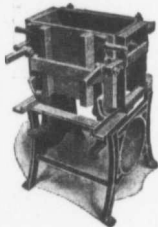


# CANADIAN CONTRACT RECORD

*A Weekly Journal of Engineering, Public Works,  
Tenders, Advance Information and Municipal Progress*



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Facedown,  
Combined,  
Adjustable  
Concrete



### Block Machine

Makes every kind and design of block. All blocks made Face-down. All sizes of blocks made in the one adjustable mould. All sizes of blocks made on the one size pallet. Any size core desired can be used, which is withdrawn vertically and thus allowing all blocks to be made by the wet process, or with crushed stone in the body of the block.

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Redan Street, London, Ont.

Largest exclusive Concrete Machinery Co. in Canada.

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(Societe Canadienne D'Ente prises Generales, Limited)

A Canadian Company organized to promote and develop for itself or other persons all commercial and industrial enterprises; to undertake the construction of all kinds of public, municipal and private works, and especially railways, tramways, water works, sewers, hydraulic and electrical installations.

The Company is supported and backed in Europe by nine of the strongest Banks, enabling it to carry through the largest undertakings, and to financially take an interest in Canadian enterprises.

The Company has a staff of competent and experienced engineers, and invites correspondence from municipal and private corporations, and from business men who require technical or financial assistance to plan, execute or construct any private municipal or public work.

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Drill Runner	3.50	Four Drillers	10.00
Fireman	2.50	Four Horses	12.00
Helper	2.50	Two Teamsters	4.50
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Teamster	2.25	Cost with Plant	29.25
Horse	3.00	Saving	15.25
Wood	2.00		
Int. & Deprec.	1.00		
	29.25		

A Saving of \$15.25 per day and double the yardage removed.

These two cuts were made in the same rock formation.

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Montreal, Canada

TORONTO ROSSLAND WINNIPEG HALIFAX

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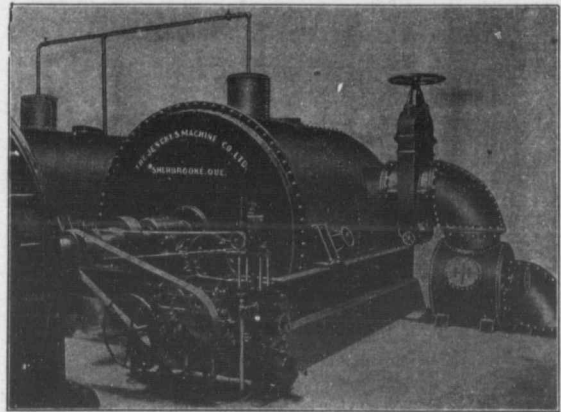
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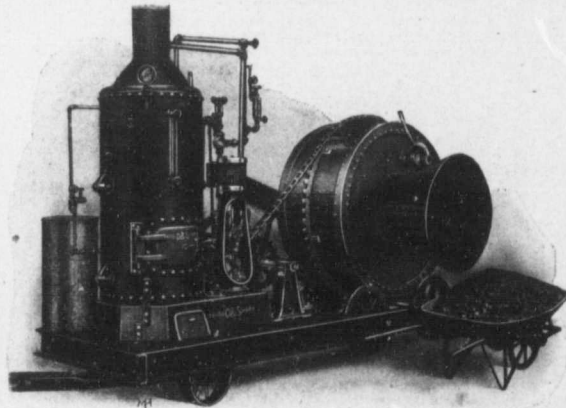
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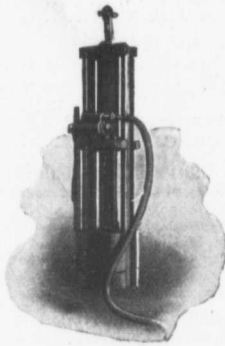
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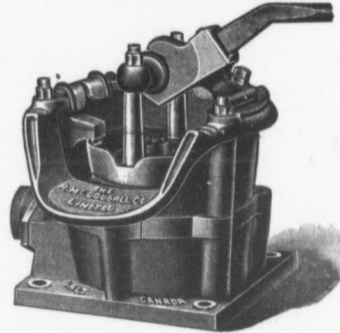
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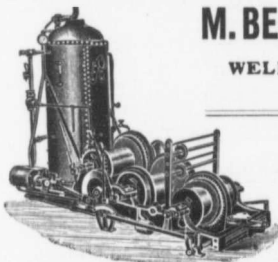
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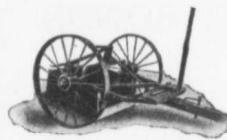
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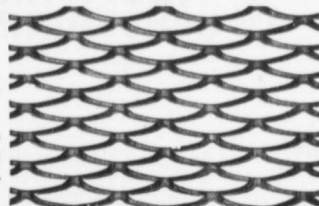
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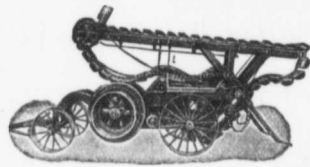
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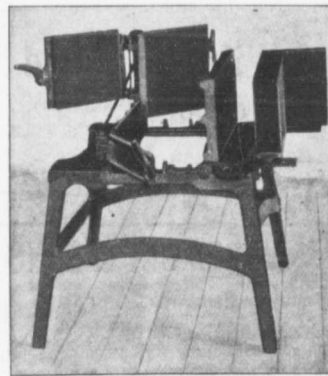
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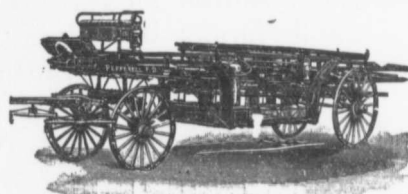


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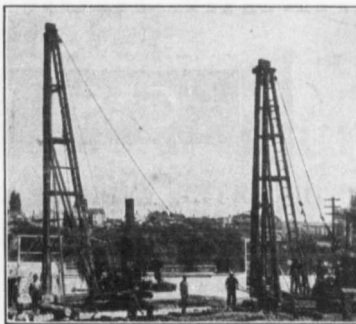
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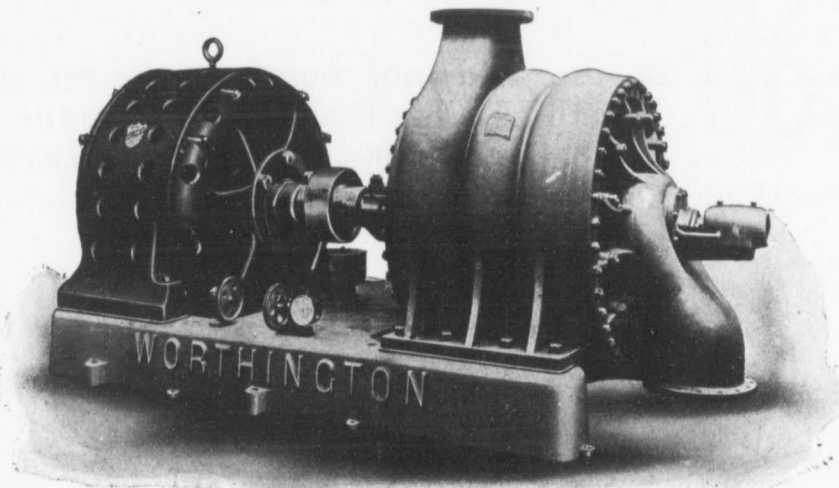


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Limited

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Three-stage 14-inch Worthington turbine pump, McTavish Street pumping station, Montreal water works. Capacity, 5,000,000 gallons in 24 hours against 110 lbs. pressure.

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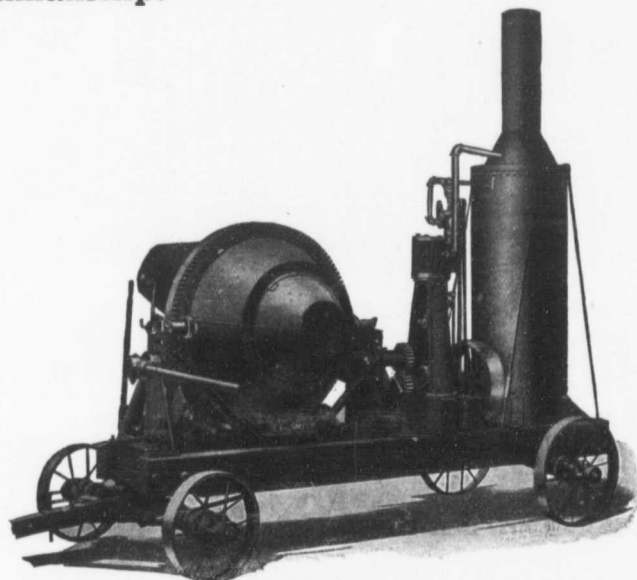
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**We prove it  
and the Machine proves it**

**every day it is in operation**

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Just think what that means. It is the result  
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No. 1 Smith Mixer on Truck with Engine and Boiler.

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## CANADIAN CONTRACT RECORD

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### Encourage People to Build.

The time has arrived when people who have been holding back in their building projects in anticipation of an easing up in the demand for labor and materials may well decide to proceed with their operations. From the present prospect the coming season will be an unusually good one in which to start new enterprises. Those who are engaged in the business of building can do much to stimulate the industry by recommending to all prospective clients to go ahead, for doubtless a better opportunity will not be offered for a long time to come. Heretofore there has been such a rush of work that owners have feared their projects could not have close and careful supervision; materials have been difficult of prompt delivery, and labor of the higher classes has been hard to obtain. No doubt these facts have influenced many men who have had the available funds to refrain from starting new buildings. There has also been some fear of strikes and other disturbances at buildings under way. All of these obstacles are now less troublesome, and the wise man will take advantage of his opportunities and proceed with business. Now is the time to build.

### Building for Speculation or Investment.

The term speculative building usually conveys the impression of unsubstantial structures hastily thrown together. Experience points to the close connection between these two; yet it may well be doubted whether all bad building is speculative or all speculative building is bad. The old adage still applies: "Fools build houses for wise men to live in," implying that sound building is expensive and that those who build for investment must expect disappointment. Those who build costly houses to gratify personal tastes or requirements usually find, when the time for disposal comes, that they have to accept much less than the outlay. But to invest money in bricks and mortar is not always a bad investment, nor are all buildings erected by private enterprise for private use unsaleable at a fair price. Good architecture is costly, and those who wish the real article must do so with their eyes open, knowing that works of art can never bring their full value if put upon the general market.

The building speculator is generally possessed of insufficient capital to even carry through his building schemes. His object is to turn a small capital over and over as quickly as possible. When the work is finished, his object is to sell immediately, so as to realize the capital which he has invested, such as it is, pay off his mortgages, and pocket such profit as there may be; and then start afresh upon another similar building scheme and upon precisely the same method. Here is every temptation towards bad building. If he can only sell his houses he is soon free from all liability for repairs. Trusting to this, he can adopt the flimsiest construction which local regulations will permit. He leaves a heavy crop of difficulties to the purchaser; but that, he considers, is not his concern.

The man who builds for investment pursues a very different plan. His object is not to sell quickly and begin afresh, but to build once for all, and either to live in the house himself, or to let it out to tenants, and

to treat the rent as income. As a general rule, the property dealt with in this way is of a larger type, consisting of good flats, offices, residences or shops, the object being to realize a steady income from invested capital. There is still considerable inducement to build cheaply, in order that as large a return as possible may be obtained; but, at the same time, sufficient regard must be had to the future. It thus becomes essential to build soundly, in order that repairs may be avoided, and that the building may be maintained at a minimum yearly outlay, and without deterioration for a long period of years. It is also necessary, if tenants are to be obtained, that the arrangements should be convenient, and that the architecture, if not extravagant, should at any rate be pleasing.

Thus there is all the difference in the world between the speculator who builds for the present moment only, and the investor who cares quite as much, and perhaps more, for the future, aiming at a fair return for his capital at the present time, and hoping for a better return in years to come; for there is again this further difference between the two classes—that the speculator chooses only a district where buildings of the description which he is thinking of putting up are likely to sell at present; whereas the investor takes a great deal of trouble to select a site which has, he thinks, a future before it—where, in fact, his buildings are likely to improve rather than deteriorate in value.

