, and pulleys is now, in fact, giving place to electric motors. But perhaps the greatest novelty of all is the new electric lift in Government House. When using the lift one first presses a button, which brings the lift from whatever floor it has been left to that on which it is required. One enters the lift and finds a row of push buttons, like electric-bell pushes, each one marked for a floor at which the lift may be wanted to stop. A button is pressed, and the electric current does the rest. In order to insure safety in working, the lift will not move until all the lift doors are shut. In a lift of this sort no attendant is required. While electricity from the Supply Company's mains thus elevates the viceroy, it also lifts tea at the tea warehouse, works tea packers, and drives many printing presses throughout the city. It is also used for working sewing machines and will shortly blow the cathedral organ.

JAPAN.—The official declared value of the exports from Japan during 1900 is given as £19,875,382, showing a decrease of £1,530,115 as against the total for 1899. The value of the imports, on the other hand, is given as £28,240,363, and shows an increase of £6,250,517 as against 1899. Considering this very large balance of trade against a country like Japan, it is not surprising to find that a very serious drain of gold was being experienced. The declared value of the exports of the yellow metal was £8,364,981, showing an increase of no less than £4,228,061 as against 1899. The declared value of the imports of gold was only £882,232, or £1,125,642 less than in 1899. The stocks of imported goods in the open ports of Japan at the end of the year were said to amount to upwards of £4,000,000 in value, of which £2,000,000 was held in Yokohama.

NICARAGUA.—The Nicaraguan Government, in order to further that country's commercial relations, has established a National Museum at Managua, the capital, for a display of the products of foreign lands. The director of the Museum has asked the Nicaraguan Consuls to solicit from manufacturers and producers' samples (not too large) and models or photographs of machinery and heavy implements. Articles of this description are to be exhibited in Managua at all times free of cost, and it is anticipated that a permanent exhibition of the kind will in-

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sure to the benefit of both exhibitors and visitors. Mr. A. D. Straus, the Nicaraguan Consul-General, at 18 Broadway, New York, invites merchants and manufacturers to send him samples, accompanied by lucid descriptions, with instructions how to operate them, their advantage, and especially the style of packing for export. This latter point is of great importance to the Nicaraguans, as their customs duties are based on the gross weight. All consignments should be packed as lightly as consistent with safety.

PORTUGAL.—A thorough revision of the customs tariff of Portugal is at present being drafted by the government officials and will shortly be ready for presentation to the legislative branch for approval. In general, the duties are reduced from thirty to fifty per cent., and in none are they increased.

RUSSIA.—The Russian Government is to spend during the present year, according to the credits granted by the Minister of Ways and Communications, 20,000,000 roubles (\$10,300,000) for locomotives, 18,000,000 roubles (\$9,270,000) for freight cars of various types, and 7,000,000 roubles (\$3,605,000) for passenger cars, for use on the State Railways. It is stated that 220 locomotive and 5,000 cars are to be ordered, and no less than 160,000 tons of rails.

The Russian Foreign Office has issued a notification in French to all countries outside the United States that, owing to the increased import duties on certain American products, certificates of origin for similar goods coming from other countries must be presented at the custom houses unless the

goods bear some trade-mark or other indication proving their real origin. This refers to the recent increase of the duties levied on American products. In connection with the increases of duty comprised in this decree, it is important to note that the clause of section 2 of paragraph 167 relating to "all machinery not specially mentioned elsewhere," does not affect the following articles, which are separately tariffed: Railway locomotives and traction engines; locomotive wagons and steam wagonettes; agricultural machinery and apparatus not provided with steam motors; reaping and sheaf-binding machines; steam ploughs; clover-threshers of a complicated system, with two drums; steam threshers of a complicated system, with beating drums not less than 4½ feet in width, and with joint pins not less than forty inches in width; hay-sorters; horse rakes; grass seed sorters; sorters with spiral wire cylinders; potato sorters; machines for scattering powdered manure; crushers; bellows and injectors for vineyards and trees; grape crushers; grape presses with continuous motion; centrifugal cream separators with their parts; all newly invented and improved agricultural machines and implements, intended for experimental stations and museums.

