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CANADIAN MANUFACTURER AND INDUSTRIAL WORLD

DEVOTED TO THE MANUFACTURING INTEREST OF THE DOMINION.

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A SOUTH AFRICAN PREFERENCE.

THE CANADIAN MANUFACTURER of September 4, 1903, contained the official text of the South African tariff, which has remained unchanged until a revision which has just been completed. The tariff of March 10, 1903, was made by a conference of representatives of the various British Colonies and territories in South Africa held at Bloemfontein. The Customs Union convention consisted of 25 articles and three schedules, the first article providing for the supercession of the Customs Union Convention of 1898 and of its replacement by the one which has been in force until now, to which the governments of Cape Colony, Natal, Orange River Colony, Transvaal and Rhodesia became parties, and to which Basutoland and the Bechuanaland Protectorate accorded their assent. The second article set out the new Customs Union tariff, arranged under five classes, and the third and fourth articles gave the particulars of the preference to be accorded to British and Imperial trade. The remaining articles referred to the working of the tariff, to the imposition of an excise in the several colonies, to the continued free entry into the Transvaal of the produce and manufactures, (spirits excepted), of the Portugese province of Mozambique, and also of British Central Africa.

Being the result of a compromise the tariff partook of features of both of the previous Customs Union tariff and that of the Transvaal, with additions characteristic of itself. Most noteworthy of these last were the increase of the ad valorem duty of 10 per cent., the mixed ad valorem rates on goods in class II., the 2½ per cent. ad valorem duty on the articles in class III.; the abolition of the ad valorem duty when special rates were imposed on goods in class I.; and of course, the preference of 25 per cent. and 2½ per cent. accorded to British and Colonial imports. Certain enhanced duties were borrowed from the old Customs Union tariff with a view to affording protection to Colonial industries, and some existing rates were strengthened with a similar object.

The revision of this tariff has been under consideration for some time, and the Dominion Government are now in receipt of a communication from Mr. C. M. Kittson, Canadian Commercial Agent at Cape Town, in which he gives the particulars of those portions of the new tariff, under which further extension of the preference is granted to Canadian merchandise as follows:

"The Customs Union has extended preference to specifically rated articles."

For the purpose of reference "Class I.," being the "Special Rates" imposed under the tariff of the South African Customs, is published herewith:

Heretofore in the case of goods and articles liable to customs duty under this class a rebate of 25 per cent. was allowed of any duty chargeable thereon at an ad valorem rate, but of no other duty, on goods and articles the growth, produce or manufacture of Canada.

It therefore appears that the preference is now extended to goods under Class I. upon which a specific duty is levied.

CLASS I.—SPECIAL RATES.

	£	s	d
1. Ale, beer, and cider; all kinds of strength exceeding 3 per cent. of proof spirit.....Imperial gallon (and in addition 10 per cent. ad valorem). Note.—Vide Article XVII. of Convention.	0	1	6
2. Acetic acid.....Imperial gallon	0	3	0
3. Animals, viz.:—			
(a) Cattle for slaughter.....each	1	10	0
(b) Sheep for slaughter..... " Note.—Vide Article XIII. of Convention.	0	5	0
4. Beads, known as "Kaffir beads".....lb.	0	0	6
5. Blasting compounds, including all kinds of explosives suitable and intended for blasting, and not suitable for use in firearms; and collodion cotton not intended for manufacturing purposes.....lb.	0	0	1½
6. Butter, butterine, margarine, ghee and other substitutes for butter.....lb.	0	0	2
7. Chicory and substitutes for coffee or chicory.....lb.	0	0	2
8. Coffee:—			
(a) Raw..... "	0	0	0¾
(b) Roasted, ground or mixed..... "	0	0	2
9. Cocoa and chocolate unsweetened..... "	0	0	1
10. Cocoa and milk, chocolate and milk, and coffee and milk.....lb.	0	0	1
11. Condensed, desiccated or preserved milk or cream. "	0	0	0½
12. Coals.....ton of 2,000 lbs.	0	3	0
13. Coke and patent fuel..... "	0	2	0
14. Confectionery, including sweetened cocoa or chocolate, honey, jams, jellies, preserves, sweetmeats, candied or preserved ginger or chow-chow; and all other kinds compounded, made or preserved with sugar, but not including purely medicinal preparations properly classed as apothecaryware.....lb.	0	0	2
15. Corn and grain, viz.: Barley, maize, millet, oats, rye, wheat, beans and peas:—			
(a) In the grain, or (b) crushed, flaked, ground, hulled, malted, pearled, split or otherwise prepared, except oats not in the grain and bran.....100 lbs.	0	1	0
(c) Flour, wheaten, or wheaten meal, including pollard.....100 lbs. Note.—Vide Free List and Article XV. of Convention.	0	2	0
16. Dates.....lb.	0	0	0½
17. Fish: Cured, dried, pickled, preserved, pressed or smoked, not being of South African taking...lb.	0	0	1
18. Fodder, viz.: Chaff, hay, lucerne, oat-hay and other fodder, not otherwise described, but not including bran.....100 lbs.	0	1	0
19. Fruits: Preserved, of all kinds, bottled, tinned or otherwise preserved, including pulp and candied peel.....lb.	0	0	2
20. Fruits: Dried of all kinds, including almonds and nuts.....lb.	0	0	2
21. Gunpowder and other explosives suitable for use in firearms.....lb. (and in addition 10 per cent. ad valorem).	0	0	6

22. Guns and gunbarrels, firearms:—				
(a) Single	barrel.	1	0	0
(b) Double and other	"	0	15	0
(and in either case in addition 10 per cent. ad valorem).				
23. Meats, including lard, fats, soups, and other similar substances used as food, but not including extracts and essences or tallow	lb.	0	0	1
Note.—Vide Article XIII. of Convention.				
24. Matches:—				
(a) Wooden: In boxes or packages of not more than 100 matches	gross of boxes or packages	0	2	0
In boxes containing more than 100, but not more than 200 matches	gross of boxes or packages.	0	4	0
And for every additional matches, in boxes or packages, gross of 100 matches		0	2	0
(b) Fusees, vestas or wax matches, or other patent lights used as such; in boxes or packages containing not more than fifty gross of boxes or packages		0	2	0
In boxes or packages of more than 50, but not more than 100 gross of boxes or packages		0	4	0
And for every fifty additional in boxes or packages, gross of fifty matches		0	2	0
25. Onions, not preserved	lb.	0	0	0½
26. Pickles, Sauces, Chutneys, Chillies and other condiments	lb.	0	0	2
27. Pistols and revolvers	each	0	5	0
(and in addition 10 per cent. ad valorem).				
28. Soap, not including toilet soaps and soap powders and extracts	lb.	0	0	0½
Note.—Vide Article XVIII. of Convention.				
29. Spices and turmeric	lb.	0	0	2
30. Spirits:—				
(a) Perfumed	Imperial gallon.	1	0	0
(b) Liqueurs and cordials exceeding 3 per cent. of proof spirit	Imperial gallon.	0	15	0
(c) Other sorts, exceeding 3 per cent. but not exceeding the strength of proof by Sykes' Hydrometer, and so on in proportion for any greater strength	Imperial gallon.	0	15	0
(and in addition 10 per cent. ad valorem on all the above classes of spirits).				
Note.—Vide Article XVII. of Convention.				
31. Sugar:—				
(a) Not refined, golden syrup, molasses, saccharum and treacle	100 lbs.	0	3	6
(b) Refined	"	0	5	0
Note.—Vide Article V. of Convention.				
32. Tea	lb.	0	0	4
33. Tobacco:—				
(a) Cigars and cigarillos	"	0	6	0
(and in addition 10 per cent. ad valorem).				
(b) Goorak or Goorakco, and Hookah mixture, and all imitations or substitutes	lb.	0	6	0
(c) Snuff	"	0	4	0
(d) Cigarettes	"	0	4	0
(and in addition 10 per cent. ad valorem).				
(e) Manufactured and cut	"	0	3	6
(f) Manufactured but uncut	"	0	3	0
(g) Not manufactured but stemmed	"	0	2	6
(h) Not manufactured and unstemmed	"	0	2	0
34. Vinegar:—				
(a) Of standard strength, fit for immediate use as such, i.e., requiring no more than forty grains of bicarbonate of potash to neutralize one ounce Troy:				
(1) In bottles or other vessels of the capacity of not more than one Imperial quart	Imperial gallon.	0	1	0
(2) In larger vessels or in bulk	"	0	0	6
(b) Concentrated extract of essence, of greater strength than above	Imperial gallon.	0	3	0
35. Wine:—				
(a) Still wines not exceeding 20 per cent. of proof spirit	Imperial gallon.	0	4	0
(b) Still wines exceeding 20 per cent. but not exceeding 50 per cent. of proof spirit	Imperial gallon.	0	8	0
(c) Sparkling wines	"	0	12	0
(and in addition 10 per cent. ad valorem on all the above classes of wine).				
Note.—Wines containing less than 3 per cent. of proof spirit are not included in the above and wines containing more than 50 per cent. of proof spirit are classed as spirits.				

CANADA—NEW ZEALAND TRADE.

Discussing the import and export trade with New Zealand the June issue of Industrial Canada says:

Since the steamship line between Vancouver and New Zealand was started there has been renewed interest in the question of trade between Canada and New Zealand. Business men on both continents are anxious to have the experiment of the direct steamship line prove successful. This is of especial importance to Canadian manufacturers from the fact that there is a big market in New Zealand for manufactured articles from this country. In return Canada imports raw materials and natural products from that country. * * * In order that those who are interested in the lines of goods exported from New Zealand may appreciate the extent of our trade with New Zealand, a list of the imports into Canada from New Zealand from January 1 to October 31 is appended.

Then follows a list of 22 articles which it says was imported into the Dominion during the ten months alluded to; which includes cement, coal, coke and coal dust, cordage including binder twine, fertilizers, fish, hemp, jute, etc., fruits,—green and canned, furs and skins, grease, hides, hops, mineral water, fish, oils, pickles, butter and cheese, bacon and hams; pork in barrels, other meats, sugar, etc., vegetables and raw wool. A note appended to the article states that a preference rate of duty, which is one third less than ordinary, is allowed on all dutiable goods imported from New Zealand. The value of dutiable goods and of free goods is placed opposite the articles named which aggregate for dutiable goods, $24,255,743, and for free goods, $24,196,672, a total of $48,452,415.

No doubt Mr. Fielding, the Finance Minister, is delighted at the statement, seeing that duties were collected on more than $24,000,000 imports for New Zealand in ten months. No doubt Mr. Paterson, the Minister of Customs, is delighted at the large volume of trade we are enjoying with our antipodean neighbor. No doubt Sir Richard Cartwright, Minister of Trade and Commerce is equally delighted that the exchange of commodities between the two countries in ten months should exceed in value more than $48,000,000. No doubt the proprietors of the new steamship line between Vancouver and New Zealand are equally delighted, if not more so, as well as the C.M.A. at the event, and no doubt so are their sisters and their cousins and their aunts. No doubt they would all be delighted—all Canada and all New Zealand—if it were so. No doubt, if the trade kept up during the remaining two months of 1907 Industrial Canada would issue another bulletin showing that for the entire year the Canada-New Zealand trade exceeded more than $56,000,000.

It is a pity, though to dissipate so beautiful a rainbow, but the Trade and Navigation tables for the year 1905, the latest issued by the government, fails to show any such imports. The returns do show, however, that we imported goods in that year from New Zealand, and the values thereof:

Dutiable.		Free.	
Books	$ 5	One sheep	$ 10
Oats	195	Hides	5,696
Jellies	21	Wool	28,444
Milk—condensed	38	Gums	24
Packages	137	Returned goods	1,995
Butter	8,634	Ship's stores	650
Meat—canned	761	Settlers' effects	2,000
Seeds	1,465		
Sugar candy	51		
Total dutiable	$11,307	Total Free	$38,819

Grand total of imports—$50,126.

Our exports of Canadian products to New Zealand in 1905 make a better showing. The total value amounted to $532,582, of which $451,046 were manufactures, the balance, $81,336, being credited to the products of the mine, the fisheries, the forest, animals and their produce and agricultural products. The values of some of the more important Canadian manufactures exported to New Zealand in 1905 were paper, $104,126; agricultural implements, $93,997; cotton fabrics, $77,937; furniture and other manufactures of wood, $37,047; leather and manufactures of, $34,673; rubber goods, $31,131; machinery, hardware and other manufactures of iron and steel, $28,514; wheel vehicles, $10,736.

The following table shows the value of dutiable and free goods imported into Canada from New Zealand and the value of Canadian products exported to that country as under. Previous to 1902 the trade with New Zealand was included with that of Australia.

CANADIAN-NEW ZEALAND TRADE.

	Imports.			
	Dutiable.	Free.	Exports.	Total.
1902	$142	$4,038	$350,130	$354,310
1903	301	41,876	450,567	492,744
1904	3,080	16,362	587,451	607,893
1905	11,307	38,819	532,382	582,508

DENATURED ALCOHOL.

The bill for some time pending in the United States Congress providing for the free manufacture of alcohol for use in the arts and sciences became law on May 24. The alcohol, before going into consumption, is to be "denatured," or made unfit for potable purposes.

The bill provides that after January 1 next, domestic alcohol of such degree of proof as may be prescribed by the commissioner of internal revenue may be withdrawn from bond for use in the arts and industries and for fuel, light and power, without payment of internal revenue tax; provided said alcohol shall have been mixed in the presence and under the direction of an authorized government officer with denaturizing material which destroys its character as a beverage and renders it unfit for liquid medicinal purposes.

Chairman Payne, of the Committee on Ways and Means, when presenting its report to the House of Representatives, called attention to the fact that in order to prevent fraud the denaturizing of alcohol for use in the arts and sciences must be done in the presence of internal revenue officers before it is withdrawn from bond. The bill does not specify the denaturizing material, but the report says that wood alcohol is generally used.

Continuing the report says in part:—

If the anticipations of some of the advocates of the tax free alcohol were to be realized, but little time would elapse before the entire output of the methyl alcohol factories would be used as a denaturizing material. But the better opinion is that it would take considerable time to effect this change, and until that result was realized the charcoal manufacturers would have to look for their profits to the product of charcoal and acetate of lime, both of which are in demand to the full extent of these factories. While this would cut down the very large dividends reported to have been paid hitherto in the wood alcohol business, it is not believed it would destroy or permanently cripple the industry.

But in the change of this tax law we have to consider the greatest good to the greatest number. If it was an assured fact that the only results of this legislation would be to allow the manufacturers now using wood alcohol a cheaper material for the six or seven million gallons which they use, the legislation, in view of the injury to the wood alcohol industry, could not be justified. In the judgment of the committee the result of this legislation would be to very widely extend the use of alcohol.

The one question of substitution of alcohol in great part for gasoline is that of cost. There is another question of the future supply of gasoline equal to the growing demand. The supply is limited. The demand seems to be almost unlimited. Experiments show that a gallon of alcohol will produce at least 10 per cent. more power than a gallon of gasoline. The alcohol for this purpose produces the best results when there is at least 10 per cent. of water in the mixture, or in other words, when the alcohol is 90 per cent. pure.

There is a considerable use of alcohol in Germany for heat, substituting it in stoves for gasoline. If the alcohol can be produced at an economical cost, there is no question that, like the use of gas stoves in cities, the use of alcohol stoves in the country would grow to large proportions.

The passage of the law by Congress removing the tax of denaturized alcohol will be cordially welcomed by many branches of manufacture. Few people are aware of the importance of this article to the industries of the country. Some idea of the extent to which it is used may be gained by mentioning some of the interests which appeared before Congress in behalf of the repeal of the tax. Delegations were heard before the committee advocating the bill representing the manufacturers of pianos, furniture, silk, hats, hardware, paints and varnishes, etc., and such concerns interested in industrial pursuits as the American Chemical Society, the Society of Chemical Industry, the Patrons of Industry, the American Confederation of Labor, the Brotherhood of Painters, Decorators and Paper Hangers, etc.

To all of these industries the subject was of importance and to some of them of very large importance. The leading facts brought out by the hearings were the far reaching industrial use and importance of alcohol, the manner in which the tax was a burden on industries and the large development of industry which only awaited the removal of the tax.

The opposition to the removal of the tax came from several sources:—The Prohibitionists who fear that it might be smuggled and used or redistilled cheaply; but Prof. Wiley has shown that this latter is impossible as the cost would be prohibitive.

The Standard Oil Company opposed it because it would take the place of gasoline in many instances. The manufacturers of wood alcohol (methyl) fear that it would break up their industry, but when it is known that wood alcohol is the denaturing agent generally employed, and acknowledged to be the best, it is likely that it will increase rather than decrease its consumption.

With these objections removed, it narrows down to what alcohol can be used for.

One gallon of 94 per cent. alcohol is equal it is claimed, to two gallons of gasoline for fuel, light or running motors, making it at 24 cents per gallon as economical as gasoline at 13 cents, which is the price at which it usually sells, but government chemists say that it can be sold at a profit for 15 cents and some authorities say that in large quantities it can be sold for eight to ten cents per gallon, making it much cheaper than gasoline and more efficient, less objectionable and quite safe, while gasoline is dangerous, and the odor very nauseating.

Prof. Elihu Thompson says:

"Alcohol is produced and sold in Cuba for from 12 to 15 cents a gallon, and I have found by tests that it is an excellent fuel for running engines At 20 cents per gallon I think it would eventually replace gasoline. Burned in similar engines it produces no soot, or disagreeable odors. Since alcohol mixes with water freely a fire started with alcohol is one of the easiest to extinguish. This is not the case with gasoline, or even kerosene, which floats on water and continues burning."