### Helping the Unemployed.

The movement started in Toronto to give aid to the many men who are temporarily out of employment should have the hearty endorsement of all friends of the workingman. It may be true that wages have been high in recent years and that the thrifty man has received in the aggregate large slices of the capital used in productive enterprises and may have had opportunities for laying aside some of it for a rainy day, but if he has not done so there is likely to be want and suffering for the mem-

bers of his family. The true way to help men is to help them to help themselves, and no better method of putting this theory into practice than by affording men employment can be found. To those who are contemplating building we would suggest that they start as early as the season will permit so as to give relief to the existing conditions. Perhaps when the summer comes there will be a better demand for men in the building trades as well as on the farms. In recent years the farmer has been almost desperate in his search for farm hands. This may be a year when his troubles in this regard will be lessened. If so, he will probably be thankful, for, with big crops and nobody to harvest them, he certainly is in a bad predicament. To employers we would suggest that they facilitate their contracts as much as possible with a view to giving work as a relief measure in early spring, for with the advent of summer the opportunities for employment will be enlarged and the conditions very much improved.

#### Confidence in Canada.

Sir Edgar Vincent, formerly financial adviser to the Khedive of Egypt, and a man of affairs in England, looks upon the recent panic as a development of inestimable value to the commercial future of this country. Discussing his visit to Canada, Sir Edgar said:

"I was surprised when I landed, three months ago, to find that the financial commotion had not had more apparent and far-reaching results. Instead, I found the West absolutely flourishing, and New York affected in a trifling way. This merely proved how sound and stable are the commercial and industrial pillars of this nation.

"I was especially impressed by the financial soundness of Canadian enterprises and the thorough, sure way in which that country is developing. I know of no greater tribute to the confidence in Canadian methods than the fact that the Canadian Pacific Railway has been able to borrow \$10,000,000 at a shade less than four per

cent. The Government itself pays a little more than three per cent., and by way of comparison we have the New York Central paying a bit more than five per cent."

#### Much Work in Prospect.

The outlook for the approaching season in the matter of work on improvements in Toronto appears to be very fair. According to the City Engineer's department this year promises to be as busy in street paving and sidewalk construction as last year was. Already the York Loan Company's property interests are demanding sixteen sidewalks, a total of 8,000 feet of walk. In addition to work outlined there is a possibility of the street railway line to the northwest section of the city being built this coming summer, in which case a good deal of work would be given by the city in connection with the track allowance. There are water pipes to be laid, and a number of sewers to be constructed. The indications are that more than 1,300 men who are idle now will have work in a month or so.

The City Engineer's department expects to get started at pavement and sidewalk construction and general repairs about the middle of April, when the present situation as to men being unemployed may be considerably improved. Forty inspectors will be employed by contractors, and they will have charge of gangs aggregating nearly 800 men. The City Engineer himself will employ 150 men by day labor on improvement work, and another 150 on repair work.

In the waterworks department there will be fifty or sixty men engaged early in May in laying 16 and 22 inch pipes on Dupont street, from St. George street to Roncesvalles avenue. Fifty or sixty more men will be given employment on a 20 inch main that is to be laid from the corner of Bathurst and Arthur streets along Arthur street to Roncesvalles avenue, about on a line with Arthur street.

At present there are four sewers under construction on the local improvement plan, and three gangs of

35 men each are engaged in the district west of Roncesvalles avenue. There are 45 men working on a contract sewer on Greenwoods avenue. In a week or so preparations will be under way for beginning work on the Leslie street sewer, which will run from Queen street to Ashbridge's Bay. About thirty or forty men will be employed at once on this job. The extension of the Rosedale creek sewer, from Bedford road to McPherson avenue, will be started as soon as the property owners agree on giving a free right of way for it.

#### Hamilton Brick Litigation.

According to the Hamilton "Spectator" there is likely to be interesting litigation in that city regarding the price of brick for the coming season. Says the "Spectator":

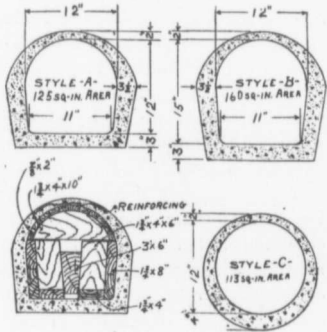
The Hamilton Builders' Supply Company is said to be the name of the new limited company which is going to handle the output of brick. On the season's work there will be about \$100,000 profit for the brick manufacturers, if they succeed in getting the price up to \$8.50, and keeping it there. The \$8.50 per thousand that is being paid by contractors includes teaming, which makes the price at the yards about \$7.50. Even at that, there is a good profit in manufacturing brick.

A prominent contractor who knows the inside of the manufacturing end told the "Spectator" that the cost of brick to the manufacturer would not exceed \$4.50 a thousand. That leaves a profit of \$3 a thousand, net, and there will be at least 25,000,000 bricks made in Hamilton during the season. At \$6.50 per thousand there is a profit of 20 per cent. for the brick men. Burning costs \$1.25 a thousand, teaming \$1 per thousand, and other expenses make up the balance. Of late years wages have not increased more than ten per cent. in the brick business, and the only big difference in manufacturing cost is in the installation of permanent kilns, meaning more capital tied up. Toronto brick was brought in, and laid down here last summer at \$9 per thousand, only 50 cents more than Hamilton men charged.

**Constructing Concrete Sewers and Culverts.**

That concrete is superior to all other materials for sewers and culverts, if properly used, has been clearly shown, but that the cost often exceeds that of clay sewer pipe has been an objection, which is due to the form or style of sewer and forms for constructing same.

In the illustration we have three



styles, of which C, the circular sewer, is the smallest, though considered the same as B, as both are 12 inch sewers; yet style B in 12 inches has as much capacity as style C in 14 inches. Many wish to have style B in 12 inch compete with style C or round pipe of same diameter, which is unfair to concrete. In actual use, I find style B of size given, viz., 12 inches wide and 15 inches high, practically equal to the 15 inch circular sewer or culvert, and in localities some distance from clay pipe kilns the 12 inch concrete sewer can be built for less than the 15 inch clay pipe sewer, besides is much superior, as it is never out of line and free from joints, two defects which are always prominent in clay pipe sewers, and always diminish the capacity of the sewer or culvert. It is these two causes that makes clay pipe inferior to the computed capacity, while the concrete sewers being more perfect, are more equal to the computed capacity; in other words, it is the two above causes that work hardships on concrete in theory but give concrete the decided advantage when put into practice.

The use of properly made forms, in as long lengths as possible, that

may be placed and removed with as little labor as possible, and used over and over again, is the chief cost saving problem, and the form shown in drawing has been used by me in 12 inch, 15 inch and 18 inch sewers in lengths up to 26 feet; thus, for a culvert 50 feet long, there would be no joint in the entire length, as the concrete bottom is first placed, and four men can place two 26 foot lengths of forms on same in ten minutes, when the balance of the concrete is placed. In continuous sewers I use but one form, making a joint every 25 feet, and these joints I tie together with wire netting two feet wide (one foot into each section).

In removing this form, first raise the centre wedge shaped timber which runs the entire length of the form; this is done by first raising the exposed end with a crowbar and later using a long gas pipe with one end flattened same as a bar; this pipe is driven the length of the form and both the wedge shaped timber and the bar will be free to remove. Next hammer the lower corner forms until freed from the concrete, and then the top arch. It will be noticed that the top arch is not as wide as the opening, which is essential.

In building these forms, I place all cross blocks 16 inch centres, and all timbers whose ends are shown are made the full length of the form, but none except the centre wedge timber need be the full length of form, and even this I made of inch lumber 12 and 14 feet long for a 26 foot form.

These forms should be made by a practical carpenter and well oiled before using. I apply a coat of common engine oil every time I shift the forms, and never have trouble of adhering to the concrete.

Forms 26 feet long for 12 inch sewer are withdrawn from the concrete and set in place for the next section in less than half an hour by four laborers.

The reinforcing shown is intended for culverts near the surface, and consist of expanded metal shaped as shown, so as to strengthen the inside (lower) at the centre of the arch and near the outside at the haunches, this

giving the benefit of the tensile strength of the metal.

In most work I use no reinforcing, as the top is always two inches thick, and in sewers 12 or 15 inches wide this is sufficient in plain concrete to carry all the load that can be placed upon it.

In building sewers across mud or soft dirt, I usually reinforce lengthwise with eight round rods spaced equal distance over the top and down the sides, which are tied together every four or five feet with several strands of No. 4 common wire; at the bottom I use no reinforcing, but add a half more to the thickness of the plain concrete.

The cost of a 12 inch sewer (style B) per length of 16 feet, is as follows:

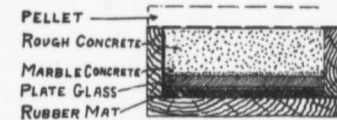
Excavating 4 feet deep—9 hours	
labor . . . . .	\$1.44
16 cubic feet concrete . . . . .	2.60
Labor for hand mixing and placing concrete and forms (4 men, 2 hours) . . . . .	1.28

Total cost 16 feet . . . . . \$5.32

There is nothing added to above for cost of forms and superintending, but enough is shown that net cost does not exceed forty cents per lineal foot, while a 15 inch clay pipe sewer would cost about 56 cents per foot, to say nothing of the superior qualities of the concrete.

**MARBLEIZED CONCRETE.**

Much experimenting along the line of making finer finished concrete has led me to use one of the three methods which are here described, the pro-



duct of all of which I term "marbleized concrete."

To produce a concrete face that will have the appearance of sanded finish marble, such as used for exterior building stone, is very successfully done on any face-down block machine by first covering the face to the depth of an eighth of an inch with a dry mixture of one part cement to three

parts marble dust, and the regular dampened concrete is then placed upon it and tamped in the usual way, sufficient moisture penetrating the dry facing to produce a hard face. When this method is applied to rock-face moulds I find it necessary to first paint the face of the mould with a coat of Japan dryer, which must be hard before using the mould. Marble dust from the Vermont quarries produces the smoothest surface, but is more troublesome in adhering to the mould than Georgia marble dust, which is of a flint or crystalline nature. Facing made as above may be polished or glossed after the blocks are five or six weeks old by polishing much the same as natural marble.

Perhaps a cheaper method of producing polished or glossed marble surface is to construct a mould as shown in sketch, which is the same as any ordinary artificial stone mould except that on the bottom or face side is placed a polished plate glass, which rests on a rubber blanket or mat (I always use a rubber door mat); this mat saves breaking the glass when tamping. On the glass we pour, to the depth of an eighth of an inch, a composition made of one part Portland cement to three parts marble dust, mixed with sufficient water to admit pouring; this composition must be well agitated until poured, which is immediately covered with rather a dry concrete block composition, which must be well and carefully tamped, and the mould left undisturbed for at least one day, when the block or slab is removed and seasoned.

When a highly polished glass and fine marble dust is used, the surface is perfect, and it sometimes is necessary to slightly warm the glass to free the block from it; such surface can be highly glossed by vigorous rubbing with felt, frequently dampened with a solution of one part oxalic acid to six parts clean water; all acids must be washed off the block with clean water as soon as the desired gloss is obtained.

Another more rapid method, where finest finish is not so much of an object, is to coat or paint the surface of seasoned concrete with a composition consisting of one part Portland ce-

ment to two parts marble dust, mixing small quantities at a time with sufficient water to permit of its application with a kalsomine brush. When this coat has become hard it may be sanded for exterior work by rubbing with sand and water, using a cast iron block for rubbing; this will remove all brush marks and with the exception of the appearance of small spots of the rough concrete, resembles natural marble finish.

Coloring matter may be added to any of the above methods, but all colors have a tendency to produce flat finish, therefore the highest polish is obtainable with the natural materials.

All colors used should be mineral products and entirely free from oil.

These methods differ from the usual processes of making artificial marble. —American Carpenter and Builder.

#### Impure Air in Dwelling Houses.

The fact that when a house is to all intents and purposes closed up and the interior temperature is the same as that outside the building, an interchange of air can take place between different compartments of the house, renders it incumbent upon the architect and builder to give special attention to the cellar and foundation construction. Analyses of air in a house under the conditions named have shown that the air of the first storey is 7 to 8 per cent. cellar air, and that the air of the second storey is 3 to 4 per cent. cellar air. When contamination to this extent can take place without accelerating conditions it is reasonable to suppose that with the chimney-like action possessed by the warm interior in winter a greater amount of the cellar atmosphere can be expected in the floors above. Figures recently published affirm this assumption, the first floor in the heated house showing 40 per cent. cellar air and the second floor 25 to 30 per cent. Granting the tendency that must exist in the average house the question is, Does the cellar contaminate? If it has been built with impervious walls and bottom it cannot be a serious menace through transmission from the surrounding earth, but from the condition in which it is kept. Similarly, if the cellar is in direct

communication with the outer air, it is not likely to be regarded as unwholesome, for the free admission of the atmospheric pressure serves to destroy the suction or chimney action of the house on the cellar, subjecting the walls and the earth to the same pressure as that out of doors. The chance of the emission from the walls into the cellar of gases or organic matter is then minimized, but the importance of having well built walls and bottom, particularly if located in made ground, is obvious. Besides the hydrostatic pressure to which the cellar walls and bottom may be subject, due to the higher earth surrounding, which would be a fertile source of contamination with the presence of much dampness, there is also the tendency for gases to be forced in by the atmospheric pressure transmitted to a greater extent than generally realized, through the earth and through the cellar walls into the cellar; this is so, provided the cellar atmosphere is at slightly less pressure than the atmosphere, which would be the case in a reasonably tight house in the heating season. Depending on the character of the soil earth has been found to take up different amounts of air, according as the atmospheric pressure, recorded by the barometer, is greater or less. The earth is the seat of bacterial changes on a large scale, and the possibilities of the exudation through cellar walls of gases and organic matter, leading to such diseases as malaria, should not be ridiculed. The tendency of the times in building lines is close attention to the soil of the site and the proper preparation of the foundation walls.

