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CANADIAN MANUFACTURER
 AND INDUSTRIAL WORLD.
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Vol. 44. TORONTO, JANUARY 3, 1902. 5383 No. 1.

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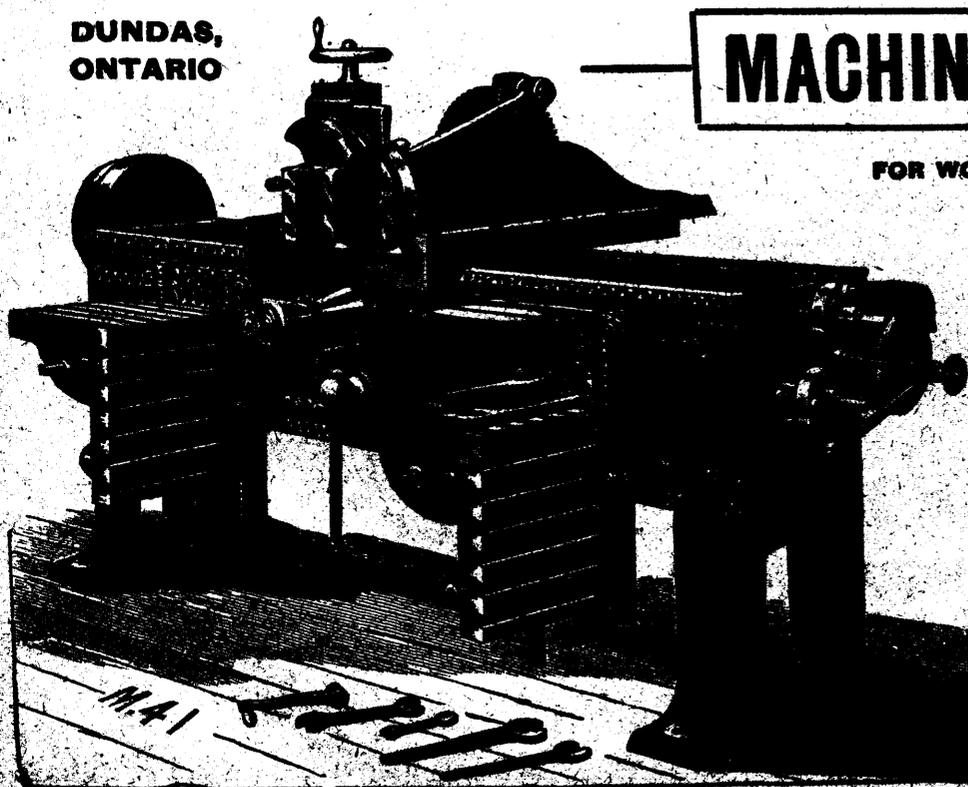
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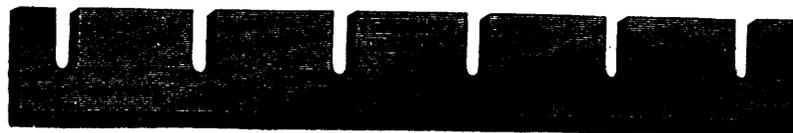
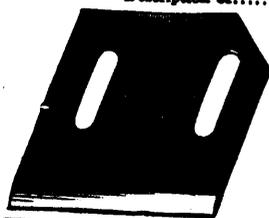
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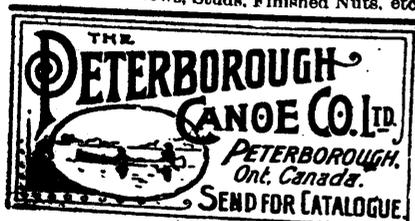


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WEBSTER SYSTEM OF STEAM HEATING

FOR HEATING BUILDINGS
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And we will explain HOW
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We have under construction all sizes of
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Some of the sizes are ready to ship, and any
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They are suitable for Electric Stations, Fac-
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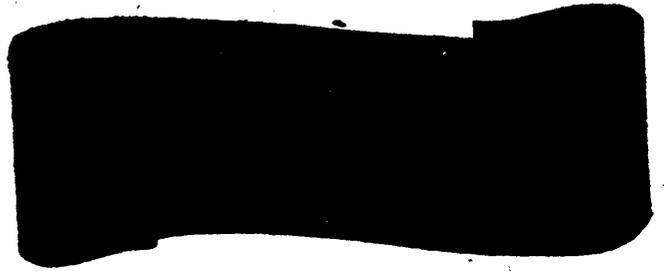
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RED RUBBER PACKING

A HIGH GRADE PACKING

"THE BEST IS CHEAPEST"

Applies to your work and this packing.

"TIME IS MONEY"

No time lost re-packing joint; specially adapted for high pressure.

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WINNIPEG

WE GUARANTEE the

"ROSSENDALE," M.A.Y. WOVEN

You run no risk. Return at our expense if not satisfactory. These belts are twice the strength of leather, more durable, 30% cheaper.

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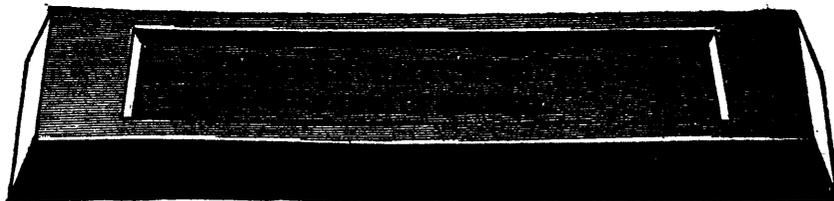
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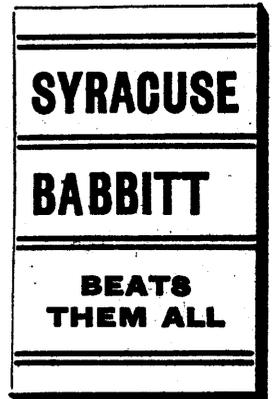
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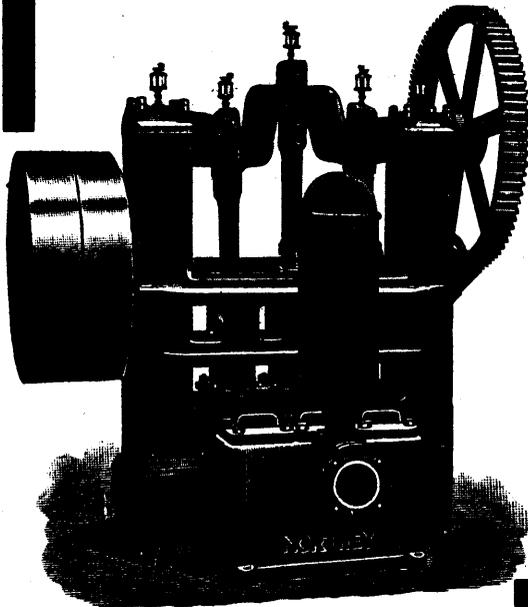
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We manufacture also the

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a handy and economical motor.

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ESTABLISHED 1883

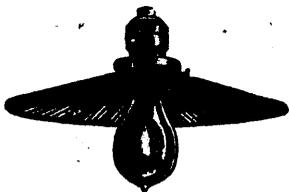
Standard Steam Specialties

Reducing Valves, Damper Regulators, Pump Governors and Automatic Appliances of all Descriptions for the Regulation and Control of Steam, Water and Air Pressures.

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We Stock a Large Variety of SHADES and REFLECTORS in

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FOR FACTORY AND OFFICE.

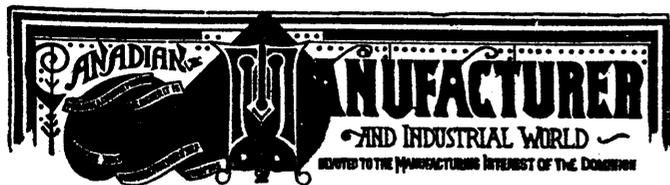
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ELBRIDGE Sparking Dynamos, SAMSON Batteries and IMPERIAL Salts, for Gas or Oil Engines.

Write us about Lighting your Factory or Office.

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ESTABLISHED IN 1890.

PUBLISHED ON THE FIRST AND THIRD FRIDAYS OF EACH MONTH

The Canadian Manufacturer Publishing Co., Limited.

McKinnon Building, Cor. Melinda and Jordan Sts., Toronto.
Cable address: "CANAMAN," Western Union Telegraphic Code used.

MESSRS. DAVISON & CO.,

164 Federal Street, Boston, Mass.
AGENTS FOR UNITED STATES.

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J. J. CASSIDY, Editor and Manager

THE BRITISH PREFERENCE.

In another page is given a tabulated statement showing in detail the values of 75 different dutiable manufactures of metals, chiefly iron and steel, and of 30 other similar articles, which were admitted duty free, imported into Canada from Great Britain and from the United States in the years 1898, 1899, 1900 and 1901. These dutiable imports from Great Britain paid only two thirds of the duty imposed by the general tariff, the dutiable imports from the United States being not thus favored. Regarding the imports from the United States, both dutiable and free, with the possible exception of block tin and a few forms of copper, all similar articles imported into that country are liable to duty averaging not less than 45 per cent., the duty upon some of them being much higher; and these high rates should be considered in any negotiations which might be made looking to reciprocal tariff concessions between that country and this.

It is noticeable that in many items where our imports from the United States were very large, not one dollar's worth is credited to Great Britain, indicating that notwithstanding our discrimination in favor of the products of that country, and that all these enumerated articles, both dutiable and free, are made there, no effort whatever is made to meet the Canadian demand, the entire trade having been surrendered to American competitors.

Another noticeable fact is that as regards the 75 dutiable articles enumerated, the respective receipts from the two countries were as under:

	Great Britain.	United States.
Proportion in 1898....	7.5 per cent.	92.5 per cent.
" 1899....	9.1 per cent.	90.9 per cent.
" 1900....	10.8 per cent.	89.2 per cent.
" 1901....	7.6 per cent.	92.4 per cent.

So too as regards the 30 non-dutiable articles, the respective receipt from the two countries were as follows:—

	Great Britain.	United States.
Proportion in 1898....	8.6 per cent.	91.4 per cent.
" 1899....	8.4 per cent.	91.6 per cent.
" 1900....	19.4 per cent.	80.6 per cent.
" 1901....	10.0 per cent.	90.0 per cent.

The increase of imports from Great Britain in 1900 over the previous year, were chiefly in ingot copper, iron or steel in the coil, steel rails and block tin, amounting to about 11 per cent., a result of the then manufacturing boom.

The object of the Government in granting the tariff preference to British goods was to encourage and cultivate trade with the Mother Country. That preference went into full

The Canadian Manufacturer

Reaches all the Blast Furnaces, Iron and Steel Works, Rolling Mills, Manufacturers of Iron and Wood-Working Machinery, Steam Engines and Boilers, Pumping and Mining Machinery, Electric Machinery and Appliances, Machinery Dealers and Steam Fitters' Supplies, all Hardware Dealers, Cotton, Woolen, Knitting and Yarn Mills, Pulp and Paper Mills, etc., in Canada.

effect in 1898 and has now been in operation more than four years.

The total values of all dutiable goods imported into Canada for home consumption from Great Britain and from all other countries in the four years under consideration were as follows:—

	Total.	Great Britain.	Per cent.
1898.....	\$74,625,088	\$22,556,479	24.86
1899.....	89,433,172	27,521,508	24.05
1900.....	104,346,795	31,561,756	24.77
1901.....	105,969,756	31,701,654	30.00

Our imports of dutiable goods from the United States in these years were valued as follows:—

1898.....	\$38,063,960	60.22 per cent.
1899.....	44,471,824	60.37 per cent.
1900.....	53,897,561	60.75 per cent.
1901.....	53,600,278	50.00 per cent.

The woolen trade is without doubt the most important industry affected by the preferential tariff. In the edition of this journal of October 18 was published an exhaustive tabulated statement regarding this trade, which shows the values of our purchases from Great Britain under the preferential tariff, and from all other countries under the general tariff. An abstract of the statement shows our purchases in the four years to be as follows:—

	Great Britain.	All other countries.	Total.
1898.....	\$7,127,333	\$858,514	\$7,985,847
1899.....	7,649,861	2,153,336	9,803,197
1900.....	6,998,762	2,802,703	9,801,465
1901.....	7,339,543	2,604,572	9,944,115

About 89 per cent. of our imports of woolen goods in 1898 came from Great Britain under the preferential tariff, and 11 per cent. under the general tariff; while in 1901 the imports under the preferential tariff decreased to about 73 per cent., and under the general tariff there was an increase to 27 per cent.

As herein shown, notwithstanding the tariff preference, our import trade with Great Britain is, as compared with our whole trade, falling behind, not only in manufactures of metals but also in textiles, it is fair to enquire why the preference, for which we receive no quid pro quo should be continued. It has no effect whatever upon our imports of metal goods, and is therefore only valuable as a sentiment, which, in trade, does not count for much; but it most seriously and adversely affects our Canadian woolen industry, and for that reason if for no other it should be cancelled, or very materially modified; and one very important feature of any modification of it should include a reciprocal preference on the part of Great Britain and any other British country with which Canada desires to do business.

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, 1900 and 1901, 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		1901	
	GT. BRITAIN	U. STATES						
Bells, n.e.s.	376	16,302	2,019	18,263	540	20,168	4,238	16,390
Brass	251	2,543	278	5,348	393	6,812	163	5,625
" Wire	1,343	16,604	1,646	28,415	2,570	21,899	376	21,836
" n.o.p.	23,621	243,839	31,940	300,307	36,317	341,140	30,689	331,164
Copper, Nails, Tacks, etc.	117	3,014	578	3,686	197	7,341	211	5,875
" Wire	248	49,137	28	45,111	2,302	150,439	396	102,262
" n.o.p.	3,581	25,437	3,051	28,993	2,651	63,390	3,447	40,325
Corset Clasps, etc.	306	9,087	194	3,833	138	3,407	128	1,912
Electric Light Apparatus, n.e.s.	7,667	266,780	5,880	385,966	4,888	577,942	4,939	574,728
" Motors	71	129,287	566	120,299	12,231	218,494	97	286,848
Emery Wheels	442	14,333	399	21,692	410	25,103	647	22,158
" Cloth	363	33,392	1,013	40,592	1,586	47,724	666	45,634
Anvils and Vises	8,131	4,777	8,091	11,037	5,633	13,705	7,060	9,181
Springs, Axles, etc.	4,560	23,194	7,186	36,654	38,777	37,290	2,422	60,552
Bar Iron and Steel	48,722	313,030	61,662	382,753	175,051	339,839	42,236	395,832
Butts and Hinges, n.e.s.	323	14,045	438	16,686	251	19,110	394	19,818
Castings, rough, n.e.s.	777	79,022	1,203	110,499	1,135	295,672	3,919	160,947
Cast Iron Pipe	5,681	32,559	8,641	96,418	1,882	59,977	921	49,302
Chains	20,636	42,754	21,228	38,889	42,775	65,005	20,874	74,247
" Sprocket	None	19,866	29	26,624	172	24,169	5	15,065
" n.e.s.	8,394	8,411	9,384	14,606	1,922	33,569	6,285	32,441
Cut Tacks	135	8,375	340	11,488	18	14,761	55	9,758
Engines, Locomotive, n.e.s.	None	576,091	None	398,118	None	446,097	None	497,401
Fire Extinguishers	None	9,481	261	30,936	609	31,589	None	22,511
Steam Engines and Boilers	2,002	99,051	7,967	103,187	34,071	258,168	50,712	319,441
" for Ships	13,359	61,761	1,234	45,209	None	45,907	None	70,713
Fittings, pipe	809	84,641	901	164,467	569	235,059	2,910	200,179
Forgings, n.e.s.	672	34,172	34	59,648	2,811	62,263	1,775	70,332
Hardware, builders'	37,312	383,085	44,103	523,007	45,362	544,709	39,714	501,127
Horseshoes	None	5,470	5	12,762	None	10,459	None	11,709
Bridges and Parts	None	697,811	77	281,098	None	327,180	None	378,976
Locks	8,509	88,223	8,359	120,419	8,730	118,487	7,634	117,918
Ore Crushers	63	38,526	None	33,780	365	35,380	25,913	56,600
Portable Engines	None	56,034	None	74,578	None	157,231	None	57,417
" Sawmills	None	9,583	None	15,779	None	1,555	None	1,087
" Threshers	None	38,002	None	78,264	None	116,277	None	41,654
Sewing Machines	3,254	117,147	4,360	154,753	4,359	209,659	2,711	199,890
Slot Machines	None	1,731	None	7,811	None	14,202	None	9,116
Typewriting Machines	103	65,268	12	91,893	None	109,667	164	102,420
All other Machinery, n.o.p.	181,892	1,541,506	466,628	1,838,721	650,495	2,780,630	509,582	3,023,137
Malleable Castings	1,727	30,459	351	16,298	None	16,930	None	14,442
Nails and Spikes, cut	325	10,235	1,281	15,522	585	51,735	181	46,880
" wire	605	6,302	9	10,321	8	19,892	661	21,417
Iron Pumps, n.e.s.	672	92,599	949	112,952	476	170,281	1,649	177,291
Fish and Tie Plates	9,936	161,783	7,448	123,693	43,209	183,115	7,315	158,621
Rolled Angles and Shapes	4,628	234,246	736	241,534	34,765	806,506	5,405	452,620
" n.o.p.	4,935	74,534	8,040	105,542	35,130	147,304	8,285	190,189
Safes and Doors	None	6,781	None	19,236	None	14,369	None	12,014
Wood Screws	499	10,066	135	17,071	395	18,892	800	16,518
Weighing Machines	3,045	36,937	1,627	73,125	966	85,727	884	94,115
Skates	111	8,502	114	13,368	None	5,246	8	6,180
Stoves, n.e.s.	476	88,054	711	125,806	420	129,114	365	127,035
Tubing, boiler	9,180	118,911	10,281	161,064	43,364	306,158	11,275	217,928
" rolled steel	407	14,729	6	11,476	2,820	21,051	50	3,509
" bicycle	6,982	43,933	5,364	53,406	9,396	36,990	None	32,396
" galvanized	1,170	128,054	2,351	293,975	59,815	206,527	12,229	212,987
" n.e.s.	627	213,525	12,899	244,112	96,889	196,767	12,299	71,974
" n.o.p.	42	20,762	91	25,385	3,640	40,048	745	34,691
Ironware, Enamelled	2,729	14,356	3,947	15,935	4,124	14,637	4,194	13,116
" n.e.s.	2,268	53,699	3,515	75,113	6,552	96,765	4,660	54,661
Wire Fencing	4,676	23,835	4,347	19,379	635	82,240	808	66,596
" Covered	40,516	168,759	13,128	290,459	11,024	456,141	14,590	339,835
" n.o.p.	5,413	99,617	13,140	135,002	16,881	144,533	14,131	81,091
Nuts, Washers, etc.	2,249	67,645	1,363	76,673	625	95,300	814	78,674
Steel Bridge Plates	698	71,238	1,046	38,388	30,277	97,247	None	87,598
" n.o.p.	112,044	138,222	90,992	181,372	125,526	732,392	98,476	312,138
Tools, Adzes, Hatchets, etc.	785	36,727	986	22,787	1,914	52,461	1,658	19,355
" Axes	9	36,697	9	41,547	None	39,905	None	29,590
" Saws	2,512	76,524	3,337	73,297	2,335	89,810	2,141	86,948
" Files and Rasps, n.e.s.	9,038	63,736	10,918	65,546	13,022	88,714	5,481	77,272

ARTICLES.	1898		1899		1900		1901	
	GT. BRITAIN	U. STATES	GT. BRITAIN	U. STATES	GT. BRITAIN	U. STATES	GT. BRITAIN	U. STATES
Tools, n.o.p.	\$28,430	\$311,346	\$39,772	\$404,818	\$35,241	\$466,239	\$39,494	\$464,843
Articles Iron or Steel, n.o.p.	55,044	687,316	61,518	849,765	91,028	1,371,233	64,123	1,253,022
Printing Presses	4,278	171,733	3,407	201,524	4,192	212,109	4,007	280,789
“ “ parts of	86	25,019	671	45,960	3,518	83,821	2,065	65,265
Tinware	8,467	67,962	10,441	79,122	8,778	86,842	9,190	108,278
Total	\$708,329	\$8,678,734	\$1,014,665	\$10,083,167	\$1,766,760	\$14,559,526	\$1,099,266	13,273,406

The values of these seventy-five different lines of dutiable products imported from Great Britain and United States were :—

	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.
	\$1,099,266	\$13,273,406	\$14,372,672
Proportion 1901	7.6 per cent.	92.4 per cent.	100.0 per cent.

The aggregate value of the seventy-five different lines of dutiable products, imported for consumption in Canada in the four years under consideration, was \$51,183,853, of which 8.9 per cent. came from Great Britain, and 91.1 per cent. from the United States.

FREE LIST.