It is used in Germany in stoves, ranges and lamps, and makes a beautiful light at a cost of one-third of a cent per hour for a 30-candle-power light. In France and Germany most of the motor cars are run with alcohol, and it has proven far more efficient than gasoline or naphtha, with a pleasant rather than an objectionable odor. It is also used on motor boats, and in Russia, boats of 300 h.p. using alcohol have proven successful.

United States Consul-General Mason, of Berlin, writing to his government on the use of denaturized alcohol in Germany, says:

For most industrial purposes alcohol is used in Germany duty free, after having been "denaturized" or rendered unfit for drinking purposes by admixture, in presence of a government official, with a prescribed percentage or proportion of one or more of several different substances prescribed in the very elaborate statute which governs the complicated subject in Germany. There are two general classes or degrees of denaturizing, viz., the "complete" and the "incomplete," according to the purposes for which the alcohol so denaturized is to be ultimately used.

1. Complete denaturization of alcohol by the German system is accomplished by the addition to every 100 liters (26½ gallons) of spirits: (*a*) Two and one-half liters of the "standard denaturizer," made of four parts of wood alcohol, one part of pyridin (a nitrogeneous base obtained by distilling bone oil or coal tar), with the addition of 50 grams to each liter of oil of lavender or rosemary; (*b*) one and one-fourth liters of the above "Standard" and two liters of benzol, with every 100 liters of alcohol.

Of alcohol thus completely denaturized there was used in Germany during the campaign year 1903-4, 931,406 hectoliters denaturized by process (*a*), as described above, and 52,764 hectoliters which had been denaturized by process (*b*). This made a total of 26,080,505 gallons of wholly denaturized spirits used during the year for heating, lighting, and various processes of manufacture.

2. Incomplete denaturization, i.e., sufficient to prevent alcohol from being drank, but not to disqualify it from use for various special purposes, for which the wholly denaturized spirits would be unavailable, is accomplished by several methods, as follows: The quantity and nature of each substance given being the prescribed dose for each 100 liters (26½ gallons) of spirits. (*c*) Five liters of wood alcohol or one-half liter of pyridin, (*d*) 20 liters of solution of shellac, containing one part gum to two parts alcohol of 90 per cent. purity (alcohol for the manufacture of celluloid, and pegamoid is denaturized); (*e*) by the addition of one kilogram camphor or two liters oil of turpentine, or one-half liter benzol to each 100 liters of spirits.

Alcohol to be used in the manufacture of ethers, aldehyde, agarcin, white lead, brome-silver, gelatins, photographic papers and plates, electrode plates, collodion, salicylic acid and salts, aniline chemistry, and a great number of other purposes, is denaturized by the addition of (*f*) 10 liters sulphuric ether, or one liter of benzol, or one-half liter oil of turpentine, or 0.025 liter of animal oil.

For the manufacture of varnishes and inks alcohol is denaturized by the addition of oil of turpentine or animal oil, and, for the production of soda soaps, by the addition of one kilogram of castor oil. Alcohol for the production of lanolin is prepared by adding five liters of benzine to each hectoliter of spirits.

The price of denaturized alcohol varies in the different states and provinces of the Empire in accordance with the yield and consequent market price of potatoes, grain, and other materials. At the present time alcohol of 95 per cent. purity, which is the quality ordinarily used in Germany for burning, sells at wholesale from 28 to 29 pfennigs (6.67 to 6.9 cents) per liter (1.06 quarts), and at retail for 33 pfennigs (7.85 cents) per liter.

In February last when the untaxed denaturized alcohol bill was under discussion before the Committee of Ways and Means of the United States House of Representatives, Hon. James Wilson, Secretary of Agriculture, made some very interesting explanatory remarks on the subject, some of which we reproduce. Speaking with reference to the benefit the agricultural classes would derive from the use of untaxed alcohol he said:

"The question of heating and lighting on the farm is becoming quite insistent In the prairie countries there is some coal, but the readily obtained supply will become exhausted before a very remote date. Hard coal taken to the prairies is very expensive and it is becoming more and more expensive as time goes on, so that we must begin looking about for other sources of heating and lighting. The starch and sugar-producing plants are the source of alcohol and will probably continue to be. In Europe the chief sources of alcohol have been the potato and the sugar beet by distillation, either directly or from their by-products. Other sources of alcohol which may be advantageously utilized in the United States are the white potato of the North, the sweet potato, the yam, waste molasses from the sugar cane, and the sugar beet, and the waste product from the stalk of the Indian corn at the time of the hardening of the grain. In this list may be included all plants that yield heavily of starch or sugar.

"The term alcohol as I am using it does not apply to any alcoholic beverage, but to pure or denaturized alcohol in a form suitable for technical uses and so mixed

with other ingredients that it cannot be used as a beverage. Sugar and starch, on fermentation, yield about half their weight as absolute alcohol. In practice a smaller quantity is obtained because of certain by-products, such as acids, which are produced during the fermentation of sugar and starch. Practically it may be said that 45 per cent. of the raw material—that is, the sugar or starch—is obtained as alcohol.

"It is becoming an interesting question in what direction the people will turn for heating and lighting, considering the increasing price of coal and the diminishing supplies of wood. An acre of land which produces 50 bushels of corn, nearly 2,800 pounds, will furnish 1,960 pounds of fermentable matter, that is, starch and sugar together. Forty-five per cent. of this will be obtained as absolute alcohol, namely 882 pounds. A gallon of absolute alcohol weighs 6.8 pounds; therefore an acre of corn would produce about 130 gallons of absolute alcohol. Commercial alcohol is about 95 per cent. pure, so that approximately an acre of Indian corn producing 50 bushels would make about 140 gallons of commercial alcohol.

"If we assume the average crop of potatoes to be 300 bushels, or 18,000 pounds, it would produce 3,600 pounds of fermentable matter, since the potato contains an average of 20 per cent. of this material. This would produce 1,620 pounds of absolute alcohol, or about 255 gallons of commercial alcohol, showing that an acre of potatoes produces much more alcohol than an acre of corn.

"But there is another consideration with regard to the potato as a source of alcohol. We raise potatoes for human food, and for scarcely any other purpose. We plant the potato that has the finest flavor for the table, independent of its yield per acre. Were we raising potatoes for the purpose of making alcohol, these considerations would not be regarded. The variety of potato that would give the largest yield per acre would be planted. Where potatoes are used as cattle food, as they are in many foreign countries, varieties of this kind are resorted to, and there would be no difficulty whatever in doubling the 255 gallons per acre receivable from the present average yield of potatoes. So that it would be within bounds to say that 500 gallons of alcohol can be had from an acre of potatoes.

"Potatoes are a commercial crop only when within a certain distance of market. At the average price at which it sells it can be hauled only a short distance, but considering it as a source of heating and lighting, factories would be erected in country neighborhoods, and the potato would then be grown for its largest possible yield of alcohol.

"Looking at this subject from the agricultural standpoint, we find that the Northern States could readily depend upon the white potato as a source of heat and light, the Southern States upon the yam and the sweet potato, and the Western States upon the sugar beet. The extensive irrigation projects now being carried on by the government will result in watering lands that will produce sugar beets more profitable, perhaps, than any other crop. The molasses can be readily turned into alcohol.

"The stalks of Indian corn, at the time when the grain is sufficiently hardened to be perfectly sound, when harvested contain a large quantity of starch. If the stalks could be utilized at that time for the manufacture of alcohol, they would produce a quantity which would be incredibly large. There would be approximately 10 tons of stalks to the acre when yielding 50 bushels of corn to the acre, or 20,000 pounds, and of this at least 12 per cent., or nearly 2,400 pounds, is fermentable matter, 45 per cent. of which can be recovered as alcohol, equivalent to 1,080 pounds of absolute alcohol, or approximately 170 gallons of commercial alcohol. The average yield of Indian corn is only about one-half the above, but the heavier corn lands of the country that would be used for growing corn for alcohol average easily 50 bushels to the acre. It is safe to say that the average amount of sugar and starch which goes to waste in the stalks of Indian corn annually would make 100 gallons of commercial alcohol per acre. When we consider the vast number of acres cultivated in Indian corn, it is seen that the quantity of alcohol that is lost in the stalks is so large as to be almost beyond conception.

"It must be remembered that there would be difficulties attending the saving of these stalks and the manufacture of alcohol from them, and as long as there are cheaper sources of supply, it is evident they will not be utilized for this purpose. But the time is doubtless coming when technical and commercial skill will be able to utilize this immense source of energy. Our coal mines are definite quantities and are being rapidly used up. Our forests are disappearing and many of them have disappeared. The same is true of the sources of mineral oil and natural gas. In the future—it may be some time in the future—the world will have to look to agriculture for the production of its fuel, its light and its motive power. It seems to me that through the medium of alcohol, agriculture can furnish in the most convenient form for the use of man this absolutely necessary source of supply. I believe, therefore, that the utilization of alcohol in the arts and industries would prove not only a great stimulus to manufactures, but a great benefit to agriculture."

A few days before the enactment of the bill by the United States Congress, discussing the advantages of free alcohol, the New York Commercial said:

The day of alcohol for an illuminant, for power and for heat will certainly be ushered in for America with the passing of the bill for relieving it, for industrial purposes, of the industrially prohibitive tax now imposed by the internal-revenue laws. This relief having been already granted in Germany and elsewhere abroad, where economy in manufacturing cost has become the recognized secret of manufacturing success, Congress would only be following the dictates of enlightened commercial and industrial progress, in removing the handicap from grain alcohol. Just what free alcohol means to agriculture in this country is not so generally understood as what it signifies to other industrial fields. It means such far-reaching modifications of the present farming interests and methods as have not been encountered for years. In the potato-raising and corn-growing regions immediate and noteworthy changes are probable. In potato districts, especially in rich ones, the grower already finds a demand, supplementing that of the shippers and speculators, from numerous starch factories that supply textile factories all over New England and elsewhere with material for their cotton goods output. These starch factories utilize to advantage the tubers affected by decay. Now comes the alcohol producer, ready to take almost any old potato product and from every bushel thereof extract some four-fifths of a gallon of marketable alcohol. This means a production of about 250 gallons from each acre yielding 300 bushels of potatoes. From an acre of good corn ground, producing 50 bushels, it is possible to secure 140 gallons from the corn and about 170 gallons from the cornstalks. The fact that culls and stalks are especially valuable as alcohol producers—in other words, that waste and a by-product are turned into cash through the operation of untaxed alcohol—suggests some of the agricultural potencies inherent in the bill.

THE FREEING OF ALCOHOL—HOW IT AFFECTS OTHER INDUSTRIES.

It would be remarkable if, where among the managers of such a large number of industries in the United States who are so pleasantly affected by the passage of the free alcohol law, there should be some who look upon it as an unfortunate blow to their interests. But there are, and these are the manufacturers of wood alcohol, acetate of lime and some other by-products obtained in the manufacture of charcoal for the manufacture of charcoal iron. The Iron Trade Review says that the manufacture of alcohol from grain and similar materials, to be denaturized by the admixture of methylated spirits and thus be made free of the high internal revenue tax otherwise imposed upon the article, will have the direct and immediate effect of crippling and destroying the market for wood alcohol in which more than one hundred plants in the timber states have built up an extensive and legitimate industry, turning it out as a by-product in connection with the manufacture of charcoal for use in the smelting of iron ore, that it would inflict irreparable loss to these allied industries. Timber lands would suffer a corresponding decline in value, and in a number of other directions the effect would be as injurious as it would be unjust; that the only benefits would accrue to the distilling industry.

Our contemporary publishes a communication on the subject from a town in Michigan which, we suppose, advances about all there is to say in the matter, in that direction at least. The contention of the writer is that the removal of the tax from denaturized grain alcohol will deal a severe blow to important industries in the Lake Superior region, particularly the large interests operating in the hardwood districts of Michigan, Wisconsin and Minnesota. The effect upon the production of wood alcohol and the kindred product, acetate of lime, would be serious, but no more so than in the case of the allied products of charcoal, pig iron and hardwood timber. The managers of the various chemical plants are convinced that the exemption of denaturized alcohol from the internal revenue tax will deprive them of a market for the larger portion of their wood alcohol output, drive many of their plants out of business, and render the separate production of acetate of lime unprofitable. This, in turn, would materially enhance the cost of producing charcoal pig iron. The cost of charcoal, without the simultaneous production of wood alcohol and acetate of lime, would be nearly doubled, and the cost of pig iron increased. The improved quality and extended use of coke iron have brought it into such close competition with charcoal iron that the increased cost of the latter would greatly curtail its production. In short, it is contended, the direct effect of free alcohol will be to transform the production of charcoal iron from a profitable into an unprofitable industry.

It is to be hoped that the advent of free alcohol will in no way injuriously affect the price of charcoal iron. As the Iron Trade Review says, the high classes or iron now being made in coke furnaces are, to some extent, supplanting charcoal iron; but it should be remembered that he uses of free alcohol will soon become so general and widespread that even if the comparatively small quantities of charcoal iron are still further restricted and enhanced in price, it would be compensated to the country by the use of a more important material.

It is not probable, however, that even with the free use of denaturized alcohol, made of grain and other vegetable substances, the production of wood alcohol will be restricted to any great extent. It should be remembered that the denaturing of grain alcohol implies the use of wood alcohol, and the prospective great demand for the one will, of course, create an increased demand for the other for denaturing purposes. Alcohol can be made from almost anything. Its production is not confined to grain, nor to wood in the manufacture of charcoal. Nothing that grows upon the farm or in the forest, not excepting the meat products of Chicago packing houses, nor even the accumulations of barn yards or the sweepings of the streets, but what can be used for the distillation of alcohol, and, with the utilization of such a wide variety of products, no doubt the production of wood alcohol, for denaturing purposes, will be largely increased.

As pointed out by an American contemporary, the industrial significance of free alcohol to the people of the United States is at present scarcely realizable. In the matter of small engines and motors alone one estimate places the farm use of these at 300,000 with an annual increase of 100,000. This means an economical displacing of horse and muscle-power in farm work almost beyond comprehension. If now the farmer can make from surplus or cheaply grown crops the very alcohol which is to furnish the cheaper fuel for his motors, he is placed in a still more independent and commanding position in the industrial race.

As an illuminant the untaxed alcohol is bound to introduce some interesting as well as novel conditions. The general estimate of the value of alcohol for lighting gives it about double the power of kerosene, a gallon of alcohol lasting as long as two gallons of the oil. In Germany, where the use of alcohol in lamps is most fully developed, a mantle is used. Between now and January next it may be expected that an entire new industry will spring up to meet the demand for the alcohol illuminating lamps embodying the latest approved form of mantle. The adapting of the gasoline motors of automobiles to alcohol fuel will in itself create a vast new manufacturing undertaking.

Incidental disturbance of important industries and of local distribution of labor will, of course, follow the use of untaxed alcohol, as is necessarily to be expected. The manufacturers of wood alcohol, whose business rested on the tax imposed on grain alcohol, will probably have to curtail or abandon production. Already the growers of the woods used in wood alcohol manufacture are preparing to cut no more. It is possible that a limited amount of the wood product may be used in denaturing the grain alcohol. This process is merely such treating of the grain alcohol under the personal supervision of revenue officers, as shall spoil it for uses as a beverage or a medicine, and insure its use purely for industrial purposes.

THE METRIC SYSTEM—7.

United States Consul R. S. Chilton, jr., writes to his Government from Toronto, as appears in a Consular Report of June 4, that a prominent Canadian manufacturer had called his attention to the fact that the lectures being given throughout Canada by Prof. Maclennan, under the auspices of the Canadian government on the subject of the metric system of weights and measures, are for educational purposes only, and are not to be taken as indicating an intention to adopt that policy in the near future.

This manufacturer, according to Mr. Chilton's report states further:

The Canadian Manufacturers' Association have requested the Canadian government to withdraw the Maclennan lectures, and ask the government to take no action on weights and measures until such is done by Great Britain and the United States. They have also recommended that the chambers of commerce of the Empire, at their meeting in London this year, ask for a royal commission to investigate weights and measures, and to report a system which will be acceptable. The Canadian Manufacturers' Assocation represents nearly 2,500 of the leading manufacturers of this country between Halifax and Victoria, and for this reason I only thought it fair that the United States consulate should state that those most directly affected by a change to the metric system are opposed to any immediate action.

Why and when did the C.M.A. request the Canadian government to withdraw Prof. Maclennan from his lecturing tour? The government, no doubt, after mature deliberation, deeming it the correct thing to do, employed Prof. Maclennan to deliver lectures throughout the country, with the purpose of preparing the minds of the people for the adoption of the system which it was intended to make compulsory. The use of the system as heretofore shown in these pages, was made optional in Canada many years ago, and if it were not the purpose of the government to make it compulsory, why was Prof. Maclennan sent on his educational tour? One of the first places visited by Prof. Maclennan at which his lecture was delivered was in Toronto, of which due notice was given and which was attended by several members of the executive council of the association. The matter was discussed quite freely by gentlemen present, but no member of the council thought it necessary to enquire what effect the adoption of the system would have upon the manufacturing interests of Canada. So little attention was paid to the matter that no effort was made by the executive to bring it to the notice of the members, until urged to do so by the National Assocation of Manufacturers of the United States. And with what result? We were told in the May issue of Industrial Canada that the commercial intelligence committee, who had the matter in hand, reported that there were two sides to the question, and that the association was not prepared to take a decided stand one way or the other. Why then should the association within a few days request the government to withdraw Prof. Maclennan from his lecturing tour?