#### Canadian Society of Forest Engineers.

At Montreal on March 13 last a new society, known as the Canadian Society of Forest Engineers, was organized with the following officers: President, Dr. E. B. Fernow; vice-president, Mr. R. H. Campbell; secretary-treasurer, Mr. W. H. Jacombe.

The society consists primarily of professional foresters employed in Canada, Canadian forestry students and others interested professionally in forestry and the lumber industry.

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MISSISQUOI MARBLE CO.—VIEW OF SAW MILL AND FINISHING SHOP.

## MISSISQUOI MARBLE

Many people during recent months have paused to look a second time at signs on various of the more imposing buildings being erected in Montreal stating that Canadian marble was being used in either the interior or exterior construction work.

"Canadian marble!" they have said. "Why, surely that is a new product for Canada!"

It is a new product, and a product of exceptional beauty and rare value. There are other places in Canada giving indications of underlying deposits of commercially valuable marble, but at the particular spot where it is now being quarried for building use, marble of the finest quality has been found to exist in seemingly unlimited quantities. This spot is only fifty-six miles from Montreal, namely, at Philipsburg, on the shore of that beautiful portion of Lake Champlain known as Missisquoi Bay.

Philipsburg formerly played an important part in the business and industrial life of the Eastern Townships. Before the coming of the railways it was a port of entry, merchandise being brought from New York through Lake Champlain to Philipsburg, and distributed thence by wagon all through the Eastern Townships. The boats returned to New York, laden mostly with lumber—never with that far more valuable local product which lay hidden but a few inches beneath the soil. Indeed, it can hardly be said to have been hidden. Marble cropped out

in big boulders here and there all over the district, but until a few years ago nobody seems to have taken the trouble to find out what these beautiful cream-colored outcroppings indicated.

Nearly twenty years ago, the late Mr. Henry Benjamin, who realized at its true value the marble deposits of Philipsburg, began work on an ambitious scheme of development, and had he lived there is no doubt Missisquoi marble would long since have been famous. He was instrumental in building the Philipsburg railway to a connection with the main lines of other railways six miles distant, and he began to open up the quarries and make arrangements for placing the marble on the market in large quantities. Soon after the railway was built, however, he died, and the whole scheme was allowed to fall into abeyance. Marble quarried there thirty or forty years ago, however, is to be seen in a number of buildings in Montreal and district, and it serves a useful purpose in demonstrating that it stands the tests of color and durability.

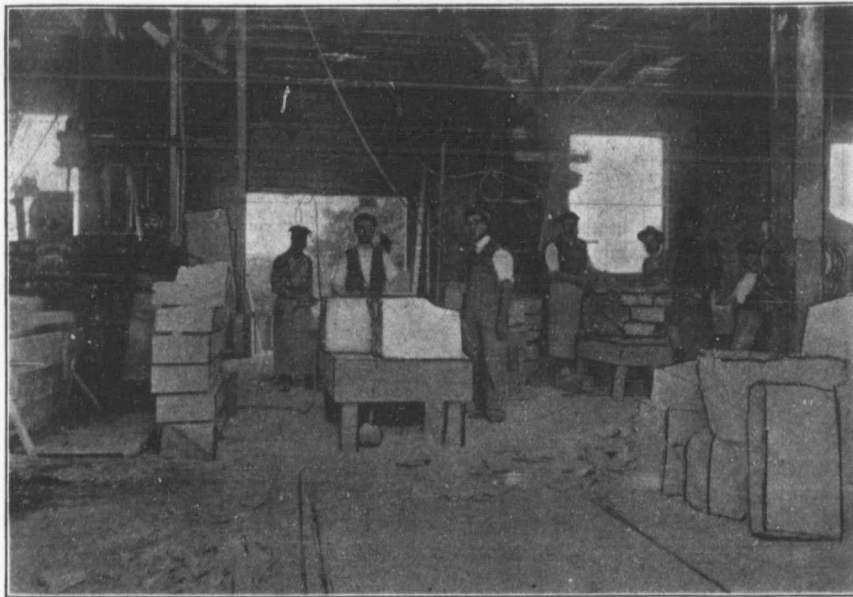
Within the past year or two, some of the principal stockholders in the old Philipsburg Railway & Quarry Company, which Mr. Benjamin was chiefly instrumental in forming, decided on the formation of the Missisquoi Marble Company, Limited, for the purpose of carrying on the quarrying and marble manufacturing business on a modern and extensive scale. Previous to making any

important expenditure, they had the property examined by some of the most experienced marble men on the continent, and the reports of these experts showed the lucky owners that they had struck a veritable Klondike in marble. Uncover the ground wherever they would, a beautiful creamy marble was exposed; bore as deep as they liked, they could not find the bottom of it. In order to get a water supply for the place it was necessary to bore down 513 feet, and marble of excellent commercial quality was found to exist the whole way down. Nobody knowing anything about marble need be told that here was a property far exceeding in value many of the richest and highest-capitalized gold or silver mines on the continent.

A scheme for immediately developing the quarry was entered upon, and during 1907 the new company was in-

half a mile of the quarry, with railway connection, alongside which barges drawing up to nine feet of water can be loaded. Uninterrupted water communication—the cheapest of all transportation—may thus be had with the St. Lawrence and Ottawa rivers, with Great Lake ports, with Lake Champlain, Hudson River and New York. Never were mineral deposits more fortunately situated.

Meanwhile, considerable development work on the most up-to-date lines has been done. Blasting has been entirely superseded by machines known as “channelers,” which cut out blocks from the quarry of any size required. The marble has been found to lie in strata of from three to five feet in thickness, and from each stratum a different variety is obtained, there being six well-defined varieties in all. These are light grey, dark grey,



MISSISQUOI MARBLE CO.—A VIEW OF THE FINISHING SHOP.

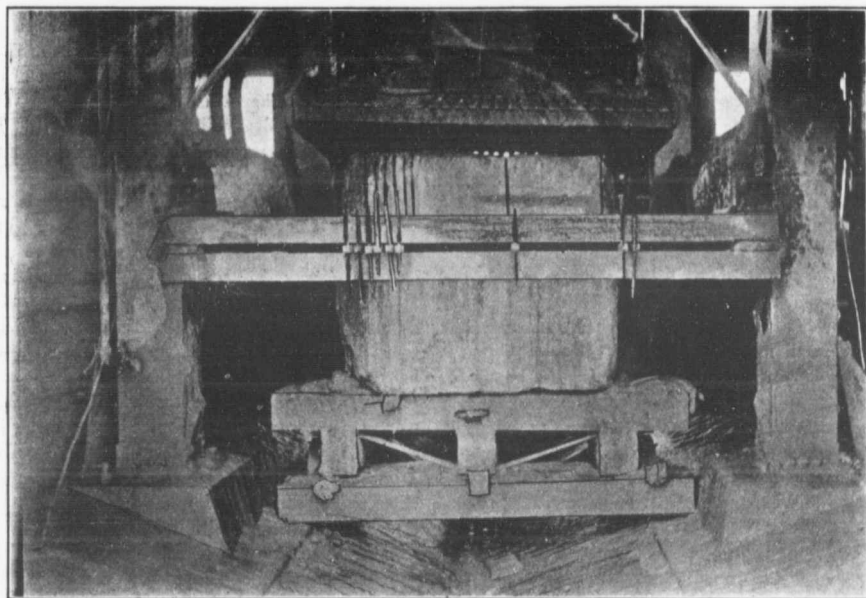
corporated under the name of the Missisquoi Marble Company, Limited, with an authorized capital of \$500,000, in shares of the par value of \$100 each. This company consists of Messrs. James T. Shearer (president), recently deceased, R. J. Dale (vice-president), Henry Timmis (secretary-treasurer), S. Carsley, S. H. Ewing and Wm. Mann, all of whom are well known in Montreal business circles.

The company purchased no fewer than 317 acres of land at Philipsburg, and fully one-half of it is composed of marble deposit. It also acquired a controlling interest in the Philipsburg Railway, which runs from Philipsburg and connects at Stanbridge with both the Canadian Pacific and the Central Vermont systems, thus ensuring splendid facilities for transportation. In addition to this, there is a fine marine dock at Philipsburg within

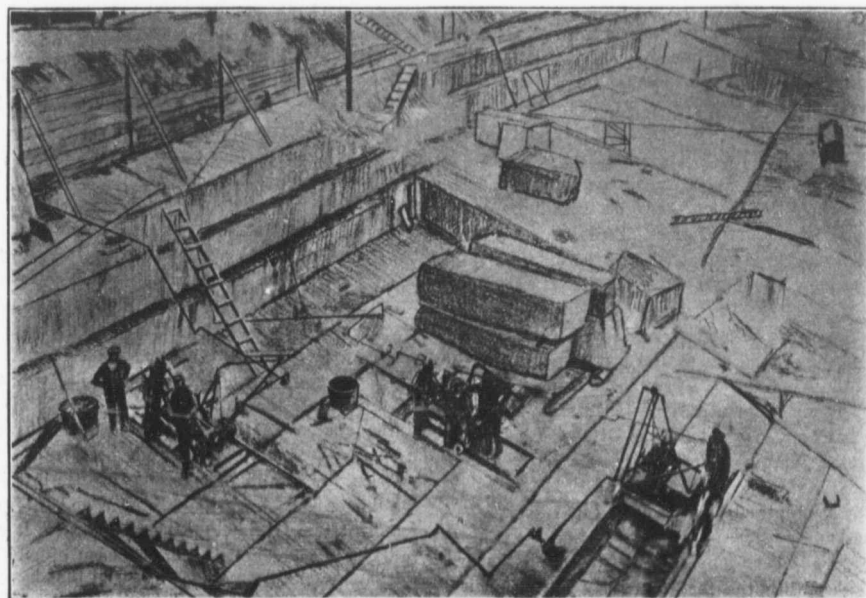
green grey, cream colored with green vein, cream colored with mottled green cloudy effect, and a very handsome mixture of cloudy green and pink. All these varieties give a remarkably fine and delicate effect when polished, and there is a practically unlimited quantity of each kind on the property.

While the quarry equipment, the mill, and the finishing shop of the Missisquoi Marble Company are not on so large a scale as the plants of the concerns in Vermont, which have been engaged in the marble quarrying and manufacturing business for the last half century, yet it is doubtful whether in any of them a more up-to-date or efficient equipment is to be found than is found at the plant of the Missisquoi Company. Before a dollar of expenditure was incurred, the secretary-treasurer of the company, Mr. Henry Timmis, accompanied by Mr.





MISSISQUOI MARBLE Co.—A GANG SAW.



MISSISQUOI MARBLE Co.—ONE OF THE QUARRIES.

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Brown, the mechanical genius of the enterprise, visited nearly all the quarries and plants in Vermont, and at other adjoining points, with the result that on their return they were able to incorporate and combine the very best ideas and results of the most extensive experience gathered from a very large field. The result of this method of procedure is quickly recognized by any practical man who visits the property. The methods that are employed conduce to perfect co-ordination between all the parts of the plant to the highest efficiency, and to the elimination of all unnecessary labor costs.

The blocks are cut from the strata by means of steam channelers, which are supplied with power from a central boiler house which operates the quarry, the mill, the electric light and the air compressor plant. The huge blocks of marble are then lifted by a steam derrick, and placed on a small mill truck, which, riding on a transfer car, goes down the yard till it reaches the gangway, into which it is drawn with a steel cable worked from a drum right in and under the gang. After the sawing is complete the slabs are removed in the same way, traveling down the yard in the transfer car to the finishing shop, and go in from there to the rubbing beds and the copers.