ARTICLES.	1898		1899		1900		1901	
	GT. BRITAIN	U. STATES						
Bells for Churches	\$5,313	\$10,333	\$2,982	\$11,891	\$6,830	\$24,582	\$6,614	\$14,990
Diamond Drills	None	6,291	None	9,692	1,030	23,222	None	None
Glove Fasteners	4,690	50,012	6,064	66,888	3,418	73,266	4,946	68,599
Metals, Aluminum, etc	38	3,768	None	4,146	None	6,920	1,992	4,640
Brass Bolts, Bars, etc	126	47,615	308	56,264	701	65,812	548	70,823
“ Strips	2,425	80,725	1,712	121,508	3,941	132,018	2,417	118,444
“ Tubing	3,606	40,263	11,252	49,061	7,893	72,816	11,319	71,880
Britannia Metal	11	6,046	2,812	9,240	None	10,168	None	12,248
Copper, pigs, ingots	784	79,061	7,094	200,217	24,014	138,240	17,539	129,996
“ Bolts, Bars, etc	7,101	431,862	13,712	264,841	2,272	553,006	7,274	514,340
“ Strips	35,227	196,711	31,533	117,061	38,397	187,859	3,279	205,198
“ Tubing	59	23,211	164	29,128	2,530	52,198	1,689	46,600
Hoop Iron	217	None	301	9	None	52,571	70	34,619
Iron or Steel, in the coil	None	657,193	10,663	747,827	121,292	1,056,713	26,450	562,024
Steel Bowls	54,681	75,505	75,879	152,697	65,883	150,741	61,079	193,811
Locomotive, tires of steel	2,042	13,021	3,705	15,762	729	20,383	98	11,949
Mining Machinery	22,063	176,813	16,308	281,691	43,660	678,065	33,181	1,496,664
Platinum Wire, etc	261	9,198	73	9,598	None	57,910	134	20,134
Sewing Machine Attachments	None	19,695	None	22,915	None	28,358	21	35,687
Steel Rails	96,328	1,714,277	93,113	1,621,115	827,145	1,960,721	409,657	2,868,801
Steel for Saws, etc	16,032	50,137	14,157	60,505	11,958	247,718	21,648	109,215
“ Wire for Mattresses	204	22,426	260	7,649	605	12,212	1,295	11,726
“ for Locks	None	2,383	None	4,571	135	5,235	None	4,781
“ for Files, Augers, etc	8,493	68,631	15,457	73,386	30,074	119,714	25,872	112,944
Tin in Blocks	125,566	133,155	90,151	188,427	194,552	307,040	183,567	367,016
Tin Foil	594	16,411	4,608	25,896	2,042	36,151	876	36,971
Barbed Fence Wire	None	None	9,802	306,484	18,329	456,318	14,341	302,323
Wire of Brass, Zinc, etc	30	37,782	None	24,170	7	47,860	None	26,903
Galvanized Iron or Steel	743	230,949	12,943	187,393	19,987	294,864	21,259	291,300
Surgical Instruments	6,879	29,406	12,585	64,291	11,748	79,960	13,256	100,330
Total	\$398,513	\$4,231,930	\$437,638	\$4,734,323	\$1,439,172	\$5,952,741	\$870,331	\$7,844,956

The values of these thirty different lines of non-dutiable products imported from Great Britain and United States were :—

	Great Britain.	United States.	Total.
	\$398,513	\$4,231,930	\$4,630,443
Proportion, 1898	8.6 per cent.	91.4 per cent.	100 per cent.
	\$437,638	\$4,734,323	\$5,171,961
Proportion, 1899	8.4 per cent.	91.6 per cent.	100 per cent.
	\$1,439,172	\$5,952,741	\$7,391,913
Proportion, 1900	19.4 per cent.	80.6 per cent.	100 per cent.
	\$870,331	\$7,844,956	\$8,715,287
Proportion, 1901	10.0 per cent.	90.0 per cent.	100 per cent.

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.
1901	\$43,018,164 27.7 per cent.	\$110,485,008 61.0 per cent.	\$27,734,816 15.3 per cent.	\$181,237,988 100 per cent.

THE HISTORIAN.

The historian of the Canadian Manufacturers' Association, in the November issue of *Industrial Canada*, records the transaction of the Association for the past ten years in precisely five lines as follows :—

From 1891 down to about a year and a half ago the attention of the Association was given mainly to tariff matters, but as the tariff remained fairly satisfactory, the Association lost considerably in vigor and aggressiveness.

Previous to "about a year and a half ago," among the objects the Association had in view was the dissemination of facts regarding it, and the publication of such arguments as would afford enlightenment concerning its aims and the policy of tariff protection to Canadian manufacturing enterprises: and the better to accomplish these objects the Association was pleased, some twenty years before to adopt *THE CANADIAN MANUFACTURER* as its champion and official organ. Subsequent to 1891, at a time when Mr. W. K. McNaught was president, the then secretary, who was also editor, with a desire to test the question whether, in his dual capacity, he was working in the best interests of the Association, and of manufacturers generally, requested some of the members to express their opinions regarding it, and following are extracts from some of the replies thereto:

Mr. W. K. McNaught, of the American Watch Case Co., Toronto, who was then president, wrote:

It affords me no small pleasure to bear testimony to the ability and fair-mindedness which has characterized your editorial management of *THE CANADIAN MANUFACTURER*. Your articles not only bristle with facts, but are sound and to the point; and in my opinion it would be a good thing for the country if they could be read by every voter as well as every manufacturer in the Dominion. In regard to your services as secretary of the Canadian Manufacturers' Association, I consider that you have performed your duties faithfully and with marked ability; and from an intimate personal knowledge of what has been done and is being done, I am of the opinion that the Association has been singularly fortunate in securing your services.

Mr. Geo. Booth, of the Booth Copper Co., who was then as now treasurer of the Association, wrote:

It was no slight responsibility to succeed to the position held by Mr. Nicholls, the late secretary of the Canadian Manufacturers' Association, but I am pleased to bear testimony that you have ably filled the place. You have been indefatigable in your attention to the requirements not only of the individual members, but of the Association as a whole. The finances of the Association have been put on a better basis by you than at any former time. I congratulate the Association in having secured your services.

These letters were written at a time when, according to the historian, the Association had lost considerably in vigor and aggressiveness.

There are several other such letters.

STATIONARY ENGINEERS.

In previous issues of this journal editorials have appeared having reference to the Canadian Association of Stationary Engineers, whose field of action covers the whole Dominion, and of its offshoot, the Ontario Association of Stationary Engineers, whose sphere is confined to the province of Ontario. The general objects of these two associations are substantially the same, with the exception that the Ontario Association undertakes to educate public opinion in this province to the necessity of appropriate and necessary laws being enacted requiring that engineers who are placed in charge of steam plants should be competent and well fitted for such positions, and hold certificates to that effect.

The constitution of the Ontario Association is embodied in an Act of the legislature entitled An Act Respecting Stationary Engineers, passed April 30, 1891. The incorporators of this association, organized under this Act, were men all well-known to our manufacturers, and to the community generally, and included Prof. Galbraith, of Toronto University, John Galt, M.E., A. E. Edkins, William Sutton, A. M. Wickens and J. A. Wills, all of Toronto; Hugh Fairgrieve, Robert Dickinson, Robert Mackie and Sylvester Potter, all of Hamilton; Arthur Ames, of Brantford, and James Devlin, of Kingston. No person is eligible for election to the Board of Management unless duly qualified under the provisions of the Act. It is the duty of the Board to make rules for the uniform inspection of steam plants and for the conduct of examinations; but no power was conferred admitting of compulsory inspection. Under the Act authority was given to issue certificates, which should, in plain terms, name the particular steam plant the holder is qualified to operate. No certificate or renewal of certificate may be granted to any person addicted to the excessive use of intoxicating liquors; and any certificate which may have been granted may at any time be revoked when the holder thereof has been shown to be guilty of gross carelessness, incompetence or intemperance.

We have no doubt that every manufacturer in Ontario approves of the aim and object of the Association; and there can be but few if any of them who would not be willing to have the Act so amended as to make it compulsory for any person having charge of a steam plant to prove his qualification for the position, and hold a certificate to that effect.

As heretofore stated, the men who compose these associations are the ones who stand at the throttle in the engine-room of many of the largest manufacturing and industrial concerns in Canada; and in that capacity are, and should be, in close relationship with the manufacturers. It has always been a contention of this journal that every man who is put in charge of a stationary steam engine should undergo an examination by experts as to his fitness for the position, and hold a certificate from proper authority to that effect. That, too, is the contention of these associations; and whatever efforts they

may make in this direction should, and does, we believe, receive the hearty support of the manufacturers. It is safe to say that all competent first-class engineers, as a class, favor this idea, and it is a natural and proper object of the associations to bring into their membership all such competent men; for as with all other organizations, the larger the membership and the more earnest the work done by the organization, the greater the probability of achieving its objects. We know that this Ontario Association has striven for a number of years to secure the passage of suitable laws requiring examination by experts before an engineer is permitted to take charge of an engine, and that any engineer who is placed in such charge should always have on view in his engine-room a certificate showing his authority to act. Such is the case with marine engineers, for no vessel propelled by steam is allowed to move from the dock unless the engineer's certificate is in full view. If such requirement must be complied with in regard to a small steam tug boat, how much more essential is it that a similar requirement should be observed in factories and other places where large numbers of hands are employed.

The work that both these associations are engaged in is of an educational character, and they spend their income, derived from a very small membership fee, in the dissemination of information to their number, by which they are the better prepared for the positions they hold as stationary engineers.

DIDN'T KNOW IT WAS LOADED.

It was in a spirit of reciprocal courtesy that the Reception and Membership Committee of the Canadian Manufacturers' Association invited Hon. J. D. Rolland, chairman of the Montreal branch, and other Montreal members, to attend the banquet held in Toronto a few days ago. It was remembered that Mr. Rolland, as chairman of the reception committee of the Montreal branch, had extended a most gracious invitation to the Association to hold their 1901 annual meeting in that city, and that he and his friends had made that occasion a most enjoyable one. The feature of the occasion was an address on Imperialism by Mr. William Robins, who discussed Imperial questions, particularly with reference to Canadian trade, incidentally remarking that something should be done to destroy the myth of French-Canadianism. He would not, he said, take away one vestige of the rights guaranteed to the French-speaking people of Canada, but he objected to their being distinguished by the modifying adjective "French." There are no English-Canadians, then why should there be French-Canadians. It had been stated that this portion of the population acknowledged the tricolor as a national flag, which circumstance he greatly deplored, and he would in all love and respect ask his so-called French-Canadian friends to drop the word "French" from their description of their people.

When Mr. Robins reached this point in his address Mr. Rolland rose and interrupted the speaker. He said that in his opinion the subject was a very delicate one—one which should not be discussed at that time—that it should not have been brought up, as there was more important business under consideration. As for the French flag the first time he had ever seen it, said Mr. Rolland, was in Montreal shortly after the Fenian raid, when it was carried by British soldiers, who had brought it from the Crimea. Whenever it is shown in Quebec it is almost certain to be entwined with the British flag. He could say, too, that there are no more loyal subjects of the King than the French-Canadians. The chairman

endeavored to pour oil on the troubled waters, but Mr. Rolland, President Munro and several other Montreal members left the room to catch their train. They evidently felt that the occasion was a social meeting of manufacturers, and that the laws of hospitality were stretched for the purpose of an attack upon French-Canadian patriotism.

EDITORIAL NOTES.

The Compliments of the Season to all our readers.

The Textile World, of Boston, Mass., analyzing the facts recently published in these pages regarding the imports of woolen goods into Canada, says:

The per capita value of woolen goods imported yearly into Canada is more than ten times as large as imports of woolens into the United States. These heavy importations are ruining Canadian woolen mills. Following are the figures for both countries:

	Population.	Woolen imports.	Per capita.
Canada.....	5,186,990	\$9,800,000	\$1.89
United States..	76,000,000	14,220,000	.187-10

Our imports of woolen goods at the Canadian rate per capita would amount to \$143,640,000 per year. At high water mark under the Wilson tariff law our woolen imports reached but \$49,740,000, and yet as a result the industry was prostrate. Yet our imports then per capita were but a little over one-third of the present Canadian rate. How long could our woolen mills stand such an avalanche of foreign goods as is now burying the industry in Canada?

What has become of the great impetus to Canadian trade that the preferential tariff was to bring about? The Customs Department shows long columns of figures monthly to prove that business is booming, whereas the steamship companies determine to decrease their freight tonnage by one-half in consequence of the dullness of times. There is a serious misunderstanding somewhere. If we are doing the foreign trade that the departmental reports record, it is not going over the ocean in boats, or the steamship lines would be overtaxed.—The Mail and Empire.

If our esteemed contemporary would study the Trade and Navigation Returns for the past year it would learn all about the export and import trade of Canada.

During the recent holiday season in Toronto it was noticeable that most of the retail stores, big and little, kept their doors open until 10 o'clock or later. But not all of them, for during the time the T. Eaton Co. kept the following announcement prominently displayed in the daily papers:

This store is ready for business every morning at 8 o'clock. We close every day at 6 o'clock. With the extra strain of holiday trade, body and mind soon become weary, if not exhausted. That is why we insist on closing at 6 o'clock, so that our faithful helpers may get the rest they deserve for the following day's duties. You can help along in this early closing movement by coming early in the morning to do your shopping. At 8 o'clock is the best time. That is when you get bright, intelligent service from salespeople who are at their best.

The Canadian Contractors' Handbook and Estimator, a compendium of useful information for persons engaged on works of construction, is, as its name indicates, an exceedingly useful book just received from C. H. Mortimer Publishing Co., Toronto. This is the third edition of the Hand-Book, previous editions having been published in 1889 and 1893, both of which met with very favorable reception.

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, belts, 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, alkalies, 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 fact that must interest a coal mining province like Nova Scotia is the existence in southeastern Assinaboia of lignite coal. This does not affect our interests immediately or to any degree, for we have no market that far west, and it is unlikely that coal will very soon come east to compete seriously with our bituminous article. The price, however, is very low—\$1.60 per ton for car lots at the mine, on which basis it can be delivered to consumers in Winnipeg at \$4.50. At present the matter is more of passing than material interest, but it is gratifying to know that that part of the country has access to such a cheap fuel supply in view of the fact that it would else be subject to the despotic American coal monopoly, or under the necessity of drawing its fuel wants from distant parts of Canada at high expenses in the way of freights.—Maritime Merchant.

The factory of the Canadian Cork Cutting Co., Montreal, was destroyed by fire December 15. Loss about \$75,000.

The piano factory of George Ducharme, Montreal, was destroyed by fire December 11. Loss about \$15,000.

The Stanyon Engineering Co., Empire Building, Pittsburg, Pa., has opened an office in room 402 McKinnon Building, Toronto, Ont. This company designs and installs steel works and rolling mills, rod mill plants, wire mills, galvanizing plants, nails, fence and barb wire factories. It designed and built a portion of

the plant of the Union Steel Co., Pittsburg, wire mill of the Kokomo Steel & Wire Co., Kokomo, Ind.; furnished machinery for the Sharon Steel Co., and is acting in the capacity of consulting engineer for the Cramp Steel Co., Collingwood, Ont. The Toronto office of the company will also act as buyer's agent for Canadian consumers of iron and steel products manufactured in the United States. Matters relating to duties and customs will be attended to for the buyer.—Cleveland, Ohio, Iron Trade Review. (The business card of the Stanyon Engineering Co., will be found in another page of this journal.)

An art gallery and library combined would be an appropriate description of the Christmas issue which the publishers of the Farmer's Advocate, London, Ont., sent out to their readers. As Canadians, cover and contents alike "do us proud." We have seen nothing more effective and unique than the colored frontispiece, which includes a beautiful photogravure of the farmer king, Edward VII., followed up within by a careful description of the royal farms and herds at Windsor, written by a member of the staff who visited England last summer. Then follow over 60 pages of instructive and entertaining articles, varying from grave to gay—every page embellished with a wealth of beautiful views representing every portion of the Dominion. To one patriotic feature we must especially refer, viz., the publication of

sketches of a dozen leading Canadian artists, with photogravures of paintings selected from among the best of their works. It is safe to say that the Christmas Advocate will be warmly received and win the appreciation which it richly deserves.

The B. Greening Wire Co., Hamilton, Ont., have just installed a new plant for the manufacture of poultry netting and heavier grades of 2-inch mesh. This netting is being made of a good quality of steel wire galvanized before weaving, the advantage of which is now so well understood.

Readers of this paper may remember having seen a notice published in December, 1900, that the Kenney Co., New York, had commenced suit against the Ideal Mfg. Co., Detroit, to restrain an alleged infringement of the Kenney Co's patents. The claim was that the Ideal volumeter was an infringement of the patents covering the flushometer, a flushing valve. After the testimony was taken in the case, the Kenney Co. consented to a decree dismissing its bill, without a hearing in court, conceding that on the proofs the volumeter was not an infringement of its patents. The testimony showed the Ideal volumeter was in structure and operation entirely different from the Kenney Co's flushing valve in fact, of a different type or class.

The Bourne-Fuller Co., Cleveland, Ohio, have sent us an exceedingly beautiful and artistic office callender. It is true the company know all about iron and steel, and they supply large quantities of it to Canadian customers every year, but with the exception of a modest and inconspicuous announcement, the callender contains no suggestions of their business.

The Hamilton Facing Mill Co., Hamilton, Ont., manufacturers of foundry facings and supplies have sent us a very artistic calendar for 1902.

The excelsior department of Rider & Kitchener's factory at Lindsay, Ont., was destroyed by fire December 21.

A large works for refining graphite is being erected at the Black Donald graphite mine in Renfrew County, Ont., which will have a capacity to refine forty tons of ore a day.

Pneumatic Tools and Appliances ARE GREAT MONEY SAVERS

Air Hoists,
Baggage Hand-
lers, Agitation
of Liquids or
Syrups in Re-
fineries.
Cushion and Car-
pet Cleaners,
Chipping Tools
for use by Ma-
chinists, Boiler
Makers, Stone-
cutters and
Marble Works.
Calking and Drill-
ing, Air Brushes

INGERSOLL-SERGEANT

PISTON AIR COMPRESSORS FOR ALL DUTIES
INLET

THE JAMES COOPER MFG. CO. LIMITED

299 St. James St., Montreal

BRANCHES - - ROSSLAND, B.C., RAT PORTAGE, Ont. HALIFAX, N.S.

Pneumatic
Augers,
Punches,
Hammers,
Rammers,
Rotary Drills,
and Augers.
Reversible
Boring Machine,
Flue Cutters,
Rollers and
Welders,
Air Lift Pumps,
Jacks,
Paint Spreaders,
Bolt Nippers.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The Zanzibar Paint Co., whose very attractive business announcement appears in another page, and who have recently established a factory in Atlantic Avenue, Toronto, is an illustration of what our policy of tariff protection effects for this country. If it were not for the duty imposed upon such goods as are made by this company, it would probably have no factory in Canada. There is a very large demand for Zanzibar paints throughout Canada, to meet which the company find it to their interest to manufacture their goods here; and in doing so their capital becomes Canadian capital, and their employees Canadian workmen.

The Laidlaw Bale-Tie Co., Hamilton, Ont., have sent us a unique office calendar for 1902, which includes a map of the world printed in colors, all countries under the British flag being shown in red, and there is a great deal of red on the map. In the margin is given the names of all countries, the character of their governments, their areas in square miles, and their population, all of which information is exceedingly useful in these days of business expansion. Other things alluded to on the calendar have reference to the business of the company, such as their patent bale-tie, baling wire, hay presses, etc.

The Algoma Tube Works, Sault Ste. Marie, Ont., has been incorporated with a capital of \$30,000,000. The provisional directors include F. H. Clergue, Sault Ste. Marie; E. V. Douglas, F. S. Lewis

and J. S. Freeman, of Philadelphia, Pa. When completed, the new works will give employment to several thousand men. Construction of the works will probably be started next summer. The plant will manufacture metallic tubes on the Perrin patent.

A meeting will be called of the owners of power on the waters between the Georgian Bay and the Trent River, to have a conference with the Dominion Government, the object being to secure a better regulation of the flow of water. It is contended that in the spring the water goes to waste, and it is not reserved, while in the summer and fall it is so low as to seriously interfere with the production of power. There are many valuable reservoirs in these waters, which, with proper regulation, should give good power the whole season.

Toronto is the nearest large consumer in sight for electric power from Niagara Falls, Ont. The question as to economical transmission of electric power from Niagara to Toronto, is no longer at issue. Power is now transmitted twice the distance without serious waste.

The Grand Trunk Railway Co. will build a new bridge at Burlington, Ont. It will be of steel, and cost about \$40,000.

Manager Shields, of the Dominion Coal Co., Sydney, N.S., has recently returned from a visit to the leading coal centres in the United States, and has stated that

Cape Breton has nothing to learn in the way of quick handling of coal.

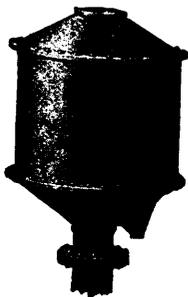
Wm. A. McKay, promoter of the North Sydney, N.S., Electric Light Co., states that the new company will commence operations in the spring. It is the present intention to install an up-to-date plant giving night as well as day service. Mr. McKay will be manager of the company.

Washington, B.C., is enjoying a marble boom, and a number of companies have recently been floated for the purposes of developing quarries of marble in Stevens county. There exists in Stevens county a number of veins of high grade marble and serpentine. One of the marble companies had an exhibit at the Pan-American exhibition and it astonished the eastern marble experts, who declared the marble equal to the finest imported from Europe and superior to the marble taken from the eastern quarries. There are some splendid deposits of marble in the Kootenays and one, of known good quality on Lake Kootenay, opposite Kaslo, from which the stone for the post-office is being taken. Local experts say that British Columbia marble is of an excellent quality and that considerable of it could be marketed in the coast cities and elsewhere.—Nelson Miner.

The Sylvester Bros. Mfg. Co., Lindsay, Ont., employ about 175 hands, which number will be shortly increased to 200. Their first shipment of spring goods for Manitoba and Eastern Ontario points will

REPAIR BILLS PREVENTED

"Constant dripping wears away the hardest stone." And dripping exhaust pipes work on the same principle in the case of roofs and walls. The remedy is a



Burt Exhaust ... Head...

It effectually stops all dripping, also the disagreeable noise of escaping steam. In use by leading concerns everywhere.

SEND FOR CATALOGUE.

THE BURT MFG. CO.

AKRON, OHIO, U.S.A.

LARGEST MFRS. OF OIL FILTERS IN THE WORLD

Buffalo Mechanical Draft Fans

For BOILER PLANT ECONOMY



Buffalo Electric Induced Draft Fan.

BUFFALO FORGE COMPANY, BUFFALO, N.Y.

Canadian Representative,

E. A. WALLBERG, 410 Temple Building, - TORONTO.
Merchants Bank Building, MONTREAL.

be made in a few days. Last year imple-
ments amounting to over \$300,000 were
manufactured by the Sylvester works,
which is an increase of \$150,000 over the
preceding year. After all orders for
spring goods have been filled, binders
will be manufactured on a large scale.

The South Staffordshire Mond Gas
Co., has been incorporated with a capital
of £1,000,000. The directors include
Ludwig Mond, Robert Mond and Alfred
Mond, who are also directors of the great
alkali firm of Brunner, Mond & Co. It is
claimed that Mond gas is the cheapest
gas for heating and power purposes pro-
ducible; the by-product—sulphite of am-
monia (of which about four times as much
is obtained as in ordinary gas-making)
covering a large proportion of the cost of
production.