According to the official programme sent out by the secretary of the forthcoming Sixth Congress of the Chambers of Commerce of the Empire, which will open in London on July 10, there are quite a number of resolutions to be discussed on different subjects, thirty-five of which are to be moved by representatives of Canadian Boards of Trade and of the C.M.A., one of which, on the matter of the decimal system of weights and measures, to be offered by the association, urges the adoption of such a system, and the appointment of a royal commission to investigate, and if possible recommend a uniform system for the empire. Who formulated the resolution, at whose request, and when was it done? Was the matter previously considered by the association? Was any meeting of the members ever called to consider it?

There are several facts relating to the metric system that the council of the association do not seem to be aware of. On February 8 last the British Government refused to allow a discussion of it in the House of Commons on the ground that its adoption and application was an impossibility. The British Government have instructed their consuls and commercial agents throughout the world, in reporting upon trade matters, to reduce their statements in which weights and measures are concerned, to the prevailing standard in England—standards which have been in use for hundreds of years. In the United States, the bill for the compulsory adoption of the metric system which was under consideration by the committee of coinage, weights and measures of the House of Representatives, was killed in committee.

The executive council should take an afternoon off and read up on current events of the day and agree on subjects in which the association is interested.

EDITORIAL NOTES.

Hon. William Templeman, Minister of the Department of Inland Revenue, informs this journal that the lectures being given by Prof. Maclennan in different parts of Canada, upon the metric system of weights and measures, are under the auspices of his Department, and are designed to be educational. The Department does not suggest that they are to be taken as indicating an intention of the government to adopt the metric system in the near future, that being a matter for future consideration. It is quite true that the Canadian Manufacturers' Association have requested the withdrawal of Prof. Maclennan's lectures, but they will not be withdrawn until he has concluded his course.

The Department of Trade and Commerce have issued a bulletin respecting the international exhibition to be held in New Zealand from November, 1906, to March, 1907, which states:

"The Canadian government will erect a special building, which will be devoted exclusively to the accommodation of exhibits illustrating the natural and manufactured products of Canada.

"The space available for Canadian exhibitors will be 10,000 square feet, and space will be allowed to Canadian manufacturers free of charge, provided the nature of the exhibit offered is of a kind in which a trade with New Zealand can be initiated or increased.

"The Canadian government also offers to pay the cost of transportation from points in Canada to Christchurch, New Zealand. They will also be installed and maintained during the term of the exhibition at the expense of the Canadian government.

"It is intended that all exhibits should be disposed of by sale, or otherwise, in New Zealand at the close of the exhibition. The goods which are to be returned to Canada will be carried at the expense of the owner."

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.

The premises of the Toronto Bolt & Forging Co., Swansea, were destroyed by fire a few weeks ago. The company are erecting temporary premises and will be running again in a few days. Work on the new plant will be started at once.

The Toronto Contracting & Paving Co. have been awarded the contract for building a new reservoir for Woodstock, Ont., at price of $9,552. The reservoir will be of steel and cement, with a capacity of one million gallons. When completed Woodstock will have one of the finest water supply systems in Western Ontario.

The Rush Bay Golden Horn Mining Co., Rat Portage, Ont., recently purchased from Allis-Chalmers-Bullock, Limited, Montreal, a mining plant including a Huntington mill, two Overstron concentrators, and accessory machinery.

The Smart-Turner Machine Co., Hamilton, Ont., are supplying the Pembroke Electric Co., Pembroke, Ont., with a 15 ton hand power travelling crane.

Messrs. Purdy, Mansell & Co., Toronto, have finished putting sprinkler systems in the plants of the Sawyer-Massey Co.; Copley, Noyes & Randall and of Lucas, Steele & Bristol, Hamilton, and are now at work installing systems for the McClary Mfg. Co., and C. R. Somerville Mfg. Co., London, Ont.

The Chapman Double Ball Bearing Co., Toronto, have bought a particularly large and powerful stamping press, for stamping bearing parts, from the London Machine Tool Co., Hamilton, Ont.

Port Elgin, Ont., has voted to instal a system of waterworks at a cost of $30,000 and to guarantee a loan of $10,000 to Stevens Hepner & Co., for the purposes of erecting large additions to their brush and broom factories. The firm will double their plant.

The contract for a new theatre for Toronto, on the Upper Canada grounds has been awarded to T. W. Horn, Toronto, by Ewen Co., of Chicago. The architect is John M. Lyle, of New York, who is associated with Crerar & Hastings of the same city. The contract calls for the completion of the theatre by December 1. Building operations have been commenced.

The Madison Williams Mfg. Co., Lindsay, Ont., have been incorporated with a capital of $75,000, to manufacture metal, machinery, etc. The provisional directors include M. Williams, Port Perry, Ont., W. M. Flavelle, and J. Carew, Lindsay, Ont.

Tobey, Limited, Toronto, have been incorporated with a capital of $50,000, to manufacture leather, tanning materials, etc. The provisional directors include C. W. Tobey, Collingwood, Ont., J. Waldie and R. S. Waldie, Toronto.

The Cobalt Refining Co., Cobalt, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a small side suction centrifugal pump.

The Empire Mfg. Co., London, Ont., have been incorporated with a capital of $100,000, to manufacture brass, copper, earthenware, etc. The provisional directors include T. A. Stevens, G. Trudell and W. M. Gartshore, London, Ont.

The Cavendish Lumber Co., Lakefield, Ont., have been incorporated with a capital of $200,000, to manufacture lumber, laths, shingles, etc. The provisional directors include W. D. Lummis, E. B. Ryckman and C. S. McInnes, Toronto.

The Cobalt Smelting & Refining Co., Toronto, have been incorporated with a capital of $250,000, to carry on a mining, milling and reduction business. The provisional directors include T. H. Miller, Detroit, Mich., W. R. Cavell, and H. A. Wright, Toronto.

The United Coal & Supply Co., Toronto, have been incorporated with a capital of $200,000, to carry on the business of coal and wood dealers. The provisional directors include J. B. Kilgour, W. C. Bonnell and G. Morton, Toronto.

The Smart-Turner Machine Co., Hamilton, Ont., have received an order for a duplex ballast pump, from the Collingwood Shipbuilding Co., Collingwood, Ont.

Messrs. Dieckerhoff, Raffloer & Co., Toronto, have been incorporated with a capital of $80,000, to manufacture goods, merchandise, etc. The provisional directors include W. Weiss, F. W. Maclean and L. Hunter, Toronto.

The Soo-Cobalt Mining Co., Cobalt, Ont., have been incorporated with a capital of $50,000, to carry on a mining, milling and reduction business. The provisional directors include C. H. Moore, C. De Wolfe and C. M. Tilkie, Cobalt, Ont.

Sutherland's, Limited, Hamilton, Ont., have been incorporated with a capital of $150,000, to manufacture soda waters, extracts, etc. The provisional directors include J. N. Sutherland, A. J. Douglas and H. Little, Hamilton, Ont.

The Cobalt Central Silver Mining Co., New Liskeard, Ont., have been incorporated with a capital of $500,000, to carry on a mining, milling and reduction business. The provisional directors include T. McCamus, A. W. Roebuck and D. H. Walkinshaw, New Liskeard, Ont.

The Dashwood Planing Mill Co., Dashwood, Ont., have been incorporated with a capital of $30,000, to carry on a planing mill and woodworking business. The provisional directors include G. Kellermann, G. Kock and E. Otterbine, Township of Stephen, Ont.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied the Kingsville Canning Co., Kingsville, Ont., with one of their duplex pumps for hot water.

The Jenkins Automatic Fender Co., Toronto, have been incorporated with a capital of $150,000, to manufacture electric railway appliances, etc. The provisional directors include J. Hallam, B. B. Jenkins, and J. H. M. Jenkins, Toronto.

Messrs. McLachlin Bros., Arnprior, Ont., have been incorporated with a capital of $2,000,000, to manufacture lumber, timber, paper, etc. The provisional directors include J. S. Lovell, W. Bain and W. F. Ralph, Toronto.

The Consolidated Light, Heat & Power Co., Toronto, have been incorporated with a capital of $2,000,000, to manufacture gas, electricity, etc. The provisional directors include J. W. Mitchell, A. Oakley, and C. W. Fleming, Toronto.

The congregation of the Crawford Street Methodist church, Toronto, will erect a Sunday school building at a cost of about $20,000.

The Traders' Bank, Toronto, purpose erecting a building at a cost of about $100,000.

The ratepayers of Dunnville, Ont., voted favorably on a by-law to provide $6,000 for the extension of the waterworks.

The Bell Telephone Co., Brantford, Ont., will erect a new building at a cost of about $12,000.

The Adams Wagon Works, Brantford, Ont., will erect extensive additions to their works at that place.

Messrs. Warren Bros. & Co., Toronto, have been incorporated with a capital of $100,000, to manufacture wares, merchandise, etc. The provisional directors include R. Wells, E. G. Williams, F. C. Armstrong, Toronto.

The Welland Drug Co. St. Catharines, Ont., have been incorporated with a capital of $100,000, to manufacture drugs, medicines, etc. The provisional directors include C. B. Murray, H. Hunter and A. W. Holmstead, Toronto.

The Sarnia, Ont., waterworks are installing a duplex pump, built by the Smart-Turner Machine Co., Hamilton, Ont.

The Clear Lake Mining Co., Toronto, have been incorporated with a capital of $650,000, to carry on a mining, milling and reduction business. The provisional directors include W. J. Brown, E. T. Campbell, and J. Lewis, Toronto.

The W. E. Dillon Co., Toronto, have been incorporated with a capital of $40,000, to manufacture metal goods, roofing, ventilating appliances, etc. The provisional directors include W. E. Dillon, D. Batiste and J. Webb, Toronto.

Messrs. Monteith-Nixon, Toronto, have been incorporated with a capital of $50,000, to manufacture windmills, pumps, tanks, etc. The provisional directors include F. W. Monteith, R. B. Nixon and W. S. Monteith, Toronto.

The American Silver King Mining Co., Haileybury, Ont., have been incorporated with a capital of $500,000, to carry on a mining, milling and reduction business. The provisional directors include H. D. Graham, G. A. Bagshaw, and F. N. Hughes, Haileybury, Ont.

The Sutcliffe-Edmison Co., Toronto, have been incorporated with a capital of $50,000, to manufacture wares, merchandise, etc. The provisional directors include J. A. Sutcliffe, H. H. Edmison and A. Mills, Toronto.

The International Publications, Toronto, have been incorporated with a capital of $1,000,000, to carry on a printing and publishing business. The provisional directors

include C. H. Murray, A. T. Brinton and H. G. Coleman, Toronto.

The Polson Iron Works, Toronto, have recently ordered a standard duplex pump from the Smart-Turner Machine Co., Hamilton, Ont.

The Cobalt Nugget Silver, Limited, Haileybury, Ont., have been incorporated with a capital of $40,000, to carry on a mining, milling and reduction business. The provisional directors include A. E. Whitby, D. F. Hulbert, Haileybury, Ont., and P. S. Hairston, Cobalt, Ont.

Canada First, Limited, Toronto, have been incorporated with a capital of $40,000, to carry on a printing and publishing business. The provisional directors include E. J. H. Pauley, A. F. McMichael and F. P. Wilson, Toronto.

The Ham & Nott Mfg. Co., Brantford, Ont., will erect extensive additions to their plant there.

The Public school, Port Huron, Ont., was destroyed by fire, May 30. Loss about $50,000.

The Pease Furnace Co., Toronto, have been awarded the contract for installing a new heating system in the Public school, Pieton, Ont., at a cost of about $2,800.

The County Council, Plovers' Mills, Ont., will erect a new bridge at a cost of about $10,000.

The premises of The Sellers-Gough Fur Co., Toronto, were damaged by fire, June 5, to the extent of about $25,000.

The steel tank elevator of the Ogilvie Flour Mills Co., Fort William, Ont., which collapsed recently, will be rebuilt.

The Collingwood Shipbuilding Co., Collingwood, Ont., have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a duplex boiler feed pump.

A by-law will be submitted to the ratepayers of Port Hope, Ont., authorizing the issuing of debentures to the extent of $7,400 for the purpose of establishing a lighting plant.

The Canadian Westinghouse Co., Hamilton, Ont., have secured the contract to furnish machinery for lighting the new Traders' Bank building, Toronto. The machinery will consist of two generators of 200 h.p. each.

A new power house is being erected at Keswick, Ont., for the Toronto & York Radial Railway Co. It will be 150 x 100 feet and will supply power for the Metropolitan line from Newmarket to Jackson's Point.

Work has been commenced on the factory of the Canning & Evaporating Co., London, Ont. The factory will have a capacity of 45,000 cans per day.

A by-law will be submitted to the ratepayers of Ingersoll, Ont., to grant a loan of $20,000, for a period of twenty years to Messrs. T. Waterhouse & Co., for the establishment of a knitting factory there.

C. S. R. Dinnick, Toronto, has been awarded the contract for the erection of the carpet factory at Peterborough, Ont.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied one of their standard duplex pumps to the Canadian Canners, Limited, Simcoe, Ont.

Sturtevant generating sets, equipped with enclosed, forced-lubrication engines, are being installed by the Canadian Fairbanks Co., Toronto.

Toronto aldermen are considering a more severe enforcement of the smoke-consuming by-law.

The Seaforth Woolen Mills Co., Seaforth, Ont., have been organized to take over the woolen mills in that town recently owned by John Dick, Limited.

Messrs. W. A. Milne & Co. have placed an order with the Smart-Turner Machine Co., Hamilton, Ont., for a side suction centrifugal pump.

Messrs. Charles M. Hays, E. H. Fitzhugh and F. H. McGuigan, vice-presidents of the Grand Trunk Railway Co., with Mr. J. W. Loud freight traffic manager, have completed a tour of inspection of the Ontario lines. Their trip was especially directed toward the lake terminals of the company recently acquired with the Canada Atlantic Railway, with a view of perfecting the facilities for handling the immense fall grain traffic from the West. The ports particularly under consideration are Depot Harbor, Midland, Parry Sound, Penetang, Collingwood, Owen Sound, Meaford, Southampton, Kincardine, Goderich and Sarnia, and as far as possible all these will be put in shape to dispose of the Western grain this fall.

The Chatham, Lake Erie & Wallaceburg Railroad Co., Chatham, Ont., will extend their trolley line to Rondeau Harbor, a distance of twenty miles, and are making surveys to Sarnia. They propose erecting a steel bridge over the Thames River at a cost of about $40,000.

The Smart-Turner Machine Co., Hamilton, Ont., have supplied the Tait Carss Lumber Co. with a duplex outside packed plunger pump with pot valves.

The Department of Public Works, Ottawa, invite tenders up to June 29 for the construction of a drill hall at Hamilton, Ont.

The Department of Railways & Canals, Ottawa, invite tenders up to June 30, for the supply of 1,750 barrels of Portland cement.

The Chatham Steam Heating Co., Chatham, Ont., who use exhaust steam from an electric power house, and last summer laid about one mile of mains, will extend both their mains and laterals this summer and will want pipe, cement and other material. In Chatham and other cities of the peninsula of Ontario an era of building is making a brisk demand for building material, cement, structural iron and builders' hardware. The importations of builders' hardware into Canada for the six months ending December 31, 1905, amounted to $333,573, of which $294,695 came from the United States. During the same period the importations of brick, tile, etc., amounted to $688,936, of which $545,476 was from the United States.

Two more valuable silver deposits have been discovered in the Cobalt district. G. R. Mickel, mining inspector, reports what appears to be a rich vein in Coleman township, and the other vein has been discovered in Bucke township.

Messrs. E. Leonard & Sons, London, Ont., have ordered a duplex pump from the Smart-Turner Machine Co., Hamilton, Ont.

The council, Watertown, Ont., invite tenders for the construction of cement sidewalks.

W. A. Preston, Fort Frances, Ont., will erect a pulp mill at that place.

Dr. Bennet, Tillsonburg, Ont., will erect a private hospital at that place.

The congregation of the Anglican church, Pembroke, Ont., will erect a church building at a cost of about $15,000.

An addition will be erected to the Queen's Hotel, North Bay, Ont., at a cost of about $10,000.

The ratepayers of Seaforth, Ont., voted favorably on a by-law to loan the W.H.Willis Shoe Co., $10,000 to establish a shoe manufacturing plant there.

The Brantford Screw Co., Brantford, Ont., will erect a large factory at that place.

The Canadian Bronze Co., Montreal, will erect a new factory to cost $20,000.

Messrs. Boswell Bros., Quebec, Que., have been incorporated with a capital of $500,000, to carry on a brewing and warehousing business. The charter members include V. Boswell, J. K. Boswell, and C. E. A. Boswell, Quebec, Que.

The Cobalt Exploration Co., Montreal, have been incorporated with a capital of $30,000, to manufacture furnaces, machinery, etc. The provisional directors include A. Munroe, H. T. Pemberton and W. J. Henderson, Montreal.

The Consumers Cordage Co., Montreal, intend closing their Toronto branch and have appointed the Colonial Cordage Co., Toronto, to act as their representative

Messrs. Jenkins Bros., Boston, Mass., will erect a plant at Montreal.

The application of electricity to mining, especially where water power is available, is recognized as a handy and economical method of operation. Among recent sales for this purpose by Allis-Chalmers-Bullock, Limited, Montreal, were a 60 h.p. induction motor to drive a two stage centrifugal pump and a 50 h.p. induction motor to drive a six stage centrifugal pump, with the necessary transformers, etc., to the Dominion Copper Co., Phœnix, B.C., a 900 h.p., two 300 h.p., a 50 h.p., and a 25 h.p. induction motor for general work, and a 40 h.p. induction motor to drive a two stage centrifugal pump to the Asbestos & Asbestic Co., Danville, Que., and a 75 h.p. induction motor driving a compound air compressor for general power purposes and a 115 k.w. generator for lighting purpose to Blackburn Bros., for their mica mines at Perkins Mills, Que.