There has not, up to the present time, been much encouragement to the Canadian architects and the building trade to utilize marble to the extent that it could with advantage be used, because not only has the cost of imported material, as a rule, been very excessive, but delays of many months are frequently experienced in getting orders filled. The policy of the Missisquoi Company is to keep on hand a large supply of the blocks from each strata of their quarry, from which, on seventy-two hours' notice, they will be able to furnish sufficient slab material to fill the largest possible order that is likely to reach them. They have altogether some six or seven varieties, samples of which are on inspection in the office of the Montreal sales agent, Mr. David McGill, in the Merchants Bank Building. The marble may be seen in use in the Cavendish Apartments, Emmanuel Church, Power Building, Dominion Guarantee Building, Windsor Hotel, Canadian Express Building, and the Provincial Bank, in Montreal, also in the exterior front of the Workman Building on St. Catherine street, Montreal.

A very fine piece of interior work, consisting of some very large columns and panels, has just been shipped for the Royal Bank in Toronto. There are a number of other points where small quantities of the marble has been used. It has been specified for the Ottawa Y. M. C. A. Building, the Winnipeg Post Office, the Owen Sound Post Office, the Halifax Post Office, and the new General Post Office at Montreal. On account of its very excellent quality and appearance, and the very reasonable price at which the Missisquoi Company are furnishing the product, together with the fact that they have sufficient variety and color to meet almost any requirement or color scheme, they will undoubtedly be enabled to displace the bulk of the imported marble which is now coming into Canada.

### Objections to Underground Cellars.

A sentiment is gaining strength with many architects that the underground cellar should be done away with. It is a relic, it is urged, of a dark age in the history of building. Some physicians assert that more illness originates from them than from any other part of the home. They cannot be kept in sanitary condition with vegetables constantly decaying within their walls. The place for a cellar, the reformers claim, is above ground, and entirely outside the home building.

A cellar above the ground, it is urged, is more convenient in every way. The vegetables can be stored in it with less than half the labor required to store them below the ground. They can be kept clean in a cellar above ground with but little trouble. The underground cellar is difficult to get at and will be neglected nine times out of ten, and allowed to become a source of infection to the family above it.

Ventilation and temperature can be much better and more easily controlled in an overground cellar than they can be in the old-fashioned underground cellar, which obliges the housewife to expend so much strength in climbing the stairs. If located convenient to the kitchen it can be connected with it in winter by an enclosed passageway. If a considerable number of potatoes are stored in bins, a little lime sprinkled among them will aid in preventing decay and early sprouting. If the cellar is kept sweet and clean the result will be apparent in the improved health of the family.—Shoppell's.

### The Waterproofing of Concrete.

That moisture is the most active factor in the deterioration and failure of structural concrete is generally admitted, and the fact that a concrete structure, owing to the absorptive character of the material of which it is composed, is usually difficult to keep dry, has been one of the objections to the more widespread use of the material for ordinary building purposes.

This, however, is not an unavoidable state of affairs. Concrete buildings can be erected that can be made, both above and below ground, perfectly damp-proof, various preparations being on the market whereby this can be effected. In contracting for the erection of a concrete structure, the use of a reliable waterproofing, properly applied, should invariably be provided for, and proper precautions taken to protect the lower part, by drainage, etc., from the accumulation of surface water, which by seepage and capillary action will sooner or later permeate the entire building.

The quality of the concrete, i.e., the character and proportions of its mixture and the manner of its disposition, are also of primary importance in this respect, the denser and closer its substance and the greater its freedom from "voids," the better capable it will be of resisting the absorption and diffusion of moisture.

There is no reason why a material that has proved so perfectly adapted for foundation work, where it is constantly exposed to the efforts of moisture in its most insidious form, should not prove equally durable and waterproof above the ground, if properly prepared and handled.

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# Contracts Department

News of Special Interest to Contractors, Engineers, Manufacturers and Dealers in Building Supplies.

## CONTRACTS OPEN.

### Aylmer, Que.

The time for receiving tenders for the construction of the sewerage system has been extended to March 26th.

### Annapolis Royal, N.S.

Tenders will be received by Fred Gelinas, Secretary, Department of Public Works, Ottawa, up to April 24th for the construction of three ice piers in the Annapolis river. Specifications may be seen at the offices of C. E. W. Dodwell, Resident Engineer, Halifax, E. G. Millidge, Resident Engineer, Antigonish, N. S., on application to the local postmaster and at the Department.

### Bridgeburg, Ont.

A bylaw is being prepared to raise \$6,000 for the erection of an addition to the Phipp street school.

### Brantford, Ont.

The waterworks commissioners will install a new suction pipe and two storage wells at the works, also other improvements; estimated cost \$17,000.

### Buxton, Ont.

A. E. Robinson, clerk, wants tenders up to March 30th for the erection of a new town hall in Raleigh township according to plans at office of J. Rutley, architect, Chatham.

### Burks Falls, Ont.

Willis Chipman, C.E., of Toronto, has submitted to the Council a report upon the proposed improvements to the water system. Alternative estimates are submitted ranging from \$34,000 to \$50,000.

### Brandon, Man.

M. H. McLeod, General Manager and Chief Engineer, western lines of C.N.R., states that the erection of a commodious new depot for the city is under consideration.

### Cobalt, Ont.

Application is being made for the extension of the town site with a view to facilitating the issue of bonds for \$75,000, of which \$25,000 is to be spent on sewers and \$50,000 on waterworks.

### Caledonia, Ont.

Coppley, Hoyes & Randall, of Hamilton, will enlarge their factory here this spring.

### Campbellford, Ont.

The ratepayers have approved a bylaw granting a free site, cheap power and fixed assessment to the Canadian Steel Company.

### Copenhagen, Ont.

The township council of Malahide have decided to replace the steelbridge over Staller's gully on the first concession, east of Grovesend, with a cement arch.

### Chesley, Ont.

Bowman & Connor, consulting engineers, Toronto, are calling for tenders in this issue for pumping plant, pipe laying, &c., for the waterworks.

### Calgary, Alta.

The organization is reported from here of a company, capitalized at \$10,000,000, who propose to build a line two thousand miles long from the international boundary east of Cardstone, Sask., northeasterly through Lethbridge to Fort Vermilion, and thence through British Columbia and Yukon Territory, via Dawson City to the Alaskan boundary; also a branch line from a point on the main line east to Victoria, along the north bank of the Saskatchewan river to Edmonton. Application for incorporation is now being made.

The Alberta Southwestern Railway are seeking incorporation with power to construct a line to this city from a point on the International boundary in B. C., near Kootenay river.

The city council are considering the estimates of city engineer Hill for pumps and tanks for drainage extensions, estimated cost \$25,000.

It is stated that J. Willis will build a large vaudeville theatre on 8th avenue this spring.

### Drummond, N.B.

Tenders will be received by C. H. Labillois, Chief Commissioner, Department of Public Works, Fredericton, up to April 6th for building masonry substructure and approaches of Broadway bridge. Specifications may be seen at the Record office, Andover, the post office, Grand Falls, and at the Department.

### Eburne, B.C.

Eastern capitalists are stated to be contemplating the erection of a plant

for the manufacture of turpentine. R. D. Rorison & Son, of this town, are interested.

### Egan Township, Que.

Tenders are invited up to May 2nd for seven township debentures of \$1,000 each. James Martin, secretary-treasurer, Maniwaki post office.

### Edmonton, Alta.

Municipal improvements will be carried on here this season at a cost of nearly \$200,000, of which amount \$92,000 will be expended in sewer construction and \$65,000 in waterworks extensions.

### Enniskillen, Ont.

Thomas Dobson, Secretary-Treasurer, will receive tenders up to April 4th for repairs to school house in school section number 11.

### Estevan, Sask.

Willis Chipman, C. E., of Toronto, will prepare plans for a new waterworks plant and construction will be started without delay.

### Fraserville, Que.

Plans have been prepared by Ouellet & Levesque, architects, Quebec city, for two new school buildings to be erected here.

### Fort Erie, Ont.

The Niagara Jockey Club will build new quarters and carry out extensions this season to the extent of \$35,000.

### Guelph, Ont.

The city council have instructed W. M. Davis, C. E., of Berlin, to make a report for the enlargement of the waterworks system; estimated cost \$125,000.

### Halifax, N. S.

A new school building to cost \$35,000 is to be erected in place of the Compton school recently destroyed by fire.

### Hochelaga, Que.

A new school building is to be erected here by the separate school board and tenders will shortly be taken by the architect, J. Venne, of Montreal.

### Hamilton, Ont.

It is stated that the newly formed Canadian Writer Press Company, of this city, will commence the erection of a factory this season.

It is stated that the Bell Thread Company of Montreal have decided to remove their plant to this city.

#### Indian Head, Sask.

Work will shortly commence upon the extension of the water works to cost \$10,000.

#### Kamloops, B. C.

A cannery will be erected at this place by the Thompson Valley Canning Company.

#### Lobo Township, Ont.

A new steel and concrete bridge to cost \$2,000 has been recommended by County Commissioner Talbot for erection at Poplar Hill.

#### Lennoxville, Que.

Bishops' College will likely be extended at a cost of \$10,000.

#### Listowel, Ont.

J. Stanley Richmond, electrical engineer, of Toronto, has submitted plans and estimates for a complete lighting and power equipment to cost \$35,000. The matter is in abeyance.

#### Leamington, Ont.

The electric light plant here is to be extended by the new owner, J. R. Gordon, of Sudbury, Ont.

#### Ladysmith, B.C.

The town council are discussing the cost of installing an electric plant.

#### Lucan, Ont.

A new \$10,000 edifice will be erected this season by the congregation of Holy Trinity Church.

#### Lakefield, Ont.

The Board of Trade are sending a deputation to Ottawa to interview the Government for the purpose of obtaining assistance in the building of a new dock.

#### London, Ont.

The Gorman-Eckert Company will likely extend their factory.

Local Orangemen are stated to be considering the erection of a new hall.

Plans have been prepared by W. F. Shepherd, of this city, for a three-storey brick warehouse to be erected this season by A. Jeffery.

It is stated by the proprietor of the Tecumseh House, George O'Neil, will erect an addition of fifty rooms this spring.

The estimated cost to the Ontario Department of Education include items of \$14,500 for improvements to the Normal School and \$6,600 for improvements to the post office.

The St. John's Athletic Club, of this city, will erect a frame club house to cost \$2,000.

The city engineer has been instructed to obtain estimates of the cost of an overhead iron bridge on Wellington street, from Piccadilly to Pall Mall streets, over the C.P.R.

A new steel structure is to replace the old Guest bridge. Estimated cost \$11,000.

The colored Baptists of Horton street church have purchased property on Maitland street where they will erect a new church this summer.

Plans are under preparation for the double tracking of the Huron and Bruce line from this city to Wingham and it is expected that the work will be started simultaneously with the Grand Trunk construction early in the spring.

Seven steel and concrete bridges are to be erected as follows: one at Westminster, one in West Williams, one in West Missouri, two in McGillivray, one in Biddulph and one in North Dorchester. Tenders will be opened at office of county commissioner April 15th. Estimated total cost \$12,000.

#### St. Pierre les Becquets, Que.

Tenders will be received by Fred Gelinas, Secretary, Department of Public Works, Ottawa, up to April 25th for construction of landing pier at this place. Plan and specifications may be seen at offices of J. L. Michaud, Resident Engineer, Merchants Bank Building, Montreal; Ph. Beland, Clerk of Works, Post Office Building, Quebec, on application to the local postmaster and at the Department.

#### Medicine Hat, Alta.

The Canada Brick Company will rebuild their plant recently destroyed by fire.

#### Mitchell, Ont.

A two-storey addition will be erected this season by the T. S. Ford Company, Limited.

#### Moose Jaw, Sask.

Coatman & Cloakley, architects, of Regina, are preparing plans for a large apartment building to be erected here during the coming season at a cost of over \$120,000.

J. D. Simpson, secretary-treasurer, will receive tenders up to April 6th for the extension of the light and power plant, including turbo-alternators and exciters, condensers, switchboard and connections. Specifications will be forwarded for deposit of \$25.

It is now stated that the cost of the proposed Collegiate school will be in the neighborhood of \$80,000. Harold Jagger is secretary of the School Board.

#### Montreal, Que.

J. S. Paynter, architect, this city, has prepared plans for the new buildings to be erected this season on Frontenac street by the C.P.R. at a cost of nearly \$2,000,000.

It is stated that the American Can Company are looking for a site upon which to erect a factory to cost from \$200,000 to \$250,000.

#### Meaford, Ont.

The town council are planning to increase the water supply by the construction of another filtering basin. A report to this end has been adopted and the matter will be submitted to the ratepayers.

#### Matane, Que.

Ouellett & Levesque, architects, Quebec, will shortly take tenders for a church to be erected at a cost of \$40,000.

