

# CANADIAN Contract Record

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

This Paper Reaches Every Week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and Leading Contractors in All Lines Throughout Canada

VOL. 16.

TORONTO, MONTREAL — DECEMBER 27, 1905 — WINNIPEG, VANCOUVER

No. 43

## THE CANADIAN CONTRACT RECORD

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## CARD

The undersigned, having a certain amount of  
time at his disposal, invites employment.  
W. FRASER, Quantity Surveyor,  
141 Grace Street, Toronto.

## FOR SALE

The Corporation of the Town of Parry Sound,  
Ontario, will receive sealed tenders at the office  
of E. E. Armstrong, Town Clerk, up to and in-  
cluding the 13TH DAY OF JANUARY, 1906, for  
the following Electrical Apparatus: One direct  
connected 40 k. w. 60 cycle 2080 v. 3-phase revolving  
field Alternator, also one direct connected  
Exciter suitable for the above machine, together  
with switchboard all complete, f.o.b. power  
house, Parry Sound.

Bids will also be received for water wheels  
suitable to drive the above machine, either con-  
nected to the present wheels or not, as may be  
most suitable. For information re. water wheels,  
address

G. GROVES, Box 425,  
Parry Sound, Ont.

Specifications for Electrical Apparatus may be  
seen at the office of the Town Clerk.

## CONTRACTS OPEN.

WELLAND, ONT.—J. E. Cutler will  
build a planing mill during the coming  
spring.

BURRITT'S RAPIDS, ONT.—W.  
H. Derrick is making preparations to  
erect a new building.

PRINCETON, B. C.—E. F. Voigt  
will construct an electric light and power  
plant on the Similkameen river.

BRIDGEBURG, ONT.—The Meth-  
odists are considering the building of a  
new church to cost about \$8,000.

BONAVENTURE, QUE.—The  
Council propose to raise \$1,500 to build  
a bridge over the Bonaventure river.

NEW WESTMINSTER, B. C.—The  
Fraser River Lumber Company have  
decided to rebuild their mills destroyed  
by fire a few weeks ago.

STURGEON FALLS, ONT.—The  
Council will purchase property at corner  
of John and King streets as a site for a  
new town hall.

BERLIN, ONT.—A public meeting  
will be held shortly to consider the best  
means of providing increased market  
accommodation.

CHATHAM, ONT.—J. L. Wilson &  
Son, architects, are preparing plans for a  
new Methodist church at Kintore, to  
cost about \$5,000.

PORT COLBORNE, ONT.—En-  
gineers have made surveys for an electric  
railway from Welland to this place, to be  
constructed next year.

KINGSTON, ONT.—The Frontenac  
Cereal Company of this city, are looking  
for a suitable site for a cereal mill in  
Alberta or Saskatchewan.

FERNIE, B. C.—It is reported that  
the C.P.R. will not only build a new  
station here next year, but also at Colman,  
Frank, Cowley and Tabor.

GALT, ONT.—The Galt Waggon  
Works Company will build their pro-  
posed factory in the spring, the location  
being the Jackson property.

NORTH TORONTO, ONT.—P. Mc-  
Quain has purchased property on north  
side of Balliol street on which he will  
erect two concrete residences.

FREDERICTON, N. B.—The New  
Brunswick Telephone Company have  
decided to construct another trunk line  
between this city and St. John.

HAMILTON, ONT.—A. C. Havill  
has been granted a permit to build a \$2,-  
500 brick residence on Hannah street,  
between James and Macnab streets.

LEVIS, QUE.—Onesime Carrier,  
Town Clerk, will receive bids up to 31st  
inst. for purchase of \$85,000 4 per cent.  
debentures, redeemable in 50 years.

ST. JEROME, QUE.—Senator Mason,  
of New Haven, Connecticut, is backing a  
scheme for the establishment of a large  
pulp mill in the Back River district.

BRANDON, MAN.—Mr. Hanna, of  
Griswold, has purchased the southwest  
corner of Pacific avenue and Ninth street  
and will, it is said, build a hotel on the  
property.

BEAUDETTE, ONT.—It is under-  
stood that surveys of land are being made  
here to locate a site for a new saw mill  
to be built by T.H. Shevlin, of Minneapolis,  
and others.

LONDON, ONT.—St. Paul's United  
Evangelical congregation have purchased  
a site at northeast corner of Wellington  
and Grey streets on which to build a  
church in the spring.