The Canadian White Co., Montreal, have been awarded the contract for the new power house of the Montreal Light, Heat & Power Co., Soulanges, Que., the contract price being $416,000.

The Crown Spinning Co., Sherbrooke, Que., have been incorporated with a capital of $100,000, to manufacture wools, cottons, etc. The charter members include W. R. Webster, S. W. Jenckes and H. A. Moore, Sherbrooke, Que.

The National Printing Co., Montreal, have been incorporated with a capital of $40,000, to carry on a printing and publishing business. The charter members include J. D. Barton, New York, E. Humphrey and J. A. Bernard, Montreal.

The Canada-Jamaica Steamship Co., Montreal, have been incorporated with a capital of $350,000, to manufacture steamships, boats, etc. The provisional directors include G. W. Marsh, Toronto, V. E. Mitchell and C. Hart, Montreal.

The hot blast heating system for the storage building of the Terminal Warehouse & Cartage Co., Montreal, is being installed by the B. F. Sturtevant Co., Boston, Mass.

The Canadian Pacific Railway Co., Montreal, propose building a direct line to Buckingham, Que.

The Catholic School Board, Montreal, will erect two schools there.

The Protestant school commissioners, Quebec, Que., invite tenders for a public school.

The Amherst Foundry Co., Amherst, N.S., have ordered three travelling cranes from the Smart-Turner Machine Co., Hamilton, Ont.

The Amherst Malleable Iron Co., Amherst, N.S., have been organized with a capital of $100,000, and will erect a large building at that place. The directors include N. Curry, J. Crossman, G. Sauber, and J. J. Lawlor, Amherst.

H. H. Dryden, Limited, Sussex, N.B., have been incorporated with a capital of $49,900, to manufacture furniture, tools, crockery, paints etc. The provisional directors include H. H. Dryden, G. W. Fowler and G. H. White, Sussex, N.B.

The Canada Dredge Mfg. & Purchasing Co., Newcastle, N.B., have been incorporated with a capital of $500,000, to manufacture dredges, dredging machinery, etc. The provisional directors include W. H. Russell, Newcastle, N.B., G. J. Sproul, and W. L. T. Weldon, Chatham, N.B.

J. A. Humble, Stanley, N.B., will erect a large saw mill at Cross Creek, N.B.

The rotary mill of the Gloucester Lumber Co., Middle River, N.B., was destroyed by fire recently.

The Manitoba Iron Works have ordered a duplex pump from the Smart-Turner Machine Co., Hamilton, Ont.

The Great West Power & Machinery Co., Winnipeg, Man., have been incorporated with a capital of $500,000, to manufacture electric motors, machinery, etc. The provisional directors include J. Stuart, Winnipeg, A. Kelly and P. C. Mitchell, Brandon, Man.

The Brandon Construction Co., Brandon, Man., have been incorporated with a capital of $20,000, to manufacture brick, lime, cement, etc. The provisional directors include J. Hanbury, T. M. Harrington and W. Bell, Brandon, Man.

The Cooper Gasoline Engine Co., Winnipeg, Man., have been incorporated with a capital of $50,000, to manufacture gasoline engines, launches, motor cars, etc. The provisional directors include E. S. Cooper, J. Shutt, Winnipeg, and D. G. McEwen, Brandon, Man.

The Bearisto Plumbing Co., Winnipeg, Man., have been incorporated with a capital of $10,000, to manufacture gas, electricity, plumbers' supplies, etc. The provisional directors include R. Doyle, S. Wilkes and J. A. Machray, Winnipeg, Man.

The Great Western Power & Mfg. Co., Peterborough, Ont., will erect extensive flour mills and elevators at Brandon, Man.

The Northern Iron Works, Winnipeg, Man., will erect a new plant at that place.

The Lawrie Wagon & Carriage Co., Winnipeg, Man., have been incorporated with a capital of $20,000, to manufacture wagons, carriages, implements, etc. The provisional directors include R. Lawrie, J. S. Henderson and J. C. Craig, Winnipeg, Man.

The Scott Saddlery Co., Portage la Prairie, Man., have been incorporated with a capital of $20,000, to manufacture harness, trunks, saddlery, etc. The provisional directors include E. F. Hutchings, B. Denby and G. Davison, Winnipeg, Man.

The premises of the Leland Hotel, Winnipeg, Man., were damaged by fire, June 2. Loss about $25,000.

The new grist mill of Messrs. Howard & Taylor, Miniota, Man., was destroyed by a high wind recently. Loss about $8,000.

Messrs. Shaw Bros., Dauphin, Man., whose works were destroyed by fire recently, have commenced the erection of a new mill and will also erect a furniture factory.

The Thos. Ryan Co., Winnipeg, Man., wholesale boot and shoe dealers, have increased their capital from $150,000 to $400,000.

The Bell Telephone Co., Montreal, will erect an office building at Calgary, Alta.

The Canada Flax & Fibre Co., Montreal, will erect a plant at Milestone, Sask.

The Canadian Pacific Railway Co. will erect a station at Frobisher, Sask., at a cost of about $4,000.

The Saskatchewan Government will erect a steel bridge at Battleford, Sask., at a cost of about $200,000.

A new bridge, 950 feet long, will be erected over the South Saskatchewan River, Saskatoon, Sask.

Among the new buildings to be erected at Lethbridge, Alta., are a new court house, post office, customs house land office, immigration hall, fire hall, jail and town hall.

An addition will be erected to the Holy Cross Hospital, Calgary, Alta., at a cost of about $50,000.

The congregation of the Presbyterian church, Vermillion, Alta., invite tenders for a new church.

Messrs. Gault Bros., Vancouver, B.C., have been incorporated with a capital of $500,000, to manufacture dry goods, merchandise, etc. The provisional directors include L. H. Gault, R. W. McDougall and L. Macfarlane, Montreal.

Messrs. McLean & Giberson, Vancouver, B.C., will erect a flour mill at that place.

The congregation of St. John's Presbyterian Church, Vancouver, B.C., will erect a church building at a cost of about $47,000.

A. S. G. Hamersley, Vancouver, B.C., will erect a three storey hotel there.

Yenei-Shoten, Tokyo, Japan, is being equipped by the B. F. Sturtevant Co., Boston, Mass., with complete forced draft system for boilers, consisting of steel plate fan, driven by vertical engine, arranged to discharge beneath the grates.

Tenders for cement for use on the Rideau Canal are called for before June 30 by L. K. Jones, secretary Department Railway & Canals, Ottawa.

ELECTRICITY.

Electrical machinery and appliances of all kinds, electrical power plants and other progress in the electrical industries will be noted here.

Sir Daniel McMillan turned on the power at the Winnipeg Electric Street Railway Co.'s great plant on the Pinnawa Channel of the Winnipeg River a few days ago, thus inaugurating a new era in the city's development. The plant is located 60 miles from the city, and is capable of developing 10,000 h.p., which will be transmitted to Winnipeg for the company's street railway system, for lighting and for manufacturing purposes, and will enable the company practically to cut their former charges in half.

Nowhere perhaps in the world has electricity been applied under conditions more difficult and exacting than those in the St. Clair tunnel; conditions which have been carefully studied for some years both by the railway authorities and by electric experts. The railway is losing no time in the new installations, which, it is reported, will cost $700,000. The installation will be a credit to the Grand Trunk system as well as to the electricians who have solved the problem, just as the opening of the tunnel itself was, 14 years ago, to the Grand Trunk and its experts who cut the tunnel. The length of the St. Clair tunnel proper is 6,025 feet, and of the open portals, or approaches, 5,603 feet additional, or more than two miles in all. It is a continuous iron tube 20 feet less two inches in diameter, the total weight of the iron used being 56,000,000 pounds. The tunnel cost $2,000,000, and passenger trains began running through it on December 7, 1891. The electric locomotives to be used will employ the alternating current, and will be capable of hauling a passenger train on the grade at a speed of 20 to 25 miles an hour, and a 10,000-ton freight train at 10 miles an hour.

BOOM IN MINING ABOUT ROSSLAND.

Cobalt is not the only section rich in mineral wealth. The district about Rossland, B.C., is prolific in mining.

The West Kootenay Power & Light Co., which supply electricity to many of the mines, report unusual activity in this direction, so much so that they have decided to extend their electrical distribution plant.

On the advice of the well known consulting engineers, Messrs. Ross & Holgate, Montreal, the West Kootenay Power & Light Co. are adding to their already splendid equipment six Westinghouse raising transformers of 1,875 k.w., 2,200 to 60,000 volts, and 15 lowering transformers of 1,250 k.w., 60,000 volts to 2,200 and 440 volts.

Throughout the entire West there is a marked increase in the use of electricity, including the employment of electric locomotives in place of steam for mine haulage, fast traction work, factory yards, etc.

CANADIANS IN MEXICO.

United States Vice-Consul-General Eberhardt writes from Mexico City on the great strides which Canadians have been making in the matter of increasing their business with Mexico. He says:

"The Canadian commercial agency established in Mexico City a year ago is bearing fruit, and the subsidy granted by the Mexican Government to the steamship line from Canada is doing much to quicken trade relations between the two countries and to encourage Canadian capital to make still larger investments. On May 7 the Bank of Montreal, with a paid up capital of $14,400,000 in gold, opened a branch office in Mexico City. The Mexican Light & Power Co., composed chiefly of Canadian capital, has for some time practically controlled the lighting of the City of Mexico, and few cities of the world are better lighted. Another Canadian syndicate, made up largely of the same men I am told, has recently purchased the Mexico city tramways and the tramways and lighting service of the city of Puebla. These two syndicates are said to have more than $50,000,000 in gold invested in Mexico.

"The electric power of these diversified interests comes from Necaxa, in the State of Puebla. Within a few miles of the town of Necaxa, on both the Necaxa and Tenango rivers, exists a remarkable series of waterfalls with a total drop of something like 3,000 feet in three miles. To control and take advantage of this remarkable water power a vast amount of labor and capital is being spent, and when the two power plants that are now being built are completed they will be capable of furnishing 80,000 electric horsepower. Transmission lines will be run to Pachuca, a distance of 30 miles, to Puebla, 67 miles, to Mexico City, 95 miles, and to the mining camp of El Oro, 171 miles. Even after supplying these points with power there will probably be a great deal that can be used in other enterprises."

ELECTRIC SMELTING.

Dr. Eugene Haanel, Superintendent of Mines, has sent us his preliminary report on the experiments made by him at Sault Ste. Marie, Ont., under Government auspices, in smelting Canadian iron ores by the electro-thermic process. The following conclusions are reached:

That magnetite, which is the chief ore of Canada, can be as economically smelted by electro-thermic process as hematite; that ores of high sulphur content not containing manganese can be made into pig iron containing only a few thousandths of one per cent. of sulphur; that the silicon content can be varied as required for the class of pig to be produced; that charcoal, which can be cheaply produced from mill refuse or wood which could not otherwise be utilized, can be substituted for coke as a reducing agent without being briquetted with the ore; that a ferro-nickel pig can be produced practically free from sulphur and of fine quality from roasted nickeliferous pyrrhotite; the experiment made with a titaniferous iron ore containing 17.82 per cent. of titanic acid permits the conclusion that titaniferous iron ores up to perhaps five per cent. titanic acid can be successfully treated by the electric process. The report gives the cost of production per ton of pig iron by electric process at $10.69, and the estimate for a 10,000 h.p. plant producing 120 tons of pig iron per day of twenty-four hours is $700,000. The latter estimate is given on the authority of Dr. P. Herout. Dr. Haanel states that probably the largest unit which can at present be constructed on the model of the experimental furnace will not exceed 1,500 h.p. The construction of the experimental furnace would therefore be required to be modified to permit of the application of labor-saving machinery for charging, and to provide for the collection and utilization of the carbon monoxide produced by the reduction of the ore. The latter involves also protection of the charcoal charge from combustion on top of the furnace, the greater capacity insuring less loss of heat by radiation, and modification of the furnace to permit of utilization of the carbon monoxide will materially increase the output beyond that ascertained by the experimental furnace. The experiments indicated that under normal conditions about 11.5 tons were produced by an expenditure of 1,000 E.H.P. days. Dr. Haanel also expresses the opinion —"On account of the value of the product, the smelting of roasted nickeliferous pyrrhotite by the electro-thermic process as carried out by the Government experimental plant admits of immediate commercial application without other modification of furnace than increase of its capacity."

STREET RAILWAY IMPROVEMENTS.

The Montreal Street Railway Co. have under way considerable improvements in their power plant and rolling stock.

For some months past, the officers and engineers of the Montreal Street Railway Co. have been in consultation over the question of improvements. After careful consideration it was decided that the increase in traffic justified the purchase of a 1,000 k.w. Westinghouse railway generator, as well as three 500 k.w. Westinghouse motor generator sets. For the new cars, which promise to be the easiest and most comfortable of any in Canada, twenty quadruple equipments of motors were ordered, and fifty sets of Westinghouse air brakes with motor driven compressors.

The company have also placed an order with Messrs. Babcock & Wilcox, Montreal, for ten of their water tube boilers, aggregating over 5,000 h.p., and equipped with their patent superheaters and chain grate stokers. When completed this new power plant will be one of the most important in Canada.

CANADIAN RAILS IN BOSTON.

The Dominion Iron & Steel Co., Sydney, N.S., have supplied a considerable tonnage of steel rails to the Boston Elevated Railway Co., for use on their curves. The mere fact of the rails being used on these curves is proof that they are well up to standard, as any deficiency in the rails on such curves would be most dangerous to life. It is too early to report on the value of the rails as compared with the best United States makes, as no official report has been made.

The Bureau of Mines announces that for the three months ending March 31 last 360 tons of ore were shipped from the Cobalt district to the smelters. The silver contents aggregated 580,825 ounces, an average of 1,613 ounces to the ton, valued at $362,248. The Cobalt contents amounted to ten tons, worth $10,360. Since the latter part of 1904 ore has been shipped from Cobalt to the value of about $2,250,000.

The American Institute of Mining Engineers will meet in London in July in joint session with the Iron & Steel Institute of England.

PUBLICATIONS.

The publishers of The Canadian Manufacturer solicit in advance, if possible, catalogues, circulars, and other industrial publications issued by manufacturers. We wish to review such literature, and bring the principal points to the attention of our readers.

The Harbison-Walker Refractories Co., Pittsburgh, Pa., have issued for gratuitous distribution a pamphlet on brick for boiler settings.

"Little Giant gas and gasoline engines made by the New Era Gas Engine Co., Dayton, Ohio," is the title of a catalogue relating to engines manufactured by the above mentioned company. The Little Giant engines are made in both stationary and portable types and catalogue treats exhaustively of the different types and is replete with illustrations. The Little Giant engines are built in sizes from 1½ to 20 h.p., of either vertical or horizontal patterns.

The Cassella Color Co., Youville Square, Montreal, are sending out a booklet giving information regarding Immedial Indogene G.C.L. conc. pat., which is brought out as a supplementary product to Immedial Idogene B. conc., which latter was so successfully introduced. The new product, like B. conc., is distinguished for its exceedingly good levelling properties and excellent fastness to washing, light and acids. Another special feature of the new product is its clear greenish blue shade and its very good fastness to chloring, in which respect it is superior to any of the other sulphide colors. Immedial Indogene G.C.L. conc. is exceedingly well suited for every branch of cotton dyeing, for loose material, yarns and piece-goods, and especially also for machine-dyeing. It may be shaded at will both with Immedial Indogene B. conc, or the various other Immedial Direct Blue and Immedial Indone brands. Readers of THE CANADIAN MANUFACTURER will be sent this booklet, which contains six samples of cotton yarn, cloth and loose cotton dyed with the new product, on request.

The June issue of "Graphite," issued by the Joseph Dixon Crucible Co., Jersey City, N.J., is an especially interesting issue. In addition to the valuable information given re the company's graphite productions, it contains several articles and suggestions of real value to the owner or superintendent of a manufacturing plant.

The Copeland-Chatterson Co., Limited, are sending out from the general offices in Toronto attractive advertising literature of exceptional merit. Reference was made in a recent issue to their "Business Epigrams." The best of these epigrams have been issued individually, a blotter for one, a four-page folder "step lively please" for a second, a dainty card for a third, a folder with the front page slit down so that to lift one portion changes the face of a fair accountant from worry to content, another novelty is a map of "The Land of Business." Altogether the productions of this company are such that every reader of THE CANADIAN MANUFACTURER should strive to get on their mailing list. If you are associated with any recognized firm they will put you on.

The W. J. Black Co., manufacturers of metal specialties, Salem, Ohio, are sending out dodgers illustrating their fire pails. These

they make in four patterns, two with round bottoms, to prevent their use for other purposes, two fitted for heavy work around shops and factories.

PERSONALS.

Mr. L. E. Anthes, superintendent of the Toronto Foundry Co., was elected vice-president of the American Foundrymen's Association at the annual convention of that body in Cleveland, Ohio, last week.

Mr. O. E. Shields, Pittsburg, Pa., has been appointed manager of the Railroad Water Softening Department of the Pittsburg Filter Mfg. Co. He has had many years experience in the handling of waters for boiler purposes and intends devoting his time exclusively to railroad work.

The annual convention of the Canadian Electrical Association will be held at Niagara Falls, Ont., on June 19, 20 and 21.

ASSOCIATION OF ARCHITECTS.