SOUTH AFRICA.—A great increase in the mileage of narrow gauge railways in South Africa is likely to take place in the near future, resulting in a demand for a class of material that English manufacturers have thus far been backward in supplying. The British and South African Export Gazette quotes from one of the speeches made at the

opening of one of these railways recently, a passage explaining why the material for the line had been ordered in Germany. The speaker, Hon. J. L. Hulett, Speaker of the Natal Legislative Assembly, said: We were very fortunate in meeting with a firm of manufacturers—a German firm—who were willing to come liberally to our help, although, as a Briton, I was very sorry that we were bound to go outside the British Isles for materials. British manufacturers were not wide awake, and did not give sufficient attention to small matters. Those small matters would develop, and unless British manufacturers looked out, the work would go to Germany or America. The line here referred to was a short one, eight miles in length, at Kearsney, Natal, built with thirty pound rails, two feet gauge, and costing altogether less than \$100,000. In view of the great extent of South Africa and the need of cheap and easily constructed means of transportation, American manufacturers will do well to place themselves in position to promptly supply light railway material and rolling stock as required.

The British and South African Export Gazette reports that the Rose of Sharon and Shamrock mines, Rhodesia, will shortly order larger engines and new pumping machinery. A new engine is soon to be ordered for the Van Ryn Gold Mining Co., together with mining machinery to the value of £50,000, to replace that destroyed by the Boers. The West Nickolson gold mine, Rhodesia, is likely soon to be in the market for a cyanide or concentrating plant, while the Butterfly gold mine may shortly order extra pumps.

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SWEDEN.—Consul Nelson, of Bergen, under date of January 30, 1901, reports a successful attempt to produce steel by electricity in Sweden. The consul says: The experiments are being carried on at Gysinge factory, Sweden, and about 25,000 pounds of steel are produced in six drafts daily. The steel is of an excellent quality and meets with ready sales at high prices. On account of the relatively cheap method of production, the profits are large, but as the electrical power is limited, the output is insignificant. To overcome this drawback, plans have been formed for the erection of a large electric plant near the Dalafuen River, the water power of which will be utilized. This will enable the company to carry on the manufacture of steel by electricity on a large scale.

TURKEY.—United States Consul Hughes, at Coburg, writes: A large importer of cotton goods in Smyrna is reported to have said that English manufacturers are losing their hold on that market, owing to sharp American competition—which should, however, be in direct hands and not in that of middlemen. In T cloths, the British article has been steadily declining in favor of American "cabots," especially cabot "A." The Lancashire "Mexicans," though better finished than the American articles, are less durable and are therefore less sought. America furnishes several kinds of white shirtings, which are considered superior to the British manufactures. Prints from the United Kingdom are suffering from the importation of inferior goods from continental factories and from the revival of a locally manufactured kind of print called "aladja," made of pure cotton yarn dyed in fast colors, cleverly imitating the European designs. The aladjas are very durable, and the demand is steadily augmenting in the interior. For some time past, the United States has also been supplying prints, which appear to be gaining favor with the natives. Drillings (gray and blue) are chiefly from the United States.

UNITED STATES.—For the seven months ending with January, 1901, exports from the United States to China show a fall of more than fifty per cent. In practically all of the articles other than those required by the troops now in the field in that country there is a marked decrease, while in a few articles, such as telegraph instruments, flour, bacon and hams, butter and cheese, there is an increase. In such important articles as cotton cloths, illuminating oils, cars and carriages, bicycles, builders hardware, lumber and furniture the reduction is very strongly marked. Cotton cloths, for instance, show a reduction from 115,993,840 yards in seven months of the fiscal year 1900 to 21,476,080 yards in the same months of the fiscal year 1901. Mineral oils show a fall from 16,030,966 gallons in seven months of the fiscal year 1900 to 9,492,366 gallons in the corresponding months of the present fiscal year. Builders' hardware shows a fall from \$28,539 to \$16,347; cars and carriages from \$14,991 to less than \$1,000; clocks and watches from \$12,560 to \$4,336, and manufactures of to-