BELLEVILLE, ONT.—The Grand  
Trunk Railway have been given permis-  
sion to construct a branch line from Belle-  
ville station to Belleville wharf.—The Le-

high Portland Cement Company, Allan-  
town, Pa., are taking tenders on machinery  
for their cement plant to be established  
here next spring.

PRINCE ALBERT, N.W.T.—Alvin  
Robertson, of Grand Forks, and as-  
sociates, have purchased a saw mill here  
and propose to increase its capacity by  
installing new machinery.

NUTANA, N.W.T.—Frank Holmes  
will receive tenders, on behalf of the  
trustees of Blackley School District No.  
1392, up to January 12th for purchase of  
\$1,000 6 per cent. 10 year debentures.

ST. BONIFACE, MAN.—The con-  
tract for street paving, for which tenders  
were invited early in December, has not  
yet been awarded and it is probable that  
the matter will be left over for the new  
Council.

RAINY RIVER, ONT.—The by-law  
to provide \$30,000 for waterworks con-  
struction will be voted on January 24th.  
This sum includes \$11,000 for plant,  
about \$12,000 for mains, and \$3,500 for  
excavating.

QUEBEC, QUE.—White & Buch-  
anan, solicitors, give notice of appli-  
cation for the incorporation of a company  
to construct a railway from St. Casimir,  
county of Portneuf, to some point in the  
township of Gosford.

ST. JOHN, N. B.—The City Council  
have decided to place the sum of \$400 at  
the disposal of the Council of the Board  
of Trade for the purpose of engaging an  
engineer to report on the waterpower at  
the Reversible Falls.

CHILLIWACK, ONT.—A.C. Hender-  
son will erect a new store.—It is reported  
that A. M. L. Hawkes, hydraulic and  
electrical engineer, has been engaged to  
design the power plant of the Chilliwack  
Power & Light Company.

FORT WILLIAM, ONT.—It is re-  
ported that a local company have secured  
the contract to erect two large elevators  
here next spring, one for the Canadian  
Pacific Railway Company and the other  
for the Empire Elevator Company.

SAULT STE. MARIE, ONT.—The  
Lake Superior Corporation intend mak-  
ing important improvements, including  
the building of a coke plant and open-  
hearth blast furnaces for the manufacture  
of steel for rails and structural purposes.

GRAVENHURST, ONT.—The  
Railway Commissioners have approved  
of the plans for two bridges on the  
Kleinburg-Sudbury branch of the C.P.R.,  
one across the Muskoka river, the other  
across the outlet of Lake Muskoka near  
Bala.

BARRIE, ONT.—Tenders are invited  
by the Department of Public Works,  
Ottawa, up to Tuesday, January 2nd, for  
additions and alterations to the public  
building and fittings here. Plans on ap-

plication to E. Sevigny, caretaker at the public building.

**MACLEOD, N.W.T.**—The Western Oil & Coal Company have in contemplation the building of a pipe line from their oil property to this place, where storage tanks and a refinery will be erected. The company have allotted \$100,000 for the work.

**CALGARY, N.W.T.**—The Winnipeg Paint & Glass Company have purchased a site here and intend erecting a large brick warehouse.—G. F. Stephens & Company, of Winnipeg, have decided to establish a branch here and will commence building operations at once.

**SYDNEY MINES, N.S.**—The Department of Public Works, Ottawa, will receive tenders up to January 2nd for installation of heating apparatus in public building here. Plans at office of James Francis, Clerk of Works, and C.E.W. Dowell, Resident Engineer, Halifax, N.S.

**BRANTFORD, ONT.**—The City Council have given a twenty-one year franchise for a telephone system to the Canadian Machine Telephone Company, of Peterboro. It is understood that the company will make an early start on the installation of their system and will also erect a building of their own.

**PORT ARTHUR, ONT.**—The ratepayers will vote on by-laws on January 1st to authorize the issue of debentures for the following sums: \$14,000 for extension and completion of the electric lighting system; \$7,000 for completion of power plant; \$17,000 for extension and completion of the electric railway.

**CRANBROOK, B.C.**—The East Kootenay Power & Light Company, Limited, has been registered at Victoria, B.C., with a capital stock of \$250,000. The directors include Robert Campbell, merchant, of Moyie, and James A. Macdonald, miner, of this place. It is the intention to develop a large water power near Marysville.

