

CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF
PUBLIC WORKS • TENDERS • ADVANCE INFORMATION • AND MUNICIPAL PROGRESS

EVERY WEDNESDAY

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. 14.

JANUARY 6, 1904

No. 47.

THE CANADIAN CONTRACT RECORD, PUBLISHED EVERY WEDNESDAY

As an Intermediate Edition of the Canadian Architect and Builder.

Subscription Price, \$5 per annum, payable in advance.

THE C. H. MORTIMER PUBLISHING COMPANY

of Toronto, Limited,
CONFEDERATION LIFE BUILDING, TORONTO.
Telephone Main 2362.

Branch Offices:
Imperial Building, Montreal,
Telephone Main 2299.

22 Great St. Helen's, London, England.

Advertising Rates on application.

Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publishers of any irregularity in delivery of paper.



Welland Canal

Tenders for Supplies for the year 1904

Sealed tenders for supplies, addressed to the Superintending Engineer, Welland Canal, St. Catharines, will be received until 10 o'clock on TUESDAY, THE 12TH OF JANUARY, 1904, for the supply and delivery of various articles of Timber, Hardwood, Castings, Fuel, Paints, Oils, etc., for use on the Welland Canal and its branches for the year 1904.

Specifications, forms of tender and other information may be obtained at the Superintending Engineer's office, St. Catharines, on and after MONDAY, THE 21ST DECEMBER, 1903.

The lowest or any tender not necessarily accepted.

By order,

L. K. JONES,

Secretary.

Department of Railways and Canals,
Ottawa, December 15th, 1903.

TENDERS

Sealed tenders addressed to the County Clerk, R. F. Miller, Rainham Centre, Ont., and endorsed "Tender for Oswego Creek Bridge," will be received until SATURDAY, THE 23RD OF JANUARY, 1904, for the construction of a bridge across the Oswego Creek on the township line between the townships of Canboro and Meulon, six miles north of Dunnville, Ont. To be built in accordance with plans and specifications prepared by the County Engineer, W. H. Fairchild. Said plans and specifications may be seen at the office of the Engineer at Simcoe, Ont., or with the undersigned near the site of the proposed bridge.

Tenders must be made separate for the steel superstructure, in two spans 60 feet each, with bottom for concrete floor and for the substructure, two abutments and one pier to be stone masonry.

Tenders will also be received up to TUESDAY, MARCH 15th, 1904, for the laying of a concrete floor upon the said bridge, work to be done according to plans and specifications of the County Engineer, and under his supervision.

The lowest or any tender not necessarily accepted.

GEORGE VAN KEURLEN,
Chairman Road and Bridge Committee,
Haldimand County Council,
Dunnville, Dec. 22, 1903.

TO CONTRACTORS

Separate or Bulk Tenders will be received by the Rev. T. Murlagh, Marmora, Ont., up to SATURDAY, JANUARY 16th, for the different trades work required in the erection of a Stone Church Building at Marmora, from plans prepared by H. F. Smith, architect, Kingsion.

Plans and specifications may be seen at the Presbytery, Marmora, Ont. No tender necessarily accepted.

TENDERS

Sealed tenders for the purchase of \$3,754.65 10 year 4 per cent. Local Improvement Debentures of the Village of Chesley will be received by the undersigned, up to 7:30 o'clock p.m. of MONDAY, JANUARY 12th, 1904.

A marked cheque payable to the order of the Treasurer of the Village of Chesley for \$100, as a guarantee of good faith, to accompany each tender.

The highest or any tender not necessarily accepted.

JOS. McNEILL,
Village Clerk.

BRIDGE TENDERS

Will be received by the undersigned on behalf of the County of Huron, at Wingham P.O., Ont., until 10 o'clock p.m. on SATURDAY, THE 23RD DAY OF JANUARY, 1904, for the erection of three superstructures of four bridges, three to be in the County of Huron and one on the boundary of Huron and Perth, as follows:

First one to be erected over the Maitland River on the boundary line between East and West Wawanosh, to be of two clear spans of 120 feet each between pier and abutments. Trusses to be 20 feet high, of 8 panels; roadway 16 feet wide, steel joists at 2 feet centres, floor of rock elm or tamarack 3 inches thick, wheel guards 535 inches, of pine or cedar; railing 4 feet high, of 4 tiers of 1 1/2-inch gas pipe; strength required, 100 lbs. per square foot of floor surface, and large safety factor; about 25 feet from bed of stream to floor; rock bottom and little water. Completion the 15th of September next, 1904. Seven miles from R. R. station at White Church.

Second Bridge to be erected over a branch of the Maitland River, on the boundary line between the townships of Howick and Grey, of one clear span of 70 feet between the abutments, 16 feet roadway; trusses 8 feet high, 4 panels; steel joists 2 feet; floor 3 inches thick, of rock elm or tamarack; wheel guards 535 inches; railing 4 feet high, of 3 tiers of 1 1/2-inch gas pipe; about 15 feet from bed of stream to floor, strength 100 lbs. to square foot of floor. To be completed on or before the 15th day of August next.

The third bridge is to be erected at the town of Wingham and is to be of the same size and strength and structure as Bridge No. 2. To be completed the 1st September next, 1904.

Bridge No. 4 is to be erected over a creek on the boundary line between Usborn and Blanchard Townships, at the village of Kirkton. To be 50 feet long clear between the abutments, 16 feet roadway. The joists, floor and railing to be of the same style and make as Nos. 2 and 3. About 8 feet from bed of stream to floor; hard bottom to stream. Bridge to be completed on 1st of August next. Tender for each bridge separately.

Tenders must be accompanied by a marked cheque payable to the County Treasurer equal to 5 per cent. of amount of tender. Should any party whose tender is accepted fail to execute the necessary contract and bonds, and give satisfactory security for the due fulfilment of the contract, the deposit accompanying the tender will be forfeited to the County of Huron. The deposits of unsuccessful tenders will be returned.

The lowest or any tender not necessarily accepted.

JOHN ANSLEY,
County Commissioner for County Huron.
Wingham, December 28, 1903.

TENDERS FOR

Stone Paving Blocks

Tenders, sealed and endorsed "Tender," addressed to the undersigned, will be received up to 12 o'clock noon on MONDAY, THE 11TH JANUARY, 1904, for

Stone Paving Blocks

Specifications and blank tenders may be obtained upon application to Mr. John Kennedy, Chief Engineer, at this office.

The Commissioners reserve the right to reject any or all of the tenders received.

DAVID SEATH,

Secretary-Treasurer.

57 Common Street, Montreal, 30th Dec., 1903.

Town of Saint Boniface

Water Works Supplies

Sealed tenders will be received by the undersigned until 12 o'clock, noon, on MONDAY, THE 11TH OF JANUARY, 1904, at the Town Hall of Saint Boniface, for the following supplies:

250.75 tons of water pipes
18 62 special castings
20 hydrants and 58 valves
1 pumping engine, capacity 1,000,000 gallons per 24 hours
2 boilers, 70 h p., and feeding pumps.
Quantities, specifications and forms of tender can be seen or obtained at my office.

The tenders may be for the whole or part of the above supplies. No tender necessarily accepted.

THEO. BERTRAND,
Secretary Treasurer.

Saint Boniface, Man., Dec. 15, 1903.

THE CONTRACT RECORD.

The demand for space has made it necessary to again increase the size of the CONTRACT RECORD, and beginning with this number it has been enlarged to twelve pages. The number of advertisers in the paper is steadily growing, and it is now recognized as the one medium through which to reach each week the municipalities throughout the Dominion. With the increased space we hope to make our reports of projected works of construction more complete than heretofore, and to that end we solicit the assistance of architects, municipal officers, civil engineers and readers generally. Advance information regarding new buildings, waterworks or sewerage systems, pavements, bridges, etc., will be much appreciated.

The value of buildings erected in Montreal last year was \$4,105,717, as compared with \$3,089,734 for the year preceding. Over a thousand permits were issued. The number of houses erected was 850; stores, 173; warehouses, 17; factories, 45; churches, 2; educational buildings, 1; ice houses, 2; hospitals, 2; hotels, 5; civic buildings, 16; office buildings, 10; stables, 48, and sheds, 125.

CONTRACTS OPEN.

INGERSOLL, ONT.—The new town hall by-law has been defeated.

WATERLOO, ONT.—The \$10,000 waterworks by-law was carried.

ST. MARY'S, ONT.—The Carnegie Library by-law was carried on Monday.

WATERBURY, ONT.—George Thomson is talking of erecting a new brick building.

SANDWICH, ONT.—The ratepayers defeated the by-law to build a sewer on Main street.

DIGBY, N.S.—Efforts are being made to form a company to engage in the manufacture of cars.

WELLAND, ONT.—The ratepayers defeated the by-law to grant exemption to the First Mfg. Co.

STAYNER, ONT.—The ratepayers approved of the by-law to borrow \$10,000 for new cement sidewalks.

BELLEVEILLE, ONT.—The city council has offered the hospital lot as a site for a new drill shed.

MOUNTAIN RIDGE, ONT.—The farmers of this vicinity have decided to build a cheese factory here.

