

# CANADIAN CONTRACT RECORD

*A Weekly Journal of Engineering, 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, Leading Civil Engineers and Contractors throughout Canada, and Purchasers of Municipal Debentures.

VOL. 18.

TORONTO, MONTREAL — JUNE 12, 1907 — WINNIPEG, VANCOUVER

No. 15

## THE CANADIAN CONTRACT RECORD

PUBLISHED EVERY WEDNESDAY

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## PUBLISHERS' ANNOUNCEMENT.

To ensure publication of the CON-  
TRACT RECORD on time, advertisers  
are requested to strictly observe the  
following regulations:

Copy and cuts for change of adver-  
tisements must reach the publication  
office in Toronto not later than Sat-  
urday preceding the date of publica-  
tion. The copy should show the size  
of the cuts, if any, as sometimes  
there is delay in transmitting them  
through the mails.

Transient advertisements for Tenders  
must reach the publication office  
by TEN O'CLOCK A. M. ON TUESDAY,  
but our patrons will confer a favor by  
forwarding advertisements earlier  
whenever possible.

## TENDERS FOR Town Hall and Public Library Building FOR THE Town of Hanover, Ont.

Sealed tenders addressed to the undersigned, and  
endorsed "Tenders for Town Hall and Public Lib-  
rary", will be received up to 4 o'clock P.M., JUNE  
14th INST. from all trades for the erection of the  
new Town Hall and Public Library Building at  
Hanover, Ontario.

Each tender to be accompanied by a marked  
cheque for five per cent. of the tender, payable to W.  
A. MEARNS, which will be forfeited if the successful  
tenderer neglects or refuses to sign his contract  
when notified of the acceptance of his tender.

Cheques of unsuccessful tenderers will be returned.  
The lowest or any tender not necessarily accepted.  
Plans and specifications may be seen at the  
Mayor's Office, Hanover, and also at the office of  
the architects, Messrs. G. M. Miller & Co., 59  
Yonge Street, Toronto.

DR. W. A. MEARNS, Mayor,  
June 3rd, 1907. Hanover, Ont.

English Clerk of Works for building operations  
seeks engagement. JOHN HOLDEN, 177 Seaton  
Street, Toronto, Ont.

## For Sale

14,500 ft. of First Class White Pine, \$25 per 1,000  
ft. at McQuillan & Co.'s yard, 1457 Queen street  
west, Toronto. The following are the lengths:

20 pieces 12" x 12" x 20 ft.  
13 " 12" x 12" x 18 ft.  
11 " 12" x 12" x 17 ft.  
22 " 12" x 12" x 16 ft.

Apply to McQUILLAN & CO., 1457 Queen  
Street West, Toronto.

## TENDERS

will be received by the undersigned up to the 15th  
DAY OF JUNE, for the construction of certain  
Cement Concrete Walks in the Village of Markdale,  
approximating 22,000 square feet. Specifications  
and other information furnished.

No tenders necessarily accepted.

J. G. MATTHEWS,  
Secretary of Committee.

## CONTRACTORS' PLANT FOR SALE

4 Steam Shovels, extra heavy, heavy and medium;  
10 Locomotives, 2 ft. gauge; 150 Dump Cars, a  
number of each 3 and 4 yd. cars; Construction Rails,  
about 400 tons of 40, 45 and 50 lb.; 6 Hoisting  
Engines; 4 Portable Boilers and Engines; 6 Centri-  
fugal and Duplex Pumps; 6 Concrete Mixers; several  
miles Water Pipe, 3/4" to 2"; Water Tanks; Camp  
Outfits; Waggon; Harness; Buggies, etc. M. A.  
PIGOTT & CO., Goderich, Ont.



## Temiskaming and North- ern Ontario Railway Commission.

## TENDERS FOR Blacksmith Shop

Sealed tenders, addressed to the undersigned and  
endorsed, "Tender for Blacksmith Shop", will be  
received up to 5 p. m. on the 26th DAY OF JUNE,  
1907, for the erection of a Blacksmith shop at North  
Bay, Ontario.

Plans and specifications may be seen at the office  
of the Commission, 25 Toronto Street, Toronto, and  
at the office of the Chief Engineer, North Bay.

A certified cheque for \$500.00 must accompany each  
tender.

The successful tenderer must enter promptly into a  
contract and furnish security for the amount of  
\$1,500.00 for the due completion of same.

Cheques of unsuccessful tenderers will be returned  
to them.

The lowest or any tender not necessarily accepted.

A. J. MCGEE,  
Secretary-Treasurer.

Toronto, May 23rd, 1907.

Papers inserting this advertisement without  
authority will not be paid for same.

## FOR SALE

" plank, dry cull Maple ..... 30,000 feet.  
2 x 6 to 10 x 10 timber, cull Cedar ..... 30,000 feet  
4" plank, dry cull Elm ..... 30,000 feet.