**ROSSLAND, B.C.**—C.P.R. engineers are now engaged in making the final surveys for a loop in the main line in order to reduce the heavy grade at Field. The proposed loop will be twenty miles in length, and the construction will be practically through rock, which has been estimated to cost \$60,000 per mile, or a total of about \$1,200,000.

**KEEWATIN, ONT.**—It is stated that the Lake-of-the-Woods Milling Company intend building a mill and elevator here.—J. H. Shevlin, of Minneapolis, and J. Neils, of Cross Lake, Minnesota, were here last week examining the Kewatin Lumber Company's site, and it is believed here that they have decided to build a saw mill on the property.

**EDMONTON, N.W.T.**—The Blowey-Henry Furniture Company intend during the coming year to build a new store 56 x 120 feet and four or five stories high.—Building permits were granted last week as follows: R. J. Hill, store and dwelling, Queens avenue, cost \$2,500; McInnis & Lyons, planing mill, Jasper avenue, cost \$3,500; H. W. Dilly, dwelling, Jasper avenue, between Thirteenth and Fourteenth streets.—Contractors are now figuring on the building of a larger freight shed for the Canadian Northern Railway than at first proposed.

**OTTAWA, ONT.**—The ratepayers of Roger's Ridge will hold a meeting this week to consider the erection of a new Roman Catholic school.—The C.P.R. have submitted to the Minister of Railways and Canals plans showing the proposed route of a new line to connect Ottawa directly with the Georgian Bay.—It is stated that Sargent & Company, hardware manufacturers, New Haven, Connecticut, have decided to establish a

plant in Canada and that it is likely to be located in this city.—It is expected that next month contracts for portions of the Grand Trunk Pacific Railway eastward from Winnipeg and westward from Quebec will be awarded.—F. Gelinas, Secretary Department of Public Works, will receive tenders up to January 3rd for the construction of metallic fittings for the Savings Bank branch of the post office. Plans at the Department.

**WINNIPEG, MAN.**—J.A.M. Atkins, K. C., has decided to proceed early in the spring with the erection of his proposed block at southeast corner of Portage ave. and Donald street. It will be six stories.

—A. H. Pulford has purchased property on Donald street, north of Portage ave., as a site for new office building and auction warehouse.—The Hudson's Bay Company are having plans prepared for alterations and additions to their stores on Main street. They also intend enlarging some of their western establishments.

—James Stewart is this week taking tenders on \$300,000 of debentures of the Pressed Brick and Tile Company.—Plans have not yet been prepared for the Canadian Northern Railway bridge to be built over the Assiniboine river in St. James for the Oak Point branch and the street railway, and it is understood that efforts will be made to have the company build a combined railway and traffic bridge.—President Charles M. Hays, of the Grand Trunk Pacific Railway, has made the announcement that the section between Touchwood Hill and Edmonton will be placed under contract within 60 days. It is also understood that tenders will be invited within a few weeks for that part of the work between Lake Winnipeg Junction and this city.

**VANCOUVER, B.C.**—The British Columbia Telephone Company will call for tenders in January for erection of their new office building on Seymour street. The preliminary plans have been prepared and show a four story building 75 x 120 feet.—It is expected that the Hochelaga Bank, of Montreal, will erect a building in this city for a branch bank. Tenders will be received by the City Council up to Thursday, February 1st, for supply of a self-propelling fire engine of 1,200 gallons capacity per minute.—English capitalists, represented by J. J. Godfrey, of this city, propose building a large fish curing establishment adjacent to Vancouver.—Wooden block pavements will be constructed on Howe, Hornby, Cambie and Abbott streets, between Pender and Hastings streets.—The Vancouver & Northwestern Railway Company is seeking incorporation, to build from Vancouver to Fort George, on the Fraser river, thence northerly to the 6th parallel.—William Farrell, of Farrell & Tregent, has just acquired a long term lease of the property at northwest corner of Robson and Granville streets and proposes erecting thereon a brick and stone block, the ground floor to consist of stores and upper stories of flats and departments.—A four-storey brick and stone business block will be erected on north side of Pender street, between Homer and Hamilton streets, for F. Ackland Hood, an English capitalist.