A call is to be made for the formation of an Association of Architects and Structural Engineers in western Canada. It has long been felt necessary that such an association should be formed, and it is understood that a large number of names have already been handed in of those desirous of becoming chartered members.

The proposed name of the Association is the Western Canada Architectural Association. It will be composed of honorary members, active members, and probationary members. The latter class has been made purposely to allow the draughtsmen to be enrolled as members of the Architectural Association, and should be a great help to them.

Owing to the present busy building season, and at the request of a number of the outside architects, the matter of organizing has been deferred until July, although the preliminary work is now well advanced, and the advent of the Association is absolutely certain.

The Association will probably procure a Dominion charter and all architects, structural engineers, and draughtsmen from Port Arthur to the Pacific Coast will be eligible to membership. Those wishing to be placed on the charter list should send in their names to the secretary pro tem:—Western Canada Architectural Association, P.O. Box 347, Winnipeg, Man., or to P.O. Box 189, Regina, Sask.

The Association will not interfere with or be in opposition to any local Provincial organization, but will itself endeavor to form the membership into Provincial and town branches.

PATENTS.

Messrs. Marion & Marion, patent attorneys, Montreal and Washington, D.C., have obtained the following Canadian patents:—

Olivier Tailfer, Alexandria, Ont., tire protector; Wilfrid Vezina, Montreal, stoves; Charles Vallieres, Montreal, Que., clamp; Adolphe Reaume, Vereker, Ont., grain divider; William Whiteford, Virden, Man., grain measuring apparatus; George Giguere, Montreal, Que., material for partitions, windows etc.; A. D. LeBlanc, Montreal, clamp; Ernest Renaud, Montreal, Que., station order receptacle; Messrs. Beacher & MeKersie, Derby, Conn., manufacture and storage of sheet rubber; Roch Brien, Notre Dame de Grace, Que., smoke consumer; D. P. Cory, Belleville, Ont., label holder; G. A. Frechette, Windsor Mills, Que., tire upsetting apparatus.

Messrs. Fetherstonhaugh & Co., patent solicitors, Toronto, Ottawa, and Washington, D.C., send us the following list of patents recently granted Canadian inventors:—F. Raney, Toronto, hot water heaters; F. Simpson, Toronto, crib construction; F. Creelman, Ottawa, striking means for bell buoys; R. Wilde, Toronto, smoke consumers; J. E. Purser, Windsor, Ont., compound separators to separate condensed water from steam; J. A. Jamieson, Montreal, conveyers; A. A. McIntosh, Alexandria, Ont., log leaders; J. A. Barr, Ingersoll, Ont., spring chaises; A. M. Magee & W. N. Earle, St. John, N.B., ribbon fastening machines; B. Hughes, Montreal, and H. N. Young, Rockfield, Que., extension ladders; R. G. Kidd, Bishop's Crossing, Que., cutter bar attachment; O. Lavoie, St. Gabriel, Que., hooks; T. Allatt, Toronto, wire spring forming machines; P. Binder, Winnipeg, rotary gas engines; P. B. Motley, Montreal, means for supporting the expansion ends of bridges, roofs and the like; I. Deutsch, Montreal, flexible supports for machines mounted on axles; A. A. McIntosh, Alexandria, Ont., lever jacks; A. Johnston, Toronto, disc-harrows; V. E. Beauchemin, Sorel, Que., vehicle wheels; W. Montriny, Montreal, means for attaching runners to vehicle wheels; T. Kiddie, Ladysmith, B.C., process of roasting sulphide ores; D. Stratton, Winnipeg, Man., dies and die stocks; R. Coutts, Elmvale, Ont., railway crossing gates; M. Henry, Port Dalhousie, Ont., Mooring posts; J. A. Lamont, Montreal, locking devices; A. C. Lawrence, Toronto, surface carburetters; G. B. Clarke, R. C. Clarke, Vancouver, B.C. extension electric light pendants; R. M. Breckenridge, Hamilton, Ont., forks for lifting and handling tin cans or other cylindrical metal packages; W. V. Brown, Berwick, N.S., shingling hatchets; W. Whitford, Virden Man., grain weighing apparatus; J. L. Goffette, Montreal, process of constructing foundations; A. P. Sweeny, Helena, Man., cutting and measuring machines.

HAMILTON GASOLINE LAUNCHES.

One of the most interesting catalogues now being sent out illustrates the marine gasoline engines and the launches made by the Hamilton Motor Works, Hamilton, Ont. This firm make complete launches in torpedo stern and compromise stern patterns, the latter being shown in the accompanying illustration.

This firm's 1906 2-cycle engine is of the 3-port pattern, by which they do away with the check valve on the inlet pipe, between the engine and the vaporizer. They also get a better mixture of gasoline and air into the cylinder and at the same time drives out the burnt charge, thus getting better efficiency, more power, and higher speed from the given size of cylinder. The speed of the engine is also more readily controlled and can be run much slower than other engines. They have devoted a great deal of time to each detail of construction, so that the working parts are very easy to get at. The pump and commutator are both set just behind the fly wheel, leaving the other end of the shaft clear so that the quadrant may be set close up to the cylinder. They have also got out a new

pattern of muffler, which is less than half the weight of the old one and gives an absolutely noiseless engine, at the same time it does not in the least diminish the speed. Another new feature is a four-cycle engine, similar to the vertical automobile engine.

The Hamilton Motor Works will be glad to send copy of catalogue and any particulars required to any one interested.

Concrete should be thoroughly dried before applying paint to it, and the older it is, the better is the result attained.

OFFICE METHODS AND APPLIANCES.

A Review of the Latest Suggestions in Office Systems and Supplies for Manufacturers.

GINGER TALKS TO CORRESPONDENTS.

BY WORTHINGTON C. HOLMAN.

A business getting letter, unlike a play, a novel, an essay, a lecture, a treatise or many other kinds of writing, does not aim to amuse, instruct or entertain. Its sole end is to work upon a man's convictions and will until it calls forth a decision. It is created for the express purpose of getting action.

In this it is like the aim of a lawyer before a jury. The lawyer talks not to instruct or entertain the jury, but to get the verdict.

There are four general principles that a good lawyer observes in preparing the brief of his plea.

First is the principle of selection.

There are thousands of truthful observations that he might make in connection with the case, but he confines himself exclusively to the statement of those facts that lead directly toward the particular decision he wants. He strikes for vital points only—wastes no time on extraneous matter—goes straight to the point. He knows that too much talk will obscure the main issues. He knows that many volumes of true and interesting statements could be written concerning the case —but in drawing up his brief he passes these all through a sieve, subjecting every one to the single rigid test: "Is this one of the vital facts that have a direct bearing on that coming decision."

Think of the thousands of business letter writers who pay little or no attention to this principle in seeking the decision of a prospect. They write letters made up of conventional, commonplace introductory matter, lengthy amplifications of unimportant points, meaningless rambling assertions that pop into their heads as they amble along, mouth-filling phrases whose only use is to make parargaphs that sound well rounded—that appeal only to the ear, having no vital bearing on the decision.

Imitate the good lawyer in presenting your case. There are a hundred things you might say. Think up as many of them as you can—the more you can collect the better. Then pass them through a screen—sift them until you have the little group of vital points that bear most directly on the decision you want to get.

And then confine yourself to these points. Drive them home like so many nails. Every time you raise the hammer you hit a nail square on the head.

It is a good plan in writing an important letter to jot your points down on cards as they occur to you, putting one point or statement or argument or illustration on each card. Then spread all the cards out on the table and pick from the whole mass those that are most vital. Now you know exactly what you want to include in your letter and you can make the most direct short cut to the end you seek.

A good lawyer's second principle is to observe proportion. He bears down most heavily on the most important statements. He divides his time as you should divide your space, touching briefly on those things that will have the lesser amount of weight with the jury, and going more at length into the considerations that will have the greater weight with them. Similarly you should often sum up half a dozen of the points of lesser importance in one paragraph of your letter and give some more important single point an entire paragraph or more of its own.

You have read many letters whose writers ignored this principle. With only a single precious page of space to utilize, they have used up inch after inch in the mere effort to get started—supplying paragraph after paragraph of aimless verbosity and amplification. When they are two-thirds of the way down the page they have developed only one or two really important points, and they are forced either to omit the others or to try to jam them into a single paragraph—a feat as impossible as it would be to crowd a man's entire body into one shoe.

Divide your space up according to the importance of your points. See that every point gets exactly the space and emphasis due it. Don't force yourself to slight the most vital points by being careless in condensing your expression of the lesser important.

The successful lawyer's third principle in preparing his brief is to decide upon a suitable order in which to present his points. He observes the principle of effective arrangement.

The parts of a good letter should be arranged just as carefully as the parts of a play. It would be a poor playwright who would strew his climaxes carelessly through the middle and the beginnings of his acts.

Any whole that is made up of a number of parts should have those parts logically arranged. A man can't do any piece of work effectively by beginning in the middle and attempting to go both ways at once. Many letter writers go dodging and ducking all over their subjects without any more definite plan of procedure than a small dog has when he roams around the street—headed everywhere in general and nowhere in particular. They stick in a few sentences on one topic at the beginning—break away from that topic before it is completed to introduce other matter, and hit it again at some totally unexpected and illogical place further down. They strew observations over a page as carelessly as a man throws chicken feed out of a measure. This results in a disconnected, disjointed jumble—a mere hash of sentences. In many business letters the reader feels as if the writer had thrown all his points into a hat, shuffled them all up and set them down on paper at random as he drew them out of the hat.

Good arrangement is vitally important in a business-getting letter.

The first requisite of good arrangement is logical sequence. This requires that the successive points in a letter should seem to grow out of each other, each suggested and prepared for by the preceding point, without breaks and dislocations.

When you touch on one topic complete it before breaking in with another. See that the one that follows has some natural relation to the topic preceding, so that the reader's mind follows the connections easily as a man steps from one stone to another in crossing a brook.—Systems.

A POPULAR FEATURE.

We must express our appreciation of the kind words we have heard about this new department in the paper. From every side have come words of commendation from readers and of approval from advertisers. So unanimous has been the favorable opinion that we have decided to develop this department in every way that is possible.

In the second issue of each month hereafter from six to eight pages in the paper will be devoted to "Office Methods and Equipment." No work in connection with manufacturing is more important than the office work. Not only are collections kept up-to-date, the cost of distribution and of production kept to a minimum but the effectiveness of various departments throughout the concern can be materially increased by modern systems originated in the office and complied with by each responsible head.

Starting with the next issue the department will be under the supervision of an expert office man and we trust it will prove of great value and interest to every reader of the paper.

KEEPING TAB ON CORRESPONDENCE.

Every office manager who has had to use the letter-book and the free and easy filing system of former days will remember the delays and exasperation caused by the loss of letters filed away a year, or possibly not more than a month, previous to the time the letter was wanted.

It is, therefore, a logical result that the invention of more up-to-date copying and filing systems and appliances has been appreciated by business men everywhere.

In copying the carbon copy and the roller letter copier is limiting the use of the letter book only to small concerns, while in filing the cabinets now offered are so thorough in their detail that there is no excuse for mistakes on the part of clerks.

Such cabinets are proving exceptionally popular at the moment. John Kay, Son & Co., King Street, Toronto, who make a specialty of office equipment, find the demand for their Shaw-Walker vertical filing cabinets greater than for any other single line in office goods.

These cabinets are built in four-drawer sections, each section being capable of holding 20,000 letters, filed vertically in holders indexed so that all ones correspondence with a firm is held together and so that they can be found and any letter detached in a moment.

The procedure in this system is to file in these folders first the letter received from a firm and to, when the reply is written, take a carbon copy or copies duplicate of the answer and place it in with the letter received. As further correspondence ensues each letter is put with the former ones, one folder being used for each firm. The advantages of this system are so apparent that it is not surprising the letter book is decreasing in popularity.

Results the Real Test of Any System.

BY O. H. L. WERNICKE.

First let us pause for a moment and see if we really understand what it meant by the much-used terms "system," or "business systems." Do they relate only to methods of routine accounting, or is their application to be accepted in a broader sense, so to include questions of organization, productive efficiency and other collateral problems with which modern enterprises must cope?

I have always adhered to the notion that no system is good where the management is bad, and that a bad system under good management will often succeed, where a good system under bad management has failed. It is a habit with us to look upon all things as bad when coupled with failure, and while success or failure are not in themselves fair standards of measurement, since they are often the result of conditions which would neither be foreseen or avoided, yet, on the average, safety lies in the general application of the rule, and therefore I say if you have a good business you have a good system; if you have a better business you have a better system, and if you have the best possible business, you also have the best possible system. If, on the other hand, your business is not good, it follows that your system is correspondingly bad.

If you would find a good system, look not in the highways and byways of the theorists, but go to the fountain head of practical success. When you have done well enough, don't let it swell your head. If we are going to give it up at all, let us not do it while our business is at low ebb; wait until the tide comes in again. You will say, "This is judgment." So it is; and judgment is the very essence of system.

WHAT "SYSTEM" REALLY IS.

System, as I interpret the term, means the logical, orderly arrangement of things so co-ordinated and so simple that you can quickly gather therefrom all important facts necessary or desirable to aid you in reaching safe conclusions regarding a given matter. This presupposes your ability to exercise good judgment on that subject, otherwise no system could benefit you much.

In my humble opinion, many are carried away by the high-sounding phrases and exorbitant claims so often made in the name of System, and this in itself spells "incompetency" to a greater or less degree, for if you can't determine a good system for your own business, or at least select one from the bargain counter of another, your needs must be able to find the man to do it for you, or confess that you are lacking in ability more than you are in need of system.

NO SET RULES.

There are no cut-and-dried rules for the selection and adoption of systems or methods. What is ideal for one business may prove abortive or dangerous for another business of the same kind or class. It all depends on conditions, and not the least important of these is the personal element.

A proprietor trained and well grounded in all the details of his business, and in active daily contact with the same, does not require and should not employ the same methods as the man who is not so well trained in, and not in such close touch with, the same details.

The class of men who do it all themselves, and rely not so much on organization, do not, as a rule, develop large industries; and such men require less system, because of their more constant and closer touch with routine details, than those who develop or become connected with enterprises beyond the scope of one man, and where the prime requirement in the manager is not so much his knowing how to do it himself as knowing how to select the right man for the right place.

The differentiation to fit innumerable conditions precludes the idea of laying down hard-and-fast rules or choosing any ready-made "system" for any line of business.

SPECIALIZED SYSTEMATIZERS.

I belive that expert accountants and system experts or commercial engineers will, like other professions, go in more and more for specialization; one will become a specialist in foundry methods and practices, another in machine shops, and so on through the list of manufacturing, jobbing, retailing and every other division of industrial activity, and thus by constant familiarity with one kind of business, and constantly receiving the benefit of the best methods developed by those actively engaged therein, and eliminating what experience proves undesirable, a person may become a system expert in one line, but I do not belive the man lives who can prescribe systems of any great practical value for any old business and every kind of business that comes along.

I am no sticker for set forms. When I send a man after something I want him to "deliver the goods." Whether he proceeds forward, backward or sideways makes little difference; that is his business. I may not like a man socially, or his clothes, the color of his hair, but if he makes good in his place I like him for that. Too many people can see no good in anybody or in anybody's ways unless it is like them or theirs; that is narrow-mindedness, and I would not look to such a man for the best systems.

RESULTS TELL.

My own experience has been that systems should be made to fit conditions; mere red tape may be interesting and, like some parlor games, even wonderful, but what of it? You may prove to me by elaborately kept records that this or that article produced in your plant involves so many operations, contains so many items of material, and bears such and such items of expenses, and I may tell you, "Yes, that may be correct, but it does not interest me;" that it belongs to the province of the superintendent or his foreman. What I want to know is, in what quantity and at what rate of profit is the article selling, and what can be done to increase its sale, and the rate or amount of profit, or what can I substitute that will improve matters? I have persons in my employ who are veritable walking encyclopedias in certain matters, but they could not run a business a month without disaster to it and themselves.

A large business of necessity must be conducted in aggregates, subdivided and co-ordinated, and each division must have a system sufficient for its efficient conduct and properly co-related with the system of every other division, and the whole blended into one general system, so organized as to eliminate red tape, needless work and expense. As before stated, many make the mistake to "too much detail." If I were making tables, and it were necessary to have many styles and patterns, I should desire to know the aggregate cost of materials, labor and expense belonging to each grade or pattern, but not the details. I should also desire to know that those in charge of the details were competent to obtain the most economical results. It does not help me much to find that an article is costing too much, selling too low or in too small quantity, unless a remedy is also at hand.

True costs, expenses and profits eventually prove themselves; estimates made by superintendents and other heads of divisions usually look much better on paper than the known and proven costs later determined by the inventory and balance sheets.

INVENTORIES ASSIST RESULTS.

My hobby is frequent inventories and a proper subdivision of ledger accounts whereby the actual condition of the business may always be known. By this method the true percentages of costs, expenses, profits or losses admit of frequent comparison, and if the accounts are intelligently subdivided the fluctuations and unsatisfactory conditions may be easily localized, analyzed and dealt with. The old method of one general merchandise account, charged with all purchases and credited with all sales, and the annual inventory to determine results, are too slow for modern enterprise. In our own business we take stock every month and, surprising as it may seem, it involves less work and less expense than the annual plan, and does not cause the least interruption to business. It is worth much to us to know just where we are "at" all the time, and to know the reason why. To carry out this method it was, of course, found desirable to work out a system of accounting which made the heads of all divisions accounting clerks in so far as the affairs under their respective supervisions are concerned, so that the general accounting department only receives and summarizes the totals.