DELHI, ONT.—The village will next spring build a steel bridge on concrete abutments, estimated cost \$2,200.

LINDSAY, ONT.—A by-law to grant \$10,000 for waterworks extension was carried at the municipal elections.

COLLINGWOOD, ONT.—The ratepayers carried the good roads and elevator by-laws by large majorities.

ST. CATHARINES, ONT.—The sum of \$48,000 has been subscribed for the reconstruction of Ridley College.

OSHAWA, ONT.—The ratepayers have voted in favor of obtaining a waterworks supply by pumping from the lake.

CHARLOTTETOWN, P.E.I.—The Provincial Government has taken tenders on electric lighting for the asylum here.

SMITH'S FALLS, ONT.—H. P. Smith, architect, of Kingston, is preparing plans for a general hospital building here.

BANCROFT, ONT.—John Morrison, city clerk, desires offers by January 15th for \$27,000 thirty year 4 per cent. debentures.

KINGSVILLE, ONT.—A by-law granting a loan to the Kingsville Woolen Mills was sanctioned by the voters on Monday.

BADJEROS, ONT.—William J. Kay, of this place, has just taken tenders on erection of a Presbyterian church at Maple Vale.

SANDWICH, ONT.—It is reported that the Saginaw Lumber & Salt Co. will rebuild the restaurant on another site in Sandwich Bay.

ALMONIE, ONT.—Mrs. C. Hamilton has bought property on the corner of William and James streets and intends building a residence.

ST. THOMAS, ONT.—A by-law to grant a bonus of \$2,000 to secure the Pere Maquette repair shops was carried by a large majority.

PERTH, ONT.—H. P. Smith, architect, of Kingston, is preparing plans for a new convent building to be built here for the Sisters of Charity.

DUNDAS, ONT.—A by-law to raise \$14,000 by issuing debentures for construction of sidewalks received the sanction of the ratepayers.

HARRISTON, ONT.—The by-law to rebuild the high school was carried and that to exempt the Dowling Leighton Co. from taxation was defeated.

RALPHTON, MAN.—Tenders for building a brick veneer Presbyterian church in Kenton will be received by

James T. Hudson, of this place, up to January 25th.

NOTRE DAME DE QUEBEC, QUE.—It is proposed to borrow \$3,500 for the construction of a partial waterworks and drainage system.

SIMCOE, ONT.—The county of Haldimand will shortly call for tenders for a bridge over Oswego Cr. creek, to cost \$6,000; W. H. Fairchild, engineer.

WIARTON, ONT.—John Thebe has purchased a water power at Sable Falls which he may utilize for lighting purposes. It is located eight miles from this town.

ST. JOHN, N.B.—The Board of Works are again considering the extension of the waterworks system to Sand Point, at an estimated cost of \$12,700.

PARRY SOUND, ONT.—An engineer has taken soundings for the new Government dock here and it is likely that tenders will be invited very shortly.

GODERICH, ONT.—The C. P. R. bonus by-law and the National Cloak Co. by-law were carried by the ratepayers, but the by-law for a new school was defeated.

BRYSAN, QUE.—It is stated that Mr. Rosseau, who recently purchased the Carmichael mill property at this place, will develop the water power for electrical purposes.

WINGHAM, ONT.—The site for a new post-office has been selected.—The ratepayers defeated the by-law to provide \$36,000 for new waterworks and sewerage systems.

MONTAGUE, P.E.I.—The survey for the branch railway from Cardigan to Montague bridge was completed last week and surveys are now under way for the extension of the southern branch from Murray river.

BARRIE, ONT.—The Barrie Carriage Co. desires tenders by Tuesday, February 2nd, for erection of a brick or cement factory in this town. Plans at their office from January 12 to 16.

SYDNEY, N.S.—It is rumored that a syndicate of Boston and New York capitalists, represented by H. M. Whitney, are forming a company for the establishment of a large steel plant in this vicinity.

BRANDON, MAN.—W. A. Elliott, architect, will receive tenders up to 20th inst. for the erection of a brick and stone Baptist church in this town, to be 60x85 feet, with finished basement, galleries, etc.

DESERONTO, ONT.—The late Mr. Rathlun was, at the time of his death, having plans prepared for a new hospital to be given to this town, and it is thought that the family will undertake to erect the building.

SHERBROOKE, QUE.—C. H. Nutter, of the Modern Binstead Co., has made a proposition to the city council to expend at least \$25,000 on new factory in consideration of a bonus of \$15,000 and exemption from taxation.

STRATFORD, ONT.—It is understood that the city engineer will recommend that Downie street be paved with asphalt blocks on a concrete foundation. He may also recommend the construction of a new bridge at Waterloo street.

VICTORIA, B.C.—F. M. Rattenbury, architect, is preparing the working drawings for this new C.P.R. tourist hotel to be built in this city.—A proposition is under consideration to build a permanent roadway across Rock Bay and dispense with the present winding bridge.

CALGARY, N.W.T.—J. S. Dennis, engineer in charge of the C.P.R. irrigation work in Alberta, states that it has decided to call for tenders at once for the construction of the main canal, which will be 35 miles long and 60 feet wide and call for the removal of 250,000,000 cubic feet of earth. Tenders will be invited in

Montreal, Winnipeg, Vancouver, Toronto and Chicago.

CHATHAM, ONT.—J. L. Wilson & Son, architects, are preparing plans for residences for M. Chatham, of Chatham, Windsor, and F. A. Mummeys, of Warwick.—By-laws to grant a loan of \$30,000 to Henry Wyhrow, of Birmingham, England, to erect a pork-packing factory here and \$50,000 as a loan for a radial railway, were defeated.

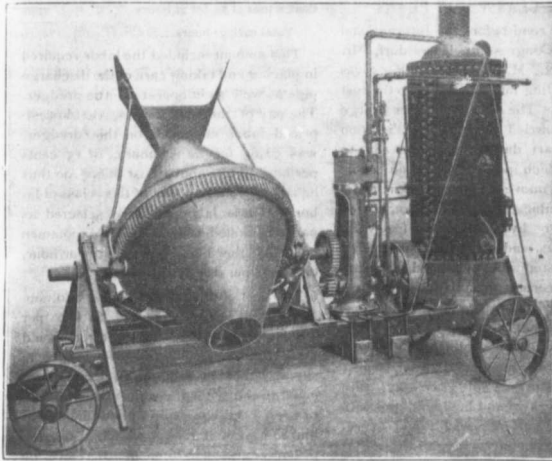
OWEN SOUND, ONT.—E. Lemon, proprietor of the Patterson House, will build a new sample room, 43x90 feet, cost \$4,000.—The National Talc Co. have decided to rebuild their factory at once.—By-laws to raise \$25,000 for extensions to gas and electric light plant were carried by the ratepayers almost unanimously.

HAMILTON, ONT.—It is reported that M. Brennan & Sons will erect a large saw mill next spring on their new limits in Osborne township.—The officers of the 13th Regiment have approved of the plan to provide better accommodation by converting the present building into company armouries and erecting a steel parade hall.

VANCOUVER, B.C.—The Socialist Society have appointed a committee to report upon the question of building a large hall.—A large wharf with extensive accommodation is to be built next spring by the Canadian Pacific Co. for the new England Fish Co. and the International Ice & Cold Storage Co.—The Oriental Power & Pulp Co. (J. A. MacKinnon, manager) are this week taking tenders on the erection of a saw mill at Swanson Bay, Coast District.—The following building permits were granted last week: M. Maginnis, 8 residences, north side Davie street, cost \$16,000; W. Raftery, two frame residences with stone foundation, Tenth avenue, Mount Pleasant, cost \$3,800; Mrs. S. Goldsmid, frame dwelling, Thurlow street, cost \$2,700.

OTTAWA, ONT.—Burd, Barritt & Meredith, architects, have completed plans for the dormitory for the Ottawa University college boys. It will be two-stories, frame, 40x100 feet, cost \$4,500.—L. K. Jones, secretary department railway and canals, wants tenders by January 12th for an extension of the south entrance pier at the Sault Ste. Marie canal. Plans at the above office and at the canal office, Sault Ste. Marie.—Ald. James Davidson has purchased the property on the Richmond Road opposite the Canadian Pacific yards formerly owned by the Sisters of Mercy. It is understood that the Ottawa Car Co. will build a large factory on the site next spring.—A meeting of a committee from each of the county councils of Carleton and Renfrew will be held in this city on January 14th to discuss the question of building a joint House of Refuge.—The by-law to provide \$50,000 to establish a municipal electric light plant was carried on Monday last.

WINNIPEG, MAN.—Miller, Morse & Co. intend erecting a six-story brick and stone warehouse next spring.—The hotel to be built by W. G. Fonseca on south side of Higgins avenue will be four-stories, 43x90 feet.—It is proposed to hold a Dominion Exhibition in this city next July. The Dominion grant of \$50,000 will be applied to the erection of new buildings, including a large manufacturers building.—The Winnipeg, Selkirk & Lake Winnipeg Railway Company has applied for incorporation to construct an electric railway around the city and to such points as Stonewall, Stone Mountain, Tyndall, etc.—The council intends to undertake the following works: Asphalt pavement on Young street, from Elice avenue to Portage avenue, cost \$8,432; granolithic walk on north side of



THE
**SMITH
CONCRETE
MIXER**

IS THE IDEAL MIXER.
NOW MADE IN 42 SIZES AND STYLES.