M. CRAWFORD,  
Campbellville, Ont.

## CITY OF BRANTFORD

## Sewer Extension

Sealed tenders, addressed to Samuel Suddaby,  
Esq., Chairman of the Board of Works, in care of  
the City Clerk, Brantford, Ont., will be received till  
12 o'clock noon on THURSDAY, JUNE 20th, 1907,  
for the construction of a

## PUMPING STATION

and the following sewers:

About 7,800 feet of extra strength 15 inch sewer  
pipe.

About 7,200 feet of extra strength 12 inch sewer  
pipe.

About 1,800 feet of 12 inch cast-iron pipe.

Plans and specifications may be seen, and instruc-  
tions to bidders and forms of tender obtained, at the  
City Engineer's office on and after the 1st June.

Each tender must be accompanied by a marked  
cheque for 5 per cent. of the amount of the tender.

The lowest or any tender not necessarily accepted.

T. HARRY JONES,  
City Engineer's Office, City Engineer.  
Brantford, Ont., May 20th, 1907.



## Department of Railways and Canals

## RIDEAU CANAL

## Notice to Dealers in Cement

Sealed tenders, addressed to A. T. Phillips, Super-  
intending Engineer, Rideau Canal, Ottawa, and  
endorsed "Tender for Cement," will be received  
until 10 o'clock on FRIDAY, THE 21st JUNE,  
1907, for the supply of 1,000 barrels of Portland  
Cement, to be delivered in bags into the Ottawa  
Forwarding Company's sheds, in the Canal Basin,  
in the City of Ottawa, by the 31st July, 1907.

Specifications can be procured at the office of the  
Superintending Engineer of the Rideau Canal,  
Canadian Building, Ottawa, on and after this date.

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

By order,

L. K. JONES,

Secretary.

Department of Railways and Canals,  
Ottawa, 25th May, 1907.

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

[FOR ADDITIONAL ADVERTISEMENTS FOR TENDERS SEE NEXT PAGE]

C. E. S. Assistant—young man with experience, desires position with C.E., land surveyor or prospector. Box 110, CONTRACT RECORD, Toronto, Ont.

**Concrete Abutment**

Tenders will be received until JUNE 18TH NEXT, for building a concrete abutment for the County of Waterloo, at the village of Ayr. For all information apply to

HERBERT J. BOWMAN, C. E.,  
Berlin, Ont.

**THE BOARD OF EDUCATION  
TORONTO**

**Tenders Wanted**

Sealed tenders addressed to the Secretary-Treasurer of the Board will be received until THURSDAY NOON, JUNE 13TH, 1907, for

PRINTING MINUTES, REPORTS, ETC.  
and until FRIDAY NOON, JUNE 14TH, 1907, for  
COAL AND WOOD.

EXPRESSAGE,  
GARDEN HOSE,  
HARDWARE SUPPLIES,

and until MONDAY NOON, JUNE 17TH, 1907, for  
the several works required for the enlargement of

**King Edward School  
Leslie Street School  
and for the usual  
Midsummer Repairs**

Specifications may be seen and all information obtained at the offices of the Board, City Hall. Each tender must be accompanied by the deposit mentioned in the said specifications and forms of tender.

The lowest or any tender will not necessarily be accepted.

W. C. WILKINSON,  
Secretary Treasurer.  
HERBERT A. E. KENT,  
Chairman of Board.

**Town of Walkerville  
TENDEERS FOR  
Pavements and  
Sidewalks**

Sealed tenders will be received by registered post addressed to the undersigned, up to noon on THURSDAY, THE 20TH DAY OF JUNE, 1907:

For the extension of the Cedar Block Pavement on concrete foundation on Walker road to the right of way of the Essex Terminal Railway Company.  
For the construction of Cedar Block Pavement on concrete foundation on Niagara street, from Monmouth road to Kildare road.  
Devonshire road, from Niagara street to Ontario street.  
Monmouth road, from Niagara street to Huron street, and from Huron street to Ontario street.  
Ontario street, from Devonshire road to Monmouth road.

Also for granolithic sidewalks, four (4) feet wide, on west side of Walker road from the south end of the present walk to the residence south of the Bridge Company's office, about 1,200 feet.  
Also on north side of Ontario street from the Walker road to Devonshire road, about 1,000 feet.  
Also on east side of Argyle road from Catarauqui street to Niagara street, about 550 feet, and on west side of Walker road, from Wyandotte street north to the Railway track, about 150 feet.

Plans and specifications may be seen on application to Mr. Owen McKay, C. E., Walkerville.

Tenders must be accompanied by a marked cheque, made payable to the Town Treasurer, equal to 2 1/2% of the amount thereof.