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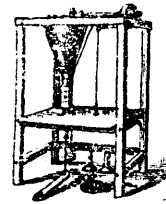
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bacco from \$261,782 to \$180,121. Exports of raw cotton to Japan in the seven months ending with January, 1901, amount to only 5,520,865 pounds, against 93,037,286 pounds in the corresponding months of the preceding fiscal year, thus causing a reduction of more than \$6,000,000 in the single item of cotton exports to Japan. This is due entirely to the fact that Japan imported such large quantities of cotton from the United States in the fiscal year 1900 that she requires but little at the present time. The reduction of exports to China by more than fifty per cent.; the reduction of cotton exports to Japan, amounting to over \$6,000,000 in seven months' time, and the inability of the Bureau of Statistics to present the figures of exports to Hawaii (which have doubtless amounted during the seven months of the fiscal year to nearly \$10,000,000) must have a marked effect upon the export figures to Asia and Oceania; hence an apparent reduction of \$15,000,000 in the total exports to Asia and Oceania in this period as contrasted with the same time in 1900.

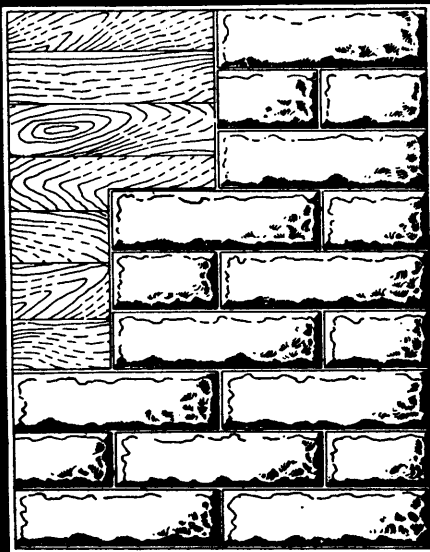
VENEZUELA.—In the near future, a commercial museum will be instituted at Caracas to exhibit European industrial and art products. It will receive governmental aid. Branch museums will be opened in Valencia, Maracaibo, Ciudad Bolivar, Barquisimete, and other suitable places. Goods for the museum will be admitted free of duty; this will be exacted only after the goods are sold. No expenses will be charged to the exhibitors. These are advised to send at least five copies of samples and price lists, so that the branches can also be supplied.

The Minister of Public Works has just concluded an important railway contract with Dr. Carlos Gonzalez Bona, of Caracas. The following particulars, from the Venezuelan Herald, will be of interest to contractors and manufacturers of railway and contractors' supplies. Authority is granted to construct railways, of one gauge only, from San Cristobal, the capital of the State of Tachira, to numerous towns and cities in that State. The gauge of the line is to be seventy-five centimeters, and the contractor has six years in which to complete the contract. The right to import all materials, tools and machinery free of duty is expressly granted.

FRANCE.—Mr. Jules Morel, of Roubaix, has just patented a new system of burring wool, which is said to extract all burrs, leaving the wool perfectly pure for all trade purposes. The process has been in use in Roubaix for the past three years. The wool tufts are opened so that the burr is extracted without breaking. The first operation separates the burr from the fibre, and the second expels it whole. The close setting of the teeth expels not only burrs but motes, which are the frequent cause of difficulty in dyeing. The clean state of the wool, the fibre of which is unimpaired, allows the processes preliminary to combing, as well as the process of combing, to be effected more easily. The gain is said to be 2d. or 2½d. on each pound. The production is greater and the noils cleaner. When noils are carbonized they require less acid, leaving a product superior for spinning, weaving and dyeing purposes. The system is in wide use at Roubaix, and important spinners testify to the excellence of the burring, which leaves a long staple of great strength.

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INDEX TO ADVERTISEMENTS.