**MONTREAL, QUE.**—The City and District Savings Bank have had plans prepared for a new building on northeast corner of Ontario and Maisonnette streets, of stone and two stories high. Operations will be begun about May next.—The National Drug & Chemical Company, at a meeting held in this city last week, decided to build a large factory in Canada for the exclusive manufacture of chemicals. The factory will likely be located in this city. D. W. Bole, M.P., Winnipeg, is president of the company and Charles Lyman, of this city, secretary.—It is announced that the

Royal Bank will erect a granite or marble building next spring on St. James street, just west of St. Lawrence Hall. The Bank of Commerce will build a little farther west on the property already secured for that purpose.—Professor Bemis has submitted to the City Council his report on a municipal gas plant. He estimates that a complete plant would cost \$4,711,000.—Building permits were issued last week aggregating \$40,000 and including the following: Joseph Daniel, block of tenements on Sherbrooke street, cost \$4,500; Adolph Klein, alterations at 1810 to 1818 St. Lawrence street, cost \$9,000.—The Dominion Park Company, Street Railway Chambers, are asking for tenders for supply of about 1,000,000 feet of rough and dressed spruce and pine lumber to be used in the construction of new amusement park at Lac, rue Pointe.—The Harbor Commissioners have instructed the engineers to prepare plans and specifications for seven additional sheds to be built in connection with the permanent wharf improvements.

**TORONTO, ONT.**—John McConnell has purchased the property at 37 to 47 Richmond street east. It is said that the buildings will be torn down and a large factory erected.—Krether & Shelling, of Buffalo, have completed the purchase of the southeast corner of Richmond and Victoria streets and will erect a new theatre on the property, as intimated in last issue.—Tenders will be received by J. B. Miller, superintendent, up to January 2nd, for work to be done in the different departments of the Don Valley Brick Works.—E. Copps, of Detroit, representing American and English capitalists, had a consultation with the Minister of Public Works last week in respect to the building of a railway from the north shore of Lake Superior to a point beyond the height of land.—It is stated to be the intention of the Continental Life Assurance Company, which recently purchased the Medical Council building at southeast corner of Bay and Richmond streets, to not only remodel the whole interior of the building, but to increase the height by four or five stories. The Medical Council will likely erect a building in or near the Queen's Park.—A fire engine ave. will be purchased for the new Cowan fire hall.—The Temiskaming Railway Commission have decided to extend the Temiskaming and Northern Ontario Railway to meet the Grand Trunk Pacific, which means a further extension of 50 miles.—The City Council intend to construct the following roadways: Macadam, Leslie street, from Queen street to a point 1,145 feet south, cost \$5,689; asphalt, Beatrice street, from a point 400 feet north of Arthur street to 675 feet farther north, cost \$4,100; Wellington street, from Simcoe to Peter, cost \$10,070; concrete, Rush Lane, from Esther to Portland street, cost \$1,601; Pearl street, from Simcoe to Duncan, cost \$4,058.

#### CONTRACTS AWARDED.

**MOOSE JAW, N.W.T.**—J. W. Nay, of Regina, has purchased \$30,000 of town debentures, at \$31,700.

**CORNWALL, ONT.**—J. J. Fallon, this place, has secured the contract for a new landing pier at Peel Head Bay, Que.

**NANAIMO, B. C.**—Joseph Fox has let the contract for remodelling the Green Block into a first-class hotel, at a cost of \$9,000.

**GUELPH, ONT.**—The City Council have disposed of \$15,400  $\frac{3}{4}$  per cent. debentures to H. O'Hara & Company, of Toronto.

**BELFONTAINE, ONT.**—The James Smart Manufacturing Company, Brockville, Ont., have been awarded the

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**POPULARITY OF METAL LATHS.**

In discussing the popularity of metal lath a writer in one of our exchanges points out that there is always a risk in putting ornate decorations upon ceilings or walls that may yield or crack with any change of temperature or humidity. Owing to the rigidity imparted by the metal laths the decorations suffer no deterioration. The householder desirous of having ceilings, walls and partitions that will be rigid and inflexible can attain his object by means of the metal lath.

Walls, partitions and ceilings thus constructed are proof against fire, water, vermin and sound. Metal protected by plaster is free from corrosion. All wooden beams or supports are so insulated as to be practically fireproof. Gas pipes, electric wires and other necessary connections can be made through the walls without difficulty. A metal lath with plaster is also adapted to air shafts, dumbwaiter

shafts, chimney stacks, alcoves, architraves, cisterns and vaults.