This plan has not only worked out beautifully, but it has made of every head of division a more efficient unit in our organization by compelling him to master, understand and keep accurately posted regarding every detail under his care, and thereby also relieving the management of much detail without in any way withholding desired and reliable detailed information whenever called for. With us "verbal orders don't go." Our works are not run in that way. We do not allow the machine room foreman to call for 10,000 feet of oak lumber, and the yard man to deliver it, but he must make out a written requisition and sign for the goods when delivered; then the yard man, on a simple form, charges the lumber to the machine room and credits the proper division of his stock, and at the end of the day hands to the accounting department a summary of his transactions for the day; and so on between all divisions, accurate but simple accounts are kept, subdivided to fit the different grades and classes of goods, while each has its proper and separate controlling account or

group of accounts on the ledger, and the inventories are taken the same way, so that we really have only small inventories from each subdivision, taken by the person most familiar with the items and most competent to do that work, and where errors or inconsistencies occur they localize themselves by comparison with previous records, and do not throw the inventory as a whole into doubt or confusion.

Now, you may call this "system," but we employed no expert to install it for us. It is simply the logical development of a plan which suits our present business; to-morrow it may prove inadequate in some or all respects, and we must then seek a remedy. —Modern Methods.

WORK OF THE FIRST TYPEWRITER.

A product, probably of the first typewriting machine ever made, was discovered in the archives of the board of public works recently by Chief Clerk Daniel Regan. It is a contract, drawn in typewritten letters of gothic design, but clear and neat in green ink. All letters are "caps."

Mr. Regan was looking for some records when he discovered the old contract. It is dated August 17, 1871. Mr. Regan thought he had unearthed a practical joke when he compared this date with even his scant knowledge of the age of the typewriter. He was at a loss until he saw among the names of the then board of public works at the bottom that of C. Latham Sholes.

"Why, that is the name of the inventor of the typewriter," he said. "I remember now that he was a commissioner."

Jacob Velter, present dock inspector, and Major P. H. McCauley signed the contract with Mr. Sholes, as it is shown. The contract is well preserved, but still bears the mark of age. It is countersigned in one corner by "Jeremiah Quin, comptroller."

"I do not doubt that the contract is written on the first real typewriter ever made," said Commissioner Thomas E. Hoye. "I know Mr. Sholes was experimenting when he was a commissioner. It is said that his first successful machine, the one on which this paper probably was drawn, was as large as a piano."

"Yes, and they thought he was insane," interposed Mr. Regan, "because no one then could see that a typewriter would have any commercial value if it were perfected."

Mr. Regan looked terrified at the thought of what office work would be nowadays without one.—Office Appliances.

WILL HANDLE ROTOPRESS COPIER.

Messrs. Henry & Adams, the hustling representatives of the Canada Cabinet Co., in Toronto, have secured the agency for Toronto and Western Ontario of the rapid rotopress letter copier, made by the Rotopress Mfg. Co., Marion, Ind. This copier has already won wide popularity throughout the United States and the sales in Canada are likely to reach large proportions.

The discovery of anthracite coal in Canada was recently announced by the Minister of Mines in the Legislature of Ontario. The report is that extensive beds of anthracite exist on the Hudson Bay slope in the neighborhood of Albany River, which forms the dividing line between Ontario and the North-West Territory.

Fables With a Modern Setting.

By Donalmas.

THE CONTENTED MANUFACTURER.

Not so long ago there was a manufacturer who was content. He was the only maker of his line in his field and the demand was so great that he had all the work he could do at good prices.

In fact, he was far behind with his orders.

But he was content. He would not enlarge his plant, though he knew the delay in his deliveries was a great inconvenience to his customers. He was making more money than he had ever done before and did not want to sink it all for new plants.

Instead he bought an automobile and a summer cottage.

One day two of his own men gathered their small savings together and started a little plant not far from his. He laughed to himself as he passed their small factory in his automobile.

But these men knew their business and were not content. They even worked at night. Then they bought more plant and built an addition to the back of their factory, borrowing as much money as they could give security for.

They always made prompt deliveries and were always prepared to care of more and more business. Before long they got on their feet and the banks "wanted their paper." Then they built a modern plant just as big as their former employer's.

Suddenly he sat up and began to take notice. But it was too late. Competition was so keen that the margin of profit was reduced and his grip on the business was so poor that many leaks were adding to the producing cost. Moreover he had become so fond of leisure, and the spirit of content had so settled on his soul that he soon tired of the struggle and when his two former employees, backed by the banks who had watched their struggles, offered to buy him out he let the business go.

The interest on the money enabled him to enjoy his pleasure but his former employees are now spoken of as "two of our most successful young business men," with incomes doubling every four or five years.

Moral.—Don't let your business run away from you for lack of attention.

THE MERCHANT WHO GREW.

Not so long ago there were two merchants. Their business was of similar proportions and the prospects of each were almost identical.

One of them said: "I am going to put in the bank as much money from my business as I can."

The other said: "I will only carry in the bank enough cash as I need for a reserve against emergencies. I will invest the rest to the best advantage."

He spent much time in seeking profitable investment but finally, being a wise man, he said: "I can make more with this money by using it to develop my business than in any other way.

So he advertised.

It did not seem to be profitable at first. But he argued, if I put my money in the bank it would be months before I would draw my interest. So he waited. Soon people began to notice his store more. Slowly, almost imperceptibly, but gradually, steadily his business grew. Suddenly his neighbor sat up and began to take notice. But it was too late. Publicity had turned the tide of business towards his neighbor's door and his advertising had become a magnet whereas the beginner's advertising, though just as well done, was new to the public and so not so effective.

Moral.—Don't wait till you see "the other fellow," your rival, start advertising. Start first and get the big share of its benefits.

ADVERTISING EPIGRAMS.

The following hints to advertisers in "Judicious Advertising" are so much to the point that we give them intact. Read them and absorb the thought back of each:—

Hit hard!

Cut loose!

Love taps for babies.

Think hard, and work harder!

Take the gas out of your advertising.

Put not your trust in pictures.

If you're on the wrong tack, put the helm down hard.

If advertising doesn't sell goods, don't give it any salary.

Break through the shell and stand on your own legs.

All the world hates a quitter. Don't quit advertising until you know where you're beaten, and why—and then begin again.

Don't go into deep water until you can swim—and don't advertise until you can keep going, head up.

There are forty thousand opinions about copy—but the return sheets sneer at them all with a merry ha, ha.

Anybody can get a million people's attention for a few dollars, but it takes brains to make that attention hand over its coin to you.

The farther apart the sales and advertising departments are, the higher up in the air is the business.

Courtesy, tact—the wise advertising writer knows they count in copy as well as in person.

If you don't do it, it will never happen.

Money and brains are the Siamese twins of advertising.

Don't plant advertising seeds unless you're prepared to cultivate the harvest.

Never put your advertising among your philanthropies.

Paper and ink make more people think than preachers, and move more goods than drummers.

Read your ad to your wife—she'll tell you what's the matter with it.

Many advertisers are like vain women—they look at themselves in their ads and are tickled to pieces—and never ask for results.

Advertising is not a game of craps, nor a hypnotic seance—it's just close, human selling contact with all the world.

Make the designer back you up with merchandising power in his picture. Pure art for the artists—not you.

Some ads scream and others whisper—some throw dust in your eyes and some perform vaudeville. Make your ad talk like a man to a man.

ATTRACTIVE STATIONERY A BUSINESS MAGNET.

BY C. W. WYLIE.

In establishing an office and correspondence business of any kind the item of stationery becomes one of the first considerations, no matter how staid, sound and conservative the proprietor may consider his business to be. One of the marked examples of the effect of stationery alone may be cited from the experience of a Chicago wholesale house some time ago.

Credit had been granted a new customer who was not rated with any of the commercial agencies. Some question arose over the action of the credit department and the chief credit man was called in. His explanation, too, was satisfactory when he showed the correspondence sheets of the debtor house.

"This is the stationery that appeals alike to the greatest of fakers and to the best types of business men," he said, exhibiting the artistically engraved letterheads and return address on envelopes. "I have judged by the text of the letters that the correspondents are not of the faker class. The line of credit asked is not large and—well, virtually, I have given credit on the strength of the firm's stationery!"

NEAT LETTER HEAD IMPRESSES FAVORABLY.

The common sense argument for artistic stationery that shall please the eye is that, in its being artistic, the eye will be pleased. Every business man in the country who has experience of up-to-date correspondence from the outside will tell you how involuntarily a neatly written letter on an artistic letterhead appeals to him instantly. There is a subtle compliment implied in the sending to him of a letter so well executed, and having in the letter material itself more than the cost of the postage. Evidently the writer has spent time in proportion upon the dictated matter, and has been as careful of the typewriting. From envelope, letterhead, through the dictated correspondence, to the final signature of the writer, the letter is a model.

No business man whose attentions are drawn to such a letter fails to appreciate it, and with the writing of every such letter the recipient is taking a lesson in the same school of correspondence and is becoming less approachable by means of the sloppy letter written upon any sort of cheap stationery.

Not many years ago a publishing house opened for business in an eastern city and set the pace for artistic stationery and artistically written correspondence. Its letters, both business and editorial, were revelations in the possibility of letter writing. Before the subject matter had reached the eye of the correspondent addressed he was interested in the perfect make-up of the letter, and long after the average reader of the letter was done with the subject matter he was holding the letter as an interesting exhibit of the art of letter making.

BUSINESS CARDS A NECESSITY.

At one time in business it was not so much regarded whether a man representing a business carried a printed card. To-day it is becoming almost imperative that a person representing a house by card shall carry with him the neatest and best results of the engraver's art.

In the first place the person sending in a card to another depends upon the card for his first introduction to the person whom he wishes to see. The make-up of the card will pass the same inspection that the dress and bearing of the writer will pass when he shall be admitted. And if in the first place his card shows a cheap, printed face, the man's chances for admission are poor. The average office boy outside a business man's office knows an engraved card at a glance and in many such offices he has a wide latitude in discrimination, based upon the fact that a card is cheaply printed.

If a new business needs stationery it needs good stationery. Good stationery may be defined as good enough for the purposes and the conservative requirements of the business. Extravagant show of stationery may be bad for a business, just as a cheap makeshift may be worse. But all considered, the business which is represented in its stationery by artistic neatness and conservative good taste has a standing advertisement whose value cannot be overlooked.—Chicago Tribune.

THE CANADIAN WHITE CO.

The Canadian White Co., Montreal, engineers and contractors, though established only about a year ago, are now one of the most progressive concerns of the kind in Canada. The company only handle very large contracts but their business is such that it requires a big staff. The operations under way at present are numerous and include the erection of a number of extensive plants and buildings.

The head offices of the company are situated in the Sovereign Bank building, including almost two complete floors. The company also have a branch office in Winnipeg, Man., for convenience in handling their railway construction work.

The board of directors is composed of the following:—Sir Montagu Allan, W. G. Ross, Montreal; Sir Henry Pellatt, Toronto; E. R. Wood, Toronto; P. Gossler, New York; J. G. White, New York, and Mark H. Alfred.

The company are now working on the large warehouse building of the Terminal Warehouse & Cartage Co., on Guy Street. This building was started in May and very rapid progress has been made. The steel framework has been completed and the floors put in and the men are now at work on the exterior walls. The building is to be completed by August 1.

The company broke ground last week on the new Linton Apartments, near the corner of Guy and Sherbrooke Streets, and a large force of men are now engaged on the foundation work. The construction of this splendid new apartment building will be pushed forward as rapidly as possible.

An important work on which the Canadian White Co. are now engaged, is the construction of the new race track of the Montreal Jockey Club, including the grand stand, stables, etc. A large number of teams are now at work on the track, which, when completed, will be one of the best in Canada.

For some time past the company have been at work on the extensive alterations to the Canadian Pacific Railway Co.'s Windsor station, which are now almost completed. These include the addition of two stories to a part of the building and the extension of the western portion.

One of the biggest contracts yet touched by the company is the erection of the new power house of the Montreal Street Railway Co., on St. Raymond Street.

Of the works outside Montreal on which the White Co. are engaged, the most important is probably the Grand Trunk Pacific contract for the construction of the 140 miles of railway between Saskatoon and Touchwood.

At the Soulanges Canal the company are engaged in the construction of the Soulanges Power Development Co.'s plant. The work will include a reservoir, tail race and power house. The contract includes the installation of the water wheels, generators, etc.

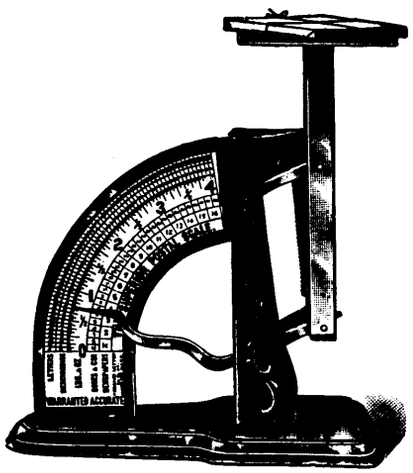
In Winnipeg the company's men are working on the construction of a splendid new theatre for the Walker Syndicate.

The total value of the contracts on which the White Co. are now engaged amounts to about three million dollars.

POSTAL SCALES.

A requisite for every office is a postal scale that can be relied upon. An intelligent clerk can decide in a moment whether most letters are overweight or not, but so often a parcel has to be weighed that accuracy in the postal scale is essential.

A new scale is being placed on the market by Grand & Toy, Toronto. The design of it can be seen from the accompanying cut of the four pound scale. The one pound and two pound ones are on practically the same design. The scale shows instantly the exact



cost of postage on letters, circulars, newspapers, books and merchandise to any part of Canada or the United States. Weighs two pounds by one-half ounces. Also made to weigh one-half kilo by 5 grams. Made of the best cold rolled steel, handsomely enameled, artistically handstripped with nickel trimmings. Boxed for shipping this scale weighs 20 ounces for the two pound size, and 24 ounces for the four pound size.

UNIVERSAL SYSTEMS, LIMITED.

Another firm has been organized to carry on business as manufacturers of modern office appliances. This new firm will be known as the Universal Systems, Limited, 77 York Street, Toronto. They will introduce several specialties and will represent in Ontario, the "Day" time clocks, made under Canadian patents in Montreal.

THESE SHORT "ADS" SHOULD HAVE YOUR ATTENTION TO-DAY.

FACTORY LOCATIONS.

The following Canadian municipalities are offering inducements to secure manufacturing establishments. Inquiries should be addressed to the Mayor, Town Clerk or Board of Trade of the respective cities:

Barrie, Ont.
Brantford, Ont.
Hamilton, Ont.
Peterborough, Ont.
Regina, N.W.T.
Sherbrooke, Que.
Toronto, Ont.

FOR SALE, CHEAP!

Fine 3-story brick factory building, besides other storage buildings. If you are contemplating starting a branch in Canada this is a grand opportunity. Cheap electric power and natural gas. For further particulars apply to

WM. CHAPLIN,
St. Catharines, Ont., Canada

FACTORY PREMISES FOR SALE

Brick Factory in Stouffville near Toronto, 3 story Stone and Concrete Basement, Boiler and Engine, over 4 acres land, Railway siding and every convenience for any manufacturing concern, only $10,000. Full particulars on application to J. J. McKenney, 43 Victoria Street, Toronto.

LOCATION WANTED

Advertiser desires to secure site in enterprising town. State railway connection, cost of site, taxes, also what inducements are offered.

INDUSTRY, Care Canadian Manufacturer
TORONTO

LARGE WAREHOUSE
ALSO
WAREHOUSE SITE
TORONTO

CENTRAL LOCATION A BARGAIN

Houses for sale in all parts of city.
S. T. SUTTON & CO.,
Real Estate
Phone Main 6633 15 King West

FOR SALE OR TO RENT

New Binder Twine Factory; buildings solid concrete, fire-proof; capacity 3 ton, or 60 spindles; room for increasing capacity if desired; Hoover and Gamble machinery throughout; cheap labor; also good water power site; rock banks and bottom, which, if developed, will, besides running factory, bring in good revenue. Apply

The AYTON CORDAGE & POWER CO.,
Limited,
Ayton, Ont.

Cheap Power for Sale

Twenty h.p. for forty cents a day; thirty h.p. for sixty cents a day; fifty h.p. for a dollar a day; same proportion for larger or smaller powers. This is not Niagara electric power, but it is cheaper, better, and, above all, safer. Information free for the asking. W Gillespie, 98 East Front Street, Toronto.

PORTLAND CEMENT

When you buy Monarch Brand of Portland Cement you get the highest quality. A large stock on hand for immediate shipment. **Lakefield Portland Cement Co., Lakefield, Ont.**

THE BEST GASOLINE ENGINE

On the continent for all purposes is the Sylvester. Parties wanting cheap power will consult their own interest in purchasing a Sylvester, built in sizes 1½ to 32 horse power; portable, stationary and marine; best and cheapest power available; if you want an easy starting, simple and reliable engine that will give full rated power in coldest weather, buy the Sylvester; works as easy in January as July on gasoline, coal oil or distillates; write for catalogue. **The Sylvester Mfg. Co. Limited, Lindsay, Ont.**

First-class mills use
LOWELL CRAYONS
WHY? THEY ARE WORTH THEIR COST.

Will you try our Samples?
LOWELL CRAYON CO., - Lowell, Mass.
Original Manufacturers.

TYPEWRITER FOR SALE

Second-Hand Remington Typewriter in good repair. Cheaper than renting. Let us send you samples of its work.

Price $30

Canadian Manufacturer
McKINNON BLDG. TORONTO

SEALED TENDERS addressed to the undersigned, and endorsed, "Tender for Drill Hall, Hamilton, Ont.," will be received at this office until Friday, June 29, 1906, inclusively, for the construction of a Drill Hall at Hamilton, Ont.