W. H. C. Mussen & Co.
763-765 Craig St., MONTREAL

Pacific avenue, from Main street eastward, cost \$1,670; sewer on McGee street and Laviria avenue, from Ellice to Portage avenue, cost \$1,420; on Main street, from Athole avenue to north city limits, cost \$520; and on Henry avenue, from Riotta street to Tecumseh street, \$1,390.

MONTREAL, QUE.—The council of the Federation of Zionist Societies of Canada have definitely decided to erect a large building in this city as headquarters for the society. The building will contain large assembly hall, library and reading room, committee rooms, gymnasium, etc.—The Dominion Government has approved of the plans for the construction of a system of two-storey steel freight sheds in the harbour, at a cost of \$2,500,000. The work is to be done by contract.—A New York architect is preparing plans for the new hotel to be built on University street by William Kearney, proprietor of the Oxford hotel, and others.—David Seath, secretary harbor commissioners, will receive tenders up to January 11th for supply of stone paving blocks.—Building permits have been granted as follows: Michael Tracey, St. Patrick st., 2 storey bldg., cost \$1,500; Naz Forget, B. rivie st., 2 storey bldg., cost \$1,700; Mrs. H. R. Prefontaine, Duquette st., one storey bldg., cost \$1,500; Metropolitan Bldg., St. James st., six storey building, cost \$8,000.

TORONTO, ONT.—At a meeting of the National Club, held on Monday last, it was definitely decided to purchase the Robinson House property on Bay street as a site for a new club house, which, when completed and furnished, will cost about \$100,000.—The directors of St. Andrews School for Boys will call for tenders within a few days for a new college to be built on Summerhill avenue, just north of Reservoir Park. The main building will be 280 feet long, and there will be a principal's residence, a junior residence, and a chapel.—The by-law to raise \$50,000 for the establishment of a municipal sanitarium for consumptives was carried by a small majority on Friday last.—The Globe Furniture Company, of Walkerville, are said to have decided to build a factory in East Toronto.—The Montreal River Pulp & Paper Co. has been granted an extension of time by the Ontario Government for the completion of their works. C. D. Warren, William Kerr and E. F. B. Johnson, of this city, are interested.—Hon. S. H. Blake, K.C., E. W. McNeil, and Robert G. Swans, of this city, are applying for incorporation as the Trent Power Company, Limited, with a capital of \$500,000. The head office of the company

Portland Cements

Highest Grade

Canadian, German, English and Belgian

DRAIN PIPES and Connections of all kinds.

PAVING BRICKS, ENAMELLED BRICKS,

FIRE BRICKS, FIRE CLAY, Etc., Etc.

F. HYDE & CO.,

31 Wellington Street

MONTREAL



ALPHA Portland Cement

Quality Unexcelled. The Recognized Standard American Brand Always Uniform Best in the World for Sidewalks.

ALPHA PORTLAND CEMENT CO.

Manufacturers of but one grade—Strictly Straight Portland.

General Office: ALPHA, N. J.

Sole Canadian Sales Agents—

HENDERSON & TAYLOR

303 Commissioners Street MONTREAL

THE
**Canadian Casualty and
Boiler Insurance Co.**

Head Office: N. E. Cor. Adelaide and Victoria Streets, TORONTO.

The Steam Boilers of Civic and Municipal Steam Plants, and Corporation and Public Works, Power and Electric Light Plants regularly inspected.

A STEAM BOILER POLICY

in the Canadian Casualty and Boiler Insurance Company includes the services of Consulting Engineers free of cost. Write for book to steam Users.

ALEXANDER SUTHERLAND, D.D., President.
H. N. BATE, W. S. DINNICK, Vice-Presidents

A. G. C. DINNICK, Managing Director.
A. M. WICKENS, Chief Engineer

RAILS

We Can Quote for
Cammell's
STEEL RAILS

All Sections

All Weights

Also Relayers

JAMES COOPER,

MONTREAL.

will be in Trenton.—Building permits have been granted as follows: Caleb Ledrew, two-storey brick and rough-cast dwelling, Hallam street, near Dovercourt road, cost \$2,000; W. J. Robertson, one-storey work room, rear 378 Yonge street, cost \$1,200.

FIRES.

Factory of the Dominion Bag Company, 317 St. Patrick street, Montreal, damaged to the extent of \$4,000.—Building at Lucknow, Ont., owned by Mrs. George Graham, of Goderich.—Dwellings of Joseph Lachance, M. Poulin, and Etienne Provincial at St. Francois, Que., almost totally destroyed.—Coal chutes of the Grand Trunk Railway at Windsor, Ont.—Building at Collingwood, Ont., owned by Charles Cameron, damaged to extent of \$2,000.—Large block on St. Peter street, Quebec, occupied by Dr. Ed. Morin, wholesale druggist, and McCall & Sheyn, wholesale drygoods. The building was valued at \$30,000 and belonged to the Nuns of La Congregation Notre Dame.—Planing mill of T. G. Browning at Aurora, Ont.; loss \$3,000.—Windsor Avenue Methodist church at Windsor, Ont., totally destroyed; loss \$25,000. Rev. A. Brown is pastor.—Post office and Custom house, Ottawa, Ont., completely destroyed; loss \$100,000.—The Berthery building at Carman, Man., owned by C. T. Boulton; loss \$30,000.

CONTRACTS AWARDED.

HALIFAX, N. S.—Reid & Archibald, this city, have secured the contract for the Mainadien breakwater.

SYDNEY, N. S.—The contract for the construction of a wharf at Big Pond has been awarded to Hugh MacDonald, of this town; price about \$9,000.

NIAGARA FALLS, ONT.—The Caledonian Iron Works Co., of Montreal, who have the contract for 3,000,000 gallon waterworks pump, have awarded the contract for foundations to Thomas Munford.

TORONTO, ONT.—The Temiskaming and Northern Ontario Railway Commission have awarded a contract for 6,000 gross tons of 80-lb. steel rails to the estate of the late James Cooper, Montreal, representing Charles Cammell & Co., of Sheffield, England.

WELLAND, ONT.—Contract for removing the centre pier of old bridges over the Welland canal has been let to Phil & Magann. Widdell, Burtle & Manley have secured the contract for deepening the rock cut at Roney's Bend.

COST OF DREDGING WITH DIFFERENT CLASSES OF PLANT.

In a paper read before the International Navigation Congress at Dusseldorf, Mr. John Bogart, M. Am. Sc. C.E., gives some interesting information as to the cost of dredging. The excavations for a large canal were carried out under the direction of Mr. Bogart during the years 1897 to 1901, in which period 5,869,000 cubic yards were moved. Of this material 1,436,000 cubic yards were excavated under water by dredgers of several different types, and 4,432,000 cubic yards were excavated above ground by steam shovels and certain special forms of steam graders and excavators and conveyors, this latter amount including 887,000 cubic yards of rock requiring blasting.

The material excavated was largely alluvial deposit. A soft gray clay, with some sand, gravel and boulders, and with loam at the surface, was found everywhere, except at the two high ridges. At these the material was an indurated clay with gravel and large boulders and very difficult to excavate. It was necessary to excavate by steam shovels and other methods of dry removal for about three-quarters of the total amount moved, and only about one-quarter for dredging under water.

The dredgers used were the centrifugal pump dredge, dipper dredge, vacuum pump dredge. The centrifugal pump dredge was 65 feet long, 30 feet wide, 6 feet deep, and built of southern pine.

The movable frame was 45 feet long, made of two timbers, each 12 x 12 inches, with space between them for the suction pipe, 12 inches in diameter. It was not able to excavate the indurated material above described, but only the soft clay, loam and sand. It was run 22 hours during each 24 hours, except on Sundays.

It was served by two sets of men, each working 11 hours. It excavated and delivered during three seasons 459,800 cubic yards. The cutting was made to a maximum depth of 22 feet below the surface of water in which the dredger floated, and the material was raised an average of 30 feet above that water and deposited an average of 1,200 feet from the dredger. The compensation of the force at the average rates paid during the progress of this work amounted for each shift of 11 hours to \$17.95.

For each day of 22 hours	\$35.90
Oil, waste, etc., 22 hours	5.00
Coal, 9 tons at \$3, for 22 hours	27.00

Total each 22 hours

\$67.90
This amount included the labor required in placing and taking care of the discharge pipe as well as in operating the dredger. The pay of the deck hands, the lowest-priced labor employed on this dredger, was \$1.65 for the 11 hours, or 15 cents per hour. The above cost of \$67.90 thus equals 41.18 days' pay of this class of labor. These laborers were selected as partially skilled men, the pay of common unskilled labor being 12½ cents per hour, or \$1.375 per day of 11 hours.