**MAKING SEWER CONNECTIONS.**

A new plan is to be put in force at Duluth by the board of public works in the manner of making sewer connections. The present system is to issue permits to all licensed plumbers for making connections anywhere in the city, for which a deposit of \$5 is made with the board, to be retained for six months to assure the proper restoration of streets. A considerable portion of the trench digging is let by the plumber to other men at so much per foot, so that it is impossible to get satisfaction as to the manner of doing the work. Therefore complaints are constantly being made, by the public, of holes in the streets caused by careless filling in the lower part of trenches. The surface may appear to be firm, being nicely rounded and sun-baked, concealing a good sized burrow, which is usually revealed in rainy weather when some team comes along unaware of any danger, to get stuck in a sewer trench that had been filled more than a year before. Tunneling under streets is also very damaging and is often done in making sewer connections, especially under permanently improved streets or gutters. It is very damaging and ordinarily requires about five years' time in which to settle to its former condition. A considerable amount of money is spent annually in following up these gophers trying to keep their burrows filled. Therefore the conclusion is that the best thing to do would be to have the city put in all sewer connections to the property line, charging fifty cents per lineal foot for earth excavation and extra for rock and frozen earth not exceeding the cost. This work would be under the supervision of the sewer foreman, now in the employ of the board of public works, who has to employ a crew of men for the ordinary repair work.

**BUSINESS NOTES.**

The partnership existing between James Hogg, John Keating, and Charles Cooper as builders and contractors, Toronto, under the name of Hogg & Company, has been dissolved by effluxion of time.

Charles Thompson, plasterer, Lower Fort Garry, N. W. T., is announced to have assigned to W. P. Aslip.

James G. McDonald, a prominent contractor and native of Pictou County, N. S., died at Moncton, N. B., last week. He had recently been engaged in railway construction in Nova Scotia for Mackenzie & Mann.

Alex. Desmarteau has been appointed curator of the estate of Galarneau & Ethnier, plumbers, Montreal.

Granite asphalt has been given a trial in Paris lately as a substitute for the usual rock asphalt in situations where it is necessary to keep down the slippery properties of a pavement. It consists of various grades of crushed stone, particularly granite chippings, mixed with hot natural asphalt in an ordinary tar boiler. The pavement is stated to be much harder than the rock asphalt pavements laid in that city and to give very satisfactory results.

The City Engineer's authority in selecting pavements for different streets is generally so close to nil that this expensive class of work is done without any really intelligent system. The city engineer is presumably the official judge of the most suitable material for paving a given street. Naturally enough, the owners of abutting property, who generally pay a considerable part of the cost of such work, do not often care to meet the expense of the most costly construction and consequently they are entitled to a reasonable amount of influence in selecting the material. The right method would seem to be for the city engineer to designate certain pavements which are suitable, stating in a report the cost and relative merits of each, so that the property owners will be in possession of an unprejudiced statement of the facts necessary for making an intelligent decision.—Engineering Record.

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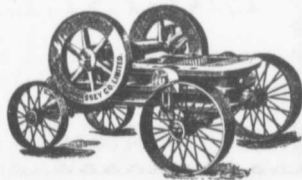
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Commercial asbestos is a fire-resisting substance composed of silky fibers up to 6 in. in length, which can be used for packing or woven into fabrics. Its value corresponds approximately with the length of the fiber. It is prepared from a mineral of variable color, which is usually found deposited in thin sheets in the seams of granite rock. The fiber is normal to the thickness of the seam. The most important deposits so far discovered in America are one of flesh-colored mineral in Arizona and a green deposit at Black Lake, in the Province of Quebec, Canada. In order to secure the asbestos mineral it is necessary to quarry the granite in which it occurs and afterward separate the materials by crushing. Formerly the asbestos mineral was hammered by hand until the fiber was separated and brought to a merchantable condition. This method was slow and expensive, and was improved some years ago by Messrs. King Bros., who devised machinery to work the mineral without breaking the fiber, although some hand work was still required for the long fibers which were most easily broken in the machines.

The Black Lake asbestos mines are about 50 miles from Sherbrooke, on the line to Quebec, and are the richest deposits known in Canada. They were discovered and opened by Mr. Walter Kerr, who operated them for several years by the old hand methods. Recently a company has been organized and special machinery installed, which greatly increases the capacity and provides a superior quality of finished product.