Plans and specification can be seen and forms of tender obtained at this department and on application to Messrs. Stewart & Wilton, architects, Hamilton, Ont.

Persons tendering are notified that tenders will not be considered unless made on the printed form supplied, and signed with their actual signatures.

Each tender must be accompanied by an accepted cheque on a chartered bank, made payable to the order of the Honorable the Minister of Public Works, equal to ten per cent. (10 p. c.) of the amount of the tender, which will be forfeited if the person tendering decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted the cheque will be returned.

The department does not bind itself to accept the lowest or any tender.

By order,
FRED GELINAS,
Secretary.

Department of Public Works,
Ottawa, June 7, 1906.

Newspapers inserting this advertisement without authority from the department will not be paid for it.

A Salesman for You.

You can add a valuable salesman to your staff at a cost of from 10c. to $1.00 a week by inserting a condensed "ad." on this page. It will sell goods for you.

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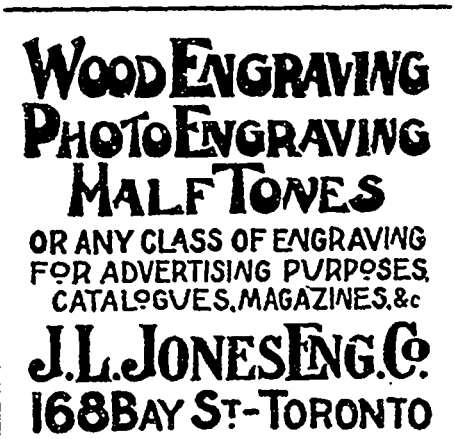

THE SOUTHERN CALIFORNIA NEW TRAIN.—BEST ROUTE.

The Los Angeles Limited, electric lighted, new from the Pullman shops, with all latest innovations for travel comfort, leaves Chicago 10.05 p.m. daily, arrives Los Angeles 4.45 p.m. third day via Chicago, Union Pacific & North-Western Line and The Salt Lake Route. Pullman drawing room and tourist sleeping cars, composite observation car, dining cars, a la carte service. For rates, sleeping car reservations and full particulars, apply to your nearest agent or address B. H. Bennett, 2 East King St., Toronto.

WROUGHT IRON FROM SCRAP.

The puddling or boiling process involves refining the material, the carbon, silicon, phosphorus, sulphur, etc., being removed more or less completely. Pig iron is the fundamental raw material, but cast scrap, including cast iron borings, is of similar composition, and involves the same operations.

A great deal of wrought iron is manufactured from scrap without any of the refining operation which is involved in puddling or boiling. Any scrap can be used which does not require the elimination of impurities, which therefore means any scrap which is not cast iron, is not burnt, and is not high carbon steel. To utilize the scrap it is only necessary to stick it together, and the form of the operation depends on the form in which the scrap exist. This sticking is accomplished through busheling, through heating piles on boards and through heating faggots.

The busheling operation involves very small material, such as wrought turnings and borings with generally some heavier material as pipe, sheet, wire, hoop, etc. Heavy scrap is generally cut to eight inches and large pipe is cut even shorter than this. Busheling is done generally on a sand bottom but can be done also on cinder bottom when heated the small material can be rolled up into a ball, which is then squeezed and rolled.

Piles on boards are piles of suitable scrap placed on boards which burn away as the material is heated and sticks together.

Faggots are built with sides of plates, or with sides and tops and bottoms, the interior being filled with smaller scrap. Even turnings can be utilized, by putting plate ends on. The faggot is wired to hold it integral until heated.

All this scrap material is rolled in the same manner into finished product, the quality of which varies according to the scrap and the care with which it is handled. It is much

stronger lengthwise than crosswise.—The Metal Market.

Hon. William Templeman, Minister of Inland Revenue, has authorized an investigation by experts in order to determine the amount of sulphuretted hydrogen in natural gas, and the conditions under which natural gas is allowed to be used as an illuminant on the other side of the line. Under the law, sulphuretted hydrogen has to be eliminated from all gas used for lighting purposes on account of its deadly character. The manufacturers of artificial gas use a special plant for the removal of the obnoxious element and submit to periodical inspection of their works. The discovery of sulphuretted hydrogen always leads to the imposition of a penalty. Those engaged in the marketing of natural gas have hitherto escaped the application of the law, but it is now proposed that they shall be placed on the same footing as manufacturers of artificial gas. The natural gas men say there is little sulphuretted hydrogen in the product they handle, and that if it was present its removal would require costly and complicated plant. Moreover, they claim that they do not furnish gas for illuminating purposes, and in contracts with customers there is a provision against it. Nevertheless, in the counties where natural gas is obtained people use it as an illumnant because it is far cheaper than artificial gas. Now the law cannot be operated against the consumers, and the only course is to enforce regulations against the producers. Before doing so, however, Mr. Templeman will get exact scientific and other data in order to ascertain in what position the natural gas industry is, the extent to which it will be affected, and the character of the regulations which should be applied. Mr. McGill, assistant to the Chief Dominion Analyst, will have charge of the investigation.

CLASSIFIED INDEX.

CLASSIFIED INDEX.

(CONTINUED).

Belting (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C., Belting Co., Montreal.
Petrie, H. W., Toronto.

Belting and Supplies

Bristol Co., Waterbury, Conn.
Dominion Belting Co., Hamilton, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Jeffrey Mfg. Co., Columbus, Ohio.
Montreal Belting Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Blast Furnace Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Elk Fire Brick Co., St. Mary's, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Blowers

Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Boiler Compounds

Canada Chemical Mfg. Co. London, Ont.
Canada Process Co., Toronto.
Hamilton Facing Mill Co., Hamilton, Ont.

Boiler Inspection

Boiler Inspection & Insurance Co., Toronto.
Canadian Casualty & Boiler Insurance Co., Toronto.

BOILERS (See Engines and Boilers)

Bolts and Nuts

London Rolling Mills, London, Ont.
Morrow John Machine Screw Co. Ingersoll, Ont.

Brass Founders

Hamilton Brass Mfg. Co., Hamilton, Ont.

Building and Paving Brick

Dunbar Fire Brick Co., Pittsburgh, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Building Iron and Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Builders' Materials

Albert Mfg. Co., Hillsboro, Ont.
Canada Foundry Co., Toronto.
Conduits Company, Limited, Toronto.
Expanded Metal & Fireproofing Co., Toronto.
Garthshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.
Sheldon & Sheldon, Galt, Ont.

Cables

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Phillips, Eugene F. Electrical Works, Montreal.

Canada Plates

Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Canoes

Peterborough Canoe Co., Peterborough, Ont.

Caps

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Card Clothing

McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.

Cast Iron Pipe

Canada Foundry Co., Toronto.
Montreal Pipe Foundry Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Castings (Grey Iron, Malleable Iron and Brass

International Harvester Co., Hamilton, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Maxwell, David & Sons, St. Mary's, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Cement Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.
McDougall, John, Caledonian Iron Works Co., Montreal.

Centrifugal Pumping Machinery

Morris Machine Works, Baldwinsville, N.Y.
Smart-Turner Machine Co., Hamilton, Ont.

Chain Making Machinery

(Welded Coil Chain)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Channels

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Charcoal Pig Iron

Canada Iron Furnace Co., Montreal.
McDougall, John, Caledonian Iron Works Co. Montreal.

Chemicals

Canada Chemical Co., London, Ont.
Canada Process Co., Toronto.
Nichols Chemical Co. of Canada, Montreal

Chemists

Heys, Thomas & Son, Toronto.

Clay Working Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Coal, Coke and Charcoal.

Bourne-Fuller Co., Cleveland, Ohio.
Hamilton Facing Mill Co., Hamilton, Ont.
Milnes, James H. & Co., Toronto.
Wilson, H. T Coal Co., Detroit, Mich.

Coal Cutting Machines

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Coal Tipples

Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Coil Chains

Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.

Coke Oven Brick

Dunbar Fire Brick Co., Pittsburgh Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Collection Agency

Petrie, H. D., Hamilton, Ont.

Concrete Mixers

Hopkins, F. H. &. Co., Montreal.

Condensers

Smart-Turner Machine Co., Hamilton, Ont.

Conduits (Interior)

Conduits Company, Limited, Toronto.

Contractors' Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que
McDougall, John, Caledonian Iron Works Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Contractors' Plants

Allis-Chalmers-Bullock, Limited, Montreal.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Williams A. R. Machinery Co., Toronto.

Conveying Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Jeffrey Mfg. Co., Columbus Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall John, Caledonian Iron Works Co. Montreal.
Perrin, William R. & Co., Limited, Toronto.
Smart-Turner Machine Co., Hamilton, Ont.

Copper Materials

Greening, B. Wire Co. Hamilton, Ont.
Phillips, Eugene F Electrical Works, Montreal.
Syracuse Smelting Works Montreal.

Corrugated Iron

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Cotton Banding and Rope

McLaren, J. C. Belting Co., Montreal.

Covers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Cranes (Electric and Hand Power)

Smart-Turner Machine Co., Hamilton, Ont.

Crayons

Lowell Crayon Co., Lowell, Mass.
McLaren, J. C. Belting Co., Montreal.

Crucibles

Dixon, Joseph, Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Syracuse Smelting Works, Montreal.

Crucible Caps

Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co. Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Crucible Covers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Cutter Grinding Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Dashes

McKinnon Dash & Metal Works Co. St. Catharines, Ont.

Deep Well Engines

American Steam Pump Co., Battle Creek, Mich.

Dies (Socket, Sewer Pipe and Tile)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Directories

Kelly's Directories, Limited, Toronto

Draw Benches (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio

Dredges

Allis-Chalmers-Bullock, Limited, Montreal.

Drills

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Petrie, H. W., Toronto.

Drills (Pneumatic and Rock)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Jeffrey Mfg. Co., Columbus, Ohio.

Drop Forgings

Globe Machine & Stamping Co., Cleveland, Ohio

Drop Forging Dies

Globe Machine & Stamping Co., Cleveland, Ohio.

Dry Kiln Apparatus

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Dust and Shavings Separators

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co. Boston, Mass.

Dye Stuffs and Chemicals

Benson, W. T. & Co., Montreal.
Brunner, Mond & Co., Northwich, England.
Canada Chemical Mfg. Co., London, Ont.
Canada Process Co., Toronto.
Cassella Color Co., New York City.
McArthur, Corneille & Co., Montreal.
Nichols Chemical Co. of Canada, Montreal.
Winn & Holland, Montreal.

DYNAMOS (See Motors and Dynamos)

Electric Meters and Transformers

Allis-Chalmers-Bullock, Limited, Montreal.
Packard Electric Co., St. Catharines, Ont.

Electric Mine Locomotives

Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.

Electrical Repairs

Keystone Engineering Co., Toronto.

Electrical Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Bristol Co., Waterbury, Conn.
Canadian General Electric Co., Toronto.

CLASSIFIED INDEX.

(CONTINUED).

Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Packard Electric Co., St. Catharines, Ont.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Elevators and Conveyors

Allis-Chalmers-Bullock, Limited, Montreal.
Darling Bros., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.

Elevator Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Emery and Emery Wheels

Forman, John, Montreal.
Hamilton Facing Mill Co., Hamilton, Ont.
Petrie, H. W., Toronto.

Engineers (Chemical)

Heys, Thomas & Son, Toronto.
Hunt, Robert W. & Co., Chicago, Ill.

Engineers (Civil)

Parke, R. J., Toronto.
Vogel, C. H., Ottawa.

Engineers (Consulting)

Aitken, K. L., Toronto.
Canadian White Co., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Gearing, H. Toronto.
Hunt, Robert W. & Co., Chicago, Ill.
Keystone Engineering Co., Toronto, Ont.
Marion & Marion, Montreal.
Parke, R. J., Toronto.
Perrin, William R. & Co., Limited, Toronto
Vogel C. H., Ottawa.

Engineers (Contracting)

Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Canadian White Co., Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London Ont.
Fensom, C. J., Toronto.
Keystone Engineering Co., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.

Engineers (Electrical)

Aitken, K. L., Toronto.
Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Ltd., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Canadian White Co., Montreal.
Crocker-Wheeler Co., St. Catharines, Ont.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Marion & Marion, Montreal.
Toronto & Hamilton Electric Co., Hamilton Ont.

Engineers (Mechanical)

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Electrical Construction Co., London, Ont.
Fensom, C. J., Toronto.
Gearing, H., Toronto.
McDougall, John, Caledonian Iron Works Co., Montreal.
Hunt, Robert W. & Co., Chicago, Ill.
Kerr Engine Co., Walkerville, Ont.
Marion & Marion, Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Engineers (Mill and Hydraulic)

Fensom, C. J., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Vogel, C. H., Ottawa.

Engineers (Mining)

Heys Thomas & Son, Toronto.
Mills, S. D., Toronto.

Engineers and Contractors

Canadian White Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Smart-Turner Machine Co., Hamilton, Ont.

Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Williams, A. R. Machinery Co., Toronto.

Engravers

Canadian Manufacturer, Toronto.
Jones, J. L. Engraving Co., Toronto.

Exhaust Fans

Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Exhaust Heads

Darling Bros., Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park Mass.

Exhausters

Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Factory Sites

(See Factory Locations, page 31.)
Central Ontario Power Co., Peterboro Ont.
Hutcheson, S. M., Paisley, Ont.

Feed Water Heaters

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Pittsburg Filter Mfg. Co., Pittsburg, Pa.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Feed Water Purifiers

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Files

Spence, R. & Co., Hamilton, Ont.

Fillet (Pattern)

Hamilton Facing Mill Co., Hamilton, Ont.
McLaren, J. C. Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Filters (Oil)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.

Filters and Filtering Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Financial

Bradstreet's, New York City.
Dun, R. G. & Co., Toronto.
Neff & Postlethwaite, Toronto.
Petrie H. D. Hamilton, Ont.

Finials

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Fire Brick and Clay

Dunbar Fire Brick Co., Pittsburgh, Pa.
Elk Fire Brick Co., St. Mary's, Pa.
Hamilton Facing Mill Co., Hamilton, Ont.
Harbison-Walker Refractories Co., Pittsburg, Pa.
Pennsylvania Fire Brick Co., Beech Creek, Pa.
Queen's Run Fire Brick Co., Lock Haven, Pa.
Stowe-Fuller Co., Cleveland, Ohio.

Fire Escapes

Darling Bros., Montreal.

Fireproof Partitions

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Flour Mill Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Goldie & McCulloch Co. Galt, Ont.

Forges and Blowers

Canada Foundry Co., Toronto.
Hamilton Facing Mill Co., Hamilton, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Founders

Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Foundry Facings and Supplies

Hamilton Facing Mill Co., Hamilton, Ont.

Fuel Economizers

Babcock & Wilcox, Limited, Montreal.
Sturtevant, B. F. Co., Hyde Park, Mass.

Furniture (Lodge, Opera and School)

Canadian Office & School Furniture Co., Preston, Ont

Galvanising

Ontario Wind Engine & Pump Co., Toronto.

Galvanizing and Tinning Machinery and Furnaces (Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio

Gas and Gasoline Engines

Economic Power, Light & Heat Supply Co., Toronto.
Morrison, T. A. & Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Gauges (Recording Pressure)

Bristol Co., Waterbury, Conn.

Gauges (Steam)

Penberthy Injector Co., Windsor, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto

Gauges (Water)

Babcock & Wilcox, Limited, Montreal.
Penberthy Injector Co., Windsor, Ont.

Generating Sets

Sturtevant, B. F. Co., Hyde Park, Mass

Generators

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Gloves, Mittens and Moccasins

Storey, W. H. & Son, Acton, Ont.

Government Notices

Factory Inspectors.
Minister of Agriculture.

Graphite

Dixon, Jos. Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa

Hames.

McKinnon Dash & Metal Works Co., St. Catharines.

Hardware

Butterfield & Co., Rock Island, Que.
Gartshore, John J., Toronto.
Globe Machine & Stamping Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Morrow, John, Machine Screw Co., Ingersoll, Ont.

Heating and Ventilating Apparatus

Darling Bros. Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Hoisting Engines

Allis-Chalmers-Bullock, Limited, Montreal
Jenckes Machine Co., Sherbrooke, Que.

Hoists (Chain and Pneumatic)

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Hopkins, F. H. & Co., Montreal.

Hose (Fire and Pneumatic)

Gutta Percha & Rubber Mfg. Co., Toronto.
McLaren, J. C. Belting Co., Montreal and Toronto.
Sadler & Haworth, Montreal and Toronto.

Hotel

Gallatin Hotel, New York City.

Hydrants

Kerr Engine Co., Walkerville, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.

Hydraulic Accumulators

Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Smart-Turner Machine Co., Hamilton, Ont.

Hydraulic Leather

McLaren, J. C., Belting Co., Montreal.
Sadler & Haworth, Montreal and Toronto.

Hydraulic Machinery

Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Wilson, J. C. & Co., Glenora, Ont.

English Card Clothing

FULL STOCK ON HAND

"GENUINE OAK" Leather Belting

OUR PRICES ARE LOW

Rubber Belting

D. K. McLAREN

751 Craig Street, - - - - MONTREAL
196 King Street West, - - - - TORONTO
21 St. Peter Street, - - - - QUEBEC
169 Prince William St., - - ST. JOHN, N.B.

NOTICE The following are the Factory Inspectors for the Province of Ontario:

JAS. T. BURKE, Parliament Buildings, Toronto.
THOMAS KEILTY, Parliament Buildings, Toronto.
ARTHUR W. HOLMES, Parliament Buildings, Toronto.
JOHN ARGUE, Parliament Buildings, Toronto.
MARGARET CARLYLE, Parliament Buildings, Toronto.
MRS. JAS R. BROWN, Parliament Buildings, Toronto.