The cost of this dredger was \$40,000. Interest at 4 per cent. is \$1,600 per annum. The life of the dredger would not exceed about ten years—that is to say, it would not require an expenditure equal to the original cost of the dredger to keep it in constantly good condition, and to have it in that condition at the end of ten years. There must therefore be charged against the work done \$4,000 per annum for repairs and renewals, and \$1,600 per annum for interest.

In the locality of this canal, and generally in the northern parts of the United States, dredging can only be done during about eight months of the year. The annual cost for repairs, renewals, and interest must in this particular case be distributed over the actual working days say \$26.80 per working day. The dredger must be cared for during the winter season, at a cost which, distributed over the actual working days, may be charged at \$1 per working day.

The total cost per actual working day of 22 hours is thus:

Labor and supervision	\$35.90
Coal at \$3 per ton	27.00
Supplies	5.00
Interest, repairs and renewals	26.80
Care during winter	1.00

Total

\$95.70
Very careful observations were made of actual working days occupied in the excavation of 218,250 cubic yards. This amount was excavated and discharged in 194 working days, thus giving for the large volume an average of 1,125 cubic yards per day of 22 hours.

The average cost was thus, with allowance for repairs, renewals, care in winter, coal, supplies, and labor, 8.507 cents per cubic yard.

(To be Continued.)

Paving Granite

Granite Sets for Street Paving — CURBING cut to any shape ordered. — Fine Rich Colors for Building and Monumental Purposes.
Quarries, St. Philippe d'Argenteuil, P.Q.

Address all communications to

108, BRLINFT - COTE DES NEIGES, MONTREAL

M. BEATTY & SONS WELLAND, ONT.

Dredges, Ditchers, Derricks and Steam Shovels
of various styles and sizes to suit any work.

Submarine Rock Drilling Machinery, Hoisting Engines, Suspension Cableways, Horse-Power Hoisters, Gang Stone Saws, Centrifugal Pumps for Water, Sand and Gold Mining, and other Contractors Plant.

THE PHOENIX BRIDGE & IRON WORKS, MONTREAL GENERAL STEEL CONTRACTORS

Large Stock I BEAMS, CHANNELS, ANGLES, TEES, ZEES and PLATES always on hand.

Dominion Bridge Co., Ltd.

P. O. Address, MONTREAL, P. Q.
Works at LACHINE LOCKS, P. Q.

STEEL BRIDGES

For Railways and Highways
Piers, Trestles, Water Towers
Tanks, Buildings, Roofs, Girders,
Beams and Columns

Toronto Agent: GEO. E. EVANS,
38 Canada Life Bldg., TORONTO, ONT

PERSONAL

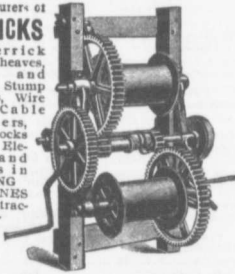
The news comes from Montreal of the death of Mr. William Currie, Esq., senior member of the firm of W. & F. P. Currie & Company and of the Dominion Paper Company. Mr. Currie had been ill with pneumonia and confined to the house for a few days, but a fatal termination to his illness had not been looked for. He was one of the oldest and most respected merchants in Montreal. The funeral took place on December 29th.

James R. McDonald, contractor, of Sydney, is dead.

Thomas Howard, contractor, Yonge street, Toronto, is announced to have assigned to E. R. C. Clarkson.

It is estimated that during the past year buildings to the value of \$500,000 were erected in the town of Glace Bay, N. S., the largest contractors being Hugh Cameron and Angus McAskill.

Manufacturers of
DERRICKS
and Derrick
Irons, Sheaves,
Hooks and
Chains, Stump
Pullers, Wire
and Cable
Stretchers,
Tackle Blocks,
Material Elevators, and
Dealers in
HOISTING
ENGINES
and Contractors' Supplies.



National Hoist & Machine Co.
463 West 22nd Street, Chicago

McGREGOR & McINTYRE, LIMITED,
65 to 73 Pearl Street, Toronto, Ont.
STRUCTURAL IRON WORKS

Fire Escapes, Library Racks, Sidewalk Door, Jail Cells, Iron Stairs, Railings, Etc., Etc.

WRITE FOR ESTIMATES.

PORTLAND CEMENT
T. M. Morgan

Manufactures the

Grescent and Diamond Brands

AS GOOD AS THE BEST FOR ANY PURPOSE

Office and Works : Longue Point, MONTREAL, QUE.

Long Distance Phone East 4362.

R. F. WENTZ ENGINEERING CO.
Consulting Engineers and Cement Work Specialists

Designing Cement Plants. Specifications and Estimates.

Superintendence of Construction.

Inspection and Reports of Cement Material and Properties.

Analysis and Tests of Raw Material and Cement.

Designed and constructed 24 CEMENT PLANTS in United States and Canada.

20 YEARS PRACTICAL EXPERIENCE designing, constructing and operating cement works.

CEMENT PROPERTIES FOR SALE.

For further information address—

ROBERT F. WENTZ, M.W.S.E., PRES'T

OFFICES: 12-15 Babb's Block, - - NAZARETH, PA., U. S. A.
509-510 Manning Chambers, TORONTO, ONT., CAN.

The Canadian Bridge Co., Limited
WALKERVILLE, ONT.

MANUFACTURERS OF

RAILWAY AND HIGHWAY BRIDGES

Locomotive Turn Tables,
Roofs, Steel Buildings and
Structural Iron Work of all descriptions

PORTLAND CEMENT, HYDRAULIC LIME, CHINA CLAY
E. FREEMAN, 20 Bucklersbury, LONDON, ENG.



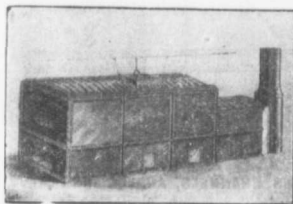
Sole Agent for U.K. and Colonies for Oldest Continental Works



Supplying to Contracts on the Principal Railways, Large Sewage and Sea Defence Works, etc., in England. Will be Pleased to Quote to the Wholesale Trade Only.

CORRESPONDENCE INVITED FOR CONTROL OF BRANDS

PERFECTION STEEL-CLAD AND BRICK SET INCINERATORS



MANUFACTURED BY **Toronto Furnance & Crematory Co., LIMITED**

14 and 16 Queen St. East, TORONTO, CANADA

Experts in sanitary disposal of dangerous wastes,

Garbage, Refuse, Night Soil, Dead Animals,

For Cities, Towns, Hospitals, Hotels, Abattoirs, etc.

The plants embody the newest features of modern practice and are constructed to meet the requirements of the smallest towns and the largest cities, capacities ranging from 4 to 100 tons daily. Correspondence invited.

REAL ESTATE TRANSFERS.

The following transfers of vacant property in Toronto have recently been registered:

Hallam st., n. s., west of No. 158, Kate Peglar to Henry Braun, 44x132, sale price, \$200.

Albany ave., w. s., n. of No. 102., Alice Brown to John Ausman, 25x133, sale price, \$875.

Havelock st., w. s., n. of 230, Clarence M. Bernard to Wm. Minto, 50x143, sale price, \$975.

Bathurst st., e. s., north end, Hamilton Cassels to Lindley H. Bowerman, 200x200, sale price, \$3,750.

Shaw st., w. s., n. of No. 346, Lucy T. Treadgold to Mary A. Baunliard, 49x120, exchange.

Among masonry arch bridges the following probably excel in span and rise: Luxembourg, in the Grand Duchy, 275 feet span, 24 feet rise; Marbegno, Italy, 230, 33; Cabin John, United States, 220, 57; Jaremeze, Hungary, 213, 59; Grosvenor, England, 200, 42.

The fact that brick and stone masonry work has been carried on uninterruptedly in Winnipeg since cold weather set in is another evidence that the winter climate of Manitoba is moderating, and also indicates the pressure that the building trades are under to complete contracts. A few years ago it was regarded as a remarkable thing to lay shingles during the winter season.

Established 1898. The Hanover Portland Cement Co., Ltd Hanover, Ontario. Manufacturers of the Celebrated "SAUGEEN" Brand of PORTLAND CEMENT Prices on application.

THE GREY AND BRUCE PORTLAND CEMENT COMPANY of Shallow Lake, Limited. Manufacturers of

"HERCULES" BRAND OF PORTLAND CEMENT Very finely ground. Unsurpassed for Sidewalks, Floors and all work requiring the Highest Grade of Portland Cement. For prices address, A. D. CRESSOE, Sec'y-Treas. Head Office, Owen Sound, Ont.

THE ONTARIO ASPHALT BLOCK CO., L'T'D.

MANUFACTURERS OF ASPHALT BLOCK PAVING Information and samples furnished municipalities on application.

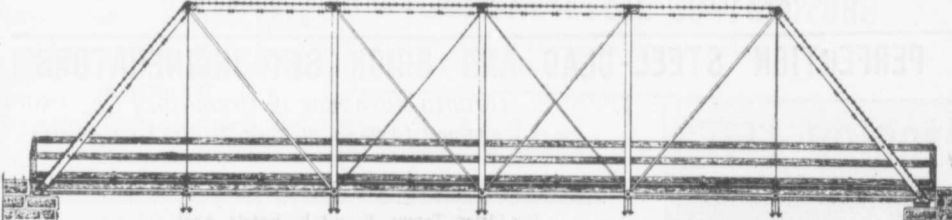
Main Office: WINDSOR, ONT. Works: WALKERVILLE, ONT.