The Durham Natural Gas & Oil Co.,
Durham, Ont., has been incorporated
with a capital of \$10,000. The provi-
sional directors include C. E. Layton, J.
A. Hunter and W. S. Davidson, all of
Durham.

The Sovereign Mitt, Glove & Robe Co.,
Delhi, Ont., has been incorporated with
a capital of \$40,000. The provisional
directors include J. Sovereign, R. A.
Spears and D. Dalton, all of Delhi.

The steam grist and saw mills of
Emerie Carriere, St. Canute, Que., were
destroyed by fire December 24. Loss
about \$9,000.

The James McCready Boot & Shoe Co.,
Montreal, will erect a large new factory
at Delorimier, Que., which place has
voted them a bonus of \$16,000. Work
will be started in April.

The Prescott, Ont. Journal, of which
enterprising town Mr. Knapp, of roller-
boat fame, is a citizen, comes to the
defence of that inventor against some of
the skeptics, and says:—People laughed
at Marcoin when he predicted great
things for wireless telegraphy, and people
laughed at Watt at one time. Every
great invention is built upon the most
dismal failures. Mr. Knapp's experi-
ment cannot be deemed a failure. He

has put into practical form one of the
most brilliant ideas ever advanced by a
Canadian. He declares he is positive of
success. He advances his reason logi-
cally and intelligibly. He bases his asser-
tions upon past results and proposes to do
great things for Prescott.

At a meeting of the Society of Chemi-
cal Industry in Liverpool, England, on
November 27th, a paper on the manufac-
ture of starch and glucose by Dr. George
Archbold, Prescott, Ont., was read, and
the thanks of the Society were extended
to the doctor for his effort. The Royal
Society Science, Letters and Art, of Lon-
don, England, has extended to him their
Latin Diploma of Fellowship in recogni-
tion of the excellence of his paper. Dr.
Archbold is now chemist to the Imperial
Starch Co., at Prescott, Ont. His friends
will congratulate him on the honors which
have been conferred upon him.

The B. Greening Wire Co., Hamilton,
Ont., have sent us a circular in which is
enumerated some of the principal season-
able lines of goods they manufacture.

CAMEL BRAND **BELTING**
BALATA
RUBBER
Linen Fire Hose,
Water and Steam Hose,
Packings, Etc., Etc.

THE STANDARD



GOLD WATER PAINT

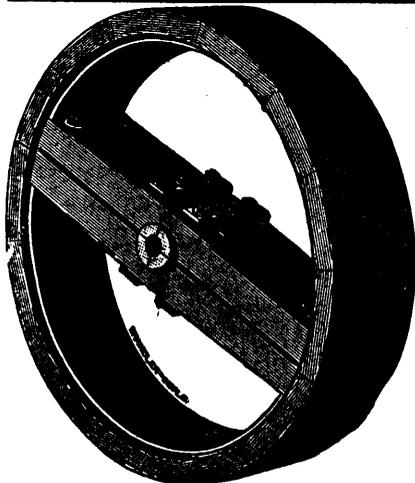
**WEATHER PROOF, FIRE PROOF
WHITE AND COLORS.**

MILL SUPPLIES

**Lubricating Oils and Greases
PAINT, PAINT OILS, ETC.**

W. A. FLEMING & CO.

Montreal and St. John, N.B.



“The Reeves”

A HIGH GRADE

Wood-Split PULLEY

**BUILT HONESTLY
BUILT RIGHT**

It Does the Work. No Trouble. No Worry.

SEND FOR CATALOGUE

REEVES PULLEY MANUFACTURING CO., Limited

14 Pearl Street, - Toronto, Ont.

When writing to Advertisers kindly mention **THE CANADIAN MANUFACTURER.**

Included in the list are:—Painted screen cloth, poultry netting, trace chains, halter and dog chains, tie-out or tethering chains, spring coiled fence wire, fence staples, galvanized and bright; oiled and annealed wire, galvanized wire, netting staples, sand screen cloth, wire cloth, all grades, special lath cloth, clothes line wire, woven wire fencing, wire rope, perforated sheet metals, counter railing, window guards, sofa springs, and all kinds of wire.

An invention has just been completed by Prof. C. E. Anthony, San Diego, Cal., by which the immense kelp-beds of the ocean are to be utilized in the manufacture of paper. The invention consists of taking the seaweed and forming it into a pulp, from which paper of the finest quality can be manufactured equal even to the finest linen paper, which, though a product of the chemist's laboratory, it greatly resembles. Not only has Prof. Anthony succeeded in making a suitable paper-pulp from kelp, but he declares that the pulp can be produced at 50 per cent. of the cost of other pulp.

The Imperial Cotton Co's premises at Hamilton, Ont., were damaged by fire December 24. Loss about \$1,500.

Another cargo of 7,000 tons of Cape Breton coal has been shipped to Norway for use on the railways of that country and Sweden. The trial shipment was a marked success.

The American Construction & Supply Co., New York City, have been awarded the contract for a beet sugar factory to be

erected at Dresden, Ont., at a cost of about \$600,000. The factory is to be ready for operation September 1, 1902.

The New Cereal Co., Peterborough, Ont., has acquired the controlling interest of the Peterborough Light & Power Co. The former company is erecting large buildings and will proceed at once with the development of the water power, estimated at 7,000 h.p.

The West Coast Timber Co., Victoria, B.C., has been incorporated with a capital of \$25,000, to carry on a general lumbering business.

The Chilliwack Shingle Mfg. Co., Chilliwack, B.C., has been incorporated with a capital of \$25,000, to manufacture lumber, shingles, etc.

The Burt Mfg. Co., Akron, Ohio, have received a sixth order from the Calumet & Hecla Mining Co., for Cross oil filters, making twelve of these filters now in use in their different mines. In addition to the extended sale of their goods, which embraces the entire world, the Burt company find much satisfaction in the large number of repeat orders which they receive from the larger concerns.

The Dominion Coal Co., Sydney, N.S., has contracted with the Elder-Dempster Steamship Co. to carry coal to ports in Italy. The company has sold a large quantity of coal in Italy, and indications point to a permanent market for Cape Breton coal in that country, so it is altogether likely that a fleet of steamships will be regularly employed in carrying coal from

Sydney or Louisburg to ports in Italy, and the Elder-Dempster line will inaugurate the service in a few weeks. The first cargo will probably be shipped from Louisburg.

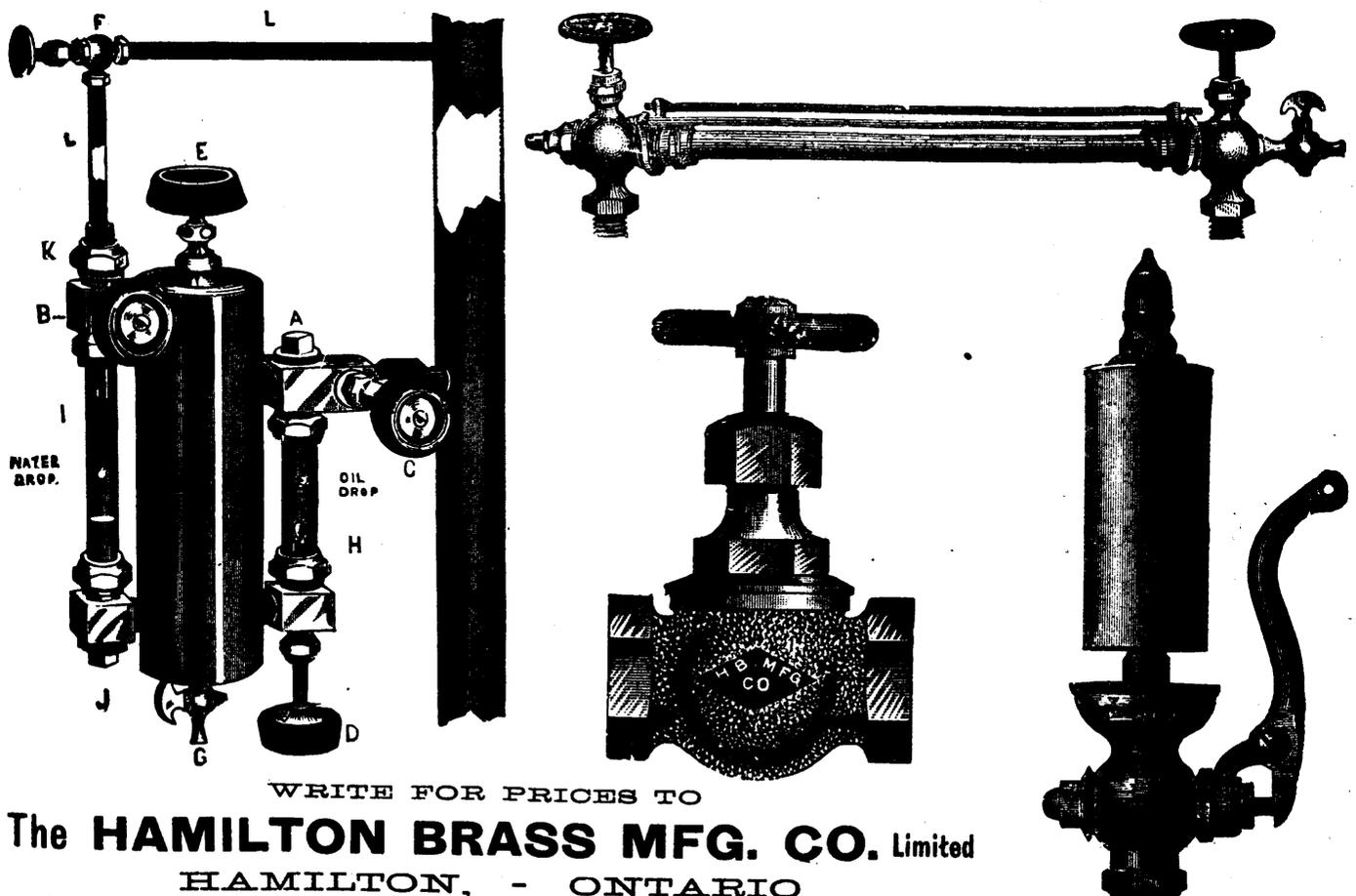
The Belleville, Ont., Street Railway Co., has been purchased by A. R. Lewis and Walter Alford, Belleville.

The Von Echa Co., Woodstock, Ont., will commence work on their new road as soon as the spring opens, and they will get all the material on the ground during the winter.

The Burt Mfg. Co., Akron, Ohio, manufacturers of the Cross oil filter and the Burt exhaust head, include about all of the prominent concerns of the country among their customers. They claim to be the largest manufacturers of oil filters in the world, inasmuch as the sale of the Cross oil filter now extends to twenty-eight different countries.

La Compagnie F. X. Bertrand, St. Hyacinthe, Que., has applied for incorporation with a capital of \$48,000 to carry on a foundry business, etc. The applicants include F. X. Bertrand, J. C. Desautels and L. P. Morin, all of St. Hyacinthe.

Messrs. John Gives & Son, Galt, Ont., are patenting a machine to pick carrots, turnips, mangolds or stones. It is designed to be drawn by two horses. Iron teeth scrape the ground, and the roots are thrown into a reel that transports them to the carriers, from which they are dropped by a spout into the wagon or cart that is to travel alongside.



WRITE FOR PRICES TO

The HAMILTON BRASS MFG. CO. Limited
HAMILTON, - ONTARIO

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

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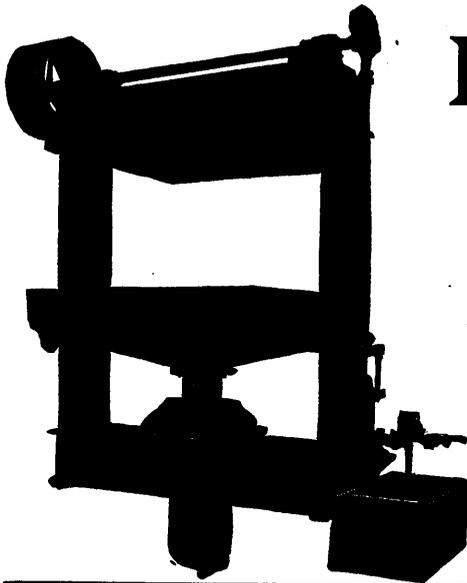
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Montreal and St. John, N.B.

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ited



Hydraulic **PRESSES**

We Build Presses
for...

PRESSING VENEERS
TANNERS' USES
BALING, Etc.

SEND FOR
CATALOGUE
AND PRICES

William R. Perrin & Company

TORONTO, - CANADA

The Canadian Steel & Wire Co., Hamilton, Ont., has been incorporated with a capital of \$200,000, to manufacture patent wire fencing. About one hundred men will be employed. The incorporators include L. F. Heyd and J. H. Couch, both of Toronto, and R. F. Schell, Brantford, Ont.

The Port Dover, Brantford, Berlin & Goderich Railway will apply for an act extending the time for the commencement and completion of its works, changing its name to the Grand Valley Railway Co., reducing the amount of its capital stock, and authorizing the construction of its line in sections.

The Dominion Iron Co., Sydney, N.S., has received an order from Messrs. Stewart, of Glasgow, Scotland, pipe makers, for 200,000 tons of iron.

The Penman Co., Paris, Ont., has received an order for four thousand dozen suits of underwear for the use of the soldiers in South Africa.

The citizens of North Sydney, N.S., have granted the concessions recommended by the council to the Nova Scotia Steel & Coal Co., to establish a branch of their plant at that place.

The Department of Trade and Commerce is in receipt of a communication from England, enquiring if wooden soles, such as are used in the large iron and

mining districts of England, could be obtained in Canada. The samples furnished were of birchwood, and could probably be turned out in large quantities by machinery.

The Mason Regulator Co., Boston, Mass., have issued a new catalogue illustrating and describing their line of specialties, which include pump governors, balanced valves, by-pass valves, lever valves, reducing valves, water pressure regulators, steam pumps, damper regulators, etc. Each of their specialties is illustrated and described in a clear manner. Several interesting testimonials are also printed in the back of the catalogue, as may also be found a telegraph code to be used in ordering. A copy of this catalogue will be sent upon application.

The shareholders of the Ontario Sugar Co., Toronto, has elected Hugh Blain, president; S. H. Janes, vice-president; and S. J. Williams, Berlin, Ont., managing-director. The company's first plant will be erected at Berlin, Ont., and have a capacity to handle 600 tons of beets a day. Berlin has given a bonus of \$25,000, and the product of 5,000 acres of land planted to sugar beets has been contracted for.

A company to manufacture fire-arms has been incorporated at Ottawa with a capital of \$3,000,000, by Sir Charles Ross, inventor of the famous Ross rifle.

The company has already a contract with the Australian Government for the sale of fifty thousand small arms for a sum aggregating \$1,500,000. A contract with the Imperial Government for one hundred thousand rifles is also expected, the price being about thirty dollars each. The new company is also expecting a large order from the Dominion Government. The factory will probably be located at Quebec, and will employ 400 or 500 hands.

George Johnson, Esq., Dominion statistician, estimates that during the nine months ending Sept. 30, 1901, the pulp mills of Canada produced 147,085 tons of ground pulp, 61,934 tons of sulphite and 8,485 tons of sodas, having an aggregate value of \$6,100,000. Of this Great Britain took \$750,000 worth, and the United States \$684,000 worth. The capacity of the mills being equal to the production of 316,500 tons in the nine months, they were therefore limited to two-thirds of their capacity of production.

At the recent elections at Brandon, Man., three by-laws were passed to bonus Alexander & Lawe Bros. flour mill, Brandon Binder Twine Co., and Brandon Machine Works.

The Ontario Crown Lands Department has received a report from Crown Timber Agent, Frank Halliday, saying that lumbering was very brisk in the Muskoka

CONTRACTORS, ATTENTION!

If you are excavating in stone, use

THE "LITTLE GIANT" ROCK DRILL

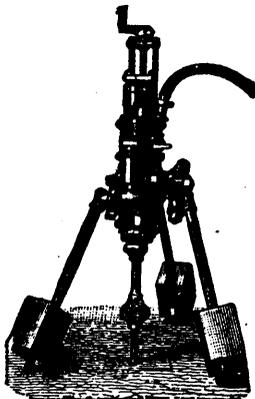
... NINE SIZES ...

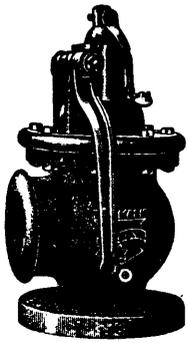
Adapted for Steam or Air

THE CANADIAN RAND DRILL COMPANY

SHERBROOKE, QUE.

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A VALVE YOU CAN RELY ON SEND FOR PRICES

CROSBY STEAM APPLIANCES EXCEL

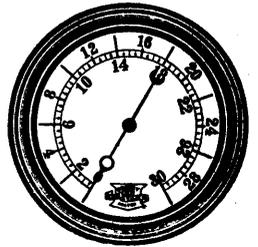
Steam Engine indicators.
Recording Gages.
Revolution Counters.
Pressure and Vacuum Gages.
Lubricators, etc.



Stationary and Marine Valves.
Water Relief Valves.
Blow-off Valves.
Globe and Angle Valves
Single Bell Chime Whistles.
SEND FOR CATALOGUE

CROSBY STEAM GAGE and VALVE CO.
BOSTON, NEW YORK, CHICAGO, LONDON

A TRUTHFUL GAGE IS THE ONLY GOOD GAGE



and Parry Sound districts this winter. He estimates that 175,000,000 feet of sawlogs will be cut there this season, and adds that 3,647 men and 1,000 teams are employed. The wages paid are from \$28 to \$32 a month.

The Hodgson Iron & Tube Co., Montreal, has applied for incorporation with a capital of \$200,000, to manufacture iron, steel and metals. The applicants include J. C. Hodgson, C. J. Hodgson and W. P. Sharp, all of Montreal.

The grist mill of W. R. Pike, at Shannonville, Ont., was destroyed by fire recently.

The new flour mill of Messrs. Moody & Sons, Dundalk, Ont., has been completed and is in operation.

The Cassella Color Co., Montreal, has applied for incorporation with a capital of \$25,000, to manufacture dyes, dye-stuffs, drugs, chemicals, etc. The applicants

include W. J. White, A. W. P. Buchanan, and E. H. Barber, all of Montreal.

The Arthabaska Water & Power Co., Victoriaville, Que., has applied for incorporation with a capital of \$150,000, to manufacture lumber, etc., and electricity for light, heat and motive power. The applicants include B. B. Stevenson, G. W. MacDougall and W. J. Henderson, all of Montreal.

The Garth Co., Montreal, has been incorporated with a capital of \$175,000, to manufacture electric, gas and steam fixtures, etc. The charter members include Charles Garth, A. E. Garth and J. G. Smith, all of Montreal.

Mr. F. A. Knapp, Prescott, Ont., the inventor of the roller-boat recently built at the Polson Iron Works, Toronto, has, we are informed, organized a company with a capital of \$3,000,000, and is applying for incorporation as the Knapp Tubu-

lar Steamship Co., to construct tubular steamers especially designed for the freight and grain carrying trade in Canadian inland waters.

The Eastern Townships Bricks & Mfg. Co., Sherbrooke, Que., has been incorporated with a capital of \$50,000, to manufacture bricks, lime, cement, etc. The charter members include W. B. Neil, W. R. Webster and S. W. Jenckes, all of Sherbrooke.

The first heat of open hearth steel at the new works of the Dominion Iron & Steel Co., at Sydney, N.S., was successfully run in the closing hours of the last day of the year just closed.

The Christie-Brown Co., Toronto, who are, perhaps the largest manufacturers of confectionery, biscuit, etc., in Canada, are erecting another large building in connection with their works to cost, with equipment, about \$50,000.

SOME HAVE LEARNED THAT IT IS DANGEROUS TO SIMPLY ORDER

“A Wood Split Pulley”

And are particular to specify

“DODGE”

when ordering, so as to get the best at same cost as other makes.

It's as well to have THE BEST when you are buying.

Remember “Dodge”

80% of the Buyers do. Do You?

260-PAGE CATALOGUE MAILED FREE.

DODGE MANUFACTURING CO., Toronto, Ont.

When writing to Advertisers kindly mention THE CANADIAN MANUFACTURER.

The output of coal from the mines of the Dominion Coal Co., in Nova Scotia, in 1901 amounted to more than 2,375,000 tons, an increase over the previous year of more than a half million tons.

Orangeville, Ont., is likely to have a telephone system of its own at an early date. It is proposed to fix the rate for business phones at \$15, and for residential phones at \$10 a year. The Bell Co. charges \$20 a year now. The new system will be an independent one, and purely local for the present.

A company consisting of Hon. Robert Mackay and C. F. Sise, Robert Archer, Hugh Paton and Charles Cassils, Montreal, seeks incorporation for the transmission by pneumatic tubes of parcels and packages. The concern will be known as the Dominion Subway Co., and will have a capital of \$100,000.

The Dominion Bridge Co., Montreal, is fast approaching the very forefront of Canadian manufacturing establishments. Owing to the large increase in business, it has been decided to double its capital. At a recent meeting of the shareholders it was decided to increase the capital from \$500,000 to \$1,000,000.

The Woodstock Cereal Co., Woodstock, Ont., will put in a new flour plant, which will double their output.

One of the most beautiful calendars that has reached this office is that sent us by J. B. McMurrich, Esq., coal dealer at Oswego, N.Y. It includes a strikingly life-like pearl-white bas-relief

portrait of the late President William McKinley on a black background.

A new company is being organized at Bristol, N.B., by E. W. Bell, to build a 50-barrel roller flour mill.

W. and J. G. Greey, Toronto, supplied the machinery for the new flour mill of Price Bros., at Battleford, N.W.T., which has a capacity of 50 barrels.

The grist mill of Francis Bachand, Roxton Pond, Que., was destroyed by fire recently. Loss about \$6,000.

The Sun Portland Cement Railway Co., has been incorporated to construct a line of railway from Shallow Lake to McNab Lake, Ont.