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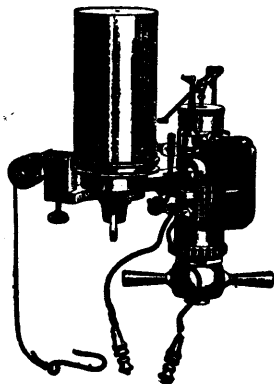
Abbey Improved Chilled Shot Co., Newcastle-on-Tyne, England.....	40	Fetherstonhaugh & Co., Toronto.....	ofc	Northrop Iron Works, Valleyfield, Que.....	39
Adams, G. H. & Co., Melbourne, Australia....	27	Firstbrook Box Co., Toronto.....	ibc	Nova Scotia Steel Co., New Glasgow, N.S....	4
Agriculture, Ontario Minister of, Toronto....	6	Fleming, W. A. & Co., Montreal.....	17	Oakey, John & Sons, London, Eng.....	ibc
Albert Mfg. Co., Hillsborough, N.B.....	6	Flint & Walling Mfg. Co., Kendallville, Ind....	28	Ontario Malleable Iron Co., Oshawa, Ont....	obc
American Steam Gauge & Valve Mfg. Co., Boston, Mass.....	42	Forman John, Montreal.....	8-ibc	Ontario Wind Engine & Pump Co., Toronto....	40
American Steam Pump Co., Battle Creek, Mich.....	40	Frick, H. C. Coke Co., Pittsburg, Pa.....	obc	Owen Sound Portland Cement Co., Owen Sound, Ont.....	ifc
Archbold, George, Prescott, Ont.....	29	Frost, W. H., Smith's Falls, Ont.....	obc	Packard Electric Co., St. Catharines, Ont....	36
Armstrong Mfg. Co., Bridgeport, Conn.....	ifc	Garfield Oil Co., Cleveland, Ohio.....	26	Parke, Roderick J., Toronto.....	8
Atteaux, F. E. & Co., Boston, Mass., and Toronto.....	ifc	Gartshore, John J., Toronto.....	40	Parker, Alfred S., New Toronto, Ont.....	ibc
Automatic Check Book Co., Toronto.....	35	Gartshore-Thomson Pipe & Foundry Co., Hamilton, Ont.....	36	Patent Clothboard Co., Parry Sound, Ont....	35
Babcock & Wilcox, Montreal and Toronto....	ofc	General Fire Equipment Co., Toronto.....	31	Peerless Wire Co., Hamilton, Ont.....	ibc
Barber, Wm. & Bro., Georgetown, Ont.....	ibc	Goldie & McCulloch Co., Galt, Ont.....	3	Penman Mfg. Co., Paris, Ont.....	ibc
Bellhouse, Dillon & Co., Montreal.....	27	Gray, R. A. L. & Co., Toronto.....	33	Perrin, Wm. R. & Co., Toronto & Chicago, Ill.	32
Bell Organ & Piano Co., Guelph, Ont.....	ibc	Greening, B. Wire Co., Hamilton.....	30	Peterborough Canoe Co., Peterborough, Ont.	6
Benson, W. T. & Co., Montreal.....	ifc	Groat, John H. & Co., Grimsby, Ont.....	26	Petrie, H. W., Toronto.....	40
Bertram, John & Son, Dundas, Ont.....	3	Gutta Percha & Rubber Mfg. Co. Toronto....	ofc	Phillip, E. J., Toronto.....	18
Bourne-Fuller Co., Cleveland, Ohio.....	35	Hamilton Brass Mfg. Co., Hamilton, Ont.....	22	Phillips, Eugene F., Electrical Works, Montreal.....	34
Bouvier, L. P., Toronto.....	34	Hamilton Cotton Co., Hamilton, Ont.....	ifc	Plummer, F. O., Boston, Mass.....	27
Bowden, J. W. & Co., Toronto.....	35	Hamilton Facing Mills Co., Hamilton, Ont....	ofc	Polson Iron Works, Toronto.....	5
Bradstreets, Toronto and New York.....	35	Hamilton, Wm. Mfg. Co., Peterboro', Ont....	37	Price, H. M. & Co., Quebec, Que.....	38
Bristol Co., Waterbury, Conn.....	obc	Hartland, H. Pawcett, Montreal.....	40	Queen City Oil Co., Toronto.....	ofc-34
Brown & Co., Paris, Ont.....	6	Hay, Peter, Galt, Ont.....	4	Raney's Specialty Co., Kingston, Ont.....	25
Brush, George, Montreal.....	34	Hore, F. W. & Son, Hamilton, Ont.....	33	Reeves Pulley Mfg. Co., Toronto.....	17
Brunner, Mond & Co., Northwich, Eng.....	5	Houghton, John, Toronto.....	ibc	Rehder Plating & Mfg. Co., Thorold, Ont....	40
Budden, Hanbury A., Montreal.....	40	Hyde, F. & Co., Montreal.....	40	Rice Lewis & Son, Toronto.....	29
Buffalo Forge Co., Buffalo, N.Y.....	28	Imperial Oil Co., Petrolia, Ont.....	3	Robb Engineering Co., Amherst, N.S.....	6
Burt Mfg. Co., Akron, Ohio.....	21	Jardine, A. B. & Co., Hespeler, Ont.....	ofc	Rosamond Woolen Co., Almonte, Ont.....	ibc
Butterfield & Co., Rock Island, Que.....	5	Jenckes Machine Co., Sherbrooke, Que.....	16	Royal Paper Mills Co., East Angus, Que.....	24
Buyers Guide, Toronto.....	7	Jones, J. L. Engraving Co., Toronto.....	40	Sadler & Haworth, Toronto & Montreal.....	38
Canada Chemical Mfg. Co., London, Ont.....	ifc	Jones & Moore Electric Co., Toronto.....	35	Schoellkopf, Hartford & Hanna Co., Buffalo, N.Y.	38