Should any party whose tender is accepted fail to execute the necessary contract and bond for the due fulfillment of the same, his deposit will be forfeited to the town.

Deposits of unsuccessful tenderers will be returned. The lowest tender not necessarily accepted.

The names of two responsible persons willing to act as sureties must accompany each tender.

CECIL H. ROBINSON,  
Town Clerk,  
Walkerville, Ont., May 29th, 1907.

**Town of Waterloo**

**Trunk Sewer and Sewage  
Disposal Works**

**NOTICE TO CONTRACTORS**

Sealed tenders, addressed to the undersigned, will be received until noon of JULY 2ND, 1907:

1st. For the construction of 4,400 feet of Glazed Tile Sewer 15 inches diameter.

2nd. For the construction of two Reinforced Concrete Septic Tanks of a combined capacity of 250,000 gallons.

3rd. For the construction of four acres of Filter Beds with necessary Sewage Carriers, Distributors, Valve Chambers, Effluent Drains, etc.

Plans and specifications may be seen and forms of tender obtained on and after the 12th inst. at the office of the Town Clerk, Waterloo, or of the Engineers, Davis & Johnston, Berlin, Ont.

The lowest or any tender not necessarily accepted.

(Signed)

FORD KUMPF,  
Secretary Sewerage Commission.

**CITY OF WINNIPEG**

**Point du Bois Hydro-  
Electric Development**

**TENDERS FOR  
CONSTRUCTION AND EQUIPMENT**

Sealed tenders, on prescribed forms, addressed to the Chairman of the Board of Control, Winnipeg, Canada, and marked on the envelope "Point du Bois Hydro-Electric Development, tender for..." (here add the particular item or items as below), will be received at the office of the undersigned up to noon of

Tuesday, 3rd Day of September, 1907,

for the construction of the General Works, and for the supply and erection of the various portions of the equipment for the Hydro-Electric Works and Station at Point du Bois, for a Transmission Line between Point du Bois and Winnipeg, and for a Receiving Transformer Station in Winnipeg.

Copies of the instructions to bidders, plans, specifications and forms of tender, may be obtained at the Power Engineer's office, Carnegie Library Building, Winnipeg.

Each tender must be accompanied by a certified cheque payable to the order of the City Treasurer for the sum called for in the corresponding "Instructions to Bidders," which cheque will become forfeit to the Corporation in the event of the successful tenderer refusing or neglecting to sign a satisfactory contract when called upon to do so.

Individual tenders will be received for:

- (\*) Telephone System.
- (1) General Works at Point du Bois.
- (2) 4,000 H. P. Turbines (five).
- (3) 150 H. P. Turbines (two).
- (4) 3,000 K. W. Generators (five).
- (5) 250 K. W. Generators (two).
- (6) Induction Motors (one).
- (7) Step-up Transformers (five).
- (8) Generating Station, Switching and Accessory Apparatus.
- (9) Generating Station, Light, Heat and Power Systems.
- (10) Erecting of Transmission System (75 miles).
- (11) Steel Towers.
- (12) High Tension Insulators.
- (13) Electric Transmission Cable.
- (14) Terminal Station.
- (15) Step-Down Transformers (five).
- (16) Terminal Station, Switching and Accessory Apparatus.
- (17) Terminal Station, Light, Heat and Power Systems.
- (18) Terminal Station, Oil and Air Systems.
- (19) Testing Transformers and Apparatus.
- (20) Electric Travelling Cranes (three).
- (21) Turbine Governors (seven).
- (22) Auxiliary Apparatus.
- (23) Repair Shops.

An alternative lump-sum tender will be received for the entire work, including all of the above mentioned items together with additional work and equipment necessary to install a complete working plant. As a further alternative, tenderers may include or group together one or more of the above items providing that they have also tendered for the individual items of such group.

The Board reserves the right to reject any or all tenders, or to accept any tender which shall appear advantageous to the City of Winnipeg.

M. PETERSON,  
Secretary.

The Office of the Board of Control,  
Winnipeg, June 8, 1907.

\*The numbers are those of the different volumes of specifications.

**City of Wetaskiwin**

Notice is hereby given that Tenders will be received for the supplying of all labor and necessary materials for the proper construction and carrying out of the Water and Sewer Works for the City of Wetaskiwin. Tenders to be addressed to the City Clerk, at whose office plans and specifications may be seen. Tenders to close on the 15TH DAY OF JUNE, 1907.

PARADIS & THOROLD, Engineers,  
J. W. HEY, City Clerk, Calgary, Alta.  
Wetaskiwin, Alta.