#### Mimico, Ont.

The school trustees have plans for building extensions to be carried out this summer.

#### Moosomin, Sask.

The town council have disposed of \$25,000 waterworks debentures. The drainage system and other works will be completed as soon as the frost is out of the ground.

#### Notre Dame de Grace, Que.

Tenders are being taken this week for considerable work in the laying of pipes here. B. D. McConnell, C. E., Montreal, is in charge of the work. L. Des Carrier is secretary-treasurer.

L. Descarries, secretary-treasurer, is taking tenders for \$275,000, 4½ per cent. 46-year debentures.

#### Nanaimo, B.C.

T. H. Tracey, consulting engineer, Vancouver, B.C., is reporting upon a new water system for this town.

#### New Westminster, B.C.

James Cunningham will put up a new business block, corner of Columbia street and McNeely streets.

The B.C. Electric Railway Company are being urged to double track Columbia street to Leopold place.

Bylaws involving an aggregate sum of \$175,000 are under preparation. The amount is made up as follows: \$55,000 for schools, \$32,500 for new reservoir, \$75,000 for Lulu Island bridge and street improvements, \$6,000 for the addition to the market and \$6,500 for a new fire hall in the east end.

**Outremont, Que.**

A bylaw to raise \$150,000 for local improvements will be submitted to the ratepayers.

**Ottawa, Ont.**

The Anti-Tuberculosis Association have received from the city council the offer of a site at the rear of the isolation hospital upon which to erect the proposed consumption sanatorium.

The waterworks will likely be extended this summer to the ranges at Rockcliffe. Estimated cost \$5,115.

**Owen Sound, Ont.**

John Rutherford wants estimates and plans up to March 31st for a four-room addition to Boyd street school; estimated cost \$12,000.

**Pincher Creek, Alta.**

The council are discussing the advisability of installing a municipal lighting plant, also of extending the water system.

McKerricher Brothers are thinking of establishing a creamery here.

**Pictou, N.S.**

The Cottage Hospital Board invite tenders up to March 31st for the construction of a veranda for the hospital building. Plans at office of James Primrose, Treasurer. W. B. Ives is Secretary of the Board.

**Pembroke, Ont.**

The town council are taking tenders for a site for the proposed Carnegie Library.

**Perth, Ont.**

The drainage system in this town will be improved upon at estimated cost of \$8,500.

**Port Arthur, Ont.**

The C.N.R. are understood to have planned a large amount of work for the coming season. The track between this city and Winnipeg will practically be rebuilt, the company intending to put in new ties and rails for almost the entire distance. It is further stated that the yard accommodation will be considerably increased and that the work of covering the steel dock will be commenced at an early date.

**Portage la Prairie, Man.**

The Imperial Theatre Company are applying for a charter and have purchased a site on Tupper street, where they will erect an up-to-date playhouse. W. J. Gillman, of New York, is interested.

The rural council will build a new bridge over the Elm river south of Oakville.

**Quebec, Que.**

A steel span will be constructed over the Montmorency river this spring

by the Quebec Railway, Light, Heat & Power Company.

Fred Gelinus, Secretary, Department of Public Works, Ottawa, will receive tenders up to April 22nd for the construction of a drill shed for the School of Gunnery. Plans may be seen at office of P. Beland, Clerk of Works, this city, and at the Department.

**St. John, N.B.**

The supplementary estimates for public works recently submitted at Ottawa include \$330,000 for harbor improvements at this city.

**Sorel, Que.**

F. Guardeau, Deputy Minister of Marine and Fisheries, Ottawa, will receive tenders up to April 5th for supply of about 750 tons of steel plates and shapes required at the Government shipyard at this place. Specifications may be obtained of J. Desbarats, Director of Government Shipyard, Sorel, from the agent of the Department of Marine and Fisheries, Montreal, and at the Department.

**Smith's Falls, Ont.**

A bylaw to raise \$28,000 for building a new high school will be submitted.

**St. John, N.B.**

William Downie, General Superintendent, Atlantic Division, C.P.R., wants tenders for construction of concrete piers and arches on various bridge work. Plans and further particulars of C. B. Brown, Division Engineer, this city, and of F. M. Rutter, Resident Engineer, Woodstock, N.B.

A. S. Laurent, Government Engineer, Ottawa, is engaged upon new plans for the wharf which will be forwarded upon completion for the approval of the City Engineer.

**St. Mary's Ont.**

J. W. Pert will erect a new residence to cost \$5,500. W. F. Shepherd, architect, London, Ont., has the plans in hand.

**Souris, Man.**

A movement is on foot to erect a more commodious hospital building and the hospital board will make a recommendation to this end.

J. W. Breakey, Secretary-Treasurer, will receive tenders up to April 10th for \$6,000 five per cent. 20-year local improvement debentures; also up to the same date for \$1,700 five per cent. 20 year town debentures.

**Sydney, C. B.**

M. B. Dickenson and J. V. Calver are interested in the formation of a new concern, the Marine

and General Engineering Company, capitalized at \$30,000. It is stated that \$20,000 has already been subscribed. \$23,000 will be expended in the purchase of a site and erection of necessary buildings.

**St. Boniface, Man.**

The Manitoba Linseed Oil Mills, of Winnipeg, will erect a large building at a cost of about \$75,000.

**St. Thomas, Ont.**

The Elgin county council have decided to replace all the wooden bridges in the county by reinforced concrete and steel structures and it is hoped to take tenders early this season.

The Pere Marquette Railway Company are considering the erection of a new station, corner of Wellington and Station streets.

Ingram & Davey, hardware merchants, of this city, will erect a new store building for which N. R. Darach, architect, has just prepared plans.

**Teeswater, Ont.**

A new business block will be erected in this town during the coming season by M. Goetz.

**Tweed, Ont.**

The Hungerford township council have decided to put a steel structure of one 50-foot span on concrete abutments across the river Clare at lot 23, con. 10.

**Toronto, Ont.**

H. H. Williams & Company, real estate agents, report the sale of a site on Agnes street near University avenue to W. Lunenfeldt, who will erect a metal factory to cost \$15,000.

C. W. Postlethwaite, harbor master, wants tenders up to March 31st for dredging work in Toronto harbor.

Christ Church, Deer Park, are contemplating the erection of a new building.

Victoria College will erect a new library at a cost of \$63,000. The architects are Sproatt & Rolph.

It is stated that the G. T. R. are considering the advisability of erecting a new station at Parkdale at the junction of King and Queen streets.

Application will be made to the Board of Control by the York Pioneers' Society for permission to erect a building on the Exhibition Grounds to cost \$20,000.

It is stated that the Board of Control have approved the plans of the city architect for an ornamental winter building to be erected in Allan Gardens at a cost of \$75,000.

C. H. Heehn has purchased property on the north side of College street, between Markham and Palmerston

where he will erect two large stores.

The Hydro-Electric Power Commission are stated to have come to a final agreement with the Government and will be ready to call for tenders for the transmission of power just as soon as the various municipalities have signified the amount of electricity they will require. Government lines will probably be constructed through much of the territory.

The Dominion Government have applied for a permit to erect an addition to the General Post Office.

Tenders are being considered by the Board of Control for sewerage work on Queen street, from Cotswold avenue to Woodbine avenue. A pumping station will be needed in this connection opposite the Woodbine. Total estimated cost \$14,500.

Recent building permits include:— Charles Joss, pair 2-storey dwellings, Russel avenue, \$3,000; S. A. Weismiller, 3 attached brick dwellings, Fern avenue, \$7,500; H. Galbraith, 2 pair 2-storey semi-detached brick dwellings, Grace street, \$10,000; Wm. Cowan, 2½-storey brick dwelling, Oakland avenue, \$4,450; W. L. Marshall, 2-storey and attic brick dwelling, Bismarck avenue, \$3,500; W. J. Leach, 2-storey brick dwelling, Geoffrey avenue, \$3,000; E. G. Switzer, pair 2-storey and attic semi-detached brick dwellings, Grace street, \$5,000; W. B. Taylor, 2-storey and attic brick dwelling, St. George street, \$6,500; C. Parker, 2-storey and attic brick dwelling, Admiral road, \$8,000; Coleman Baking Company, 2-storey brick addition, Euclid avenue, \$13,000; W. B. Charlton, 2 pair 2½-storey semi-detached brick dwellings, corner Gladstone avenue and College street, \$12,000; A. A. Mitchell, 2½-storey brick dwelling, Major street, \$3,000; Morrow Bros., pair 2-storey and attic semi-detached brick dwellings, Shaw street, \$6,000; B. Pears, 3 attached 2-storey brick dwellings Pears avenue, \$6,000; A. McKay, pair 2-storey semi-detached brick dwellings, \$5,000; R. A. Shields, pair 2½-storey brick dwellings, Hazelton avenue, \$5,000; Jno. Ewing, pair 2-storey and attic semi-detached brick dwellings, corner Dufferin and Monray streets, \$5,500; W. Jefferys, pair 2-storey brick dwellings, Wellesley street, \$6,000; W. W. Hills, pair 2-storey semi-detached brick stores, Broadview avenue, \$5,000; D. M. McConkey, 2-storey brick dwelling, Montrose avenue, \$2,500; F. Tanner, pair 2-storey brick dwellings, Whitby avenue, \$3,500; John Dempster, 2½-storey semi-detached brick dwellings, Dovercourt road, \$5,000; D. Wagstaff, 2-storey brick dwelling, Winnifred avenue, \$4,000; J. H. McNight, pair

2-storey semi-detached brick dwellings, Winchester street, \$5,000; J. Lochrie, 2-storey brick dwelling, Bloor street, \$3,000; A. D. Williams, 2 pair 2-storey semi-detached brick dwellings, College street, \$8,000; J. Lancaster, 2 detached 2-storey brick dwellings, Galley avenue, \$4,500; J. W. Plewes, pair 2-storey and attic semi-detached brick dwellings, Davenport road, \$5,000; C. Waugh, 2-storey brick dwelling, Manning avenue, \$4,000; S. Greer, 5 attached 2-storey dwellings, Jones avenue, \$6,000; Frank Hillock, 5 attached 2-storey brick dwellings, Power street, \$6,000.

#### Victoria, B. C.

A recommendation has been submitted to the city council by the fire wardens calling for the installation of two electric pumps of 400,000 gallons capacity.

The directors of the Y.M.C.A. have requested the city to subscribe \$15,000 towards the building fund, to raise which an active campaign will shortly be undertaken.

#### Verdun, Que.

Improvements projected by the council include the erection of a new municipal building to cost \$40,000, extensions to waterworks to cost \$55,000, street improvements \$65,000, and extensions to lighting system \$5,000.

#### Vancouver, B.C.

Plans are being prepared by C. L. Wicket, architect, for the enlargement of the Bank of British North America, this city.

A large new theatre is to be erected on the Merchants Bank property on Carroll street by Beers & Trippe, of Chicago.

The Board of School Trustees have purchased property in the southern portion of the city upon which they will erect the proposed sixteen-room school.

The time for receiving tenders for the steel work of the False Creek bridges has been extended to April 9th.

Plans for the improvement of False Creek, involving a sum of \$1,500,000, have been submitted to the Dominion Government by J. R. Roy, C.E.

Recent building permits include: John Winter, frame dwelling, Richards street, \$2,000. H. T. Shelton, frame dwelling, Pacific street, \$2,800. J. W. Scott, frame dwelling, Eighth street, \$2,000; Thomas Gough, frame dwelling, Richards street, \$2,600; Wm. Kinnear, frame dwelling, Prior street, \$2,000; T. H. Mackay, frame dwelling, Eighth avenue, \$2,000; S. Lawrence, frame apartment, Barnard street, \$4,000; Thomas Angus, frame dwelling, Salisbury Drive, \$3,200; T.

J. Lighthouse, frame dwelling, Pen-drill street, \$7,000; S. R. Brown, frame store and dwelling, Park Drive, \$2,500; J. Bennett, frame dwelling, Keefer street, \$2,000; N. H. Russell, frame apartment and store, Westminster road, \$5,000; W. J. Cavnagh, brick and stone building, Seymour street, \$15,000; F. Baylis, frame dwelling, First avenue, \$2,000; C. A. Lett, frame store and apartment, Westminster avenue, \$9,000; J. D. McNeill, frame tenement, Keefer street, \$2,500; Wm. Holden, frame store, Westminster avenue, \$4,000; Mrs. L. Galloway, frame dwelling, Davie street, \$3,500; Mrs. R. Morton, frame dwelling, Davie street, \$3,600; Robert McPherson, frame dwelling, Campbell avenue, \$2,500; G. Donald, frame dwelling, Tenth avenue, \$2,200.