The mines, of which there are several, are located within a radius of one mile from the mills, with which they are connected by a wagon road and narrow gauge railroad. The mineral now is quarried in open pits to a maximum depth of about 50 ft., the granite being drilled by steam and blasted with dynamite. The granite is rejected and the asbestos mineral loaded on dump cars and delivered to the mills over a high wooden trestle, from which it is discharged to the bins and supplied to jaw crushers, which break it into 2-in. pieces. From the crushers it is delivered by bucket elevators to cylindrical screens in the top of a two-story mill. The large pieces are returned to the crusher, and that which passes through the screens is discharged into conical cylindrical dryers, in which it is heated until all dampness is removed.

After being dried, the mineral is taken up by a rock hopper and served to several rows of crushers, thus being reduced little by little, till it reaches the emery grinders from which the poorest grade of asbestos is derived. These rows of crushers placed on the second story of the mill reduce the mineral to small pieces several inches in length, and pulverize the particles of rock which still adhere to it. The

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mixed rock and asbestos is thence passed through beating machines that stamp it and deliver it to slightly inclined flat screens with 1/16 to 1/8-in. mesh. Here all the remaining granite is separated from the asbestos and the latter is removed by pneumatic dust collectors and thrown into the combers, delivering A1 grade. The residue is elevated to the second story and passes again through a double set of small rotary crushers and beaters to give the A grade of fiber. The residue from the A grade is a third time elevated and passes through a last set of crushers and beaters, giving the B grade. The final remnant is a small percentage of the original amount and is carried to an emery grinder making 600 r.p.m., which separates the shortest fibers, known as the C grade.

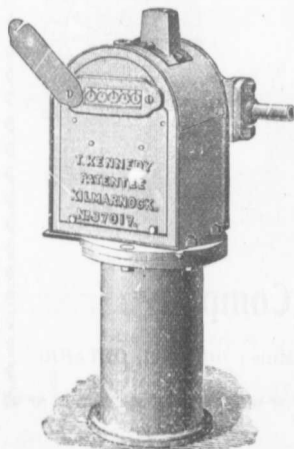
The combers are special machines, each consisting of a pair of horizontal revolving cylinders with rows of radial teeth meshing between rows of similar teeth in the concave surface which encloses the cylinders. The cylinders are driven in opposite directions so as to revolve toward each other, and the asbestos being deposited in a hopper on top of them, is drawn between them and its fibers are gradually worked into position parallel with the rows of teeth and carried around the cylinders to be discharged from their under side. The beaters are wooden boxes 4 feet square and 8 feet long, each of which contains four horizontal shafts 8 feet long. Each shaft is provided with curved arms, which clear each other when the shafts revolve in opposite directions and throw the mineral and stones from side to side, back and forth, gradually separating them and discharging the stones through the bottom of the box. The by-product from the machines is a very fine sand, which is received on a belt conveyor and delivered to the waste pile. This sand contains most of the properties of asbestos and would probably prove valuable if some experiments and investigations were made to develop practical uses for it.

The mill has a capacity of 25 tons of mineral per hour, and the plant is operated by a total force of one hundred men, two-thirds of whom are employed in the quarries. Both quarries and mills are owned and operated by the American Asbestos Co.—E. G. du Mazuel, in the Engineering Record.

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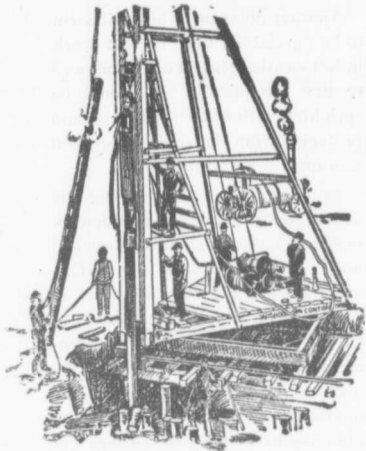
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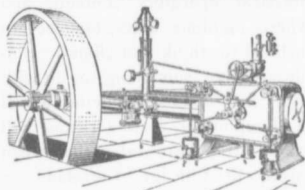
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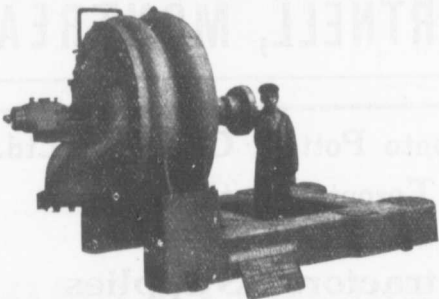
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### HOW TO MAKE A CEMENT SIDEWALK.