INDEX TO ADVERTISEMENTS

In the "Canadian Architect and Builder."

Architects. Ontario Directory... 111 Quebec Directory... 111
Architectural Sculptors. Holbrook & Mullington... i
Architectural Iron Work. Canada Foundry Co... x
Architects' Tools. Thorton & Co, A G... xiv
Blue Print Paper. Hughes, Owens Co... IV
Fells and Clocks. Warner & Sons, John... xliii
Bridges. Canadian Bridge Co... x
Builders' Supplies. Luxfer Prism Co... xi
Decorators. Amblers, Red Stone Quarry Co... vi
Credit Forks Stone Co... vi
Hoad & Son... vi
Horse Shoe Quarry... vi
Jarvis Concrete Co... iii
Kline John... vi
Kline & Co., D... vi
Roman Stone Co... iii
Builders' Hardware. Batty Stone & Hardware Co... iv
Knee Lewis & Son... IV
Bricks. American named Bricks & Tile Co... v
Baansville Brick & Terra Cotta Co... II
Don Valley Brick Works... 20
Toronto Pressed Br... IV
Terra Cotta Co... 111
Milton Brick Co... 198
Contractors' Plant and Machinery. Rice Lewis & Son... IV
Cements. Owen Sound Portland Cement Co... 111
The Rathburn Co... iv
Crescote Stains. Cabot, Samuel... i
Canada Paint Co... IV
Door Spring. Colledge & Bridges... xii
Drawing Inks. Wagner, Gun her... xii
Elevators. Ferguson, John... I
Otis Elevator Co... I
Parli in Elevator Co... I
Furbur & Russell C... IV
Engravers. Can. Photo-Eng Bureau... ii
Fire-Proof Doors, Etc. Smith-Warren Co... i
Folding Partitions. Springer, O. T... II
Grilles and Rattings. Dennis Wire & Iron Co... viii
Granite. Brunet, Jos... vi
Heating. Gagev, Tilden Co... ii
I. E. Shantz... IV
Ives & Co. H R... ii
Interior Decoration. Elliott & Son Co... viii
Geo. Jackson & Sons... xlii
Richter Mfg. Co... iv
Landscare Architect. Frederick G T... III
Lime. Ontario Lime Association... xvi
Robertson & Co... vi
Legal. Quinn & Morrison... II
Laundry Machinery. Troy Laundry Machine Co... IV
Sambling, Wm. H... 111
Lumber. Wilson Bros... III
Nail Cutters. The Cutler Mfg Co... i
Mantels, Grates, and Tiles. Holbrook & Mullington... i
Knee Lewis & Son... IV
Mouldings. Decorators' Supply Co... iv
Mortar Colors and Shingle Stains. Cabot, Samuel... i
Marble. Canada Coral Marble Co... xv
Ornamental Iron Work. Cana a Foundry Co... x
Lindsay Wreath Iron... viii
Ornamental Plaster. Hynes W J... IV
Freek Walters... xlii
Painters. Montreal Directory... xvi
Toronto Directory... xvi
Prisms. Toronto Plate Glass Co... viii
Paints & Varnishes. Bridgeport Wood Finishing Co... viii
Canada Paint Co... I
Japanol Paint Co... vii
Parquet Floors. Elliott & Son Co... viii
Plate Glass. The Consolidated Plate Glass Co... II
Toronto Plate Glass Co... xviii
Plumbers. Montreal Directory... xvi
Toronto Directory... xvi
Roofers. Duthie & Sons, G... xvi
Douglas H... xvi
Forbes Roofing Co... xvi
Nicholson & Co., D... xvi
Rennie & S. n, Rbt... xvi
Ormsby & Co., A. B. I... I
Kin, ham, George... xvi
Stewart & Co., W. T... xvi
Williams & Co., H... xvi
Rubber Tinting. Gutta Percha Rubber Co... xviii
Rubber Mats. Dunlop Tire Co... 199
Receptacles. Frink, I. P... xvi
Roofing Material. Ormsby & Co., A. B. I... I
Ormsby & Co., C... I
Roofers Supply Co... II
Wheeler & Bain... 199
Rubber Stamps. Young Co., C G... 99
Sash Cord. Samson Cordage Works... iv
Stained and Decorative Glass. Bloomfield & Son... v
Henry... v
Camm, Thos. Wm... xii
Crown Art Stained Glass Co... 198
Harwood & Nash, H... v
Mackay Stained Glass Co... v
McKenzie's Stained Glass Works... v
St. George, H. E... v
Robert McCann and v
Stained Glass Co... v
Sanitary Supplies. James Morrison Brass Mfg. Co... 199
Johns & Co, Edward... I
Shingles and Siding. Ormsby & Co., A. B. I... I
Roofers Supply Co... II
Soffit Pipe. Toronto Foundry Co. II
Sheathing and Deafening Material. Cabot, Samuel... i
Tubing and Fittings. Richmond Conduit Co... II
Tiles. American Enamelled Brick & Tile Co... v
Craven Dunnell & Co... I
Holbrook & Mullington... i
Malkin Tile Works... xlii
Permanent Decorative Glass Co... xlii
Richards Tile Co, H... xlii
Stanley Bros... xlii
Toronto Plat Glas covii
Wolscroft & Son... xii
School and Church Furniture. Globe Furniture Company... xvi
Caul, Jrdice & Schou... Furniture Co... 199
Wall Plaster. Albert Mfg. Co... II
Geo. Jackson & Sons... xlii
Wire Lathing. The B. Greening Wire Company... xvi
Window Cord. Samson Cordage Works... IV
Waterproofing for Brickwork. Cabot, Samu... I

The Hamilton Bridge Works Company, Limited HAMILTON, CANADA



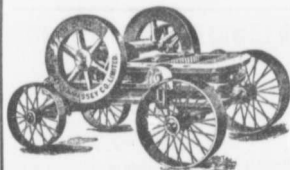
HIGHWAY BRIDGES A SPECIALTY GENERAL STEEL CONTRACTORS Large Stock I BEAMS, CHANNELS, ANGLES and PLATES always on hand.

Jones—"I wish you would figure on a new house for me."

Architect—"Something about five thousand dollars?"

Jones—"No; something about five hundred. I've only got five thousand to spend on it."—Judge.

ROCK CRUSHERS



for Municipalities or Contractors
ELEVATORS AND SCREENS
of all dimensions and capacities built to order.
A full stock of Road Making and Contractors' Supplies.
FREE CATALOGUE.

SAWYER & MASSEY CO., LIMITED
Road Machinery Department.
HAMILTON CANADA

TUNNEL CITY BRIDGE & IRON WORKS

Steel Bridges and Structural Work.
Works: Port Huron, Mich., and Sarnia, Ont.

HIGHWAY BRIDGES

Roofs, Steel Buildings and Structural Iron Work of all Descriptions.

ARTIFICIAL STONE PAVEMENTS

SIDEWALKS A SPECIALTY

Will do well to consider our work and prices before letting contracts
CORPORATIONS
The Silica Baritic Stone Company of Ontario, Limited.

WALTER MILLS General Manager. Head Office: INGERSOLL, ONT.

MUNICIPAL SUPPLIES

Complete Stone Crushing Plants, 75, 100 and 300 tons per day, Road Graders, Mud Scrapers, Rock Drills, Steam Road Rollers, Gasoline Fire Engines, etc.

T. A. MORRISON & CO.

204 St. James St. MONTREAL

PORTLAND CEMENT

SAMSON BRAND MAGNET BRAND

MANUFACTURED BY

THE OWEN SOUND PORTLAND CEMENT COMPANY, Limited, Owen Sound, Ont.

Works at SHALLOW LAKE, ONT.

Write us for prices.

THE CANADIAN PORTLAND CEMENT COMPANY, LIMITED

Manufacture "RATHBUN'S STAK" Brand

The Leading Canadian Portland Cement.

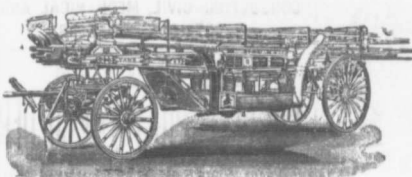
Capacity of Works: 500,000 Bags Per Year.

SALES AGENTS

The RATHBUN CO. St. Lawrence Portland Cement Co.
310-3 1/2 Front Street West, TORONTO, ONT. 232-203 Board of Trade Building, MONTREAL.

LIGHTNESS, STRENGTH AND ECONOMY

Seagrave Patent Trussed Ladders, Trussed Aerial, City Service and Village Hook and Ladder Trucks, Combination Hook and Ladder Trucks and Chemical



Engines, Trussed Trucks and Hand Pumps, Combination Hose Wagons and Chemical Engines, Hose Wagons, Combination Hook and Ladder Trucks and Hose Wagons, Chemical Engines, Fire Extinguishers, Hose Reels, Patrol Wagons, Ambulances, Specialty Wagons, Patent Sleigh Runners, and other Modern Fire Fighting Tools.