B. & S. H. Thompson & Co., Montreal, has been incorporated to acquire business of B. & S. H. Thompson as importers of iron, metals, plate and window glass, etc.

A new 100-barrel flour mill and a grain elevator will be built at Shoal Lake, Man., by R. Scott.

The Department of Agriculture, Ottawa, has received an order from the British War Office for a shipment of 10,000 barrels of Canadian flour to South Africa.

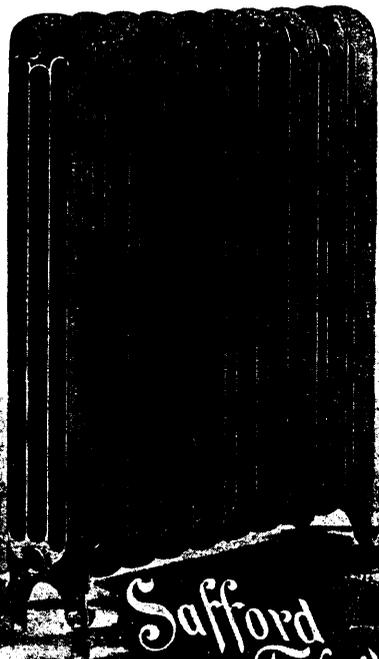
Unless the shortage in soft coal supplies is soon relieved it is feared some of Toronto's manufacturing establishments will be forced to close. Stocks have been low all the season and a couple of weeks ago touched almost famine proportions, the manufacturers having very

small supplies and the dealers being unable to get in fresh stocks owing to the car shortage and big demand in the United States.

The Elder-Dempster Steamship Co. has contracted with the Dominion Coal Co. to carry coal to ports in Italy for an indefinite period. The Dominion Coal Co. has sold a large quantity of coal in Italy, and indications point to a permanent market for Cape Breton coal in that country.

As elsewhere noted, the Algoma Tube Works has been incorporated by the Ontario Government with an authorized capital of \$30,000,000. This is another, and by far the largest yet, of F. H. Clergue's industrial enterprises at Sault Ste. Marie. When the plant is completed it will give work to several thousand men. The provisional directors are: F. H. Clergue, Sault Ste. Marie; E. V. Douglas, W. H. Douglas, F. S. Lewis and John S. Freeman, Philadelphia; H. C. Hamilton, Sault Ste. Marie. All of these are associated with the boards of other Clergue companies. Mr. Hamilton states that work will be begun on the plant next summer. No plans have yet been prepared, nor has a site been selected. It is probable, however, that the works will be erected at Sault Ste. Marie, on land to the west of the present establishment. The tubes will be made on the Perrin's patent, the American and Canadian rights of which the Clergue syndicate has acquired.

YOUR COMFORT



We're in the comfort business. We've been dealing in winter comfort for some years now, and there's been nothing but thanks and more demands.

We manufacture the comfort-giving radiator, the

"SAFFORD"

You get your money's worth out of the coal you buy. The "SAFFORD" can't leak—it's indestructible—it stands for comfort—it's the only radiator in the world for hot water and steam heating.

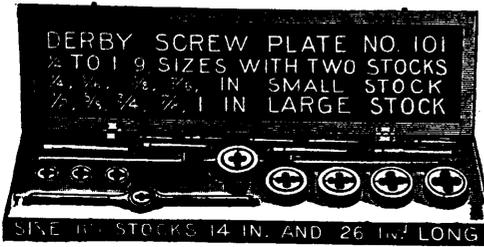
GET POSTED ON HEATING

WRITE FOR A CATCHY BOOKLET

THE DOMINION RADIATOR CO.
LIMITED

HEAD OFFICE - DUFFERIN ST., TORONTO, CANADA

The universal satisfaction given by our **DERBY** and **REECE SCREW PLATES**, cutting from 1/16 to 1/2 inch, including all the machine screw sizes, has created a demand for a plate made on the same principle, to cut bolts to 1 inch in diameter. To meet this demand we have brought out these sizes.



BICYCLE SCREW PLATES, REECE SCREW PLATES, DERBY SCREW PLATES, BLACKSMITH'S STOCKS AND DIES, BLACKSMITH'S IMPROVED SCREW PLATES, HAND TAPS, MACHINE TAPS, PIPE TAPS, EVERY KIND OF TAPS AND DIES.



BUTTERFIELD & CO., - Rock Island, Que.

THE SELLING CO.

The Selling Co., 182-184 Front Street, New York, have sent us a circular bearing date December 31, 1901, which explains itself, as follows:—

We have pleasure in informing you that The Selling Co., recently incorporated, will hereafter be the selling agents throughout America for the following products, namely:—Aniline oil, aniline salts, myrbane oil, etc, manufactured by W. C. Barnes & Co., hypsulphite of soda, sulphite of soda, manufactured by the Walpole Chemical Co.; hemolin, patented, morin yellow, patented, logwood, sumac, indigo, and other extracts, heretofore made by Wm. J. Matheson & Co., and now by the Hemolin Co.

The last named is a newly organized company, which has purchased the patents for Hemolin and other dry dyestuffs of similar character, and leased the works and taken over that portion of the dyestuff business recently carried on by Wm. J. Matheson & Co.

The manufacture of these various products will thus remain in the hands of those who have established their reputation as a standard of quality, and The Selling Co. solicits a continuance of your patronage and favor. Respectfully yours,

THE SELLING CO.
WM. J. MATHESON & CO.

THE DODGE MANUFACTURING CO.

The Dodge Mfg. Co., Toronto, have just completed what may easily be called a model plant. Contracts were let last

June for the erection of the following new buildings in connection with their already extensive works at Toronto Junction, near this city: Machine shop, 200 x 75 feet; foundry, 125 x 75, each with annex; two-storey office building, 60 x 40 feet, all of which are now completed and occupied. The buildings are of solid brick of the most modern type, clear storey and monitor roofs. Both machine shop and foundry are equipped with 10-ton 3-motor traveling cranes, also with industrial narrow-gauge rails and turntables, reducing the work of handling to the minimum. Some very massive machine tools have been installed in the machine shop, including a 62 x 62 x 20-foot planer, a 16-foot boring and turning mill, weighing in the vicinity of forty tons; a massive milling machine, and a full complement of lathes, drills, key-seators, etc. A modern tool-room is also included. In the foundry a modern "Whiting" cupola has been installed in a modern cupola-room, three mammoth core ovens of the most approved type, up-to-date crane ladles, modern cleaning machinery, all of the latest and best types. In the annex of both machine shop and the foundry are lavatories and lockers on the ground floor, and handsome dining-rooms on the first floor. The shops are heated throughout with the Webster system of steam heating, lighted with both incandescent and arc lights, and electric power is used throughout. The electric light and power is all generated on the premises, a new 15x14 high-speed engine and direct connected 100-kilowatt generator having been installed.

The office building is of very handsome design, pressed brick and stone, the ground floor being used for the company's general offices, and the first floor as engineering and draughting rooms. Fire-proof vaults on each floor, dark-room, handsome lavatories, all in hardwood, make this easily one of the most modern work offices in the Dominion.

An extensive system of railroad sidings encircle the entire plant, giving the company their iron, coke, coal, sand, etc., direct from car to stores. The new machine shops and foundry are employed altogether in manufacturing the company's special lines of power transmission machinery. Their extensive wood pulley plant has also been materially improved, an entirely new brick dry kiln of some sixty thousand feet capacity having been built. The company have a daily manufacturing capacity of 300 wood pulleys, apart altogether from their iron pulley output. Over one million feet of dry lumber is always carried in stock.

THE WARREN PULLEY COVER.

Messrs. F. E. Dixon & Co., 30 Wellington Street East, Toronto, agents for Warren's patent pulley cover, inform us that they are having a large demand for the article. They are in receipt of many testimonials from manufacturers who are using it, included among them being The London Electric Co., London, Ont.; Chatham Gas Co., Chatham, Ont.; The Charles Rogers & Sons Co., Toronto; The Raymond Mfg. Co., Guelph, Ont.; Canada Biscuit Co., Toronto; G. K. Nes-

THE BEST PIPE THREADING and CUTTING-OFF MACHINES

Are Made by the **ARMSTRONG MFG. CO., BRIDGEPORT, CONN.**

Also Manufacturers of a FULL LINE of **ADJUSTABLE STOCKS and DIES** and Water, Gas and Steam Fitters' Tools.

Send for Catalogue 27. Factory: BRIDGEPORT, CONN. New York Office: 139 CENTRE STREET.

RICE LEWIS & SON, LIMITED, Hardware and Metal

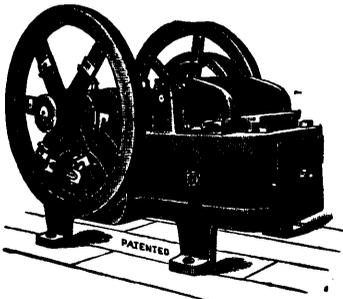
MACHINIST TOOLS, PIPE FITTINGS, COMPLETE STOCK OF STOCKS AND DIES. PIPE VICES.

STILLSON AND TRIMO WRENCHES. STEAM PIPE.

CORNER KING AND VICTORIA STREETS, TORONTO.

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.

bitt, Cowansville, Que.; Antigonish N. S. Electric Co.; Stanstead, Que., Electric Light Co.; J. B. Armstrong Mfg. Co., Guelph, Ont.; John Snider, Waterloo, Ont.; Barchard & Co., Toronto.

Every mechanic knows that the conditions existing in furniture and wood-working factories, high speed and dry belts, are the hardest tests possible for a pulley cover. For this reason Messrs. Dixon & Co. call particular attention to the work the Warren cover has done under these conditions. It is effective with leather, rubber, cotton, or any kind of belts; and the testimonials they have received are evidence that the article has stood practical and satisfactory tests under every condition possible.

CASSELLA COLOR CO.

We are in receipt of the following circular, dated at New York, December 31, 1901:—

We beg to advise you that the Cassella Color Co. has been formed to continue the business in coal tar dyes heretofore carried on by Wm. J. Matheson & Co.

One of the partners in the firm of Leopold Cassella & Co., and Mr. William J. Matheson will be directors in the new company, which will also have the services of the entire organization, including the staff of managers and salesmen employed in this department of Wm. J. Matheson & Co.

The offices and warehouses will be those previously occupied by the latter company.

It will be the aim of the management of the Cassella Color Co. to maintain the present cordial relations existing with their customers and friends, and it is be-

lieved that the more intimate connection now established with the manufacturers will enable them to still better serve the needs of all users of coal tar colors. Respectfully yours,

CASSELLA COLOR CO.
WM. J. MATHESON & CO.

The offices and warehouses of Cassella Color Co. are:—182 and 184 Front Street, New York; 524 Atlantic Avenue, Boston; 126 and 128 South Front Street, Philadelphia; 64 Exchange Place, Providence; 47 North Pryor Street, Atlanta; D'Youville Square, Montreal.

"ROSSENDALE," M.A.Y. WOVEN BELTING.

We beg to advise our readers that Messrs. F. E. Dixon & Co., 30 Wellington St., East, Toronto, have been appointed agents for the Rossendale belting in their district. Messrs. Dixon & Co., are fortunate in securing the agency for these English belts, they are already doing good service in many of our large factories. We understand these belts to be very strong, durable and much cheaper than other belts. The price for these belts is the chief inducement and the reason for their rapid sale. Stocks are carried both in Montreal and Toronto for immediate delivery. The agents are authorized to guarantee the Rossendale belting to give satisfaction or returned at the company's expense. This is an up-to-date business-like proposition and shows the faith they have in their belts. R. H. Buchanan & Co., 692 Craig St., Montreal, and F. E. Dixon & Co., 30 Wellington St., East, Toronto, will give any particulars, prices, etc.

THE B. GREENING WIRE CO.

The B. Greening Wire Co., Hamilton, Ont., have sent us their calendar for 1902. There is a very little change in its make up, the leading feature being good bold type that can be read from some distance. The extra spaces of each month are filled in with attractive cuts illustrating the principal seasonable lines of manufacture. We are informed that the company contemplate erecting fine new offices. Plans are being prepared for a large new paint tower, which will contain all the latest improvements. They have just installed a new and up-to-date plant for the manufacture of poultry netting, lawn fencing, etc.

TORONTO'S FACTORIES.

Mr. David Carlisle, special commissioner to take the industrial census of Toronto, has issued a statement in which he says:—

The census of the manufacturing industries in Toronto, which are nearly completed, show a very satisfactory increase over the figures of ten years ago. In 1891 the number of employees were 24,480; in 1901, the number of employees were 43,356, showing an increase in the number of employees in ten years of 18,768. The amount paid in wages in 1891 was \$9,042,125; the amount paid in wages in 1901 was \$15,398,819, showing an increase in the amount paid in wages over 1891 of \$6,356,964. In 1891 the value of the products of all the factories was \$42,489,352, and in 1901, \$58,879,875, showing an increase of \$16,591,523.

The total number of factories investigated was 1,552, and of this number only



Capacity
3-32 to 1 1/4
inches.

Style "K"

The "NEW YANKEE"

Drill Grinder

SAVES 50 PER CENT. OF TIME IN ADJUSTMENTS

COMPLETELY
SELF-
CONTAINED

OUR machines require no wrench, measuring instruments or gauge saws. We have entirely done away with them. Any amount of clearance desired can be obtained instantly. Drills can be ground to do more and better work. Send for Catalogue showing 10 styles, and full explanation of machines grinding from No. 60 to 5 inches.

JOHN LUMSDEN & CO., 375 St. James St.
MONTREAL

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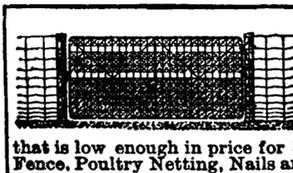
928 were enumerated, complying with the rule of five persons and upwards. In 1891 there were enumerated under the rule of one person and upwards 2,109, so that it is to be noted that the great excess of persons employed and products produced in 1901 over that of 1891 was from 1,171 less places designated as factories. Had the census of 1901 been carried out on the lines of 1891, it would have shown a much larger increase in our industrial efforts. The work is not quite completed, and the figures are subject to revision on completion of the work.

BUFFALO SHAVINGS AND DUST SEPARATOR.

The accompanying illustration shows a new and improved style of Buffalo shavings and dust separator, which has been recently devised by the Buffalo Forge Co., Buffalo, N.Y., to meet the



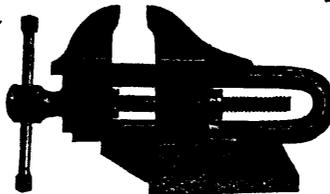
demand for an efficient apparatus of this nature. The operation of this separator depends upon the centrifugal force of the refuse material. These particles upon entering the inlet at the top, are discharged with a whirling motion, and being heavier than the air, are thrown by their centrifugal force against the outer shell, down which they pass in a spiral path to the discharge orifice. The air



PAGE METAL GATES are so low in price no one can afford to use wooden ones. Light, and yet strong enough to support a heavy man on the end while he swings around the circle without causing them to sag. They are neat in appearance, will last a lifetime. Will not sag nor get rickety. They are supplied with latches which allow them to be opened either way and are self acting. The only good metal gate that is low enough in price for General farm purposes. We also make Farm and Ornamental Fence, Poultry Netting, Nails and Staples. The Page Wire Fence Co., Limited, Walkerville, Ont. 1

WARE'S PATENT

Steel Yoke Vises.



The weakness of all vises, made entirely of cast iron, is their tendency to break at the point where the strain is greatest, viz.: the junction of the front jaw with the slide or yoke.

This difficulty is completely overcome in WARE'S VISE, in which the yoke or slide is made of one piece of cold rolled wrought steel shafting cast into the front jaw.

This method of construction produces a vise that is practically unbreakable, of great strength and solidity; easy running, by virtue of the highly polished surface of the steel yoke; efficient and convenient in every particular.

The slide being narrow affords plenty of space on either side for the handling of long work perpendicularly, which cannot be done with other vises. Prices and all particulars on application. **SOLE MAKERS:-**

The JAMES SMART MFG. CO., Limited
BROOKVILLE, ONTARIO, CANADA.

MICA BOILER COVERING CO. LIMITED
Contractors to the Admiralty

The demand for **MICA COVERING** is largely increasing. It has been proved and tested in all kinds of service, and leads the market absolutely on its merits. Awarded the **Gold Medal** at the Pan-American; Prize Winner at the Paris Exposition, etc. Its use in Great Britain and the United States extending. Some recent Canadian repeat orders. Write for full particulars from

THE MICA BOILER COVERING CO. Limited, 86-92 Ann St., Montreal

Trade with Russia

Firms desirous of getting into communication with Russian buyers or merchants; or who wish to buy Russian products on the best possible terms; or who are willing to appoint agents for the sale of their goods in Russia, are invited to send particulars of their requirements for insertion in

The Anglo-Russian Trade Messenger,
10 Bolshaya Dvorianskaya Street, Moscow, Russia.

THE ANGLO-RUSSIAN TRADE MESSENGER is the sole commercial paper published in Russia, devoted to the interests of the Anglo-Russian trade. It circulates amongst the best firms all over Russia and Siberia.

Circulars and Catalogues Translated, Printed and Distributed AT VERY CHEAP RATES.

THE GEE ELECTRICAL ENGINEERING CO. LIMITED

11 COLBORNE STREET, TORONTO.

LIMITED

WE have a Factory equipped with the very latest and best machines for the building of

Dynamos, Motors, AND ALL..... ELECTRICAL APPLIANCES

We have every facility for repairing. We guarantee all our work. We keep a large staff of competent electricians and wiremen, and are in a position to do Electrical Work of every description. We wire Residences, Business Houses, Factories, etc. We have on hand a large stock of

ESTIMATES AND PLANS SUBMITTED.

Electrical Fittings, Arc Lamps, Telephone Bells, Etc.

COAL JAS. H. MILNES & CO. COKE

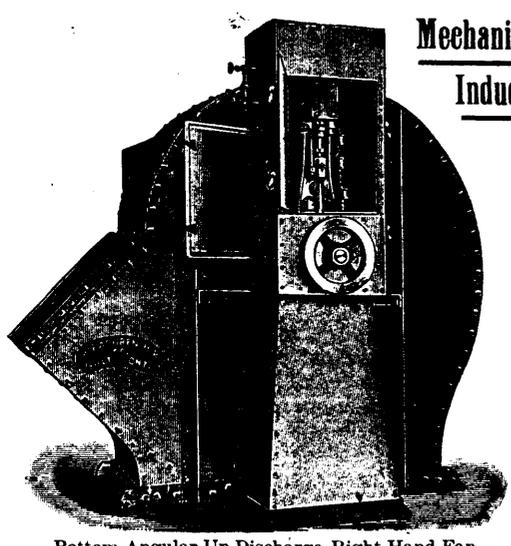
WHOLESALE DEALERS IN
Best Grades of STEAM COALS.
Best Grades of BLACKSMITHS' COALS.
Best Grades of FOUNDRY COKES.
 Shipments made direct from Mines to any point in
 Canada. Write for quotations.

Head Office: 78 QUEEN ST. EAST TORONTO. Docks: Esplanade, Foot of Yonge

carbonic acid gas. Now if the correct amount of air is mixed with 1 lb. of carbon we get the above gas, the burning of which will give us 14,800 B.T.U. or heat units. But should we not supply enough air we do not get carbonic acid gas. The mixture for want of oxygen does not combine properly, and the result is too much carbon in the mixture. This gives us a gas called carbonic oxide or marsh gas; and 1 lb. of carbon turned into marsh gas contains only 4,800 B.T.U. or heat units. This is a direct loss of 10,000 heat units for each pound of carbon burned, and is nearly two-thirds of all the heat in the coal. The remedy is to be sure and pass enough air through the burning coal. Do not have the fire too thick; be sure the grates are fully covered; do not put on too much coal at once, and do not keep the fire-doors open too long at one time. Then you should be sure that there are no cracks in the boiler-walls, or any openings that will admit air that does not have to pass through the fire, it is sometimes allowable to allow a small quantity to pass through the fire door in such a way that it passes directly over the fire on the grate; but in no case allow any air to enter any other way. Having learned how to burn our coal correctly we now must be sure that we are not losing too much heat by radiation. All parts of the boiler that are exposed should be well covered. We should consider the relation of grate surface to the heating surface of the boiler. The number of square feet of

heating surface in your boiler should not be more than 35 or 40 square feet to one square foot of grate. You cannot get good results if your grates are too small, because you must have the coals in such shape that the air will freely mix with them. In setting boilers do not put the grates too near the shell: 20 to 30 inches is near enough. Throw up a bridge wall behind the grates high enough to keep the coal from going too far back. Do not attempt to burn any coal unless it is upon the grates. The only use for a bridge wall is to keep the coal on the grates. Do not contract any of the passages for the gases behind the bridge wall; let the space get larger and larger until the back head of boiler is reached. Then have a large combustion chamber with at least two feet from boiler head to wall, with arched top, to turn the gases through the boiler flues. Have a damper in the mouth of the smoke-stack, and if steam is high or the draft too strong regulate it from the stack-damper. Do not use the ash-pit doors as a damper except when shutting down for the night. If all these instructions are fully carried out you should utilize from 70 to 80 per cent. of all the heat units in the coal. In the addition of heat to water for the purpose of making steam at different pressures the total amount of heat needed is very nearly the same. At atmospheric pressure water boils at 212 degrees Fahr., and if the water was at 32 degrees Fahr. when you applied the heat you would have to add 180 degrees Fahr. or heat

units. Up to this point you can measure the heat with a thermometer. If you want steam at this pressure you will have to add 966 heat units to it for each pound of water evaporated, and the steam would occupy 1,644 times as much space as the water from which it was generated did, and the temperature would still be 212 degrees Fahr. To this 966 heat units add the 180 units used to bring the water to the boiling point, and we have 1,146 as the total heat required to evaporate 1 lb. of water into steam at atmospheric pressure. This 966 units of heat are called the latent heat of the steam and cannot be measured by a thermometer. If steam is generated at a greater temperature than 212 degrees Fahr. the sensible heat increases and the latent heat decreases. If steam is generated in a vacuum and below 212 degrees Fahr. the latent heat is greater than 966. heat units and the sensible heat is less than 212. heat units If you make steam under a pressure of 6 atmospheres or 90 lbs. the boiling point under this pressure raises to 312 degrees Fahr., and that is the sensible heat of steam at that pressure, while the latent heat would be 888.3 heat units.
 Q. How many pounds of air are required to furnish one pound of oxygen when the oxygen is 22 per cent. of the total weight? Ans. $100 \div 22 = 4.5$.
 Q. How many pounds of oxygen are required for the perfect combustion of one pound of carbon? Ans. 2.66.
 Q. How will the furnace supply car-



Bottom Angular Up Discharge Right Hand Fan.