Persons having business with any of the Inspectors will find them at the above address. HON. NELSON MONTEITH, Minister of Agriculture

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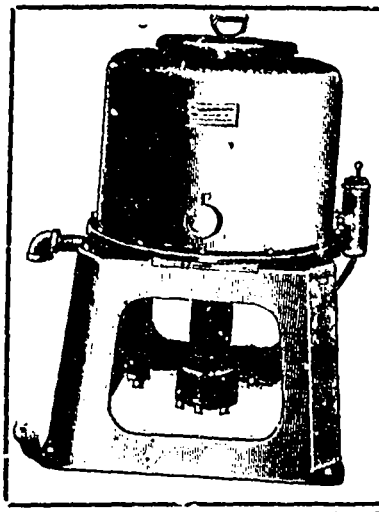

Save the Oil

From Chips, Screws, Nuts, Bolts, or any other small parts which are finished in oil, and

Save the Waste

Get 90 % of the oil returned and have waste perfectly clean for use again.

Ask for the Catalogue

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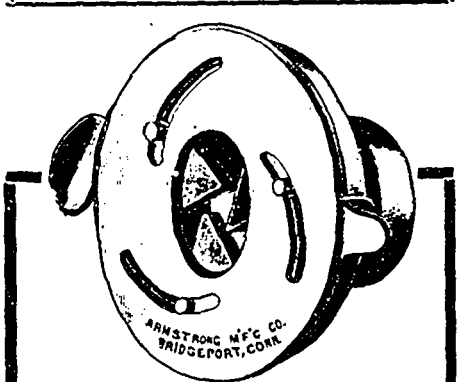

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Insulated Wires and Cables

Phillips, Eugene F., Electrical Works, Montreal.

Iron and Steel Specialties

Armstrong Mfg. Co., Bridgeport, Conn.
Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Leslie, A. C. & Co., Montreal.
London Rolling Mill Co., London, Ont.
Lysaght, John, Limited, Bristol, England and Montreal.
Metallic Roofing Co., Toronto.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Pedlar People, Oshawa, Ont.
Petrie, H. W., Toronto.
Union Drawn Steel Co., Hamilton, Ont.

Injectors

Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co. Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Iron and Steel Inspection

Hunt, R. W. & Co., Chicago, Ill.

Lamps—Electric

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Forman, John, Montreal.
Packard Electric Co., St. Catharines, Ont.

Lathes

Petrie, H. W., Toronto.
Williams, A. R. Machinery Co. Toronto.

Lathes (Wood-working)

Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Loom Reeds

McLaren, J. C., Belting Co., Montreal.

Lubricators

Hamilton Facing Mill Co., Hamilton, Ont.

Machinists

Goldie & McCulloch Co., Galt, Ont.
Robb Engineering Co., Amherst N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Machinists' Supplies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Morrow, John, Machine Screw Co., Ingersoll Ont.
Petrie, H. W., Toronto.

Machine Tools

Becker-Brainard Milling Machine Co. Hyde Park, Mass.
Darling Bros., Montreal.
Petrie, H. W., Toronto.

Malleable Castings

International Harvester Co., Hamilton, Ont.
McKinnon Dash & Metal Works Co., St. Catharines, Ont.
Smith's Falls Malleable Castings Co., Smith's Falls, Ont.

Marine and Stationary Engines and Boilers

Allis-Chalmers-Bullock, Limited, Montreal.
Jenckes Machine Co., Sherbrooke, Que.
Smart-Turner Machine Co., Hamilton, Ont.

Mechanical Draft

Babcock & Wilcox, Limited, Montreal.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Metal Doors

Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont

Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshwaa, Ont.

Metallurgists

Mills, S. D., Toronto

Mill Machinery and Supplies

Allis-Chalmers-Bullock, Limited, Montreal.
Armstrong Mfg. Co., Bridgeport, Conn.
Becker-Brainard Milling Machine Co., Hyde Park, Mass.
Darling Bros., Montreal.
Gartshore, John J., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Hamilton, Wm., Mfg. Co., Peterborough, Ont.
Hay, Peter Knife Co., Galt, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Morrow, John, Machine Screw Co., Ingersoll, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
McLaren, D. K., Montreal and Toronto.
McLaren, J. C. Belting Co., Montreal.
Petrie, H. W., Toronto.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.
Spence, R. & Co., Hamilton, Ont.

Milling Cutters and Machines

Becker-Brainard Milling Machine Co., Hyde Park, Mass.

Miners' Lamps

Allis-Chalmers-Bullock, Limited, Montreal.

Mining Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Gartshore, John J., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Hopkins, F. H. & Co., Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jenckes Machine Co., Sherbrooke, Que.
Link-Belt Engineering Co., Philadelphia, Pa.
McDougall, John, Caledonian Iron Works Co. Montreal.
Perrin, William R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Motors and Dynamos

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Electrical Construction Co., London, Ont.
Forman, John, Montreal.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto.
Petrie, H. W., Toronto.
Sturtevant, B. F. Co., Hyde Park, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Moulding Sand

Hamilton Facing Mills Co., Hamilton, Ont.

Moulders Supplies.

Hamilton Facing Mill Co., Hamilton, Ont.

Municipal Filtration Plants (Water)

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Nickel

Canadian Copper Co., New York, N.Y.
Orford Copper Co., New York, N.Y.

Nozzles

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Office and Bank Fittings

Canadian Office & School Furniture Co., Preston Ont.

Oils and Lubricants

Dixon, Jos. Crucible Co., Jersey City, N.J.
Hamilton Facing Mill Co., Hamilton, Ont.
Imperial Oil Co., Petrolea, Ont.
Queen City Oil Co., Toronto.

Oil Cloth

Dominion Oil Cloth Co., Montreal.

Paints and Colors

Berry Bros., Walkerville, Ont.
McArthur, Corneille & Co., Montreal.

Paper Manufacturers

Barber, Wm. & Bros., Georgetown, Ont.
Toronto Paper Mfg. Co., Cornwall, Ont.

Patents

Budden, Hanbury A., Montreal.
Fetherstonhaugh & Co., Toronto.
Marion & Marion, Montreal.

Patterns (Wood and Iron)

Maxwell, David & Sons, St. Mary's, Ont.

Perforated Metals

Globe Machine & Stamping Co., Cleveland, Ohio.
Greening, B. Wire Co., Hamilton, Ont.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Personal Accident

Canadian Casualty & Boiler Insurance Co., Toronto.

Phosphorizers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.

Piano Action and Key Machinery

H. Gearing, Toronto.

Pig Iron

Bourne-Fuller Co., Cleveland, Ohio.
Canada Iron Furnace Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Syracuse Smelting Works Montreal.

Pipe (Riveted, Iron and Steel)

Babcock & Wilcox, Limited, Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Pipe Threading Machines

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.

Pipes and Tubes

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Montreal Pipe Foundry Co., Montreal.

Plaster

Albert Mfg. Co., Hillsborough, N.B.

Plates

Bourne-Fuller Co., Cleveland, Ohio.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Plumbago

Hamilton Facing Mills Co., Hamilton, Ont.
McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Pneumatic Tools

Allis-Chalmers-Bullock, Limited, Montreal.
Canadian Rand Drill Co., Sherbrooke, Que.
Hamilton Facing Mill Co., Hamilton, Ont.

Pointer Rolls (For Rods and Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Power Plants—Equipments

Allis-Chalmers-Bullock, Limited, Montreal.
Babcock & Wilcox, Limited, Montreal.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Ltd., Hamilton, Ont.
Darling Bros., Montreal.
Economic Power, Light & Heat Supply Co., Toronto.
Electrical Construction Co., London, Ont.
Goldie & McCulloch, Galt, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Moore Electric Co., Toronto.
Keystone Engineering Co., Toronto
McDougall, John, Caledonian Iron Works Co., Montreal.
Packard Electric Co., St. Catharines, Ont.
Perrin, Wm. R. & Co., Limited, Toronto.
Petrie, H. W., Toronto.
Phillips, Eugene F., Electrical Works, Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.
Sturtevant, B. F. Co., Boston, Mass.
Toronto & Hamilton Electric Co., Hamilton, Ont.

Presses (Tile, Sewer Pipe, Nozzles and Sleeves)

Turner, Vaughn & Taylor Co., Cuyahoga Falls Ohio.

Pulleys

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co. Montreal.
McLaren, J. C., Belting Co., Montreal and Toronto.
Petrie, H. W., Toronto
Smart-Turner Machine Co., Hamilton, Ont.

Producer Gas Plants

Economic Power, Light & Heat Supply Co., Toronto

Pumps and Pumping Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.

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Darling Bros., Montreal.
Downie Pump Co., Downieville, Pa.
Goldie & McCulloch Co., Galt, Ont.
Jenckes Machine Co., Sherbrooke, Que.
Kerr Engine Co., Walkerville, Ont.
Morris Machine Works, Baldwinsville, N.Y.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.
Petrie, H. W., Toronto.
Smart-Turner Machine Co. Hamilton, Ont.

Punches and Shears

Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.

Purifiers

Babcock & Wilcox, Limited, Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.

Purifying and Softening Systems (Water)

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.

Railroads

Chicago & North-Western Ry., Toronto and St. Paul, Minn.

Railway Supplies

Algoma Steel Co., Sault Ste. Marie, Ont.
Allis-Chalmers-Bullock, Limited, Montreal.
Gartshore, John J., Toronto.
Greening, B. Wire Co., Hamilton, Ont.
Gutta Percha & Rubber Mfg. Co., Toronto.
Hopkins, F. H. & Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Phillips, Eugene F., Electrical Works, Montreal.

Reamers

Butterfield & Co., Rock Island, Que.

Rivets

Bourne-Fuller Co., Cleveland, Ohio.
London Rolling Mills, London, Ont.

Rock and Ore Crushers

Allis-Chalmers-Bullock, Limited, Montreal.
Bradley Pulverizer Co., Boston, Mass.

Rolling Mill Engineers

Bourne-Fuller Co., Cleveland, Ohio.

Roofing

Bourne-Fuller Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Rubber Goods

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Packing

Gutta Percha & Rubber Mfg. Co., Toronto.

Rubber Washing Tubs

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Rural Mail Boxes

Globe Machine & Stamping Co., Cleveland, Ohio.

Saddlery Hardware

McKinnon Dash & Metal Works Co., St. Catharines, Ont.

Safes and Vaults

Goldie & McCulloch Co., Galt, Ont.

Saw Mill Machinery

Allis-Chalmers-Bullock, Limited, Montreal.

Screws

Morrow, John, Machine Screw Co., Ingersoll, Ont.

Screw Plates

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co. Rock Island, Que.

Shafting

Allis-Chalmers-Bullock, Limited, Montreal.
Bourne-Fuller Co., Cleveland, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Jeffrey Mfg. Co., Columbus, Ohio.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.

Shear Knives

Hay, Peter Knife Co., Galt, Ont.

Sheets (Iron and Steel)

Bourne-Fuller Co., Cleveland, Ohio.
Leslie, A. C. & Co., Montreal.
Lysaght, John, Limited, Bristol, England, and Montreal.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Sheet Metal Goods

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Sheet Metal Stamping

Globe Machine & Stamping Co., Cleveland, Ohio.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.

Shovels.

Hamilton Facing Mill Co., Hamilton, Ont.

Smoke Stacks

Gearing, H., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Robb Engineering Co., Amherst, N.S.
Smart-Turner Machine Co., Hamilton, Ont.

Solder

Globe Machine & Stamping Co., Cleveland, Ohio.
Syracuse Smelting Co., Montreal.

Special Machinery

Allis-Chalmers-Bullock, Limited, Montreal.
Globe Machine & Stamping Co., Cleveland Ohio.
Smart-Turner Machine Co., Hamilton, Ont.

Speed Recorders

Bristol Co., Waterbury, Conn.

Sprinkler Insurance

Canadian Casualty & Boiler Insurance Co., Toronto.

Stamps and Stencils

Globe Machine & Stamping Co., Cleveland Ohio.

Steam Pumps

Allis-Chalmers-Bullock, Limited, Montreal.
American Steam Pump Co., Battle Creek, Mich.
Canada Foundry Co., Toronto.
Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
McDougall, John, Caledonian Iron Works Co., Montreal.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Steam Separators

Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Robb Engineering Co., Amherst, N.S.
Sheldon & Sheldon, Galt, Ont.
Smart-Turner Machine Co., Hamilton, Ont.

Steam Shovels

Allis-Chalmers-Bullock, Limited, Montreal.

Steam Specialties

Darling Bros., Montreal.
Penberthy Injector Co., Windsor, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Hyde Park, Mass.

Steam Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Darling Bros., Montreal.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Williams, A. R. Machinery Co., Toronto.

Steel Rails

Algoma Steel Co., Sault Ste. Marie, Ont.
Drummond, McCall & Co., Montreal and Toronto.
Gartshore, John J., Toronto.
Hopkins, F. H. & Co., Montreal.

Steel Shafting

Darling Bros., Montreal.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Leslie, A. C. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Nova Scotia Steel & Coal Co., New Glasgow, N.S.

Stocks and Dies

Armstrong Mfg. Co., Bridgeport, Conn.
Butterfield & Co., Rock Island, Que.
Petrie, H. W., Toronto.

Stoppers

McCullough-Dalzell Crucible Co., Pittsburg, Pa.
Pittsburg Crucible Works, Pittsburg, Pa.

Structural Steel

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.
Hopkins, F. H. & Co., Montreal.

Sulphate of Alumina

Nichols Chemical Co. of Canada, Montreal.

Suspension Furnaces

Continental Iron Works Co., New York City.

Tanks (Oil and Water)

Canada Foundry Co., Toronto.
Goldie & McCulloch Co., Galt, Ont.
Hamilton, Wm. Mfg. Co., Peterborough, Ont.
Jenckes Machine Co., Sherbrooke, Que.
McDougall, John, Caledonian Iron Works Co., Montreal.
Ontario Wind Engine & Pump Co., Toronto.

Taps and Dies

Butterfield & Co., Rock Island, Que.
Globe Machine & Stamping Co., Cleveland, Ohio.

Tees

Bourne-Fuller Co., Cleveland, Ohio.
Canada Foundry Co., Toronto.

Textile Manufacturers

Dominion Oil Cloth Co., Montreal.
Storey, W. H. & Sons, Acton, Ont.

Textile Supplies

McLaren, J. C. Belting Co., Montreal and Toronto.

Thermometers (Recording)

Bristol Co., Waterbury, Conn.

Tin

Leslie, A. C. & Co., Montreal.
Syracuse Smelting Works, Montreal.

Tool Steel

Bourne-Fuller Co., Cleveland, Ohio.
Hopkins, F. H. & Co., Montreal.
Leslie, A. C. & Co., Montreal.

Trucks

Hopkins, F. H. & Co., Montreal.
McDougall, John, Caledonian Iron Works Co., Montreal.
Sheldon & Sheldon, Galt, Ont.

Trucks (Railway)

Canada Foundry Co., Toronto.

Trucks (Wire Mill Supplies)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tubs (Cleaning and Coating Wire)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Tumbling Barrels

Globe Machine & Stamping Co., Cleveland, Ohio.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.

Turbines

Canada Foundry Co., Toronto.
Hamilton, Wm. Mfg. Co., Peterborough Ont.
Jenckes Machine Co., Sherbrooke, Que.

Valves

American Steam Pump Co., Battle Creek, Mich.
Babcock & Wilcox, Limited, Montreal.
Canada Foundry Co., Toronto.
Hamilton Brass Mfg. Co., Hamilton, Ont.
Kerr Engine Co., Walkerville, Ont.
Petrie, H. W., Toronto.
Smart-Turner Machine Co., Hamilton, Ont.
Williams, A. R. Machinery Co., Toronto.

Valves (Rubber)

Gutta Percha & Rubber Mfg. Co., Toronto.

Varnishes

Berry Bros., Walkerville, Ont.

Ventilators

Darling Bros., Montreal.
Metallic Roofing Co., Toronto.
Pedlar People, Oshawa, Ont.
Sheldon & Sheldon, Galt, Ont.
Sturtevant, B. F. Co., Boston, Mass.

Wagon and Carriage Wood Work

Hore, F. W. & Son, Hamilton, Ont.

Washers or Hollinders (Cleaning Rubber)

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Water Power Development

Vogel, C. H., Ottawa.

Water Purifying Chemicals

Canada Chemical Mfg. Co., London, Ont.
Canada Process Co., Toronto.

Water Softening Plants

Pittsburg Filter Mfg. Co., Pittsburg, Pa.

Wheelbarrows.

Hamilton Facing Mill Co., Hamilton, Ont.

Windmills

Ontario Wind Engine & Pump Co., Toronto.

Wiping Rags for Waste

Schienman, I. L. & Co., Detroit, Mich.

Wire Mill Supplies

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire and Wire Rope

Dominion Wire Rope Co., Montreal.
Greening, B. Wire Co., Hamilton, Ont.
Leslie, A. C. & Co., Montreal.
Phillips, Eugene F. Electrical Works, Montreal.

Wire Rope Fittings

Dominion Wire Rope Co., Montreal.

Wire Cloth

Greening, B. Wire Co., Hamilton, Ont.

Wire Drawing Machinery

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wood-Working Machinery

Advance Machinery Co., Toledo, Ohio.
Goldie & McCulloch Co., Galt, Ont.
Petrie, H. W., Toronto.
Sheldon & Sheldon, Galt, Ont.
Williams, A. R. Machinery Co., Toronto.

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