Answering quite a number of inquiries that have come to us as to the best method of making concrete sidewalks, we have held quite a number of interviews with different practical experts in this line, and putting the testimony derived in that way side by side there seems to be on the face of the returns, a very wide diversity of opinion, and every one of them declares that he gets the "very best results." On the other hand, when all the testimony is carefully sifted, the principle in all is practically the same; and while we do not feel at liberty to say what might be exactly the "best" cement sidewalk, we can say without the chance of being contradicted, that the following instructions, if carefully followed, will produce a very excellent cement sidewalk.

The foundation should be prepared by excavating to the depth of twelve to fifteen inches below the proposed finished surface and should be well rammed and leveled where the sidewalk is to be laid in new ground. In cases where a sidewalk has existed for a long time the foundation will probably be found sufficient, and such alterations as are made will have to depend upon the judgment and experience of the party who proposes to lay the sidewalk.

But, returning to our foundation, after it is rammed and leveled it should be filled with clean cinders, coarse gravel or broken stone, and again leveled so as to leave at least four inches for concrete finish. This filler or base for a sidewalk should be thoroughly wet and well rammed again so as to insure a perfect setting. The concrete should consist of the following ingredients:

- 1 part Portland cement.
- 2 parts of clean, fresh sand.
- 4 parts of coarse gravel or crushed stone.

The cement and sand should be mixed thoroughly in the dry state and wet to a stiff putty before adding the gravel or crushed stone, then wet the whole and mix thor-

oughly with a hoe, then apply and ram into a layer three inches thick.

The top dressing should consist of one part of Portland cement and one of clean, sharp, dry sand. These should also be thoroughly mixed before adding the water and only sufficient water should be put in to make the mixture plastic. The top dressing should be applied and carefully troweled. Great care should be exercised in getting exactly the right amount of water into the different mixtures, and this is a point where the experience of practical operators contend, and where opinions differ, but we are inclined to think that climatic conditions have something to do with this. For instance, concrete mixed in Memphis or New Orleans will take a little more water than when mixed in Chicago, Cleveland or Buffalo. This should be borne in mind, that cement may be "drowned" by excessive use of water. In other words, the particles of the cement which combine to make the crystals or bond may be so washed about by the water and scattered that its intrinsic value may be destroyed.

Some of the practical men say: "The less water used the better

the concrete that will be produced." Another uses this expression: "You must be sure to get enough water into the mixture to provide all the cement with its necessary supply, for the cement can't set without sufficient water, and you do not want cement in your concrete that is not set."

Another point on which all seem to be agreed is, that cement work in hot weather should not be allowed to dry too quickly. It should be sprinkled with water judiciously and protected from the summer sun and rain until it sets thoroughly.

In troweling the top dressing one of the features of good sidewalk making is that it should be worked until water flushes to the surface and the sidewalk should be laid in sections of convenient sizes to handle with one mixing of the concrete, for no concrete should be used that has already set in the mixing box, and better results are obtained by keeping the surface wet for three or four days after same is set.—Rock Products.

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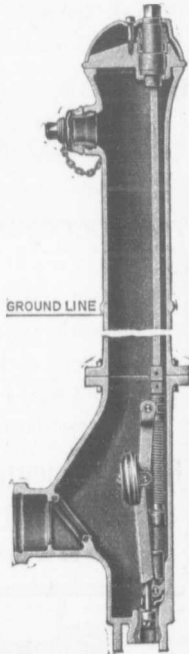
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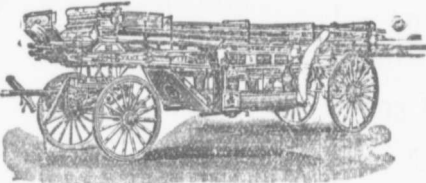
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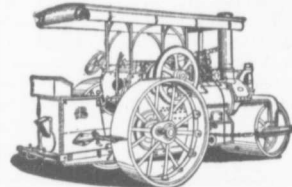