Canada Iron Furnace Co., Montreal.....	ifc	Karch, H. W., Hespeler, Ont.....	ifc	Smart-Eby Machine Co., Hamilton, Ont.....	26
Canada Switch & Spring Co., Montreal.....	obc	Keller, John J. & Co., New York, N.Y.....	ifc	Smith & Cameron, Toronto.....	obc
Canadian Canoe Co., Peterborough, Ont.....	27	Kelly's Directories, Toronto and London, Eng.....	33	Smith Woolstock Co., Toronto.....	ibc
Canadian Colored Cotton Mills Co., Montreal.	19	Kemp Mfg. Co., Toronto.....	33	South American Journal, London, Eng.....	ibc
Canadian Heine Safety Boiler Co., Toronto....	19	Kerr Engine Co., Walkerville, Ont.....	35	Storey, W. H. & Son, Acton, Ont.....	ibc
Canadian Office & School Furniture Co., Preston, Ont.....	40	Klipstein, A. & Co., New York, N.Y.....	6	Sturtevant, B. F. Co., Boston, Mass.....	39
Canadian Rand Drill Co., Montreal.....	37	Laurie Engine Co., Montreal.....	23	Sturtevant Mill Co., Boston, Mass.....	18
Canadian Rubber Co., Toronto and Montreal.	obc	Leitch & Turnbull, Hamilton, Ont.....	ibc	Sutton, Wm., Compound Co., Toronto.....	41
Carrier, Laine & Co., Levis, Que.....	7	Leslie, A. C. & Co., Montreal.....	ofc	Sylvester Bros. Mfg. Co., Lindsay, Ont.....	27
Case, Egerton R., Toronto.....	3	Lewis, Rice & Son, Toronto.....	29	Syracuse Smelting Co., Montreal.....	20
Clercy, Jules de, Toronto.....	7	London Machine Tool Co., London, Ont.....	32	Tallman, J. N. & Sons, Hamilton, Ont.....	27
Cockburn, W. M., Toronto.....	35	Lumsden, J. & Co., Montreal.....	32	Thompson, E. B., Toronto.....	37
Cooper, James Mfg. Co., Montreal.....	15	Lysaght, John, Montreal and Bristol, Eng....	6	Thompson, Worth & Martin, Toronto.....	37
Cowan & Co., Galt, Ont.....	36	Marion & Marion, Montreal.....	obc	Toronto & Hamilton Electric Co., Hamilton, Ont.....	29
Creelman Bros., Georgetown, Ont.....	36	Mason Regulator Co., Boston, Mass.....	8	Toronto Elevator Supply & Repair Co., Toronto	6
Crosby Steam Gage & Valve Co., Boston, Mass.....	ibc	Matheson, Wm. J. & Co., New York, N.Y., and Montreal.....	5	Toronto Fence & Ornamental Iron Works, Toronto.....	6
Cummer, F. D. & Son, (Co., Cleveland, Ohio....	20	Merrimac Chemical Co., Boston, Mass.....	ibc	Toronto Machine Screw Co., Toronto.....	40
Cyclone Grate Bar Co., Toronto.....	18	Metallic Roofing Co., Toronto.....	41	Toronto Paper Mfg. Co., Cornwall, Ont.....	40
Darling Bros., Montreal.....	6	Meyercood Co., Chicago, Ill.....	25	Toronto Patent Agency, Toronto.....	37
Dean, Walter, Toronto.....	33	Milnes, J. H. & Co., Toronto.....	ifc	Toront Woolen Machinery Co., Toronto.....	37
Desbarats Advertising Agency, Montreal.....	33	Montreal Pipe Foundry Co., Montreal.....	ifc	United Electric Co., Toronto.....	obc
Diamond Machine & Screw Co., Toronto.....	26	Morrison James Brass Mfg. Co., Toronto....	32	Walkerville Malleable Iron Co., Walkerville, Ont.....	ofc
Dixon, H., Toronto.....	37	Morrow Machine Screw Co., Ingersoll, Ont....	6	Wallberg, E. A. Toronto.....	28-30
Dodge Mfg. Co., Toronto.....	7	McArthur, Cornelle & Co., Montreal.....	obc	Ward, George, Laskay, Ont.....	7
Dominion Bridge Co., Montreal.....	4	McEachren Heating & Ventilating Co., Galt, Ont.....	38	Welland Vale Mfg. Co., St. Catharines, Ont....	ibc
Dominion Dyewood & Chemical Co., Toronto....	ofc	McGuire, Wm. J. & Co., Toronto.....	31	Whiting Foundry Equipment Co., Harvey, Ill....	30
Dominion Engraving Co., Toronto.....	ibc	McLachlan Electric & Gasoline Motor Co., Toronto.....	36	Williams, A. R. Machinery Co., Toronto.....	19
Dominion Leather Co., Toronto.....	obc	McLaren, D. K., Montreal and Toronto.....	32	Winn & Holland, Montreal.....	5
Dominion Oil Cloth Co., Montreal.....	31	Neff, A. C., Toronto.....	40	Wilson Bros. Bobbin Co., Todmorden, Eng....	25
Dominion Radiator Co., Toronto.....	40	New Toronto Woolstock Co., New Toronto, Ont.....	ibc	Wilson, J. C. & Co., Glenora, Ont.....	ibc
Dryden, T. H. & A. H., Toronto.....	29	Northey Mfg. Co., Toronto.....	8	Wire and Cable Co., Montreal.....	ofc
Electrical Construction Co., London, Ont.....	29			Wright & Dallyn, Hamilton, Ont.....	6
Fensom Elevator Works, Toronto.....	ofc				