Prompt attention given all inquiries. All goods built to order.

Long Distance Phones 686 and 684

W. E. SEAGRAVE, WALKERVILLE ONT.

Fire Apparatus AND Road Machinery

FIRE ENGINES in five sizes, with a full line of fire-fighting goods

We Rebuild other makes of Fire Engines with our patent Boiler.

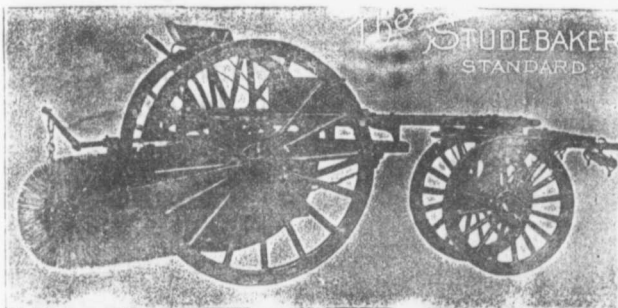
BRANTFORD PITTS DOUBLE ENGINE STEAM ROAD ROLLER

IN THREE SIZES—10, 12 and 15 ton.

CORRESPONDENCE SOLICITED.

WATEROUS, Brantford, Canada

Hugh Cameron & Co., Selling Agents, 16 East Queen Street, Toronto



Studebaker Sprinkler

(PATENT IMPROVED.)

Does not clog or get out of order. Greatest width of spray Can be graded from driver's seat to any volume. We also make an . . .

IMPROVED VERTICAL SPRAY

for Pavements.

Geo. Heaman, Mnfr., London, Ont.

Stackpole Patent Improved Street Sweeping Machine

Is the Standard of Perfection

Because no sweeper so effectually does the work for which it is designed as "The Studebaker." It Sweeps Clean. No sweeper is constructed with the same degree of care and mechanical precision. It Wears Well. "The Studebaker" has the smallest number of working parts, and has less gearing than any other sweeper made. It is free from all unnecessary complications. With reasonable care it does not get out of order. Send for complete descriptive catalogue

BUSINESS NOTES.

F. X. E. Brunet has registered proprietor of the business of Francis Brunet, plumber, Montreal.

The firm of Cole & Cameron, wall paper dealers, Montreal, has been dissolved, and C. K. O. Cameron has registered as proprietor of the business.

The Montreal Rolling Mills Company is installing, at Montreal, a new wire-nail making plant which will have a capacity of 100,000 kegs of wire nails annually.

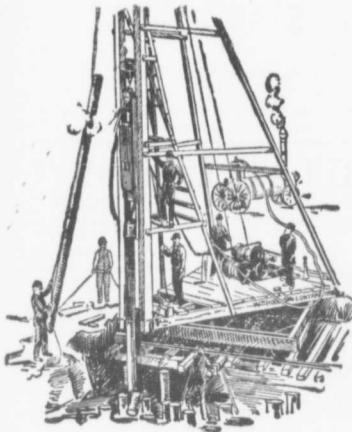
D. & R. McDonald have completed their contract on the colonization line of railway between Labelle and Nominingue, Quebec, at a distance of about 25 miles.

The Robertson-Godson Company, of Vancouver, B.C., have purchased the plumbing supplies department of the business of Boyd, Burns & Company, of that city.

Of wire and cut nail prices in the Eastern Provinces the Maritime Mer-

chant says: The market is exceedingly firm and no concessions of any sort can be made on this article. The Halifax quotations are as follows: Cut nails, \$2.45 base; wire nails, \$2.45 base.

The Harbor Commissioners have won their suit against the Sand & Dredging Company, of Toronto, to recover the amount expended in dredging in the harbor for the purpose of removing obstructions. Chief Justice Meredith awarded them \$247 and costs and has dismissed the defendants' counter claim.

**PILE DRIVING**

on land or water by Steam Pile Drivers or Drop Hammers.

**Portable Boilers
Hoisting Engines
Pumping Machinery**

TO LET

Bridge Building, Trestle Work, Wharves, Dams, Diving Submarine Work and General Contracting.

WM. HOOD & SON

10 Richmond Sq. - MONTREAL

DEBENTURES

Municipalities contemplating the issue of Debentures will find it to their advantage to communicate with

G. A. STIMSON & CO.

Investment Dealers

24 and 26 King St. W. TORONTO

**THE DELANO-OSBORN
ENGINEERING CO., LIMITED**

MANNING CHAMBERS, TORONTO

**CONSULTING CIVIL, MECHANICAL AND
ELECTRICAL ENGINEERS.**

ALWAYS IN STOCK

PIG LEAD, PIG TIN AND SOLDER

Syracuse Smelting Works, Montreal, P.Q.

Notice to Contractors.

*The Niagara Falls Machine & Foundry Co., Limited,
Niagara Falls, Ont.,*

are making a specialty of improved
HOISTING AND BUILDING ENGINES.
Write for Prices.

**Pittsburgh Testing Laboratory,
LIMITED**

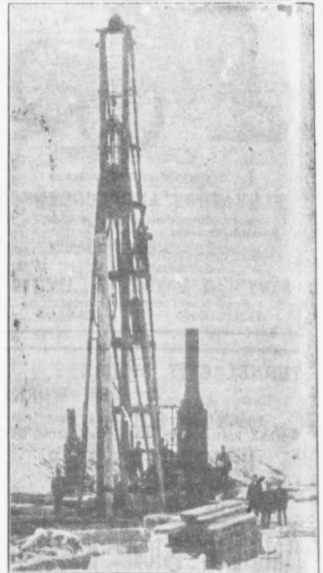
*Inspecting and Metallurgical
Engineers and Chemists*

SPECIALTIES: Inspection of RAILS and all material for BRIDGES, BUILDINGS, and other structures, cast iron pipe, wood and steel railroad cars.

MANUFACTURE AND ERECTION.

Expert examination and reports, chemical analyses and physical tests of all kinds.
Cement Testing.

146 St. James Street, - Montreal, P.Q.

**PILE DRIVING
and Foundation Work.**

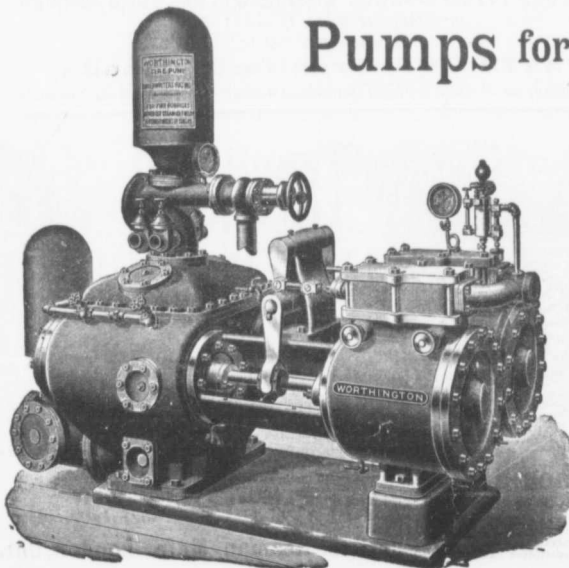
By 5-ton Automatic Steam Pile Hammer, Water Jet or Drop Hammers, Dock Building, Submarine Work and Dredging.

BUILDING MOVER AND WRECKER

General Contracting.

JNO. E. RUSSELL, - Toronto

906 Queen St. E. - Phone M. 2007.

**Pumps for Waterworks**

**Waterworks Systems
Installed**

*Steam, Hydraulic, Electric,
Gasoline, Air Lift and
Automatic Rams.*

**Steam Boilers and
Filters**

Write for Prices and Particulars

The John McDougall

CALEDONIAN IRON WORKS CO., LIMITED

MONTREAL, P.Q.

MUNICIPAL ENGINEERS, CONTRACTORS AND MATERIALS

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

R. E. SPEAKMAN, C.E.

A. M. Inst. C. E., 1878.
CONSULTING ENGINEER

Waterworks, Sewerage and Sewage Disposal.
Municipal Improvements.
Granolithic Pavements.
Electric Light Plants.
Drainage and Irrigation of Land.
Coal Handling Plant and Machinery.
Plans, Specifications and Estimates.
Construction and Valuations.

Canada Life Building - TORONTO

Roderick J. Parke

Am. Can. Soc. C.E., A. M. Amer. Inst. E.E.
CONSULTING ENGINEER
Hydraulic Power Development. Long Distance
Power Transmission. Steam Plants, Electric
Lighting and Power Systems. Tests
Valuations. Reports.
51-51 James Building, Cor. TORONTO, CANADA
King and Yonge Streets.
Telephones { Office—Long Distance Main 3047
 { Residence—Long Distance North 2204
Telegraphic address: "Rodparke."
W. U. Code, Univ. Edition.

WILLIAM H. BREITHAUP, C.E.