Mechanical Induced DRAFT FANS

Installed in connection with a Boiler Plant, will prevent smoke, will give greater fuel economy and increased boiler capacity, besides which the initial cost is far less than that of a chimney.

Mechanical Draft may be applied to old boilers to increase draft at a minimum initial outlay.

FOR PRICES and PLANS WRITE

McEACHREN HEATING and VENTILATING CO.
GALT, ONT., CANADA

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IN THEIR NEW FACTORY . . .

32, 34, 36, 38 and 40
 DUNDAS STREET

THE . . .

Electrical Construction Co.
 OF LONDON, Limited

Beg to call the attention of their patrons to their removal to a more commodious and up-to-date factory, where, with improved facilities, they can guarantee even better attention and satisfaction than ever before.

Don't buy before getting their prices, when purchasing Dynamos, Motors, Fixtures or Supplies.

Quotations Supplied
 on Application.

PHONE 1103

Schoellkopf, Hartford & Hanna Co.,

BUFFALO, N.Y.

Aniline Colors, Manufacturers of Dyestuffs, Chemicals

NEW YORK, BOSTON, PHILADELPHIA, PROVIDENCE, CHICAGO,
MILWAUKEE, CINCINNATI, KANSAS CITY, NEENAH, WATERTOWN.

DIXON'S **DOES**

SOLID **TWO THINGS**

Belt Dressing.

AND DOES THEM THOROUGHLY

STOPS THE BELT FROM SLIPPING.

PLEASES THE MAN WHO USES IT.

NOTHING EQUALS IT... SAMPLE SENT FREE. SEND FOR ONE.

JOSEPH DIXON CRUCIBLE CO., **JERSEY CITY, N.J. U.S.A.**

bonic oxide instead of carbonic acid gas?
Ans. If there be not enough oxygen two atoms of carbon will combine with only one atom of oxygen, thus making carbonic oxide or marsh gas.

Q. How is this imperfect combustion guarded against? Ans. By admitting a quantity of air in excess of that chemically required for perfect combustion of the fuel.

Q. As it requires 4.5 lbs. of air to supply 1 lb. of oxygen and 2.60 lbs. of oxygen for the combustion of 1 lb. of fuel, how many pounds of air would be required for the perfect combustion of 1 lb. of carbon? Ans. $2.66 \times 4.5 = 12$ lbs. nearly.

Q. Suppose double the amount of air chemically needed was admitted at 70 degrees, and the escaping gases up the chimney was 600 degrees Fahr., how many heat units would be carried up the chimney per pound of fuel? Ans. The weight of air at the above temperature is .2377 of a lb., so $12 \times .2377 \times (600 - 70) = 1512$ heat units.

AN AUSTRALIAN COPPER FIELD.—For many years copper was regarded in South Australia much the same as gold is in Victoria and Western Australia, or silver and coal in New South Wales, but recently it has been ascertained that in the western districts of the parent State are to be found some of the largest known deposits of copper, which, when properly worked, will aid in materially increasing the mineral output of the State. Mr. Edward F. Pittman, State Government Geologist, says there is every reason to believe that copper was the first metal to be worked in New South Wales, the earliest attempts at copper mining being probably made about 1844. Various rich deposits were subsequently discovered and sought to be worked, but in the western country the industry suffered under great disadvantages, not only in regard to the scarcity of fuel and water, but more especially on account of the great distances over which the ore or metal had to be carried by bullock-teams to the nearest railway station. In the case of the Great Cobar Mine, the copper was conveyed a distance of more than three hundred miles over bush tracks through country where there was frequently no grass. The cost of carriage, in such cases, amounted to as much as £42 per ton, so that only a mine of extraordinary richness could have continued working under such a severe handicap. It is hardly surprising, therefore, that most of the earliest copper mines were worked in a very unscientific manner, the method generally followed being the extraction of the richest oxidized ores, without consideration of the subsequent development of the mine at greater depths. In consequence of this near-sighted policy it followed that the mines generally closed down when the rich ore of the upper levels gave place to poorer sulphides below, and more particularly when the impoverishment was accompanied by a fall in the market value of the metal. At the present day, however, remarks Mr. Pittman, the world's increasing demand for copper, for industrial purposes, bids fair to maintain

"Zanzibar

Anti-Rust

.. Paint ..

MADE TO ENDURE

GARFIELD PAINT CO.

TORONTO, ONT., CANADA

Write for Booklet "A STUDY IN BLACK."

For Roofs of all kinds, Bridges, Iron Work.

W. A. FLEMING & CO., - Montreal, Que.

Agents for Quebec and Maritime Provinces

Toronto Elevator Co.

MILLWRIGHTS AND ELEVATOR SPECIALISTS

Estimates Given and Losses Adjusted

OUT-OF-TOWN WORK PROMPTLY ATTENDED TO.

PHONE 1535 **JOHN H. SHALES,** 74 ADELAIDE ST. WEST
Manager TORONTO

AGENTS FOR....
Miller Bros. & Toms, Elevators
Leitch & Turnbull Co. Limited, Elevators.
Greening's Wire Ropes.

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a good price for the metal, and, in view of the increased facilities for carriage, which have been, and are still being affected, by the extension of the railways, and in consequence also of the improvements which have been introduced for the treatment of low-grade sulphide ores, there is every reason to believe that a new era of prosperity is opening for the copper-mining industry in New South Wales.

In January, 1876, the South Cobar Mining Co. was amalgamated with the Cobar, under the present title of "Great Cobar." Many difficulties, and even losses, were experienced in working the mines, but the dividends paid up to the close of 1898 amounted to £202,000, being at the rate of £2 10s 6d per share. Gold is found with the copper. The Nymagee copper mine, in the neighboring district, was purchased in 1896 by the Cobar Mining Syndicate, who introduced a blast furnace for reducing, and subsequently started pyritic smelting. The Nymagee copper has always been of good quality; it contains a small proportion of silver, but no gold. The Girilambone Copper Mine is situated on the western railway line, at a distance of 405 miles from Sydney, and was first opened in the year 1880, by Hartman and Campbell, the discoverers of the Great Cobar Mine. The mine was closed down from 1885 and 1893, and also during the years 1895 and 1896. Towards the end of the latter

year it was floated into a company named the Girilambone Copper Mining Co. (Limited), and mining operations have been carried on ever since. The copper deposits at Mount Hope were discovered in 1878, and although imperfectly worked by tributers, 5,543 tons of copper, valued at £296,656, have been obtained. The whole country for many miles around is rich in copper lodes, and in several places, Mount Allen, for instance, there is considerable proportion of gold. A large amount of capital has lately become invested in the State copper mining industry, and with the introduction of improved methods of dealing with the ore, a considerable addition to the output is anticipated. In 1900 the New South Wales exports of copper amounted to 133,305 cwt., value £468,397, representing with 17,067 cwt. of copper ore, value £7,094, and 12,336 cwt. of copper in matte, value £25,839, a total of over half a million sterling.

CANADIAN ARSENIC.—In a letter to Hon. Mr. Fielding, Minister of Finance, Mr. Joseph James, of Actinolite, Ont., gives the reasons underlying the request of the citizens of that district that arsenic be placed on the bounty list. He points out that the principal source of the world's supply has been the Counties of Devon and Cornwall, Eng., and it is

produced there as a by-product of tin and copper ores. Mining in those counties, owing to the great depths and size of the workings, is, however, becoming costly, and the cost of producing arsenic is growing year by year. In Europe arsenic is also produced to a considerable extent. From 1890 to 1901 the price varied from £12 to £23 per ton of 2,240 pounds, but at present, owing to heavy stocks being held, it is now quoted in New York at the somewhat low price of three cents per pound. In 1900 the United States imported 7,047,353 pounds of arsenic, valued at \$333,153, and Canada during the four years ending 1898 imported 2,224,783 pounds, valued at \$82,103. Since 1890 a number of Canadian consumers have purchased direct from the Canadian Goldfields Co., Delora, Hastings County, Ont., who have the only arsenic works on the continent. Up to date no arsenic has been produced commercially in the United States, and the big market of that country, is, therefore, considered tributary to Canada. The letter says that conditions are such in the Canadian arsenic districts that the very highest quality of the article can be produced at a less cost per ton than any place in the world. It is desired that the arsenic required in the United States and Canada be supplied by this country, and with that end in view it is proposed to increase the output from 1,000 to 5,000

ONE APPLICATION

LONDON, Ont., May 31, 1901.

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Increase its speed 3%,	the gain is \$0 15 per day,	or \$11 25 for 3 months.
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CANADA.

tons per annum. This would mean the erection of four such plants as that now in operation at Delora (at which 160 to 189 men are employed, with a pay roll of \$7,000 a month, besides the other necessary expenditures), an outlay of \$600,000 in plant alone, and an equal amount for mispickel properties, upon which to work. The actual cash investment in order to produce 5,000 tons a year in Canada would be fully \$1,500,000 yearly, the pay roll alone aggregating \$400,000 per annum. One ton of coke is required for the production of a similar quantity of refined arsenic. The manufacture of casks in which to pack it would provide a paying market for elm timber, of which there are quantities in North Hastings. Thus the development of the industry

would build up other industries. The writer says:—The capital and bounty, combined with natural facilities, made it possible for Sydney to produce a ton of pig iron cheaper than it can be done for anywhere else, and bounty combined with natural facilities and capital may be expected to have a like result on arsenic in Hastings. It will be noted that the only arsenical ores referred to as gold-bearing are our Hastings mispickel. Canada is unique in this respect, and it constitutes an element of strength for this business here. It is suggested that the Dominion and Provincial governments give a bounty to run for a term of years, and gradually decrease until the bounty is extinguished, time being given in which to erect works before the bounty term commences.

THEY WOULDN'T ADVERTISE. — The statement presented at the annual meeting of the Cycle & Motor Co., held in Toronto a few days ago, was, to say the least, of a somewhat discouraging character, and explains in a measure the recent heavy decline in the stock of the company. When the company was floated the stock sold above par.

The report of the directors shows that during the year two half-yearly dividends, totalling \$175,000, were paid, while the trading accounts for the year showed a profit of but \$2,035.28. The paying of \$175,000 dividends wiped out the reserve account of \$25,000, the profit and loss account carried forward from 1900 (\$28,421.43, less \$6,543.09 written off) \$21,878.34, and the profits for the past year,

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THE CHAMPION TOOL HOLDER, saves its cost in thirty days time.

THE WESTERN DIAMOND POINT TOOL.

THE CHAMPION CUTTING OFF TOOL.

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\$2,035.28, and left a deficit of \$126,086.38. The statement shows liabilities of \$6,750,505.70, made up of accounts and bills payable \$1,250,505.70, capital stock preference shares \$2,500,000, and common shares \$3,000,000.

The assets consist of real estate, machinery, plant, tools, furniture, fixtures, patents, trade-marks, good-will, etc., \$4,958,513.74; Hamilton factory, \$26,823.11; accounts and bills receivable, \$629,062.35; stock in hand, \$967,681.31, and cash on hand and in banks, \$42,338.81, making a total of \$6,624,419.32.

The report states that the year has been an anxious and trying one, with the results of the trading very unsatisfactory. Expecting a demand equal to that of the preceding year, factories were run and sales departments organized on that basis. The report says the board at the time the half-yearly dividends were paid expected that the earnings for the year, plus the amount carried over from the profit and loss account of the previous year, would be sufficient to pay them. The results show their miscalculation. The causes given for the difference in results are as increased cost of manufacture, increased cost of selling arising out of a lessened output, a less favorable result from Australian business, and the necessity of selling many wheels at the close of the season at reduced prices.

The outlook for the shareholders is not encouraging, when they see that the liabilities of the company aggregate \$6,750,505, and the assets only \$6,624,419.

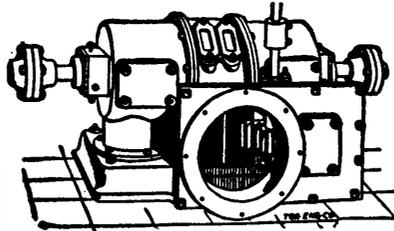
Previous to the organization of the syndicate the different factories taken over by it were in a most flourishing condition. There was a strong demand for their products induced, no doubt, by generous advertising. There is as good a demand for such goods now as then, but the managers of the combine imagined that they could do a successful business without advertising, and therein consists the fatal mistake they made.

MUNICIPAL OWNERSHIP.—The town of Neepawa, Man., recently bought out the electric light plant and put in a telephone service in connection with it. After operating this municipal service for more than a year the following figures are given by the Neepawa Register, showing receipts and expenditures up to November 30. There are 1,400 incandescent lights installed, which with the street lights make a total of 1,550, while the number of telephones in use is 129. The figures are:—

Receipts.	
Incandescent lighting	\$4,484.73
Street lighting	1,450.00
Telephones	1,870.00
Total	\$7,804.73
Expenses.	
Wood	\$1,600.00
Oils	175.57
Salaries	2,105.82
Insurance	300.90
Repairs, etc	269.58
Incidentals	277.59
Interest	1,050.80
	\$5,779.36
Leaving a profit of	\$2,025.37
This will pay the interest due last year,	

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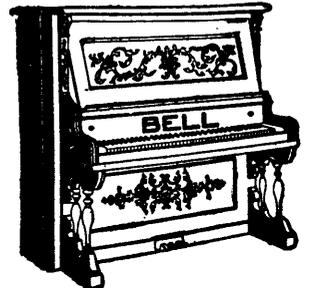
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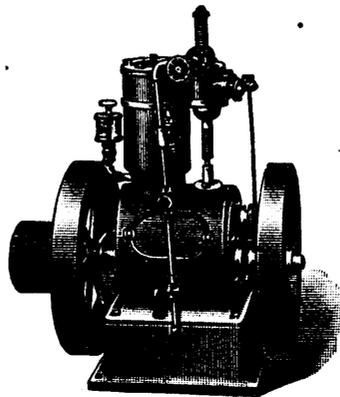
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CUPOLAS

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Temple Building, TORONTO

Merchants Bank Building, MONTREAL

\$720 ; sinking fund last year, \$580 ; and the same for this year, \$580. The Register says in the above figures the expenditures are included up to the end of the year, so that really the profits will be about \$300 larger than here shown. And Neepawa expects to do better next year.

The telephone rates in that town are \$20 a year for business places and \$10 for private houses. Those municipalities are fortunate which can secure possession of such utilities and manage them for the public good.

UTILIZING THE RESIDUE OF SUGAR

BEETS.—How to utilize the residue of sugar beets is a subject to which owners of beet-sugar factories have paid considerable attention, and success has not been of the very best. In European factories the residue is called melasse and much of it is converted into alcohol, though some of it is used as an ingredient of an animal food which is a mixture of peat and melasse. But a German inventor purposes mixing sawdust with melasse, the product to be used as food for animals. It is held, strange as it may seem on the surface, that the nutritious

matter contained in wood is remarkable when compared with that of chopped straw, which is quite generally used in mixtures intended as animal food. In his application to the patent office at Berlin the inventor gives a table which shows the percentage of nutritious matter contained in wood sawdust as compared with straw, which is as follows :—

	Albumen.	Nitrogen.	Fatty Substance.	Wood Fiber.
Birch	7.06	48.58	4.58	32.25
Poplar	8.46	45.81	3.97	38.71
Alder	7.67	47.76	3.16	32.93
Acacia	7.65	46.68	2.8	32.59
Beech	6.2	47.59	2.57	30.33
Pine	8.23	40.33	5.19	39.27
Walnut	1.41	37.59	1.68	58.11
Straw	3.8	36.4	1.3	39.7

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NAPHTHALINE (CRUDE, PRESSED, CRYSTAL, SUBLIMED, MARBLES.) **CYANIDES.** PRUSSIATE OF POTASH AND SODA, PRUSSIAN BLUE.

AMMONIA (SULPHATE, NITRATE, LIQUID, MURIATE, ANHYDROUS, CARBONATE.)

Chemicals. Sulphate of Copper. Chlorates of Potash and Soda. Calcium Carbide. Acetate of Soda. Wood Naptha. Acetone, Bichromates.
CHEMICAL MANURES.

The inventor also holds that the nutritious matter in stems of Indian corn and sunflower stalks, if prepared, is proportionately larger. It is evident that a very cheap cattle food can be prepared in this manner, to which may be added potato peelings, husks and shells of grains, and from 70 to 80 per cent. of melasse, which will be absorbed by the prepared sawdust.

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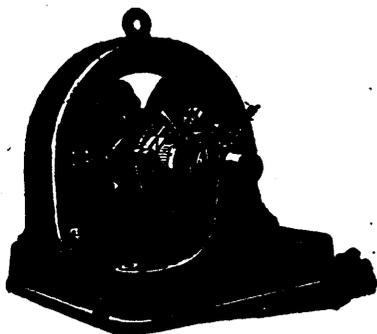
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THOMAS C. IRVING, Con'l Manager Western Canada,
 TORONTO.

JOHN A. FULTON, Con'l Manager Eastern Canada,
 MONTREAL.

OPPORTUNITIES.

The following enquiries have been received at the offices of the High Commissioner for Canada in London, and at 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 numerals opposite the enquiries.

632. Enquiry is made for the names of importers of sugar at the principal trade centres in Canada.

633. The addresses of likely buyers in Canada of a good brand of canned Norwegian fish are asked for.

634. A London firm ask to be placed in communication with exporters of slag wool or mineral wool from Canada.

635. A grocery firm in the Midlands asks for the names of a few good Canadian shippers of poultry and game.

636. A Wolverhampton firm enquire for names of importers of enamelled hollow-ware in Canada.

637. A manufacturers agent who is established both in London and Canada seeks a few additional agencies of Canadian manufacturers' wishing to develop trade in the United Kingdom. Canadian references furnished.

638. A manufacturer of gelatines, glues, greases, etc., asks to be placed in touch with first-class Canadian house prepared to handle same.

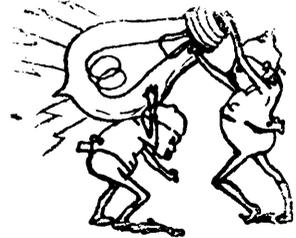
639. Enquiry has been made for the name of a first-class firm of engineers and ironfounders in Canada which would undertake to make a patent grinding machine, and to represent an English house supplying machine tools.

640. An important firm of soap manufacturers wish to enter into communication with a Canadian firm who would be prepared to buy their goods and with whom they would be ready to enter into an exclusive arrangement. They would prefer to correspond with a reliable firm having travellers calling upon druggists and others interested in high-class toilet soaps and perfumery. The same firm would also like to correspond with a Canadian business house in a position to handle household soap.

641. A Rotterdam firm is asking for the names of firms in the Dominion dealing in ores of various kinds.

642. A correspondent in the west of England asks to be furnished with particulars of the export timber trade of the province of British Columbia with a view to opening up business relations.

643. The Board of Trade of an Ontario town are desirous of interesting English capitalists in the opening that presents itself for the establishment in the district of a beet-sugar factory, and are prepared to furnish full particulars regarding the suitability of the location to parties desiring them.



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of the World. Containing Classified Trade Lists of the Merchants and Manufacturers, Importers and Exporters of the United Kingdom and all principal trading centres of the World. The work contains nearly 4,000 pages, and includes in addition to the above the Customs Tariffs for every Country and all classes of Goods.

HIGHEST AWARD, GOLD MEDAL, PARIS, 1900.

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PARRY SOUND, ONT., CANADA.
Clothboards, Lapping, Rolling and Bailing Boards
Veneers of Ash, Birch, Bass and Elm, all thicknesses
Cheese Box Bands and Rims
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NOTICE—The following are the Factory Inspectors for the Province of Ontario:

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JAS. R. BROWN, Parliament Buildings, Toronto.
MARGARET CARLYLE, Parliament Buildings, Toronto.

O. A. ROCQUE, Orleans, Ont.

Persons having business with any of the Inspectors will find them at the above address.

JOHN DRYDEN, Minister of Agriculture.

MARKETS.

This Department of THE CANADIAN MANUFACTURER is devoted to the interests of the Hardware Trade.

THE CANADIAN MANUFACTURER is distributed to the Wholesale and Retail dealers in Hardware, to manufacturers of Agricultural Implements, of Iron and Wood-working Machinery, of Electrical Appliances, of Steam Engines and Boilers, to Engineers and Foundrymen, and to Dealers in Machinery and Steam Fitters' Supplies throughout Canada. There are more than 10,000 manufacturing concerns in Canada which use Steam as a Motive Power. We reach them all. Every recipient of this paper is a buyer of Hardware of one kind or another; and Advertisers will do well to bear this in mind.

Following are reports and observations relating to the markets of Canada and elsewhere, having reference to Hardware, Metals, Paints, Oils and such specialties as are usually handled by jobbers and dealers in such goods. Following these items will be found current market quotations on such goods, and the trade are requested to suggest to the publishers any improvements by which it is believed the quotations may be rendered as correct and valuable as possible.

TORONTO, January 3, 1902.

With few exceptions the year just closed has been a most profitable one for Canadian manufacturers. In Toronto the holiday season was marked by generous gifts from manufacturers to their employes. In many cases these took the form of bank cheques, which in the opinion of the general public were recognized as a substantial proof of the prosperity of the donors. In only one industry in the city was there friction between employer and employees. The woodworkers in the piano factories have made demands upon their employers, which up to the present have only been acceded to by two firms, the remainder refusing to recognize the union in settling grievances. However there is every indication that the differences will be satisfactorily adjusted in the near future.