ofc outside front cover.

ifc inside front cover.

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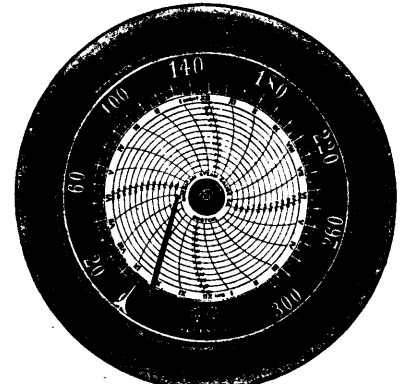
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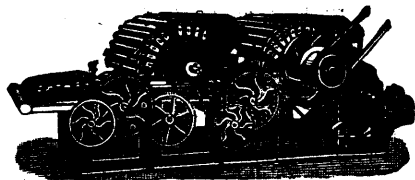
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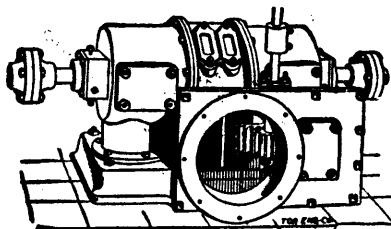
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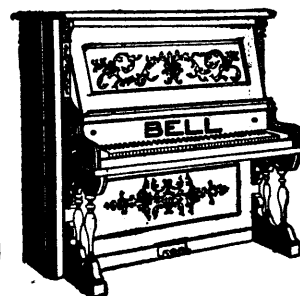
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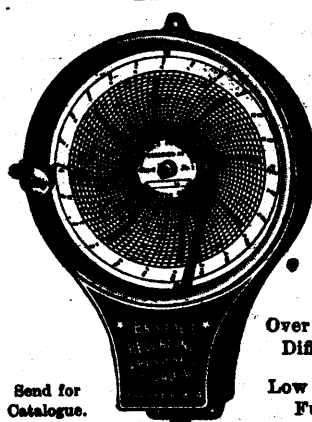
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