M. AM. SOC. C.E., M. CAN. SOC. C.E.
CONSULTING STRUCTURAL ENGINEER
Foundations, Bridges, Buildings.
BERLIN, ONT.

JAMES C. KENNEDY,

MEM. CAN. SOC. C. E.
Civil and Hydraulic Engineer
Examinations, Reports, Plans, Estimates,
Supervision of Construction of Water
Powers, Waterworks, Sewerage, etc.
P. O. Box 131, HAWKESBURY, ONT., and
877 Dorchester Street, MONTREAL, QUE.

ROSS & HOLGATE

Consulting and
Supervising Engineers

Waterworks, Electric Light and Power
Plants, Structural Work, Reports,
Estimates, Arbitrations.
80 ST. FRANCIS XAVIER ST. - MONTREAL

RAILS For Contractors, Switches, Gir-
des, &c.
New and Second Hand

LOCOMOTIVES & CARS

John J. Gartshore
83 Front St. West,
(Opposit Queen's Hotel.) TORONTO.

FIREMEN'S LADDERS

—AND—
LADDER TRUCKS

We make the lightest, quickest,
strongest and cheapest. Every Town
and Village needs them and can afford
them. They will save 50 times their
price in insurance premiums. Write
for circulars and quotations.

THE WAGGONER LADDER CO., Limited
LONDON - ONT.

John H. Jackson
CIVIL ENGINEER

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

CHARLES BRANDEIS

A. M. Can. Soc. C. E., A. M. Amer. Inst. E.E.
CONSULTING ENGINEER
Estimates, Plans and Supervision of Hydraulic
and Steam-Electric Light, Power and Railroad
Plants. Specifications, Reports Switchboard
Designs, complete Factory Installations, Etc.
Long Distance Telephone Main 27 6.
Cable Address: Brandeis-Montreal.
W. U. Code, Univ. Edition.
Liverpool & London & Globe Building.
MONTREAL

"IMPERIAL BRAND" PORTLAND CEMENT

You will surely admit that the best is none too good, and if you are
requiring Cement give "IMPERIAL BRAND" a trial. We guarantee
our product and can ship a quantity at once. Write for prices, etc., to

The Imperial Cement Company, Limited
OWEN SOUND, ONT.

THE CANADIAN SEWER PIPE CO.

MANUFACTURERS OF



FOR

Sewers, Culverts and Water Pipes
Inverts for Brick Sewers

WRITE FOR DISCOUNTS

ST. JOHNS, P. Q. HAMILTON, ONT. TORONTO, ONT.

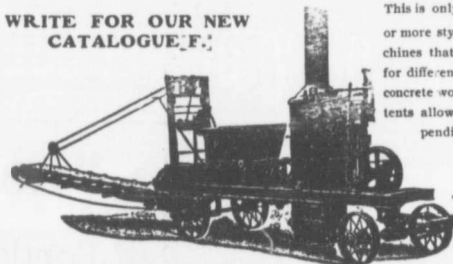
The **Greatest Concrete Mixer** Yet Made

WRITE FOR OUR NEW
CATALOGUE F.

This is only one of 30
or more styles of ma-
chines that we make
for different kinds of
concrete work. 10 pa-
tents allowed, others
pending

NUMBER OF
PATENTS

55,664
672,934
675,035
675,036
675,037
698,182
698,910
699,667
699,668
701,312



Also
Mortar and
Asphalt Mixers

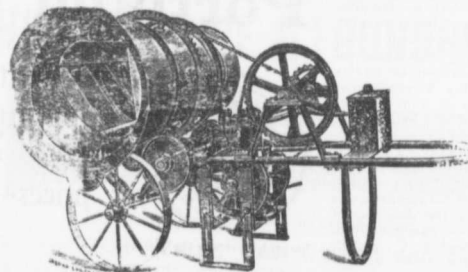
DRAKE STANDARD MACHINE WORKS

Factory, 7-9-11-13 Garden Street, Chicago
Office and Salesroom, 218-300-302 W. Jackson Boul.
Chicago, Ill., U. S. A.
Eastern Agent, Walter S. King, 27 St. John's Place, Brooklyn, N. Y.

Please mention THE CONTRACT RECORD when corresponding with advertisers

THE MCKELVEY CONCRETE MIXERS

MANUFACTURED BY **W. A. MCKELVEY,** McKinnon Building,
TORONTO.



These machines
are made to mix
either continu-
ously or in
batches, and can
be operated
either by Hand,
Steam or Gas-
line Power.

MUNICIPAL DEPARTMENT

USE OF FERRO-CONCRETE PILES.

Ferro-concrete piles are being used for the foundations of the new law courts at Berlin-Wedding, which are placed in treacherous ground, with a very unstable coefficient of resistance. They are triangular in form with the corners cut off, and are composed of clean, hard river ballast and Portland cement of the best quality, in the proportion of one part of the latter to three of the former. Their length varies from 17 ft. to 26 ft. The armature consists of three iron rods tied together at regular vertical distances by eye rods, spaced every 10 inches, having a diameter of a quarter of an inch, and set into the concrete with a blunt point at their lower end. The concrete, slightly wetted, is carefully prepared in a pug mill, and deposited in vertical wooden moulds, in layers 8 inches in thickness, subsequently reduced by pressure to about half that amount. Before fixing the tie rods and adding fresh doses of beton, the surface of each preceding layer is roughened, so as to ensure a thorough mixture and incorporation of the whole mass. Thus manufactured, the pile is left to itself for a period varying from twelve to twenty-four hours. During the next seven or eight days, it is watered constantly and abundantly. It is then taken out of the mould, and again watered for the next eight or ten days, and becomes sufficiently hardened and consolidated to be safely transported to the site of the works. The piles are allowed to remain in this condition until they are about a month old, when they are fit to be driven, which operation is effected by means of a steam pile-driver, with a ram weighing two and one-half tons. To prevent the heads being damaged by the fall, which is 5 ft. inches, they are protected by a buffer, built up of sheets of lead, plates of iron, and timber packing, all held together by a iron ring. Special arrangements are made for guiding the piles in their descent.

DECISION OF INTEREST TO MUNICIPAL CORPORATIONS.

Before Meredith, J., in Single Court at Osgoode Hall, Toronto.—Re Meldrum and town of Peterboro.—E. A. DuVernet, for W. H. Meldrum, a ratepayer of the town of Peterboro, moved for orders quashing two by-laws passed by the Town Council on the 5th of October, 1903, authorizing the execution of contracts between the town corporation and the Peterboro Light, Heat and Power Company and the Peterboro Radial Railway Company for the lighting of the streets of the town and the granting of a franchise for an electric railway upon the streets of the town, the principal ground of complaint being that the town corporation were indirectly granting a bonus of \$14,000 to the companies, because the contract for lighting the streets allows the light company \$1,400 a year for ten years in excess of what another company tendered to do the lighting for, and this is alleged to be a reward for introducing the electric railway. The applicant also contended that the by-laws were bad, because the Mayor of the town was interested in one of the companies as secretary, and because the dividends of the railway company were exempted from taxation. G. F. Shepherd, K. C., and E.

H. D. Hall, Peterboro, for the town corporation contract. W. E. Middleton and R. M. Dennistown, Peterboro, for the companies. Order made quashing with costs the by-law authorizing the execution of the contract with the light company, the learned judge holding that there was an intention to give and get a reward for introducing the railway. Stay for thirty days. The other by-law is unobjectionable, except upon the ground that the dividends are exempted. It was said that it was not intended that it should provide for that exemption. The motion to quash this by-

law is adjourned till the first court day after the Christmas vacation, to enable the Council to amend. If the by-law is in the meantime amended, the motion will be dismissed without costs. If it is not amended, the motion will be further considered.

JOHN GALT, C.E.&M.E.

MEM. CAN. SOC. C.E. AND C.E.A., ETC.

CONSULTING ENGINEER and EXPERT

National Trust Building
20 King Street East
Toronto
Specialties—Water Supply and Sewerage.

JOSSON CEMENT .. Manufactured at NIEL ON RUPELL

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

C. I. de Sola, Manager in Canada .. 180 St. James Street, MONTREAL

Portland Cement...

HIGH GRADE GERMAN BRANDS FOR GRANOLITHIC
AND ARTIFICIAL STONE SIDEWALKS.

Sewer Pipes, Best English Cements. Best Belgian Cements
Culvert Pipes, &c. W. McNALLY & CO., Montreal

The KERR ENGINE COMPANY, Limited

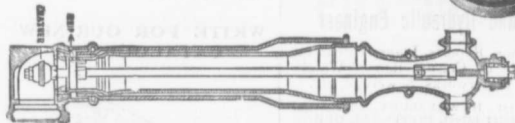
PUMPING MACHINERY

HYDRANTS and VALVES

Are our Specialty

Don't fail to write us for Catalogue and prices.

WALKERVILLE, - ONTARIO



"Lehigh" Portland Cement

Capacity 11,000 Barrels every Day in the Year.

For Sidewalk and all other work requiring the highest quality Portland Cement
Used by the U.S. Government and the best contractors and users of Portland
Cements in the United States.

Absolutely the most popular Cement in Canada on account of its merits.

For Prices, etc., address

THORN CEMENT CO. - Buffalo, N. Y.

Portland Cement..