The directors of the B.C. Electric Railway Company are understood to be financing a scheme for the reclamation of \$35,000 acres of land in the South Fraser Valley bordering on Sumas Lake. We learn from engineering sources that the cost of the project will be from \$650,000 to \$700,000.

Plans are about completed for a six-storey steel building to be erected on the site of the Lighthouse Hotel at a cost of \$60,000.

William Holden, real estate agent, states that he has disposed of two important properties, one at the corner of Cordova and Abbott streets and the other at the corner of 8th and Westminster avenue, to eastern buyers for building purposes.

#### Weyburn, Sask.

The council are in consultation with Willis Chipman, of Toronto, in regard to the completion of waterworks improvements to cost \$65,000. E. A. Chappell is Secretary-Treasurer.

#### Wallaceburg, Ont.

A new Ramon Catholic convent will be erected here this season E. B. Arnold, architect, Chatham, has the plans in hand.

#### Wallace, N.S.

A resolution has been passed asking the Government to extend the railway to the waterfront.

#### Welland, Ont.

The town council are applying to the legislature for permission to borrow \$15,000 for the extension of the waterworks.

#### White Horse, Yukon.

The White Horse Railway will build a branch line from this town to the copper camps and a number of railway engineers recently arrived from Vancouver to undertake the surveys and

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#### Winnipeg,

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Tenders Secretary, April 10th dump wage bottom dur five inch t roller. Sp N. Ruttan,

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#### CONT

Chesley, O Bowman ginners, re received a l water work advertisem lowing con

prepare plans. The Company have decided to locate their 500,000 ton ore bunkers at Skagway. A considerable amount of heavy rock cutting will have to be done and the company can employ at the outset five hundred men. A. L. Berdoe is General Manager.

#### Winnipeg, Man.

J. E. Turton, of Montreal, was recently in the city in connection with the establishment of a factory in the north end for the manufacture of overalls.

The Municipal Power League are urging the Board of Control to call for tenders for the Pointe du Bois plant and it is likely that some action will shortly be taken.

Tenders are invited by M. Peterson, Secretary, Board of Control, up to April 10th for supply of six asphalt dump wagons  $2\frac{1}{2}$  yards capacity, with bottom dump steel and asbestos lined, five inch tire, and one ten-ton steam roller. Specifications at office of H. N. Ruttan, city engineer.

The Board of Control are about to take tenders for 15,000 to 25,000 barrels of cement required by the city, principally for paving work during 1908.

On May 9th the ratepayers of East Kildonan will vote on a bylaw to raise \$6,000 for the erection of a new school.

Alex. Matheson, of Merrick Anderson & Company, is contemplating the erection of a fine modern residence at East Kildonan this summer.

F. W. Morse, General Manager, Grand Trunk Pacific, is authority for the statement that plans for the joint terminal station to be erected here have received the approval of the commissioners and that tenders are about to be taken.

The trustees of the proposed provincial sanatorium have decided not to locate their new buildings at Ninette as suggested; instead, it is almost certain that the hospital will be erected within ten or twelve miles east of this city, in the direction of Bird's Hill.

The Board of Control are about to take tenders for 19,000 feet of sewer pipe of various sizes and for junctions, bends, slants and running traps. M. Peterson is Secretary of the Board.

#### CONTRACTS AWARDED.

##### Chesley, Ont.

Bowman & Connor, consulting engineers, report that the town council received a large number of tenders for water works supplies in answer to their advertisement in this paper. The following contracts were made: cast iron

pipe, Gartshore-Thompson Pipe & Foundry Co.: hydrants and valves, Kerr Engine Co.; water tower, Hunter Bridge & Boiler Company.

##### Clinton, Ont.

T. McKenzie, of this town, was the successful tenderer for the erection of the St. Joseph's church. There were eight other bids.

##### Edmonton, Alta.

The contract for the new Norwood school has been awarded to Pheasey & Batson, of this city; estimated cost \$60,000.

Foley, Walsh & Stewart, of Winnipeg, have sublet the greater portion of the G.T.P. grading west of this city. Commencing at the Clover Bar bridge, Charles Lawrence has the contract for the first six miles. D. Fitzgerald has the contract for the next 12 miles, including that portion of the right of way passing through the city. The next eight miles, as far as Stoney Plain, has been let to John Timothy, and a section extending 11 miles west of Stoney Plain has been let to James O'Connor. Fitzgerald & Tompkins have the grading contract for five miles of the right of way east of the Pembina. F. Mann has a three-mile stretch at the Pembina river and McDonald & McAllister ten miles beyond it. Grading contracts for the sections further west are now being let.

##### Goderich, Ont.

The contract for the concrete work for the additions to the Doty Engine works has been let to George Habel, of this town. D. McLaren has secured the carpentry contract.

##### Halifax, N.S.

S. M. Brookfield, Limited, of this city, were the successful tenderers for the addition to the Queens Hotel at \$50,000.

##### Katevale, Que.

The general contract for the erection of the new Roman Catholic church here has been awarded to Verret & Desautels, of Sherbrooke.

##### Kamloops, B.C.

Brolley & Martin, of Vancouver, have obtained the contract for erecting the new court house at \$56,600.

##### Montreal, Que.

For the large store building to be erected for A. Lamy at the corner of St. Dennis and Duluth streets, A. St. Louis, architect, has awarded the following contracts: masonry, stonework and carpentry, A. Filion & Brothers, iron and steel work, Phoenix Bridge Company.

##### Niagara Falls, Ont.

The contract for the remodeling of the old Niagara House for a store

building has been let to Cheley & Wilcox, of this city.

W. S. Homan, of this city, has obtained the contract for the Sanitary Can Company's new enameling plant.

##### Owen Sound, Ont.

J. H. McCorkindale has obtained a contract for drilling the wells of the Owen Sound Natural Gas & Oil Company.

##### Renfrew, Ont.

Joseph Bourque, of Hull, Que., obtained the contract for the erection of the new post office at \$24,500. The Renfrew Manufacturing Company submitted the nearest figure, \$26,990, and the highest was \$43,000.

##### Toronto, Ont.

Eden Smith & Sons, architects, have awarded the following contracts in the erection of a residence on St. George street for T. B. Greening, to cost in the neighborhood of \$25,000: masonry, E. Wickham; carpentry, S. R. Hughes; heating, Joseph Harrison; plumbing, J. T. Aggett.

For the new University residences on Devonshire place Messrs Eden Smith & Sons have awarded the following additional contracts: carpentry, Chas. Cooper; wiring, Philip Lahee; iron stairs, Canadian Ornamental Iron Company.

##### Vancouver, B. C.

Armstrong & Morrison, this city, have been awarded the contract for the substructure of the new bridges over False Creek and the temporary bridge at Westminster avenue.

Mills & Williamson have secured the contract for the erection of a 3-storey apartment block on Hornby street to cost \$8,000; architects Parr & Fee.

##### Winnipeg, Man.

The Engineer of Construction has received the sewer contract for Charles street at \$1,065. The balance of the work, sewers on Carruthers avenue, Charles street and Manitoba avenue, goes to Dobson & Jackson, of this city, at \$44,743.

The Canadian Iron & Foundry Company, Fort William, have been awarded a contract for water pipe at \$13,833.75. For specials, the Manitoba Iron Works, this city, were the successful tenderers at \$944.83.

A contract has been awarded to the Camden Iron Works, Philadelphia, Pa., for supply of  $\frac{3}{8}$  inch fire service hydrants at \$208 each. This company were the only tenderers.

J. J. Garthshore & Company, of Toronto, are reported to have the contract for the supply of 500 tons of steel rails and fastenings for the Point du Bois tramway at \$39 a ton nett, f.o.b. Lac du Bonnet.

# TENDERS AND FOR SALE DEPARTMENT

## RURAL MUNICIPALITY OF WALLACE

### Tenders for Debentures

The undersigned invites offers for debentures of \$50,000, bearing date July 1st, 1907, with interest at 4 per cent. per annum. Said debentures are guaranteed by the Province of Manitoba. Offers to be net payable at Virden or Elkhorn and to be filed not later than 4.15 P.M. DAY OF APRIL, 1908. All particulars may be obtained from

J. F. C. MENLOVE, Sec.-Treas.  
Virden, Man.

### TENDER FOR PLANS

Wanted.—Plans for a four-room addition to Boyd street School, Owen Sound, together with an estimate of cost of such addition.

Plans will be received up to and including March 31st inst., to be addressed to the Secretary of the Board of Education.

The Board does not bind itself to accept any Plan; and will only pay for the Plans used.

JNO. RUTHERFORD,

Secretary Board of Education.

Owen Sound, March 12th, 1908.

### FOR SALE

### CONTRACTOR'S GRADING OUTFIT

Large Contractor's outfit comprising 130 teams, mules and horses, with harness, camp equipment and complete grading outfit.

Mules and horses located at Fishing Lake, six miles south of Kuroki, on the Canadian Northern Railway. Grading outfit at Touchwood Hills.

Bids will be received for all or part.

H. A. CASSIL,

234 St. James Street, Montreal, Quebec.

### NOTICE

Sealed bids will be received at the office of the City Clerk of Vancouver, British Columbia, up to noon of SATURDAY, APRIL 4th, 1908, for the manufacture and erection of the Superstructures of the new Bridges over False Creek at Westminster avenue and Granville street. Estimated weight of structural steel, about 2,800 tons.

Plans and specifications will be on file at the City Engineer's office, Vancouver, on and after SATURDAY, MARCH 14. Copies of all the papers may be secured from Waddell and Harrington, Consulting Engineers, Kansas City, Mo., upon the receipt of a deposit of twenty-five dollars, which will be refunded upon return of the plans and other papers in good order.

### TENDERS

#### Town of Palmerston, Ont.

### WATER WORKS

Sealed tenders will be received by the Town Clerk until 8 p.m. TUESDAY, APRIL THE 14th, 1908, for the following CONTRACTS:—

#### CONTRACT A

Subdivision (1). Labour, etc., for constructing water works system.  
Subdivision (2). Cast iron water pipe, valves and hydrants.

#### CONTRACT B

The supply and erection of a steel Stand Pipe.

Plans and specifications may be seen and forms of tender obtained at the office of the Town Clerk, Palmerston, or at the office of the Consulting Engineers.

The lowest or any tender not necessarily accepted.

Messrs. Galt & Smith, J. H. HYNDMAN, Esq.,  
Consulting Engineers, Town Clerk,  
23 Jordan St., Toronto.

### FOR SALE

#### LARGE CONCRETE PLANT

20 acres of splendid land on T. H. and B. Railway; near Welland, Ontario; with buildings, machinery and dry houses, for the manufacture of concrete blocks and bricks in all shapes. For sale and terms, apply to

N. W. PORTER, Esq.,

Arlington Hotel, Welland, Ont.

### CHESLEY WATER WORKS

Tenders will be received until April 15th for Gas Engine and Producer, Oil Engine, Power Pump, also for excavating and pipe laying.

For all information apply to

BOWMAN & CONNOR, Consulting Engineers,  
14 Court House, Berlin, Ont.

### Notice to Engineers

Wanted a competent engineer to give levels and prepare plans and specifications for a system of sewerage in wards 5 and 6 of the town of Barrie.

E. DONNELL, Clerk.

Barrie, March 17th, 1908

### Street Railway

The Council of the City of Calgary is open to receive offers for the installation, construction, equipment and operation of a Street Railway in said City for a limited period of franchise.

Companies making applications for same will please state time required under franchise and other particulars. For particulars apply to the undersigned.

H. E. GILLIS,

City Clerk.

Dated at Calgary, March 13th, 1908.

### Debentures For Sale

#### VILLAGE OF ELMIRA

Sealed tenders will be received by the undersigned up to 9 o'clock p.m. on the 6th DAY OF APRIL, 1908, for the purchase of \$7,500 4½ per cent. Debentures, payable in twelve years, re loan to "Elmira Interior Woodwork Company, Limited," and \$25,000.00 4½ per cent. Debentures payable in thirty years re. Waterworks.

Particulars from the undersigned.

No tender necessarily accepted.

JOHN H. RUPPEL, Clerk.

### City of Prince Albert

The City of Prince Albert has for sale:—

One Horizontal Tandem Compound Corliss Engine with Shafting, Pulleys, Belting, etc.  
One Warren Alternator, 60 K.W.  
One Westinghouse Generator, 60 K.W.

Switchboards with all necessary attachments.  
One Surface Condenser, Pumps, Valves and all the necessary equipment of a first-class Electric Light Plant, in good condition, now in operation and giving a service which cannot be surpassed.