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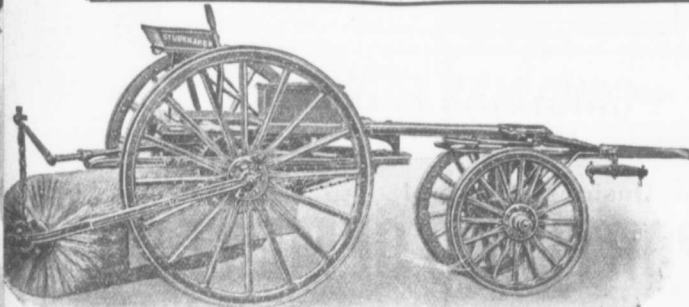
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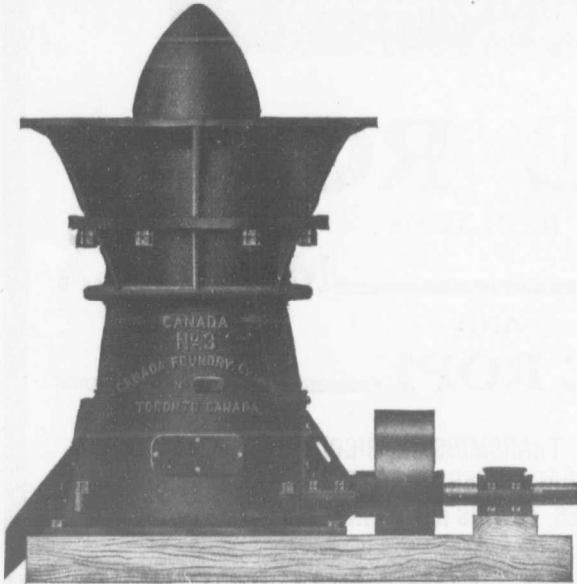
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## CANADA FOUNDRY CO., Limited

Head Office and Works: TORONTO, ONT.

District Offices: MONTREAL HALIFAX OTTAWA WINNIPEG VANCOUVER ROSSLAND

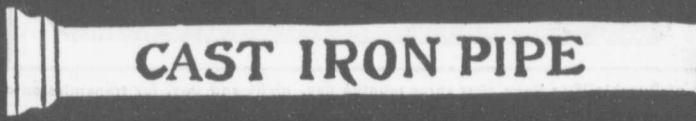
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## Montreal Pipe Foundry Co., Limited

Special Castings  
Flange Pipe  
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Hydrants  
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**CAST IRON PIPE**

Valve Boxes and general Water Works Supplies

Works at: LACHINE, QUE.  
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Combined daily capacity: 175 Tons Pipes and Castings.

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## THE GARTSHORE-THOMSON PIPE & FOUNDRY CO. LIMITED.

Manufacturers of



**CAST IRON PIPE**

Flexible and Flange Pipe,  
Special Castings and all kinds of  
Waterworks Supplies

3 inches to 60 inches diameter.

For Water, Gas, Culvert and Sewer

HAMILTON, ONT.



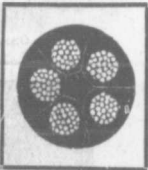
# WIRE ROPE

REPLACES

**MANILLA**  
AND  
**OLD STYLE WIRE ROPE**

Unequalled for **HOISTING, TRANSMISSION, RIGGING, GUYS, MINES, DERRICKS, ELEVATORS, COAL TOWERS, STEVEDORING, DREDGING, SAND LINES, TILLER ROPES, TOWING HAWSERS, MOORINGS, ETC., ETC.**

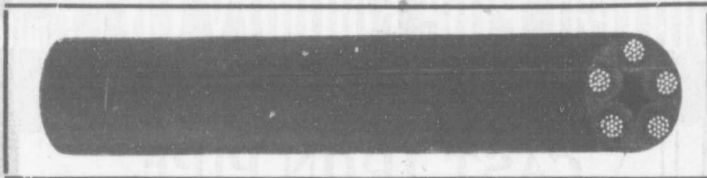
## JUST THE THING FOR PILE DRIVING



In producing this rope we have combined the wearing surface and flexibility of Hemp and Manilla Rope and the strength of wire. The result is a rope :

**7 to 10 per cent. stronger than the ordinary Wire Rope.**  
**25 per cent. more flexible.**  
**3 to 6 times as durable.**

The strands are cushioned against each other and against outside wear as you will note in the cut shown.



Appearance of Durable Wire Rope after three months use, night and day, for transmission of power



Wearing surface of Hemp—Strength of Wire—replaces either Manilla or Wire Rope using same blocks—more flexible than Wire Rope and Manilla of equal strength.

**WATERPROOF THEREFORE RUSTPROOF**

Let us submit you a sample and you can see

**SEE FOR YOURSELF**

All Lengths and Sizes in Stock

**The DOMINION WIRE ROPE CO., Ltd.**

MANUFACTURERS OF DURABLE WIRE ROPE

Dunn Bros & CO.,  
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MONTREAL