ALL GRADES.

Write or Telegraph to

BELLHOUSE, DILLON & CO.

201-203 Coristine Building, St. Nicholas Street, Montreal

for prices--Large stock constantly
on hand.



Largest Makers in the World.

FROST PROOF HYDRANTS

OUR

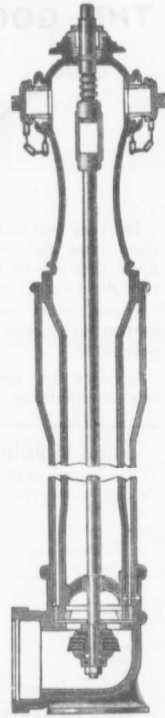
Toronto Hydrants are fitted with frost cases separated from the hydrant, thereby preventing injury due to upheavals of the ground by frost.

SEE OUR BULLETIN No. 7.

Canada Foundry Co., Limited

Head Office - Toronto, Ont.

District Offices : MONTREAL HALIFAX OTTAWA WINNIPEG
VANCOUVER VICTORIA ROSSLAND



THOS. J. DRUMMOND, President

JAMES J. McCALL, Secretary-Treasurer

G. E. GUDWILL, Vice-President

Montreal Pipe Foundry Co., Limited

Special Castings
Flange Pipe
Branches
Hydrants
Valves



Valve Boxes and general Water Works Supplies

CAST IRON PIPE

Works at : LACHINE, QUE.
THREE RIVERS, QUE.
LONDONDERRY, N. S.

Combined daily capacity :
175 Tons Pipes and Castings.

HEAD OFFICE CANADA LIFE BUILDING, MONTREAL

ALEX. GARTSHORE, President. J. G. ALLAN, Secretary and Treasurer. JAS. THOMSON, Vice-President and General Manager

THE GARTSHORE-THOMSON PIPE & FOUNDRY CO. LIM. TSD.

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

THE GOOD ROADS MACHINERY COMPANY, LIMITED

HAMILTON, CANADA

OUR "CHAMPION" NO. 2 ROAD PLOW

The very best Four Horse Road Plow for Township Road Grading or Contractors' Hard Pan Plowing.

A new design and gives perfect satisfaction to every purchaser.

Examine its merit and test its capability.



Prices of Building Materials.

PRESSED BRICK, Per M

MILTON PRESSED BRICK AND SEWER PIPE CO.	
	F. O. B. Milton, Ont.
Red No. 1	18 00
" 2	16 00
" 3	14 00
Buff No. 1	20 00
" 2	18 50
Brown	25 50
Roman Red	30 50
" Buff	33 50
" Brown	40 50
Hard Building	12 00
Sewers	12 00
Backing	11 50

DON VALLEY PRESSED BRICK WORKS.
Nos. 1, 2 and 3, Red Pressed Bricks.....
Nos. 1 and 2 Buff Pressed Brick.....
No. 1 Brown Pressed Brick.....
Pompeian Red, Buff and Brown Pressed Bricks.....
Ornamental Bricks of all kinds for Mantel purposes.....
Porous Terra Cotta Fireproofing of all Descriptions.....
Vitrified Street-saving Bricks.....
Semi-Vitrified Foundation Bricks.....
Common Stock Red and Grey Bricks.....
Sewer Bricks.....
Stone for Macadamized Roadways.....

TORONTO PRESSED BRICK AND TERRA COTTA WORKS	
	F. O. B. Milton, Ont.
Red No. 1	12 50
" 2	10 50
" 3	8 50
Buff No. 1	15 00
" 2	13 00
Brown	20 00
Roman Red	30 00
" Buff	30 00
" Brown	35 00
Hard Building	6 50
" Sewers	6 50
" Backing	6 00

Moulded and Ornamental from \$2.00 to \$5.00 per 100, Terra Cotta Strip Courses and Frieze, from 50c. to \$2.00 per ft. run.

Roofing Tiles, \$20.00 per 1,000, \$23.00 Montreal.

BEANSVILLE BRICK AND TERRA COTTA CO.

F. O. B. Beansville, Montreal.	
Red Peerless Facing	\$20.00
" No. 1	13 00
" No. 2	11 00
" No. 3	8 50
Brown Peerless Facing	20 00
" No. 1	18 00
Buff Peerless	20 00
" No. 1	18 00
" No. 2	15 00
Moulded and Ornamental Brick from \$3 to \$10 per C.	
Roman Red (Size 12 x 4 x 1 1/2 in.)	28 10
" Buff	23 00
" Brown	34 00
Vitrified P-vin Brick No. 1	18 00
" No. 2	15 00
Roofing Tile	6 00

TORONTO POTTERY CO. FIRE BRICK	
	F. O. B. Toronto
Boyd	21 00 M. 26 00 M.
W. W. Co.	24 50 M. 28 50 M.
Savage Crown	28 50 M. 33 00 M.

STONE.	
	Toronto. Montreal
Common Red Limestone delivered at building	13 50 11 00
Large Red Rubble, per 1 cu. yd. delivered	14 00 18 00
Foundation Blocks, per ft. Granite (Stanstead) Ashlar, 6 in. to 12 in., rise 3 in., per ft.	
Amherst Red Sandstone	85 70
Amherst N.S., per cub. ft. Sandstone	
Sackville N.R., brown stone	35 45
F. O. B. Quarries	30 00
Masonite	
Stanstead granite paving blocks, 8 in. to 12 in. x 6 in. x 4 1/2 in. per M.	50 60
Granite curbing stone, 6 in. to 8 in. per lineal foot	70

PORTLAND CEMENT

SEWER PIPES

FIRE BRICKS

FIRE CLAY

ALEX. BREMNER

50 Bleury Street, MONTREAL



W. & F. P. CURRIE & CO.

345 St. James St., Montreal

SEWER PIPES,

CULVERT PIPES, ETC.

VENT LININGS,

FLUE COVERS,

FIRE BRICKS,

FIRE CLAY,

WHITING.



PORTLAND CEMENTS,

HIGH GRADE ENGLISH

GERMAN

BELGIAN

PLASTER OF PARIS

BORAX,

CHINA CLAY.

Toronto. Montreal.		PORTLAND CEMENT.	
Butoche Olive Freestone	85 65	English—	
Olive Sandstone (Indian-town, N. B.)	80 70	Brook's Shoebridge Anchor	2 35 2 40 2 00 2 10
Brown Sandstone (Sackville, N. B.)	80 70	Excelsior Brand	2 15
Most red sandstone, per cu. ft.	60	Belgian	
Black Pasture buff stone per cu. ft.	50	"Castle" Brand	2 60 2 70 2 10 2 15
Nova Scotia blue grey, per cu. ft.	50	"Jonas" Brand	2 60 2 70 2 10 2 15
Courasers, 4 to 6 in. bed, f. o. b. St. Mary's, per cord	4 00	"White Cross"	2 35 2 50 2 00 2 10
Footings, 2 1/2 to 3 in. wide, 6 in. thick, per running foot	70	Cathedral	2 35 2 50 2 00 2 10
Bridge Stone, 10 to 13 in. thick, f. o. b. St. Mary's, per cord	6 00	Atlas	2 35 2 35 2 10 2 15
Granite (Laurentian Pink) Ashlar, 6 to 2 in., rise 3 in., per cu. ft.	70	Hammer	1 80 1 90 1 00 1 00
Dimension Stock Granite (Laurentian Pink) for building purposes, per cu. ft., f. o. b. quarries	40	White Star	2 25 2 55 1 90 2 00
Do., for polishing purposes, up to 2 tons weight, per cubic foot	70	German—	
Dimension stock granite for building purposes, per cu. ft.	50	Off-n-acher Brand	2 80 2 90 2 30 2 40
Do., for polishing purposes, up to 2 tons weight, per cubic ft.	1 00	Dyckerhoff	2 60 2 70 2 40 2 50
Paving sets, per thousand block	60 00	Karlstadt	2 80 2 90 2 40 2 50
		Heemsoot	2 30 2 60 2 40 2 50
		Canon	2 40 2 50 2 10 2 20
		Heidberg	2 30 2 40
		Canadian	
		Rathburn's Star	1 90 2 10
		Ensign	1 70 1 90
		Citadel	2 00
		Trowal	2 00 1 75 1 80
		Samson Brand	2 00 2 05
		Magrat	1 75 1 80
		Monarch	2 10
		Hercules	2 00
		Lion Brand	1 75
		Imperial	2 10
		American—	
		Alpha Brand	1 80 1 90 2 20 2 30
		Allen's	2 50 2 00 2 25 2 35
		Lehigh, in bbl's, 375 lbs.	2 00 2 50
		" cotton sacks, 250 net	2 20 2 50
		" raper bags	2 10 2 35
		Keene's Superfine "Whites"	10 00 12 00 9 00 10 00
		Keene's Coarse "Whites"	6 50 7 00 5 50 6 00
		Fire Bricks, Newcastle, per M	27 00 32 00 18 00 21 00
		" Scotch	25 00 33 00 17 00 21 00
		Plaster, Calceined, N. B.	2 00
		" N. S.	2 00 1 85 2 00