The usual holiday dullness prevails in wholesale circles. Travellers have been off their routes and will not return for some days. Retailers have been busy with Christmas and New Year's trade and have not been able to attend to their buying department. This makes prospects for the spring trade bright, as the larger the holiday retail sales the greater

the purchasing power of the retailers. Compared with a year ago the trade in all lines shows a wonderful growth, and prospects are bright for a continuance of the good times.

In the hardware line prices are generally steady. Building paper prices just issued for the spring are higher. The prices for "Globe" files are 15 per cent. higher, the discount now being 70 to 75 per cent. Metals have been in fair demand, especially for sheet metals. Copper is lower.

In paints and oils trade is quiet. Country orders are less numerous. The outlook for the spring is good. Prices are steady.

The decline in copper has become more pronounced, the amalgamated people having apparently abandoned the effort to maintain prices. Local quotations are down to 14½c. to 14¾c.

In connection with Canadian copyright, the Customs Department has issued a circular regarding the duty on "D," "Ri" and "I," which reads as follows: "The importation of the said book printed elsewhere in Canada is prohibited, except with the written consent of William Briggs, Toronto; provided that two such



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copies may be specially imported for the bona fide use of any public free library."

It is also ordered that with the view of promoting economy, the customs outport of entry and warehousing port of Charabood Junction, under the survey of the port of Quebec, be abolished.

Selkirk, Man., has been erected an outport of customs and a warehousing port under the survey of the port of Winnipeg.

Regarding "Young Barbarians," by Ian Maclaren, the importation, except with the written consent of Copp, Clark & Co., is under new regulations. "Provided that two such copies may be specially imported for the bona fide use of any public free library."

Collectors at port of exit are directed to carefully scrutinize all export entries, and see that the county of ultimate destination to which goods are destined for a market is correctly stated therein as the "county of exportation so far as practicable."

The county of ultimate destination to which goods are destined for a market is to be stated in the export entry as the county to which exported, as this rule is to be strictly observed, and particularly as to exports of the forest and of animals, and of dairy and other agricultural produce shipped via United States. As articles may be carelessly delivered by shippers as for exportation to the United States, when the port of the ultimate destination of the shipment is to Great Britain or some other country beyond the United States, the travel through the United States being merely an incident in the course of the exportation to the ultimate market beyond.

Export entries are to be legibly filled in with ink; in urgent cases an indelible pencil may be used if the writing and figures be plain and distinct; but in no case is a "carbon" or "lead pencil" impression to be accepted for export entry.

The signature of a witness on export entries is dispensed with.

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BRASS FOUNDERS and FINISHERS

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Dynamos and Motors

Built and Repaired. We have a well-equipped Machine Shop. Model and Experimental Work a specialty. Inventions perfected. All work strictly confidential. Correspondence solicited.

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PHONE, MAIN 3494.

Export entries on paper half length of "foolscap" (or longer) may be accepted for express goods, and in other cases, where necessary, of the full information required, be plainly and legibly dated thereon.

BUFFALO PIG IRON MARKET.—Office of Rogers, Brown & Co., Buffalo, N.Y., December 31, 1901.

As the weeks pass by the lines draw tighter and tighter around the pig iron market. It is exceedingly difficult to

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Slip-Non-Slip, Patent, Interchangeable.

For Public Institutions, Warehouses, Offices, etc. The Treads consist of a metallic keeper, fitted with pieces of rubber (specially prepared), which form the wearing surface, and can be renewed when worn, by anyone in a few minutes.

WILLIAM GOODING, Manufacturer,
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The Compliments of the Season

... AND A ...

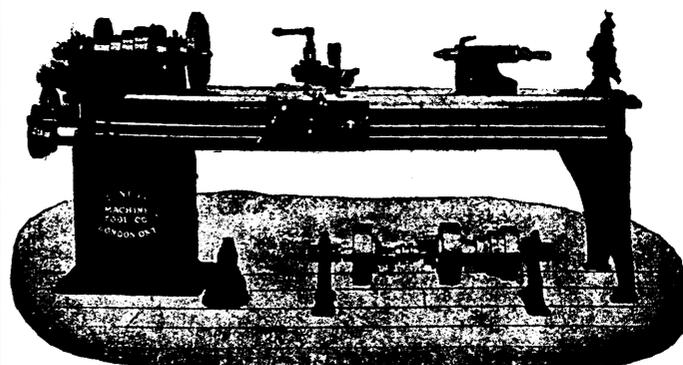
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D. K. McLAREN

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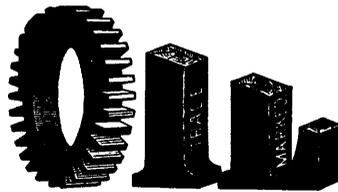
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"RENOWN" ENGINE

"ATLANTIC" RED

RELIABLE WELL-KNOWN BRAND

ALL ORDERS PROMPTLY FILLED



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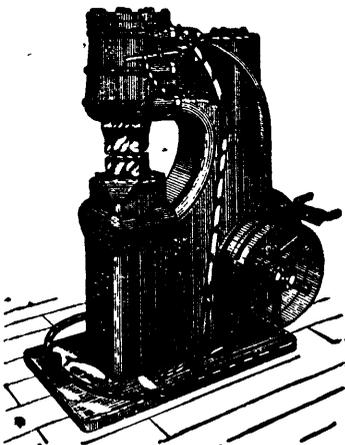
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CABLES FOR AERIAL and UNDERGROUND USE.



The "YEAKLEY" Vacuum HAMMER, Patented

Is unique and unequalled by any other
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Ease in Operating and Fewness of Parts;
Nothing to Break, no Steam to Leak, no
Pipes to Freeze, no Delays, no Expense
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MAKERS OF

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SOLE AGENTS FOR CANADA

SCHEEFFER RECORDING WATT METERS

ST. CATHARINES, - CANADA

secure the metal for any reasonably nearby delivery. Prices are about the same, though southern iron has advanced a little during the week.

Coke is almost unobtainable at any price.

We quote below on the cash basis, f.o.b. cars, Toronto, in bond:

Lake Superior Charcoal	\$20 00
Standard Southern Charcoal	20 25
No. 1, X, Tonawanda Scotch	18 25
" 2, " " "	17 75
" 1, " Niagara	18 25
" 2, " " "	17 75
5% Silicon Mannie softener	17 25
3% Silicon Mannie softener	16 75
Connellsville 72 hour Foundry coke	5 20

BRITISH PIG IRON MARKETS.—Messrs. Wm. Jacks & Co., 49 Leadenhall street, London, E.C., England, under date of December 19, 1901, quote as follows: Since writing you last the market for pig iron has been steady with a good demand for all classes of foundry iron, which, combined with the favorable reports from the United States, makes the future outlook hopeful.

To-day's prices are as follows:—No. 1 Gartsherrie, 66/6-f.o.b., Glasgow including dues; No. 3 Gartsherrie 56/6-f.o.b. Glasgow, including dues; Nos. 1, 2 and 3, Cumberland Hematite 66/-f.o.b. Liverpool; Nos. 1, 2 and 3, Cumberland Hematite, to special analysis, 70/-f.o.b. Liverpool; refined D.T.N. Hematite, in small pigs, 85/-f.o.b. Liverpool.

SHOULD CARRY INSURANCE.—Acting under instructions of the recent annual convention, the Business Literature Committee of the National Association of Credit Men has recently been collecting from leading credit men throughout the country, views showing the necessity of merchants, manufacturers and all interested in mercantile pursuits carrying fire insurance as an essential to credit. Quite a large amount of data on this subject has been received, which will early in the year be issued in the form of a special pamphlet. It is said that the opinion is almost universally expressed that credit should not be extended to business men who do not protect their creditors by carrying insurance.

BRITAIN'S IRON TRADE IN 1901.—Great Britain's iron trade seems to be on the down grade. The production of pig iron for 1901 is estimated at about 2,800,000 tons, as compared with 3,109,000 tons in 1900, and 3,251,000 in 1899. And although the production of steel should come nearly up to the standard of 1900, when it totalled 1,340,000 tons of ingots of all kinds, the total quantity of manufactured iron will show a big falling-off. Shipments of pig iron have been raised to about 1,050,000 tons, or within 60,000 tons of the quantity shipped in 1900. There has been an improvement in the coasting trade, but the foreign shipments will show a large reduction, and the prospects for 1902 are not of a rosy character.

YUKON TRANSPORTATION RATES.—Mr. J. F. Lee, general traffic manager of the White Pass and Yukon Route, was in Toronto a few days ago, upon which occasion he wrote a letter to The Globe in which he expressed the wish that Canadian newspapers would reproduce it. In his letter he says:—

“It has been publicly and persistently stated in the Toronto and Ottawa papers that the rate on flour over the White Pass road for 95 miles is \$2.70 per 100 pounds. I desire to give this statement a prompt official contradiction. The Canadian Manufacturers' Association have no right whatever to publish statements which are not correct. When they state that a rate of \$2.70 is the correct rate, they are stating what is absolutely untrue. The published tariff rate, that is, the published tariff rate on flour, will be found in the G.F.O. tariff No. 12, issued by the White Pass route and circulated as usual amongst all the principal railways of the country. This rate is \$1.75 per 100 pounds, not \$2.70; and, further, this rate of \$1.75 is a maximum distance rate and not in any way the actual competitive or proportionate rate demanded or collected.

“A distance tariff is issued by railways in order to establish a maximum rate; it is never properly accepted as a commercial or proportionate rate tariff sheet, in fact, it is never intended that it should be so. In respect to Yukon rates the charges for the 95 miles referred to by the

Canadian Manufacturers' Association would be a great deal less than \$1.75 for the reason that flour shipments originate in Canada east of Vancouver and reach the Yukon by Skagway and the White Pass route in competition with all water low rates via St. Michael's, thereby compelling the White Pass to join with its connections in meeting such competition by making competitive rates.

“It is surprising to know that such an important association as the one in question should have exhibited such gross carelessness as they have in this instance.”

Discussing this matter, Mr. Lee pointed some reasons which made rates necessarily higher than on other railways. The season of traffic was only four months and a half each year, while by their charter they were compelled to run trains all the year through. Moreover, the traffic was all one way, the Yukon producing nothing but gold, so that there has no outbound freight. The road was one of the most expensive in the world, both to build and maintain, and had been built with English capital without any subsidy or grant from the Government. One mile cost \$250,000 to build, and a recent snowslide caused damage that would take \$100,000 to repair. The fuel and building materials, including lumber, for the line had all to be brought from outside, and the lowest rate paid common laborers was \$5 per day, while skilled machinics were paid in proportion. Mr.

Lee emphasized the importance of the Yukon trade to Canada, one Dawson merchant having just ordered two thousand tons of goods in Montreal to be shipped in next season, and the trade of a country producing \$30,000,000 in gold annually was worth looking after.

PERMITS REQUIRED.—It may be interesting to any who may desire to visit South Africa for any purpose to learn that the Canadian Government has been notified by the British Foreign Office that in consequence of the establishment of martial law at all South African ports it has been decided, with the concurrence of Cape Colony and Natal, that, after January 1, persons desiring to land in those colonies must provide themselves with a permit. Permits are to be issued in England, by a special permit officer, on the production of a certificate signed by a member of Parliament, Justice of the Peace, clergyman or minister, or officer of His Majesty's forces, to the effect that the applicant is in possession of at least £100, or is in a position to maintain himself; that the object of the journey is bona fide, and that he has not been deported or sent out of South Africa as an indigent. Applicants, after producing satisfactory certificates, are required to sign a declaration to the foregoing effect, with the additional statement that they will not directly or indirectly assist in any way whatsoever the enemies of Britain in South Africa. The

The Whitman & Barnes Manufacturing Co.

MANUFACTURERS OF

**Mower Knives,
Reaper Knives,
Binder Knives,
Paper Knives,
Veneer Knives,
Wood-working
Knives,
Straw Cutter
Knives,
Root Pulper Knives,**

**Twist Drills,
Spring Keys and
Cotters,
Hammers,
Hatchets,
Sledges,
Masons'
Hammers,
Wrenches,
Thresher Teeth.**

SPECIAL WOOD-WORKING KNIVES

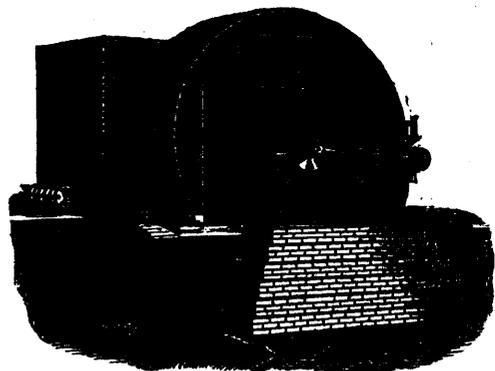
WE MAKE THE BEST AND GUARANTEE OUR GOODS

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STURTEVANT SYSTEM

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*Centralized blower plant.
No scattered steam piping.
Utilizes exhaust steam.*



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Consulting Engineers and ...Buyers' Agents...

When wanting Machinery or Iron and Steel products from the United States consult us.

General Office. - Pittsburg, Pa., U.S.A.

FOR SALE.

One 25-light Reliance Arc Dynamo, in first-class condition.

One 60-light Royal type Transformer, 1040 Volts to 110.
Newly Re-wound.

Three 10-light Shellenberger Watt Meters.

Two 20-light Duncan Watt Meters.

THE ABOVE WILL BE SOLD CHEAP

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CANADIAN PATENT No. 70,666

(Patented March 26, 1901)

Miller's Detachable Horse Shoe Calk.
Durable and cheap.

For full particulars address J. WALLACE MILLER
Bernharts P.O., Berks Co., Penn.

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59 JAMES ST., - ST. CATHARINES, ONT.

MILL TELEPHONES

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TALISMANIC BELT DRESSINGS

WILL INCREASE YOUR POWER



Prevents Belts Slipping.

Prolongs Life of Belts.

"What We're On We'll Cling To."

TALISMANIC BELT CLINCH—For Leather Belts.
TALISMANIC RUBBER FACING—For Rubber Belts
TALISMANIC ROPE PRESERVER

JOHN W. BOWDEN & CO.

330 Clinton Street.

Toronto, Ont.

members of one family are to be under permit issued to the head, but a separate permit will be required for each son and daughter over the age of sixteen. Passengers from colonial ports must supply themselves with permits through the Colonial Secretary, or some officer appointed by the colonial Government, who will satisfy himself, as far as possible, that applicants fulfill the conditions. The permits are available only to enable passengers to land in South Africa, and are no guarantee that they will be allowed to proceed inland. Persons proceeding from foreign ports are being notified that they should obtain permits through a British Consular office.

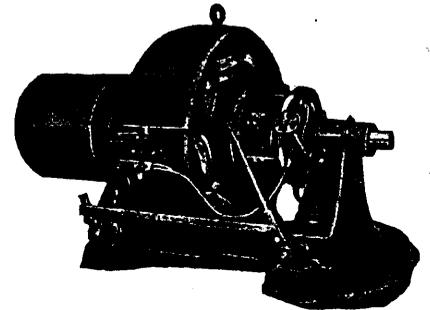
TRADE IN SOUTH AFRICA.—Mr. James Cumming, recently returned Canadian Trade Commissioner to South Africa in a speech made in Brockville a few nights ago, speaking of the trade conditions in that country, said, that the population of South Africa, was made up of less than a million white people, ten to twelve million Kaffirs, divided among several tribes, 100,000 coolies, brought from the East Indies, and about 100,000 Cape boys, the remnant of the old Dutch slaves. There was no mixing of races, each keeping by itself. Trade nearly all hinges around the gold and diamond mines, which produce over a hundred millions a year. There are also from ten to twelve million dollars worth of wool produced, and Angora goat skins worth between three and four millions. The consequence is that nearly everything for the support of the population has to be imported, and there is therefore a great opening for many lines of Canadian goods, such as carriages, tools, shoes, etc.

POULTRY NETTING.—The B. Greening Wire Co., Hamilton, Ont., inform us that they have installed a plant for the manufacture of poultry netting and heavier grades of two-inch mesh. This netting is made of a good quality of steel wire, galvanized before weaving, the advantage of which is now so well understood, and is a first-class article in all respects. Any order for poultry netting with which they may be favored will be filled at the lowest price they may make before May 1 next.

THE DOMINION SURPLUS.—According to the official figures, as finally revised by the Dominion Finance Department, the surplus of ordinary receipts over ordinary expenditures for the fiscal year ended June 30, 1901, amounted to the handsome sum of \$5,648,333. The receipts were \$52,514,701, and the expenditures totalled \$46,866,367. The expenditure chargeable to capital amounted to \$7,695,488, as against \$7,468,843 for the previous fiscal year. Adding \$2,512,328 for railway subsidies and \$908,681 for the South African contingents and Halifax garrison to the capital expenditure, gives a total of \$11,116,498. Deducting the surplus of \$5,648,333, sinking funds to the amounts of \$2,480,386 and \$1,631 of refunds, it leaves \$2,986,196 to be added to the net debt of the Dominion, which on June 30 stood at \$268,480,003.

The Jones & Moore ELECTRIC CO.

ELECTRICAL CONTRACTORS



DYNAMOS, TELEPHONES, SLOW SPEED MOTORS, MOTORS, SUPPLIES, DIRECT CONNECTED DYNAMOS.

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

20 and 22 ADELAIDE W.,
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KERR'S

"COPPER-ALLOY"

DISC VALVES

ARE THE BEST

—FOR—

HIGH STEAM

ASK YOUR DEALER

FOR THEM.

CATALOGUE SENT

ON APPLICATION.

THE KERR ENGINE CO.

LIMITED

WALKERVILLE, - ONTARIO

McLachlan Electric and Gasoline Motor Co.

LIMITED

115 Bay Street, Toronto, Can.

MANUFACTURERS OF

ELECTRIC LIGHT AND POWER APPARATUS

GASOLINE ENGINES

For Launches, Horseless Carriages, etc.

CORRESPONDENCE SOLICITED.

An advertisement in the Canadian Manufacturer is a Paying Investment.

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BUSINESS CHANGES.

FROM BRADSTREETS.

ONTARIO.

BELLEVILLE—S. A. Lazier & Sons, paper & flour mills, dissolved partnership.
BERLIN—Diamond Furniture Co. (Leander C. Klippert), assigned.
 Berlin & Bridgeport Electric Street Railway Co., obtained charter.
CHATHAM—Hayes & Jones, electric supplies, dissolved.
GUELPH—Morlock Bros., mfrs. upholstered goods, loss by fire.
HAMILTON—Kerr & Coombes, foundry, loss by fire.
LINDSAY—Rider & Kitchener Co., mfrs. veneers and excelsior, loss by fire.
LONDON—Gullett & Ross Granite & Marble Co., sold to J. R. Peel.
NIAGARA FALLS—Niagara Metallic Furniture Co., injunction obtained and writing-up order applied for.
OTTAWA—Capital Wire Works, (M. T. Haldane, prop.), sold out.
PLANTAGENET—Sabourin & Fraser, woolen mfrs., dissolved.
TORONTO—Canadian Revolving Door Co., obtained charter.
 Crown Mfg. Co., obtained charter.
 Crowther-Cumming Co., corporate name changed to R. P. Cumming Mfg. Co.
 Freyseng Cork Co., obtained charter.
 Peat Development Syndicate, obtained charter.
 Canadian Wringer Co., sold out.
 Toronto Cold Storage Co., E. R. C. Clarkson appointed liquidator.
 Diamond Machine & Screw Co., E. R. C. Clarkson appointed permanent liquidator.
WINGHAM—National Iron Works Co., assigned to Wm. Clegg.

QUEBEC.

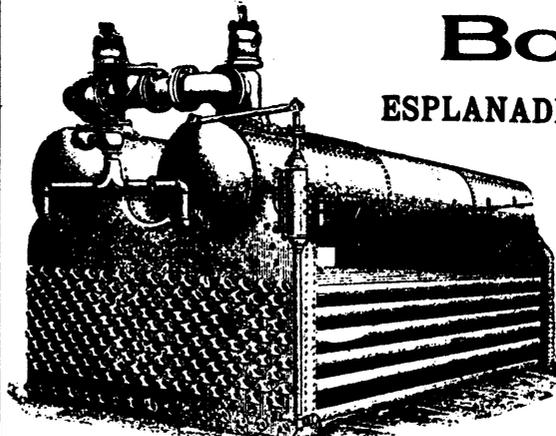
FARNHAM—Farnham Brewing Co., assets sold.
LACHINE—Lafleur, Clement Shoe Co., Wm. Renaud, curator.
MONTREAL—Cassella Color Co., mfrs. dyes, etc., applied for charter.
 Downham & Hastings, electricians, registered.
 Samuel Fisher, engineers' supplies, Thomas J. Fisher, registered.
 J. M. Fortier, mfr. cigars, etc., incorporated.
 J. A. Teasdale, spring beds, etc., demand of assignment.

Hodgson Iron & Tube Co., applied for charter.
 Dagenais & Leonard, carriage makers, dissolved, Nap. Leonard now registered.
 S. Levinson, Son & Co., mfrs. clothing, succeeded S. Levinson.
 McDonald & Rive-t, electricians, registered.
 Montreal & St. Lawrence Light & Power Co., registered.
QUEBEC—G. Rochette, tanner and mfr. shoes, compromise.
ST. CANUTE—Emerie Carriere, saw mill, burnt out.
SHAWINIGAN FALLS—La Compagnie D'Imprimerie de Shawinigan Falls, obtained charter.

SHERBROOKE—Eastern Township Brick Mfg. Co., obtained charter.
VICTORIAVILLE—Arthabasca Water & Power Co., applied for charter.
NOVA SCOTIA.
FOX RIVER—Fox River Lumber Co., incorporation applied for.
BRITISH COLUMBIA.
INVERNESS—Inverness Canning Co., sold to J. H. Todd & Sons.
VANCOUVER—Carlisle Packing & Canning Co., winding up.

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

REFERENCES :

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; Sun-light Soap Co., Dominion Radiator Co., Central Prison, Foresters' Temple, Toronto City Hall, Canada Bl-ent Co., Confederation Lift Co. (all of Toronto, where Boilers may be seen working), also Orillia Asylum, Orillia, Ont., and La Presse Publishing Co., Montreal.