Also one 12" by 12" Doty Automatic Engine and one 30 K.W. C.G.E. Generator.

Reason for selling is, that it was found necessary to instal a larger plant to meet the increased requirements of the city.

Offers will be received up to 1st APRIL.

Complete inventory and description will be furnished on application to

C. O. DAVIDSON,

Secretary-Treasurer,

City of Prince Albert, Sask.

### FOR SALE.

One 7 x 12 Beatty Hoisting Engine with swinger, and stiff leg derrick with clam shell attachment, also one one 7 x 12 Beatty Hoisting Engine, one Beatty swinger and one set of stiff leg derrick irons. All in first-class condition. For particulars address

THE CADWELL SAND & GRAVEL CO.

Windsor, Ontario.



Sealed Tenders addressed to the undersigned, and endorsed "Tender for Toronto Island Breakwater Extension," will be received at this office until FRIDAY, APRIL 24, 1908, inclusively, for the construction of an Extension to the Breakwater on the South Shore of Toronto Island, in the County of York, Province of Ontario, according to plan and specification to be seen at the office of J. G. Sing, Esq., Resident Engineer, Confederation Life Building, Toronto; Charles Desjardins, Esq., Clerk of Works, Post Office Building, Montreal, and at the Department of Public Works, Ottawa.

Tenders will not be considered unless made on the printed form supplied, and signed with the actual signatures of tenderers.

An accepted cheque on a chartered bank, payable to the order of the Honorable the Minister of Public Works, for four thousand five hundred dollars (\$4,500.00), must accompany each tender. The cheque will be forfeited if the person tendering decline the contract or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

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

By order,

FRED. GELINAS,

Secretary.

Department of Public Works,

Ottawa, March 11, 1908.

Newspapers will not be paid for this advertisement if they insert it without authority from the Department.

### Business Notes.

The Acme Electric Company, Vancouver, B.C., have dissolved.

H. Lovell & Sons, lumber dealers, Coaticook, Que., have registered.

A. J. Moore & Son, pulpwood manufacturers, Bulwer, Que., have registered.

Desiardins & Ericsson, lumber dealers, Montreal, Que., have registered.

The Stratford Mill & Lumber Company, Stratford, Ont., have reported to have assigned.

The Climax Road Machine Company, of Hamilton, Ont., have removed to more commodious quarters at 46 Merrick street, where they are in a position to exhibit and demonstrate their different machines to all intending purchasers. They manufacture road building machinery, stone crushers, concrete moulds and contractors' bottom-dumping wagons.

Store  
Owen S  
\$10,000.  
Dwellin  
John, N.  
Resider  
Pointe, Q  
Stores  
& Booth  
building

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General  
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E. A. Mo  
Gauthier,  
Tunstall,  
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**Fires.**

Store building of T. E. Vanstone, Owen Sound, Ont.; building loss \$10,000.

Dwelling of W. R. Keirstead, St. John, N. B.; loss \$5,000.

Residence of R. C. Dickson, Longue Pointe, Que.; loss \$3,500.

Stores of William Chalmer, Thomas & Booth and others, Deloraine, Man., building loss \$3,000.

general engineering and construction business, capital \$100,000. Incorporators, C. N. Franson, of New York City, and A. S. Bissett, J. T. Ostell, F. H. Shore and D. B. Smith, of Montreal.

Port Elgin Lumber Company, Limited, Port Elgin, Ont., incorporated, capital \$50,000. Incorporators, William McVicar, William Rutson, Gilbert McLaren, H. Hilker, all of Port Elgin, and others.

Canadian Puncture Proof Tire Company, Limited, Toronto, Ont., incorporated, capital \$100,000. Incorporators, R. M. Leggett, R. G. Gaudy, W. C. Daypon, K. C. Balfour and J. A. Gaudy, all of Toronto.

Ketchum & Company, Limited, Ottawa, Ont., incorporated to manufacture automobiles, launches and sporting goods, capital \$100,000. Incorporators, H. G. Ketchum, L. C. Ketchum and G. W. Easdale, all of Ottawa.

**New Companies.**

General Construction Company, Limited, Montreal, Que., incorporated, capital \$90,000. Incorporators, E. A. Morgan, G. A. Morrison, S. R. Gauthier, L. A. Loïselle and G. S. Tunstall, all of Montreal.

Churchill Development Company, Limited, Prince Albert, Sask., incorporated, capital \$20,000. Incorporators, John Patterson, H. G. Wright, J. F. Monck and J. M. Gibson, all of Hamilton.

J. & R. Weir, Limited, Montreal, Que., incorporated as engineers and manufacturers of machinery, capital \$100,000. Incorporators, J. C. Weir, R. S. Weir, J. J. Meagher and J. E. Coulin, all of Montreal.

Canadian Stewart Company, Montreal, Que., incorporated to carry on a

**Large Contract for Iron Pipe.**

Mr. W. Beverley Robinson, agent in Canada for the Stanton Iron Works Company, Limited, near Nottingham, England, secured the contract for supply of cast iron water pipe recently placed by the City of Victoria, B. C.

The tonnage is between three and four thousand tons, to be delivered during the coming summer.

The Stanton Iron Works Company are said to be the largest makers of cast iron pipe in the world, having an annual output of one hundred and twenty-five thousand tons, and employing six thousand men in their various plants. Besides water pipe, they are makers of gas pipe as well, and are supplying the Montreal Light, Heat & Power Company with all the cast iron gas pipe required by them during the present year.

Another set of tenders for the construction of the National Transcontinental Railway are in the hands of the Construction Commission and the engineers are now at work figuring out which is the lowest, so that the contracts may be awarded. The latest batch of tenders are for six separate portions of the line, totalling 365 miles. When these contracts have been awarded there will be 1,238 miles of the 1,804 miles between Moncton and Winnipeg under contract and under construction. There were nineteen tenders for the six stretches last advertised for. While the estimates have not yet been worked out, it is understood that the figures are a little below those last received.

**WRITE FOR CATALOGUE**

FULL PARTICULARS AND ESTIMATES FURNISHED

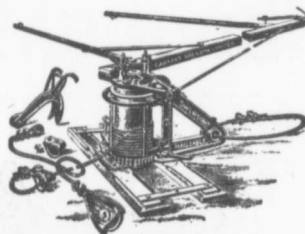


## Machine Banded Wood Stave WATER PIPE

For city and town Water Systems, Fire Protection, Power Plants, Hydraulic Mining, Irrigation, Etc.

One-half the cost of Iron Pipe—and better.

**PACIFIC COAST PIPE CO., LIMITED**  
P.O. BOX 563 VANCOUVER, B.C.



## Stump Pullers, Tree Pullers, House Movers, Etc.

Contractors will find it very much to their interest to investigate the celebrated Swenson Malleable Stump Machines which are sold on a guarantee that they will work faster, be easier, and more convenient than any other machine on the market. These are made in 5 different sizes so that it does not matter whether your contract is through the heavy fir in B.C., the big pines in Ontario or the small bush, we have machines adapted for the purpose.

FOR FULL PARTICULARS ASK FOR THE NEW CATALOGUE

Address:

**CANADIAN SWENSONS, Limited**  
Lindsay, Ont., Can.

**Peculiar Litigation.**

A somewhat novel suit, involving the sum of \$60,000, has just been brought in the Superior Court at Hull, against the town of Mason, Que. The plaintiffs are the Lemez Shoe Company, and their counsel are Messrs. Hickson & Campbell, of Montreal. The company located in the village of Masson upon the promise of the municipality to pay it a \$30,000 bonus. A factory which cost \$25,000 was installed, equipped and

operations started. Shoes, boots and leather goods were manufactured, and all went well until the so-called financial stringency became prevalent. Then the company called upon the town to pay the \$30,000 bonus, and when the money was not forthcoming the factory was forced to suspend operations. The building was unoccupied, and no watchman was left to guard the place.

In a few weeks the factory was burned, with all its contents, the fire

originating from an unknown cause.

The company holds that had the money been paid to it by the municipality the factory would not have shut down, and would not have been left unguarded.

St. Boniface, Man., City Council have accepted an offer of \$95.11 for \$200,000 forty year 4½ per cent. debentures. The successful firm were Wood, Gundy & Company, Toronto.

**Josson Cement**

Is the Highest Grade Artificial Portland Cement and the Best for High-Class Work. Has been used largely for Government and Municipal Works.

TO BE HAD FROM ALL CANADIAN DEALERS OR FROM

C. I. DeSOLA, 180 St. James Street, Montreal

**Portland Cement**

High-Grade German Brands for Granolithic and Artificial Stone Sidewalks, SEWER PIPES, CULVERT PIPES, ETC. Best English Cements. Best Belgian Cement.

WM. McNALLY & CO. - MONTREAL

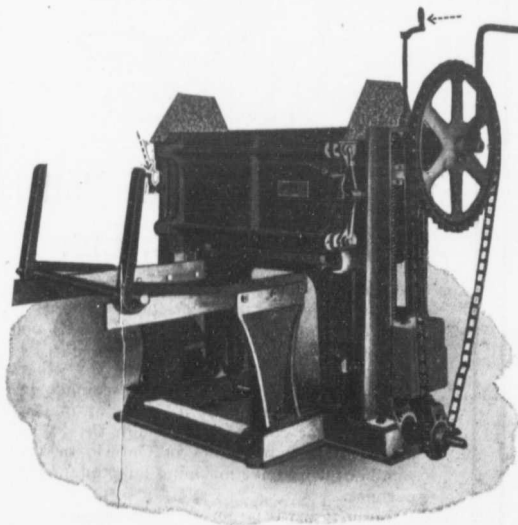
**PORTLAND CEMENT**

SEWER PIPES  
FIRE BRICKS  
FIRE CLAY



ALEX. BREMNER

50 Bleury Street - - MONTREAL

**INDIVIDUALITY---OUR MOTTO****Make your own Face Plates—**

using our plastic composition which hardens to the consistency of iron. Any pattern with draft may be used.

**Make your own Ornamental Moulds—**

using our flexible mould process. By this process you can reproduce anything that can be designed, regardless of draft or depth of undercuts.

**Use the California Machine—**

Makes stone any size from 4"x 4" snags to stone 14"x 36" face, and any depth up to 16" on the bed.

HIGH-CLASS CEMENT STONE IS  
PRODUCED ONLY BY THE  
CALIFORNIA SYSTEM.

WRITE FOR INFORMATION

**Canadian Concrete Machinery Company, Limited**

Office: 510 Board of Trade Building, Toronto, Ont.

**Specifications for Cement Sidewalks.**

The following specifications for cement sidewalks were presented at the convention of the National Cement Users' Association, held at Buffalo, January 21-23, by the committee on sidewalks, streets and floors.

The ground base should be made as solid and permanent as possible. Where excavations or fills are made, all wood or other materials which will decompose should be removed and replaced with earth or other filling like the rest of the foundation.

Fills of clay or other material which will settle after heavy rains or deep freezing should be tamped solid in layers not more than 6 inches in

thickness, so as to insure a solid embankment which will remain firm after the walk is laid.

Embankments should not be less than 2 1/2 feet wider than the walk which is to be built. When porous material, such as coal ashes, granulated slag or gravel, is used, under drains of agricultural tile should be laid to the curb drains or gutters so as to prevent water accumulating and freezing under the walk and breaking the blocks.

The position of shade trees should not be less than 4 feet from the walk. Carolina poplar, elm or shade trees whose roots run near the surface of the ground, should not be less than 10 feet from the walk.

Lines and grades should be given by a civil engineer; the stakes to be not over 25 feet apart and far enough from the walk line so that an inspector may see that the walk is laid to line grade.

The mould strips should be firmly blocked under the ends of the centre

**JOHN S. FIELDING**

C. E.

CONSULTING ENGINEER

**Concrete Dams  
Power**

BRIDGES

MACHINERY

**Plants  
Hydraulics**

25 Years' Experience

15 TORONTO STREET - TORONTO



**Well Drilling Contractors**

Equipped with the most modern machinery for drilling Water, Oil, Gas or Salt Wells, to 50 or 5,000 feet in depth, any diameter from 4 to 12 inches.

Tests made for foundations, such as—Building Bridges, Trestle Work, Canals, etc.

**WALLACE BELL**  
273 Laval Ave., MONTREAL, CAN.

References from the largest Manufacturing Companies, and Financial Institutions in Canada.

**Esco Neutral**

is a thin colorless liquid, that, when applied to cement, brick or stone surfaces, penetrates below the surface, filling up the pores and makes them absolutely waterproof. It is especially desirable for the treatment of cement building blocks, as it makes them impervious to moisture and prevents their discoloring.