**"RATHBUN'S
STAR."**

Portland Cement

**"BEAVER"
BRAND**

MANUFACTURED BY

**THE CANADIAN PORTLAND CEMENT CO.
LIMITED**

Capacity of Works—500,000 Barrels per Year.

THE RATHBUN COMPANY,
310-312 Front Street West,

**SALES
AGENTS**

ST. LAWRENCE PORTLAND CEMENT CO.,
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Telephone Main 1378.

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Telephone Main 3887.

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Northrop Iron Works

**IRON and BRASS
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Heating and Ventilating Engineers,

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STEAM, HOT WATER
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"HANDY"
DUMB WAITERS

SECTIONAL HEATING
BOILERS

PLAIN AND
AUTOMATIC LOOMS
SPOOLERS, WARPERS

FIRE
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FOR MILLS AND
FACTORIES

VENTILATING and
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MACHINERY

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CROW BARS.—Duty 30%.
5 cents per lb.

CRUCIBLES.
Dixon's, 7 cents per number.

DRILLS.—Duty 25%.
Blacksmiths' \$6 to \$15 each.
Jardine's, \$7.50 to \$20 each.

DYES (Aniline).

DYNAMITE.
30 to 50 cents per lb.

EMERY.
Coarse, 7 cents per lb.
Fine, 5 cents per lb.

EMERY CLOTH.—Duty 25%.
Beader & Adamson, 40% discount.

EMERY HONES.—Duty 25%.
\$3 to \$5 per doz.

EMERY STEELS.—Duty 25%.
\$2 per doz.

EMERY WHEELS.—Duty 25%.
65% discount.

EXPANDERS.—Duty 30%.
Tube, Dudgeon, 33½% discount.

FAUCETS.—Duty 30%.
Brass, \$2.50 to \$5 per doz.
Wood, 60c. to \$1.00 per doz.

FENCING.
Barb Wire, \$3.05 per 100 lbs.

FENCING (Wire).—Duty 15%.
Galvanized, barb, f.o.b. Toronto, \$3.05.
Galvanized, plain twist, f.o.b. Toronto, \$3.05.
Galvanized, barb, f.o.b. Cleveland, \$2.82½ in less than car lots, and \$2.70 in car lots.
Mesh, 5½x10½, 20 rod rolls 55% discount, Can. list.
" 4 x8, 20 " 50 & 5% " "
" 3 x8, 20 " 55 & 5% " "

FERRULES.—Duty 30%.
Tool handle, 5c. & 6c. per lb.

FILES.—Duty 30%.
Black Diamond, 50 and 10% discount.
Globe, 70% discount.
Grobet, net.
Jowitz's, 25% discount.
Nicholson, 50 & 10% discount.
Stubbs', 15% discount.

FITTINGS (Pipe).—Duty 30%.
Bushings, 55% discount.
Cast Iron, 55% discount.
Cocks, 60
Elbows, tees, crosses, couplings, lock nuts, re-
turn bends, 50% discount.
Flanges, 55% discount.
Nipples, 55
Plugs, 55
Unions, 55
Wrought Iron, 50% discount.

FLUE SCRAPPERS.—Duty 30%.
Engineers' Favorite, 40% discount.
Ingis, 20% discount.
Wire, 50

FORKS, HOES AND RAKES.—Duty 25%.
50, 10 and 5% discount.

FUSE.
Blasting, Single tape, \$3.75 per M ft.
Double tape, \$5 per M ft.

GASKETS.—Duty 35%.
Rubber Insertion, 60 cents lb.

GAUGE GLASSES.—Duty 30%.
Water, 25% discount.

GAUGES.—Duty 30%.
Steam, 50% discount.

GLASS.—Duty 20%. (Window—Box Price).
Star, under 26 in., \$2.15 per 50 ft., \$4.15 per 100 ft.; 26 to 40 in., \$2.30 per 50 ft., \$4.45 per 100 ft.; 41 to 50 in., \$4.85 per 100 ft.; 51 to 60 in., \$5.15 per 100 ft.; 61 to 70 in., \$5.50 per 100 ft.; 71 to 80 in., \$5 per 100 ft.; 81 to 85 in., \$6.50 per 100 ft.

D. Diamond, under 26 in., \$6 per 100 ft.; 26 to 40 in., \$6.65 per 100 ft.; 41 to 50 in., \$7.50 per 100 ft.; 51 to 60 in., \$8.50 per 100 ft.; 61 to 70 in., \$9.50 per 100 ft.; 71 to 80 in., \$10.50 per 100 ft.; 81 to 85 in., \$11.70 per 100 ft.; 86 to 90 in., \$14 per 100 ft.; 91 to 95 in., \$15.50 per 100 ft.; 96 to 100 in., \$18 per 100 ft.

Glass Demijohns or carboys; empty or filled, bottles, decanters, flasks, phials, glass jars, lamp chimneys, glass shades or globes, cut, pressed or moulded crystal or glass tableware, decorated or not, and blown glass tableware—Duty 30%.

GLASS LAMP CHIMNEYS.—Duty 30%.
Common Crimp, per doz. O, 43 cents.
" " " " A, 45 " "
" " " " B, 65 " "
Lead Glass, " " A, 50 " "
" " " " B, 75 " "

FRUIT JARS.—Duty 30%.
Standard pints, \$7.25 per gross.
" quarts, \$7.75 per gross.
" half gal., \$10.00 per gross.
Imperial pints, \$7.75 per gross.
" quarts, \$8.75 per gross.
" half gal., \$12.00 per gross.

GLUE.—Duty 25%.
Cabinet, sheet, 12 to 13 cents per lb.
Common, 8½ to 9 cents per lb.
Coopers', 19 to 20 cents per lb.
French Medal, 14 to 14½ cents per lb.
Gelatine, 22 to 30 cents per lb.
Huttner, 18 cents per lb.
Strip, 18 to 20 cents per lb.
White, extra, 18 to 20 cents per lb.
LaPage's, 25% discount.
Progressive, 25

GOVERNORS.—Duty 25%.
Gardners', 25% discount.

GRANITEWARE.—Duty 35%.
Firsts, 50% discount.

GRAIN CRADLES.—Duty 25%.
With Scythes complete \$33 per doz.
Without scythes, \$18.50.

GRINDSTONES.—Duty 25%.
Large, \$1.75 per 100 lbs.
Mounted, \$3 to \$3.50 each.
Small, \$1.50 per 100 lbs.

HALTER MOUNTINGS.—Duty 30%.
1x1½ inch, 10c. per lb.
(Evans), 1x1½ in., doz. set packages, \$8.00 per gross.

HALTERS.—Duty 30%.
Leather, 1 in. strap, \$3.87½ to \$4 per doz.
Leather, 1½ in. strap, \$5.15 to \$5.20 per doz.
Rope, 1, \$9 per gross.
Rope, 1 to 1, \$11 per gross.
Web, \$1.87 to \$2.45 per doz.

HAMMERS.—Duty 30%.
Blacksmiths', 10 cents per lb.
Carpenters', Madoles', \$6.40 to \$8.75 per doz.
Carpenters', Warnock's, \$4 to \$7.50 per doz.
Machinists', 22 cents per lb.
Sledge, 10 cents per lb.
Tack, 60 cents to \$1.20 per doz.
Tinner's, \$4 to \$6.50 per doz.

HANDLES.—Duty 25%.
Axe, \$1.50 to \$2.50 per doz.
Chisel, \$3.50 to \$5 per gross.
Cross-cut saw, \$2 to \$3 per doz.
File, \$2 to \$2.50 per gross.
Hammer, 50 cents to \$2 per doz.
Pick, \$1.50 to \$2.50 per doz.
Plane, \$3.50 per gross.

HANGERS.—Duty 30%.
Barn Door, round groove, \$4.50 to \$6.50 per doz.
Lanes, \$6.75 to \$12 per doz.
Parlor door, \$3 to \$6 per set.
Stearns, \$5.50 to \$6.50 per doz.

HARVEST TOOLS.—Duty 25%.
Forks, 50 & 10% discount.
Rakes, 50 & 10
Hoes, etc., 50 & 10

HATCHETS.—Duty 30%.
Canadian, 40 to 42½% discount.

HAY KNIVES.—Duty 25%.
50, 10 and 5% discount.

HINGES.—Duty 1 cents per lb., & 25%.
Blind, Parker's, 50 & 10 to 60% discount.
Heavy T and strap, 4 in., 6½ cents per lb.
" " 5 in., 6½ " "
" " 6 in., 8 " "
" " 8 in., 5½ " "
" " 10 in., 5½ " "

Light T and strap, 65 & 5 off.
Screw hook and hinge, 6 to 12 in., \$4.50 per 100 lbs.; 14 in. up, \$3.50.
Spring, \$12 per gross pairs.

HOES.—Duty 25%.
Grub, \$5 to \$6 per doz.

HOOKS.—Duty 30%.
Brush, \$7.50 to \$9.
Reaping, 50, 10 and 5% discount.
Chain, wrought, round or grab, \$3 & \$4.50 per doz.
Lumber Piling, \$7 to \$19 per doz.
Malleable, wardrobe, \$1.50 to \$2.50 per gross.
Wire, " " \$1.25 to \$2

HORSE NAILS.—Duty 30%.—See Nails.

HORSE SHOES.—Duty 30%.
Lt. Med. & H., \$3.40 per keg.
Snow, \$3.95 per keg.
Steel, \$3.80 to \$5.25 per keg.
Toe weight steel, \$6.15 per keg.

HOSE.—Duty 35%.
City Standard, 70% discount.
Phoenix, 60% discount.

INJECTORS.—Duty 30%.
Pemberthy, 65% discount.
I. J. C., 65% discount.

IRON.—See Metals.

JACKS.—Duty 30%.
Lifting, 40% discount.

KEYS.—Duty 30%.
Carpenter, 50 cents to \$1.25 per doz.
Desk, 25 to 35 cents per doz.
Mortise Lock, 25 cents to \$1 per doz.
Padlock, 25 to 35 cents per doz.
Rim Lock, 25 cents to \$1 per doz.

KNIVES.—Duty 30%.
Butcher, \$2 to \$5 per doz.
Pocket, \$1 to \$3 per doz.

KNOBS.—Duty 30%.
Door, Bronze, \$7 to \$12 per doz.
" White Porcelain, 90 cents per doz.
" Wood, \$4.50 per doz.

LACING.—Duty 15%.
Belt (Raw Hide Cuts), \$1 per lb.
" (Leather Side Cuts), 75 cents per lb.

LADDERS.—Duty 25%.
Step, 10 cents per foot.
Rung, 10 cents per foot.

LAND ROLLERS.—Duty 20%.
\$12 to \$15 each.

LANTERNS.—Duty 30%.
Cold Blast, \$7 per doz.
Dashboard, cold blast, \$9 per doz.
Japanned, 50 cents per doz. extra.
No. 0, \$5.75 per doz.
No. 3 "Wright's," \$8.50 per doz.
Ordinary, with O burner, \$4 per doz.

LAWN MOWERS.—Duty 35%.
Pennsylvania, 50% discount.
Stearns, 50
Woodyatt, 40

LEAD (Bar and Strip).—Duty 25%.—See Metals.
Lead, pig.—See Metals.

LEAD.—Duty 5%.
Red and White, dry.—See Paints.

LINES (Cotton).—Duty 25%.
Chalk, \$2 to \$3.50 per gross.
Wire, clothes, \$2.50 to \$4.50 per M ft.

LOCKS.—Duty 30%.
Cupboard, \$1.50 per doz. up.
Desk, \$1.50 per doz. up.
Drawer, \$1 per doz. up.
Padlocks, 75 cents per doz. up.
Rim and Mortise, Peterboro, \$1.50 per doz. up.
" Amer., \$1.50 per doz. up.

MALLEABLES.—Duty 30%. See Castings.

MALLETS.—Duty 30%.
Carpenters', hickory, \$1.25 to \$3.75 per doz.
Caulking, 60 cents to \$2 each.
Lignum Vitae, \$3.85 to \$5 per doz.
Tinsmiths', \$1.25 to \$1.50 per doz.

MATTOCKS.—Duty 30%.
Canadian, \$5.50 to \$6.50 per doz.

MEAT CUTTERS.—Duty 30%.
Amer., 25 to 30% discount.
German, 15% discount.

METALS.
Ingots.—Aluminium, 35 to 50 cents per lb.
Antimony (Cookson's), 10½ to 11 cents per lb.
" Copper, "English," 18 cents per lb.
" Bar, 25 cents per lb.
" Tin, "Lamb & Flag," 32 cents per lb.
" " Straits, 32 cents per lb.
" " Bar, 33 cents per lb.
" Zinc, 6 to 6½ cents per lb.; sheets, 7 cents per lb.
Babbit Metal (duty 10%).
Lewis, 7 to 10 cents per lb.
Magnolia, 25 cents per lb.
Post's Zero, 25 cents per lb.
Spooners' Copperine, No. 2, 12½ cents per lb., finest, 25 cents per lb.
Syracuse Smelting Works, dynamo, 29 cents per lb.; special, 25 cents per lb.
Sheets, Black, Duty \$7 per ton.
" 10—\$2.65, 100 lbs.
" 12—\$2.75, " "
" 14—\$3.10, " "
Sheets, Black, Duty 5%.
" 17—\$3.10, 100 lbs.
" 18—\$3.20, " "
" 20—\$3.25, " "
" 22—\$3.30, " "
" 24—\$3.50, " "
" 26—\$3.75, " "
" 28—\$4.00, " "
Sheets, Tinned—7½ cents per lb., Base price.

METALS—Continued.

Sheets, Galvanized Iron.
 " 17—\$3.90 per 100 lbs.
 " 18—\$3.90
 " 20—\$3.90
 " 22 to 24—\$4.10 per 100 lb.
 " 18 to 24—\$4.50
 " 28—\$4.25 per 100 lb.
 " 28—\$4.50
 " 16—(Queen Head), \$3.90 per 100 lb.
 " 18-22-24—(Queen's Head), \$4.15 per 100 lb.
 " 26—\$4.40 per 100 lb.
 " 28—\$4.65
 Sheets, Corrugated—Galv., \$4.50 per 100 sq. ft.
 Shafting, Bright Steel.—\$3.50 per 100 lb.
 Shingles, Galv. Iron, Ordinary, \$4.90 per sq.
 " " " Medium, \$5.45
 " " " Best, \$5.80
 " Painted Steel, Ordinary, \$3.15 per sq.
 " " " Medium, \$3.35
 " " " Best, \$5.80

Iron (duty \$7 per ton).
 " Angle.—\$2.75 per 100 lb.
 " Bar (Common).—\$1.95 @ \$2.05.
 " Bar, " Swedes.—\$4.50 per 100 lb.
 " " Lowmoor.—\$6.50 per 100 lb.
 " Refined Bar.—\$2.60 per 100 lb.
 Iron, Platinized Sheet (duty 5%)
 " " A"—\$6.00 per 100.
 " " B"—\$5.00
 " Russia—\$10.00 per 100 lb.
 Iron, Galv. Sheet, see Sheets.
 " and Corrugated, see Sheets.

Pig Lead (duty 15%).—Domestic, \$3.75 per 100 lb.; pigs, imported, \$4.25 per 100 lb.; bars, \$5 per 100 lb.; sheets, \$5.50 per 100 lb.
 Solder bar (duty 25%).—1st, refined, 18 cents per lb.; half-and-half, 18 cents per lb.
 Iron, Pig (duty \$2.50 per net ton). \$16.50 @ \$17 per ton.
 Iron, English Horse Shoe.—\$2.85 per 100 lb.
 Iron, Band.—\$2.05 per 100 lb.
 Iron, Hoop.—\$2.90 per 100 lb.
 Beams, Steel.—\$3 per 100 lb.
 Rods.—Brass, 24 cents per lb., base price; hard sheets, 20 to 30 cents per lb.; soft sheets, 20 to 30 cents per lb.

Rails, Small Steel.—\$3 per 100 lb.
 Steel, Cultivator.—\$4.50 per 100 lb.
 " Channel.—\$3 to \$4 per 100 lb.
 " " Firths.—12 cents per lb.
 " " Crescent.—9 cents per lb.
 " Cant Hook.—7 1/2 cents per lb.
 " Machinery (in the rough).—\$2.25 per 100 lb.
 " Machinery.—\$2.75 per 100 lb.
 " Mild.—\$1.90 per 100 lb.
 " Sleigh Shoe.—\$1.90 per 100 lb.
 " Spring.—\$3.00 per 100.
 " Tire.—\$2.05 per lb.
 " Toe Caulk.—\$2.30 per 100 lb.
 Steel, Cast.—Firths, 12 cents per lb.
 Jessop's, 14 cents per lb.
 Black Diamond, 12 cents per lb.
 Silver, 15 cents per lb.
 Mushets.—35 cents per lb.
 Steel, Bilster.—12 1/2 cents per lb.
 Steel, Hammer.—7 cents per lb.
 Steel, Decarbonized Sheet.—7 cents per lb., base.
 Steel, Black Sheet, Duty \$7 per ton.
 " 10—\$2.65, 100 lbs.
 " 12—\$2.75.
 " 14—\$3.10.

Sheets, Black, Duty 5%.
 " 17—\$3.10, 100 lbs.
 " 18—\$3.20,
 " 20—\$3.25,
 " 22—\$3.30,
 " 24—\$3.50,
 " 26—\$3.75,
 " 28—\$4.00.
 Tank Steel Plate (duty \$7 per ton).—3-16, \$2.60 per 100 lb.
 Plates, Steel Boiler (duty 10%).—1/4 and larger, \$2.50 per 100 lb.
 Steel Boiler Heads (duty 10%).—\$2.60 per 100 lb.
 Canadian Plates.—All dull, 52 sheets, \$2.90; half polished, \$3.

MOPS.—\$1 per doz.

NAIL PULLERS.—Duty 30%.
 German and American, \$1.85 to \$3.50 each.

NAILS.—Duty, cut, 1/2 cent per lb.; wire, 3-5 cent per lb.
 Chair nails, 35% discount.
 Clout nails, blued, 65 and 5% discount.
 Coopers', 35% discount.
 Copper nails, 52 1/2% discount.
 Cut, 2d \$3.65; 3d, \$3.90; 4 & 5d, \$3.65; 6 & 7d, \$2.95; 8 & 9d, \$2.80; 10 & 12d, \$2.75; 16 & 20d, \$2.70; 30, 40, 50 & 60d (base), \$2.65.
 Flour barrel nails, 30% discount.
 Galvanizing, 2 cents per lb. net, extra.
 Horse (C brand), 50 & 7 1/2% discount.
 M brand, 50 & 10% discount.
 Steel cut nails, 10 cents extra.
 Trunk nails, black, 65 and 5% discount.
 Trunk nails, tinned, 65 and 10% discount.
 Wire, 2d \$3.85; 3d, \$3.50; 4 & 5d, \$3.25; 6 & 7d, \$3.15; 8 & 9d, \$3; 10 & 12d, \$2.95; 16 & 20d, \$2.90; 30, 40, 50 & 60d (base), \$2.85; fine, 3d, \$3.85.
 Wire nails in car lots, \$2.77 1/2.
 Miscellaneous wire nails, 70 & 10% discount.

NAIL SETS.—Duty 30%.
 Assorted sizes, \$1.20 per doz.

NETTING—Wire.—Duty 30%.
 Galvanized, 50% discount.
 Green wire, \$1.50 per 100 sq. ft.
 Poultry, 2x2 mesh, 150 ft. roll, 55 off Canadian List.

NOZZLES.—Duty 30%.
 Hose (Brass), \$3.50 to \$5 per doz.

NUTS.—Duty 1/2 cent per lb. & 25%.
 Finished, tapped, 25% discount.
 Rough, square head, 4 cents per lb. from list.
 Rough, hexagon head, 4 1/2 cents lb. from list.
 Semi-finished, tapped, 25% discount.

OAKUM.
 Navy, \$7.80 per 100 lb.
 Spun, \$9.30 per 100 lb.

OIL.—Duty 25%.
 Boiled Linseed Oil bbls., 86 cents per gal.
 Cylinder Oil, from 40 cents up.
 Lard Oil, bbls., 90 cents per gal.
 Machine.
 Prime White (Can.), 14 cents per gal.
 Prime White (U.S.), 15 1/2 cents per gal.
 Raw Linseed Oil, bbls., 83 cents per gal.
 Sperm Oil, bbls., \$1.75 per gal.
 Water White (Can.), 15 cents per gal.
 Water White (U.S.), 16 1/2 cents per gal.

OILERS.—Duty 30%.
 \$1 per doz. up.

PACKING.—Duty 35%.
 Rubber Insertion, 60 cents per lb.
 Rubber Sheet, 22 cents per lb.

PACKING.—Duty 25%.
 Asbestos, 35 cents per lb.
 Flax, 35 cents per lb.
 Hemp, 12 1/2 cents per lb.
 Jute, 8 cents per lb.

PAILS.—Duty 25%.
 Galvanized Iron, \$2.50 to \$3.50 per doz.

PAINTS.—Duty 25%.
 Elephant Snow White, 8 to 9 cents per lb.
 Pure White Zinc, 8 to 9 cents per lb.
 No. 1, 6 to 7 1/2 cents per lb.
 No. 2, 5 to 6 1/2 cents per lb.
 Prepared, in 1/2, 1 and 1-gallon tins, \$1.25 per gal.
 Barn, in barrels, 75 to 85 cents per gal.
 Canada Paint Co's Pure, \$1.25 per gal.
 Second qualities, \$1.10 per gal.
 Sherwin-Williams Paints, \$1.45 per gal.
 Toronto Lead & Color Co's Pure, \$1.25 per gal.
 Zanzibar, all colors, 75 cents per gal., f.o.b. Toronto or Windsor.

PAINTS.—Duty 30%.
 Copper, \$3.50 per gal.

LEAD, DRY WHITE.—Duty 5%.
 Pure, in casks, \$5.75 per cwt.
 Pure, in kegs, \$6.25 per cwt.
 No. 1, in casks, \$5.50 per cwt.
 No. 1, in kegs, \$5 per cwt.

LEAD, WHITE.
 Pure, \$6.37 per 100 lb.
 No. 1, pure, \$6 per 100 lb.
 No. 2, pure, \$5.62 1/2 per 100 lb.
 No. 3, pure, \$5.25 per 100 lb.
 No. 4, pure, \$4.87 1/2 per 100 lb.
 Elephant and Decorators' Pure, \$7.12 1/2 per 100 lb.
 Brandram's B.B. Genuine, \$9 per 100 lb.
 " " Decorative, \$7.55 per 100 lb.
 " " No. 1, \$6.85 per 100 lb.
 " " No. 2, \$6 per 100 lb.

LEAD, RED.—Duty 5%.
 Genuine, 560 lb. casks, \$5.50 per cwt.
 Genuine, 100 lb. kegs, \$5.75 per cwt.
 No. 1, 560 lb. casks, \$5.25 per cwt.
 No. 1, 100 lb. kegs, \$5 per cwt.

COLORS (Dry).—Duty 25%.
 American Oxides, \$1.75 to \$2 per 100 lb.
 Brussels Ochre, \$2 per 100 lb.
 Burnt Sienna, pure, 10 cents per lb.
 " Umber, pure, 10 cents per lb.
 Raw, 9 cents per lb.
 Canadian Oxides, \$1.75 to \$2 per 100 lb.
 Chrome Greens, pure, 12 cents per lb.
 Chrome Yellows, pure, 18 cents per lb.
 Drop Black, pure, 9 cents per lb.
 English Oxides, \$3 to \$3.25 per 100 lb.
 English Vermillion, 80 cents.
 Fire Proof Mineral, \$1 per 100 lb.
 Genuine English Litharge, 7 cents per lb.
 Golden Ochre, 3 1/2 cents per lb.
 Mortar Color, \$1.25 per 100 lb.
 Pure Indian Red, No. 45, 90 cents per lb.
 Super Magnetic Oxides, \$2 to \$2.25 per 100 lb.
 Ultramarine Blue, in 28-lb. boxes, 8 to 24 cents per lb.
 Venetian Red (best), \$1.80 to \$1.90 per 100 lb.
 Whiting, 12 cents.
 Yellow Ochre (J.C.), bbls., \$1.35 to \$1.40 per 100 lb.
 Yellow Ochre (J.F.L.S.), bbls., \$2.75 per 100 lb.
 Yellow Ochre (Royal), \$1.10 to \$1.15 per 100 lb.

COLORS (In Oil).—Duty 25%.
 25 lb. tins, Standard Quality.
 Chrome Green, 8 cents per lb.
 Chrome Yellow, 11 cents per lb.
 French Imperial Green, 10 1/2 cents per lb.
 French Ochre, 5 cents per lb.
 Golden Ochre, 6 cents per lb.
 Marine Black, 9 cents per lb.
 Marine Green, 9 cents per lb.
 Venetian Red, 5 cents per lb.

PAPER.—Duty 25%.
 Brown Wrapping, 2 1/2 to 4 cents per lb.
 Manila Wrapping, No. 1, 4 cents per lb.
 " " No. 2, 5 1/2 " " " "
 Carpet Felt, \$45 per ton.
 Plain building, 35 cents per roll.
 Tarred lining, 45 cents per roll.
 Tarred roofing, \$1.65 per 100 lbs.

PEAVEYS.—Duty 30%.
 Round and Duck bill, \$2.50 and \$13 per doz.

PIKE POLES.—Duty 30%.
 \$10.50 per doz.

PICKS.—Duty 30%.
 \$4.50 to \$7 per doz.

PITCH.
 85 cents 100 lbs.

PIPE.—Duty, \$8 per ton.
 Cast Iron Soil, Medium and Heavy, 65% discount
 " " " Light, 60% discount.

PIPE.
 Brass, 25 to 35 cents per lb., base price.
 Copper, 25 cents per lb., base price.

PIPE.—Duty 30%.
 Galvanized Iron.
 1/2, \$5.15 per 100 ft.; 3/4, \$5.50 per 100 ft.; 1, \$7.95 per 100 ft.; 1 1/4, \$10.80 per 100 ft.; 1 1/2, \$12.95 per 100 ft.; 2, \$17.35 per 100 ft.

PIPE, BLACK IRON.—Duty 30%.
 1/2, \$4.65 per 100 ft.; 3/4, \$3.40 per 100 ft.; 1, \$3.45 per 100 ft.; 1 1/4, \$3.30 per 100 ft.; 1 1/2, \$3.75 per 100 ft.; 2, \$9.30 per 100 ft.; 2 1/2, \$12.75 per 100 ft.; 3, \$22.75 per 100 ft.; 3 1/2, \$30.00 per 100 ft.; 4, \$37.50 per 100 ft.; 4 1/2, \$42.75 per 100 ft.; 5, \$51.50 per 100 ft.; 5 1/2, \$57.50 per 100 ft.; 6, \$74.50 per 100 ft.

PIPE.—Duty 30%.
 Wrought Iron, 1 inch, per ft. 16 1/2 cents.

PIPES.—Duty 30%.
 Stove, 5 and 6 in., \$7 per 100 lengths.
 " 7 in., \$7.50 per 100 lengths.

PLANES.—Duty 30%.
 Bailey's, 40% discount.
 Canadian wood, 25% discount.
 Mathieson wood, 20 " "

PLUMBERS' BRASS GOODS.—Duty 30%.
 Check Valves, 60% discount.
 Compression Cocks, 50% discount.
 Gate Valves, 55% discount.
 Genuine Jenkins' Valves, 45 " "
 Imitation Jenkins' Valves, 55 " "
 Radiator Valves, 55% discount.
 Standard Angle Valves, 65% discount.
 Standard Globe Valves, 65 " "
 Stop Cocks, 65% discount.

POLISH.—Duty 25%.
 Liquid Stove, \$5 per gross.
 Paste, \$5 per gross.

PULLEYS.—Duty 25%.
 Awning, 25 to 60 cents per doz.
 Clothes Line, 50 cents per doz.
 Dodge wood split, 50% discount.
 Sash, 25 to 27 cents per doz.

PUMP CYLINDERS.—Duty 25%.
 Regular patterns, 65% discount.

PUMPS.—Duty 25%.
 Cistern, 50% discount.
 Force, 50 " "

PUNCHES (centre)—Duty 30%.
 Assorted sizes, \$1.80 per doz.

PUTTY.—Duty 20%.
 In bbls. (Bladders), \$2.10 per 100 lbs.
 In kegs, boxes or loose, \$2.25 per 100 lbs.
 In 25-lb. tins, \$2.35 per 100 lbs.
 In 12 1/2-lb. tins, \$2.65 per 100 lbs.
 In bulk or tins less than 100 lb., \$2.90 per 100 lbs.
 Bulk, in bbls., \$1.90 per 100 lbs.
 " in less quantity, \$2.05 per 100 lbs.

RASPS.—Duty 30%.
 Blacksmiths, Woodworkers, etc., see Files.

REGISTERS.—Duty 30%.
 Floor and Wall, 50% discount.

RIVET SETS.—Duty 30%.
 Canadian, 35 to 37 1/2% discount.

RIVETS AND BURRS.—Duty 30%.
 Copper Rivets and Burrs, 35 & 5 off; cartoons, 1 cent per lb. extra.
 Extras on Iron Rivets in 1-lb. cartoons, 1 cent per lb.
 Extras on Iron Rivets in 1/2-lb. cartoons, 1 cent per lb.
 Extras on Tinned or Coppered Rivets, 1/2-lb. cartoons, 1 cent per lb.
 Iron Rivets, black and tinned, 60 & 10% discount.
 Iron Burrs, 55% discount.

ROPE, ETC.—Duty 25%.
 Cotton, 3-16 in. and larger, 16 cents per lb.
 " 5-32 in., 21 cents per lb.
 " 1/2 in., 22 1/2 cents per lb.
 Crucible Steel Rope, 25% discount.
 Galvanized Wire Rope, 25% discount.
 Jute, 8 cents per lb.
 Lath Yarn, 9 1/2 cents per lb.
 Manila, 7-16 in. and larger, 13 1/2 cents per lb.
 " 1/2 in., 14 1/2 cents per lb.
 " and 5-16 in., 15 1/2 cents per lb.
 New Zealand Rope, 10 cents per lb.
 Russia Deep Sea, lines 15 1/2 cents per lb.
 Sisal, 7-16 in. and larger, 10 cents per lb.
 " 1/2 in., 11 cents per lb.

RUBBER.
 Reclaimed.

RULES.—Duty 30%.
 Boxwood, 75 and 10% discount.
 Ivory, 37 1/2 to 40% discount.
 Lumbermans'.

SAD IRONS.—Duty 30%.
 Mrs. Potts', No. 55, polished, 62 1/2 cents per set.
 No. 50, nickel-plated, 67 1/2 cents set.
 "Sensible," 55 and 60 cents set.
 "Toy," \$13.00 gross.

SAND AND EMERY PAPER.—Duty 25%.
 B. & A. Sand, 40 & 5% discount.
 Garnet, 5 to 10% advance of list.

SAP SPOUTS.—Duty 30%.
 Bronzed iron, with hooks, \$9.50 per 1,000.

SASH WEIGHTS.—Duty 25%.
 Sectional, \$2.75 to \$3 per 100 lb.
 Solid, \$1.25 to \$2.25 per 100 lb.

SAWS.—Duty 30%.
 Crosscut, Disston's, 35 to 55 cents per foot.
 Hack, complete, 75 cents to \$2.75 each.
 Hack, frame only, 75 cents each.
 Hand, Disston's, 12 1/2% discount.
 S. & D., 40% discount.
 S. & D., 35 off on Nos. 2 and 3.

SCALES.—Duty 30%.
 Champion, 60% discount.
 Gurney's, 40 " "
 Troenmer's, 30 " Canadian list.

SCREENS.—Duty 30%.
 Door, \$7.50 to \$12 doz.
 Window, \$1.75 to \$2.75 doz.

SCREWS.—Duty 35%.
 Bench, iron, \$4.25 to \$5.75 per doz.
 " wood, \$3.25 to \$4 per doz.
 Drive Screws, 87 1/2 & 10% discount.
 Hexagon Cap, 45 " "
 Set, case-hardened, 60 " "
 Square Cap, 50 & 5 " "
 Wood, F. H., bright and steel, 87 1/2 & 10% discount.
 " R. H., bright, 82 1/2 & 10% discount.
 " F. H., brass, 80 & 10 " "
 " R. H., brass, 75 & 10 " "
 " F. H., bronze, 75 " "
 " R. H., bronze, 70 " "

SCREWS, (Machine, Iron and Brass)—Duty 35%.
 Flat head, 25% discount.
 Round head, 20 " "

SCYTHES.—Duty 25%.
 Grass, \$8 to \$10.
 Grain, \$12 to \$14.

SHEARS.—Duty 30%.
 Tailors, 30% discount Amer. list.

SHELLS (Cartridge).—See Ammunition.

SHOT, See Ammunition.

SHOVELS AND SPADES.—Duty 35%.
 Burns', 40 and 5% discount.
 Ely's, " "
 Gray's, " "
 Jones', " "
 Steel, Snow, \$2.45 @ \$2.60 per doz.
 Wood, " "

SKATES.—Duty 35%.
 American Hockey, " "
 Canadian, " 40 cents to \$2.50 pair.

SNAPS.—Duty 30%.
 Harness, 40% discount.

SNATHS.—Duty 25%.
 Sythe, \$5.25 to \$8 per doz.

SOLDER (Plumbers').—See Metals.

SOLDERING IRONS.—Duty 30%.
 20 to 80 cents each.

SPIKES.—Duty 1/2 cent per lb.
 Rail, 20% discount.
 Ship, \$5 per 100 lb.

SPRINGS.—Duty 35%.
 Bright Carriage, 6 1/2 per lb. net.

STAPLES.—Duty 30%.
 Barb wire, \$3.75 per 100 lb.
 Bed, 50% discount.
 Blind, 25 " "
 Wrought iron, 75% discount.

STEEL—see Metals.

STOCKS AND DIES.—Duty 30%.
 Blacksmiths', Lightning, 25% discount.
 " Green River, 25 " "
 " Reece, 30% discount.
 " Jardine, 35% " "
 Pipe, Solid, 70 & 10% discount.
 Duplex, 33 1/2% discount.
 " Jarecki, 33 1/2% " "
 " Oster, 30% " "
 " Armstrong, 35% " "
 Wiley & Russell's, 25% discount, Canadian list.

STONES.—Duty 30%.
 Arkansas, \$1.50 per lb.
 Hindostan, 6 to 7 cents per lb.
 " slip, 9 cents per lb.
 Labrador, 13 cents per lb.
 " axe, 15 cents per lb.
 Scythe, \$3.50 to \$5 per gross.
 Turkey, 50 cents per lb.
 Washita, 25 to 60 cents per lb.
 Water-of-Ayr, 10 cents per lb.

TACKS, BRADS, etc.—Duty 35%.
 Carpet tacks, blued, 80 & 15% discount.
 " " tinned, 80 & 20 " "
 " " in kegs, 40% discount.
 Cheese-box tacks, blued, 85 & 12 1/2% discount.
 Copper tacks, 50% discount.
 Cut tacks, blued, in dozens only, 80% discount.
 " weights, 60% discount.
 Fine finishing, 40% discount.
 Leather carpet tacks, 65% discount.
 Lining tacks, in papers, 10% discount.
 Patent brads, 40% discount.
 Picture frame points, 10% discount.
 Strawberry box tacks, bulk, 75 & 10% discount.
 Swedes, cut tacks, blued and tinned, in bulk, 80 & 10% discount; in dozens, 75% discount.
 Swedes, upholsterers', bulk, 85, 12 1/2 & 12 1/2% dis.
 " brush, blued and tinned, bulk, 70% dis.
 " gimps, blued, tinned and japanned, 75 & 12 1/2% discount.
 Trunk tack, black and tinned, 85% discount.
 Zinc tacks, 35% discount.

TAGS.—Duty 25%.
 Shipping, 50 @ 70 cents per M.

TAR.
 Coal \$2.75 bbl.
 Refined, \$4 per bbl.

TENTS.—Duty 30%.
 Canadian list, 20% discount.

TONGS.—Duty 30%.
 Ice, \$9 per doz.
 Pipe, " Brown's," net.
 " " Brock's," 25% discount.
 " " Trimo," 25 " "

TRAPS.—Duty 30%.
 " Hawley & Norton's," 65% discount.
 " Newhouse," 45% discount.
 " Victor," 75% discount.

TRUCKS.—Duty 30%.
 1, \$3.75; 2, \$5; 3, \$6.75 each.
 " Handy" Canadian, \$16 to \$18.

TUBES FOR BOILERS.
 1 1/2, 1 1/4, 1 1/8, 2, 2 1/2, 3, 3 1/2, 4
 15, 12, 12, 10 1/2, 13, 14, 14 1/2, 18 1/2, 24 1/2 ft.

TURNBUCKLES.—Duty, 1/2 cent per lb., 25%; 33 1/2% discount.

TURPENTINE.—Duty 5%.
 55 cents per gal.

TWINES.—Duty 25%.
 Bag twine, 3-ply, 20 cents per lb.
 " 4-ply, 20 cents per lb.
 Binding, 12 1/2 cents per lb.
 Colored, 27 cents per lb.
 Cotton bag, 30 cents per lb.
 Cotton, White, 30 to 50 cents per lb.
 " Colored, 30 to 40 " "
 Hemp, 20 cents per lb.
 Jute, 20 cents per lb.
 Mattress, 45 cents per lb.
 Sewing, 45 cents per lb.

TWINE—Continued.
 Tarred Lath, 11 cts.
 Wrapping, 22 to 27 cts.

VARNISHES.—Duty 20 cents per gal.
 20% off 5-gal. lots.
 Black Japan, \$2 per gal.
 " No. 1, 75 cents to \$1.50 per gal.
 Brown Japan, \$1.50 to \$2.50 per gal.
 Carriage, No. 1, \$2 to \$3 per gal.
 " body, \$4 to \$6 per gal.
 " rubbing, \$2.50 to \$4 per gal.
 Demar, \$2 to \$2.50 per gal.
 Elastic Oak, \$1.50 to \$2.50 per gal.
 Furniture Brown Japan, \$1.25 to \$2 per gal.
 Furniture, extra, \$2 to \$2.50 per gal.
 " No. 1, 75 cents to \$1.50 per gal.
 Gold Size, Japan, \$1.50 to \$2.50 per gal.
 Hard Oil Finish, \$1.50 to \$2.50 per gal.
 Light Oil Finish, \$1.50 to \$2.50 per gal.
 Shellac, orange, \$2 to \$2.50 per gal.
 " white, \$2 to \$2.50 per gal.

VICES.—Duty 30%.
 Amer., 13 1/2 cents per lb.
 Brooks', 13 1/2 cents per lb.
 Peter Wright's, 15 cents per lb.

WASHERS.—Duty 1/2 cent per lb., 25%.
 Buggy, 75% discount.
 Wrought iron, 40% discount.

WASHING MACHINES.—Duty 35%.
 Re-acting square, \$51.00 per doz.
 " Round, \$48.00 " "
 Rocker, \$43.00 per doz.
 Popular Brands, \$30.00 to \$42.00 per doz.
 Dowsell, \$3.75 each.
 Re-acting (Dowsell), \$5 each.

WIRE.
 Barbed Wire, see Fencing.
 Brass Wire, (duty 10%), 50 to 50 & 2 1/2% discount.
 Copper Wire, (duty 15%), 45 & 10% discount net cash 30 days, f.o.b. factory.
 Smooth Steel Wire, (duty 20%), is quoted at the following net selling prices:
 No. 6 to 8 guage, \$2.90 per 100 lbs.
 " 9 " 2.80 " "
 " 10 " 2.87 " "
 " 11 " 2.90 " "
 " 12 " 2.95 " "
 " 13 " 3.15 " "
 " 14 " 3.37 " "
 " 15 " 3.50 " "
 " 16 " 3.65 " "

Other sizes of plain wire outside of Nos. 9, 10, 11, 12 and 13, and other varieties of plain wire remain at \$2.80, base, with extras as before. The prices for Nos. 9 to 13 include the charge of 10 cents for oiling. Extras net per 100 lb.: coppered wire, 60 cents; tinned wire, \$2; oiling, 10 cents; special hay-baling wire, 30 cents; spring wire, \$1; best steel wire, 75 cents; bright soft drawn, 15 cents; in 50 and 100-lb. bundles net, 10 cents; in 25-lb. bundles net, 15 cents; packed in casks or cases, 15 cents; bagging or papering, 10 cents.

Fine Steel Wire, 17 1/2 off. List of extras, in 100 lb. lots, No. 17, \$5; No. 18, \$5.50; No. 19, \$6; No. 20, \$6.65; No. 21, \$7; No. 22, \$7.30; No. 23, \$7.65; No. 24, \$8; No. 25, \$9; No. 26, \$9.50; No. 27, \$10; No. 28, \$11; No. 29, \$12; No. 30, \$13; No. 31, \$14; No. 32, \$15; No. 33, \$16; No. 34, \$17. Extras net: tinned wire, Nos. 17-25, \$2; Nos. 26-31, \$4; Nos. 32-34, \$6; coppered, 5 cents; oiling, 10 cents; in 25-lb. bundles, 15 cents; in 5 and 10-lb. bundles, 25 cents; in 1-lb. hanks, 50 cents; in 1/2-lb. hanks, 75 cents; in 1/4-lb. hanks, \$1; packed in casks or cases, 15 cents; bagging or papering, 10 cents.

Galvanized Wire, per 100 lb.: Nos. 6, 7, 8, \$3.50 to \$3.85; No. 9, \$2.85 to \$3.15; No. 10, \$3.60 to \$3.95; No. 11, \$3.70 to \$4.10; No. 12, \$3 to \$3.50; No. 13, \$3.10 to \$3.40; No. 14, \$4.10 to \$4.60; No. 15, \$4.60 to \$5.05; No. 16, \$4.85 to \$5.35. Base sizes, Nos. 6 to 9, \$2.57 1/2 f.o.b. Cleveland.

Clothes Line Wire, solid 7 strand, No. 17, \$4.25; No. 18, \$2.65; No. 19, \$2.35; f.o.b. Toronto, Hamilton and Montreal.

WASTE (Cotton).
 Colored, \$5.50 to \$6 per 100 lb.
 White, \$7.75 per 100 lbs.
 " extra, \$8 per 100 lb.

WHEELBARROWS.—Duty 30%.
 Garden, \$2 to \$4.50 each.
 Navy, \$19 per doz.
 Iron wheel, \$22.50 per doz.
 Steel tubular, \$7.50 to \$10.50 each.

WRENCHES.—Duty 30%.
 Agricultural, 60% discount.
 Alligator, 50 " "
 Coes', 30 " "
 P.S. & W., 30 " "
 Stillson's, 25 " "
 Trimo, pipe, 25 " "

WRINGERS (Clothes).—Duty 35%.
 Ajax, \$66 per doz.
 Canadian, \$26 to \$30 per doz.
 Crescent, \$17.50 to \$20 per doz.
 Leader, \$30 per doz.
 Novelty, \$23 to \$27 per doz.
 Popular Brands, \$16.50 to \$22 per doz.
 Royal American, \$26 to \$30 per doz.
 Royal Canadian, \$26 to \$30 per doz.

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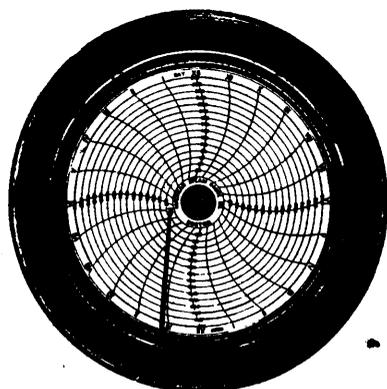
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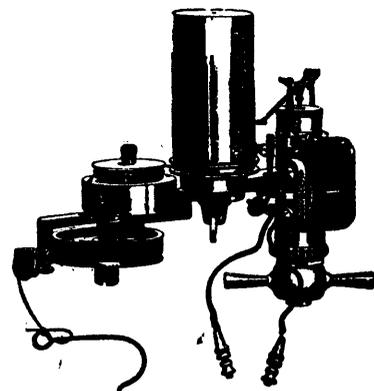
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