Agents Wanted

Circulars and full Information on application to

**Eadie-Douglas Company**  
22 St. John St., Montreal



**THE CANADIAN STANDARD**

**STAR**

**THE CANADIAN PORTLAND CEMENT CO., LIMITED**

502 TEMPLE BUILDING  
TORONTO

203 BOARD OF TRADE BUILDING  
MONTREAL

**THE STANTON IRON WORKS COMPANY**

near NOTTINGHAM ENG.

Largest Makers of Cast Iron Pipe in the World

LIMITED

Annual Output  
100,000 Tons



**CAST IRON PIPE**

SIZES: 1 1/4 in. to 72 in. diameter, 9 ft. and 12 ft. lengths.

Irregular Castings for Gas, Water, Sewerage Work. Steam, Hydraulic and Pump Installations. Also makers of Cast Iron Tanks, Columns, Girders, Etc.

**W. BEVERLEY ROBINSON**

AGENT FOR CANADA  
Board of Trade Building

**MONTREAL**

**WILLIS CHIPMAN**

Hon. Grad. McGill University.  
M. Can. Soc. C.E. M. Am. Soc. C.E.  
Mem. Am. W.W. Ass'n.  
**WATERWORKS, SEWERAGE WORKS, GAS  
WORKS, ELECTRIC LIGHT AND  
POWER PLANTS**  
Reports, Surveys, Construction, Valuations  
**103 BAY STREET - TORONTO**

**JOHN T. FARMER**

**MECHANICAL and  
HYDRAULIC ENGINEER**  
418 Coristine Bldg. - MONTREAL

**C. J. FENSOM, B. A. Sc.**

**CONSULTING ENGINEER**  
Aberdeen Chambers - Toronto  
Machinery designed, supervised,  
inspected and contracted for.  
TESTS - REPORTS  
**Electric Light Plants, Power Plants,  
Pumping Plants.**

**CANADIAN ENGINEERS, LIMITED**  
**CIVIL AND CONSULTING ENGINEERS**  
Electric, Hydraulic Plants,  
Waterworks, Sewerage, Bridges.  
33 Bank St. Chambers, OTTAWA.

E. H. KEATING, M. Inst. C.E., M. Can. Soc. C.E.,  
M. Am. Soc. C.E.  
WM. H. BREITHAUPT, C.E., M. Can. Soc. C.E.,  
M. Am. Soc. C.E.

**Keating & Breithaupt**  
Consulting and Constructing Engineers.  
Waterworks, Sewerage, Power Develop-  
ments, Bridges, Railway Work;  
Examinations, Estimates and Reports.  
Cable Address: Keating, Toronto.  
Telephone: Main 6718

**John H. Jackson**

**CIVIL ENGINEER**  
WATER POWER, ELECTRIC RAIL-  
WAYS, STRUCTURAL STEEL.  
Niagara Falls, Canada  
Associated with Charles H. Mitchell,  
C. E., Hydraulic Engineer.

**GALT & SMITH**

**CONSULTING CIVIL AND  
SANITARY ENGINEERS**

**SPECIALTIES:**  
**WATERWORKS, SEWERAGE  
AND ELECTRIC LIGHTING**

JOHN GALT, C. E., OWEN W. SMITH,  
Mem. Can. Soc. C.E. Assoc. Mem. Can. Soc. C.E.  
25 Jordan Street **TORONTO**

H. J. Bowman, M. Can. Soc. C.E.  
A. W. Connor, B.A., C.E., A. M. Can. Soc. C.E.  
**Bowman & Connor**  
**CONSULTING MUNICIPAL & STRUCTURAL  
ENGINEERS**

WATERWORKS, SEWERAGE AND ELECTRIC PLANTS  
CONCRETE AND STEEL BRIDGES AND BUILDINGS  
**CEMENT TESTING**  
36 Toronto St. TORONTO Tel. Main 5724  
Branch Office, Berlin. Tel. 122 B.

of the strips and carefully straight-  
edged, care being taken that the strips  
are parallel with the engineer's line  
and the height of the grade stakes.  
The walks should be laid with a drop  
of 1-4 inch to the foot toward the  
curb gutter.

The thickness of the walk should be  
determined by the location, the  
amount of travel and danger of being  
broken by heavy bodies falling on it,  
or frost.

Business front walks should not be  
less than 4 inches thick and can be 6  
inch with profit. The top coat of  
business walks should not be less than  
1 1-4 inches thick.

In residence districts the top coat  
should not be less than 1 inch wear-  
ing thickness, and the thickness for  
different widths of walks should be  
as follows:—

Six feet wide, the minimum at the  
centres should be 4 1-2 inches thick;  
at the edges, 4 inch thick.

Five feet wide, the minimum at the  
centres should be 3 3-4 inches thick;  
at the edges, 3 1-2 inches thick.

Four and one-half feet wide, the  
minimum at the centres should be  
3 3-4 inches thick; at the edges, 3 1-2  
inches thick.

Four feet wide, the minimum at the  
centres should be 3 1-2 inches thick;  
at the edges, 3 inches thick.

All other widths, the minimum at  
the centres should be 3 1-2 inches  
thick; at the edges, 3 inches thick.

Size of blocks may be determined  
by the width and thickness of the  
walk. Business front walks should  
contain not over:—

Twelve square feet when the walk  
is 4 inches thick.

Sixteen square feet when the walk  
is 5 inches thick.

Twenty square feet when the walk  
is 5 1-2 inches thick.

Twenty-five square feet when the  
walk is 6 inches thick.

Residence districts, where the walks  
are:—

Six feet wide, 5 inches thick at the  
centre, the blocks should not be over  
6 feet or less than 4 feet long.

Six feet wide, 4 1-2 inches thick at  
the centre, the blocks should be not  
over 5 feet or less than 4 feet long.

Five feet wide, 4 1-2 inches thick

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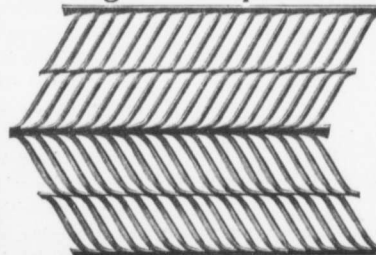
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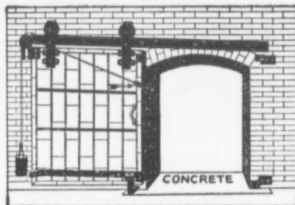
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at the centre, the blocks should not be over 5 feet or less than 4 feet long.

Five feet wide, 4 inches thick at the centre, the blocks should be not over 5 feet long, or less than 4 feet long.

Four and one-half feet wide, 4 inches thick at the centre, the blocks should be not over 4 1-2 feet or less than 3 feet long.

Four feet wide, 4 inches thick at the centre, the blocks should be not over 4 feet or less than 3 feet long.

Four feet wide, 3 1-2 inches thick at the centre, the blocks should be not over 4 feet or less than 2 1-2 feet long.

Other widths less than the above 4 inches thick at the centre the blocks should be not over 4 feet or less than 2 1-2 feet long.

Other widths less than the above 3 1-2 inches thick at the centre the blocks should be not over 3 1-2 feet or less than 2 1-2 feet long.

Concrete.—Bottom coat gravel. The largest size to be not over 1 inch and all under 1-8 inch to be considered sand. Proportions to be one part high grade Portland cement to four parts clean hard gravel, and sand enough to fill the voids, which makes the proportions, as most gravel will measure, after being filled with sand, 1 part cement to 5 of the whole aggregate sand and gravel.

Bottom Coat Crushed Stone.—The size of broken stone should not be larger than 3-4 inch and vary in size to 1-4 inch and free from fine screenings and dust or soft stone. Proportions to be 1 part high grade Portland cement, 2 parts clean and sharp sand, and 4 parts broken stone, or what is termed by consulting engineers and concrete experts as 1 cement to 4 of stone, and sand enough to fill the voids.

Mixing of both gravel and broken stone should be done by placing stone in the mixing box or on the platform first, then spread the sand evenly over the stone and in like manner the cement over the sand. Then cut through from top to bottom in thin slices, which will insure an even mix. Then turn with hoe or shovel twice before adding water, which should be done with a sprinkler and hoed over

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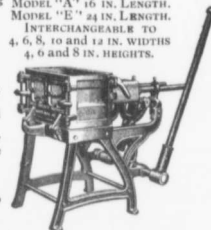
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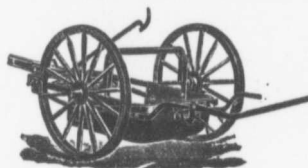
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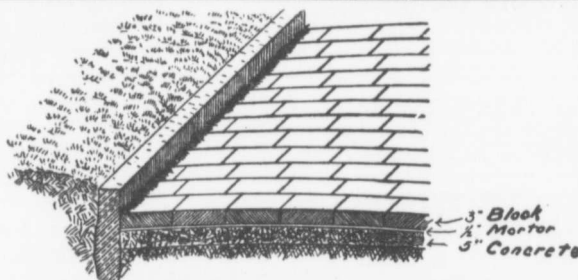


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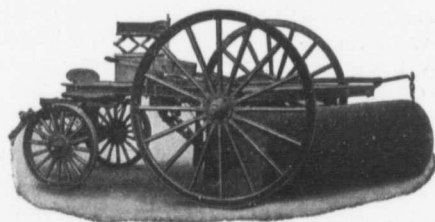
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as sprinkled. The batch should be turned at least once after the water is applied. The amount of water used in the bottom coat should be only enough to make it, when firmly tamped, solid and not quaky.

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An edger not less than 1 inch radius should be used on the outer edges of the walk.

Separation of the blocks should be done with a spud not over 6 inches wide and 1-4 inch thick, and to insure complete separation the groove should cut through into the ground base. Fill the groove with dry sand before the top coat is spread and the top coat should be cut through to the sand after floating and troweling and a jointer run in the groove, then again draw a trowel through the groove so as to insure a complete separation of the blocks.

The protection of newly finished walks from storms can be accomplished by covering with roofing paper or canvas. Canvas should never be laid on the walk, but stretched over on a slant so as to run the water off.

Grading after the walks are ready for use should be on the curb side of the walk 1-2 inches lower than the walk and not less than 1-4 inch to the foot fall toward the curb or gutters. On the property side of the walk the ground should be graded back at least 2 feet and not lower than the walk, which will insure the frost throwing the walk alike on both sides.

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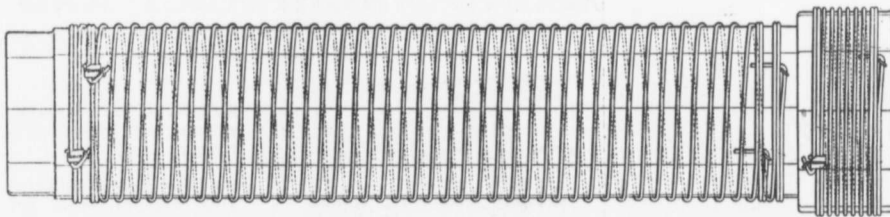
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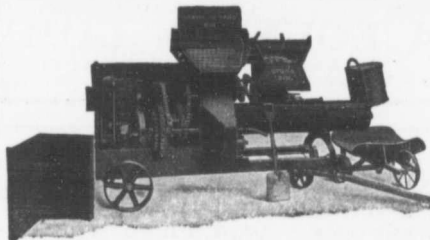
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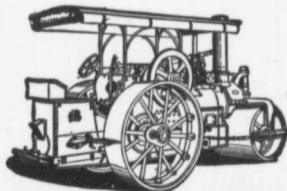
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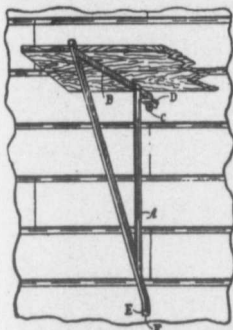
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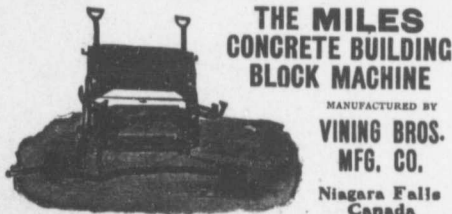
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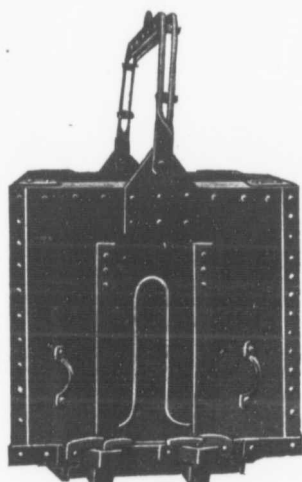
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