**TENDERS**

will be received up to 12 o'clock noon on MONDAY, THE 24TH INST. for a Four Room Separate School Building to be erected on Leslie Street, and also for Midsummer Repairs to the various Separate schools. Each tender must be accompanied by a marked cheque equal to ten per cent. of its amount, payable to the order of the Secretary-Treasurer of the Separate School Board. This cheque will be forfeited if the parties tendering fail to carry out the contract when called upon to do so. Tenders to be addressed to J. Cadaret, Esq., Chairman Sites and Building Committee of Separate School Board, 28 Duke Street, Toronto. Plans and specifications can be seen on and after Friday, the 14th inst., at the office of Arthur W. Holmes, Architect, 10 Bloor Street East. The lowest or any tender not necessarily accepted.

**Examinations for Inspectors  
of Steam Boilers and  
Machinery**

Examinations for the position of Inspectors of Steam Boilers and Machinery, under the Steam Boilers Inspection Act, 1901, will be held at the Parliament Buildings, Victoria, B. C., commencing on MONDAY, JUNE 17TH, 1907. Application and instruction forms can be had on application to the undersigned, to whom the former must be returned, correctly filled in, not later than June 10th. Salaries \$120.00 and \$115.00 per month.

JOHN PECK,  
Chief Inspector of Machinery,  
New Westminster, B. C.

**CONTRACTS OPEN.**

HUMBOLDT, SASK.—The C.N.R. will erect large freight sheds here.

MANOR, SASK.—A new school building is to be erected in this village.

CLINTON, ONT.—J. Rattenbury intends erecting a three-storey brick hotel building.

WINCHESTER, ONT.—The ratepayers are considering the establishment of a system of fire protection.

WELLAND, ONT.—H. W. Boyd, Town Clerk, wants bids up to June 25th for installation of a fire alarm system.

MACLEOD, ALTA.—The Society of Equity have decided to erect a flour mill in this town to cost \$50,000.

WALDECK, SASK.—A new church is to be erected in this village for the Methodist congregation.

HESPELER, ONT.—F. M. Cray intends erecting a business block on Main street.

BROCKVILLE, ONT.—The City Council have under consideration the purchase of a stone crushing plant.

MAPLE CREEK, SASK.—A \$5,000 post office building will be erected in this village.

HALBRITE, SASK.—The Roman Catholics of this village will erect a new church.

NANAIMO, B.C.—The C.P.R. intend making improvements to their yards at a cost of \$10,000.

QUILCHENA, B.C.—J. Guichon, of Nicola, has had plans prepared for a hotel building to be erected here.

SYDNEY, N. S.—The County Jail Commission have accepted the plans of R. Gillis, architect, for the new jail.

ST. JOHN'S, QUE.—The Town Council have voted \$15,000 for erection of a new town hall.

GRAVENHURST, ONT.—The Clarke Mfg. Co. have applied to the

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# Do You Realize that "IDEAL" Concrete Blocks

are the most durable building material  
in existence.

Are cheaper than other building ma-  
terials.

Are easier to lay than other building  
materials.

Are warmer in Winter and cooler in  
Summer.

## And, in addition to the above—

Can be made in an endless variety  
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Ornamental effects, which equal in  
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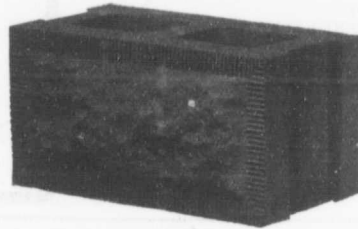
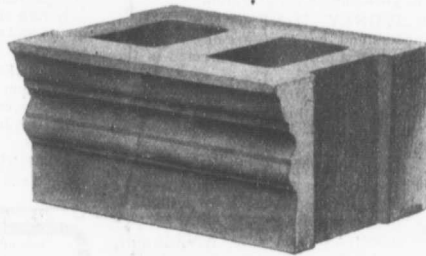
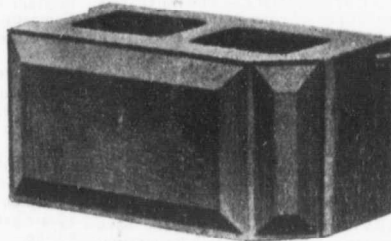
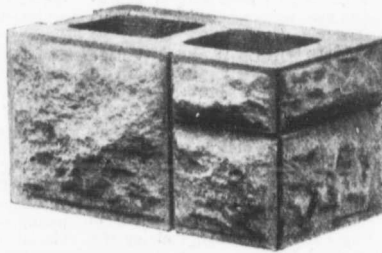
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**Branch Offices: QUEBEC, TORONTO, WINNIPEG, VANCOUVER.**





Town Council for fixed rate of assessment on new buildings which they purpose erecting.

**FERGUS, ONT.**—W. Ross, Village Clerk, invites tenders up to June 15th for construction of cement sidewalks. Specifications at Clerk's office.

**UXBRIDGE, ONT.**—J. W. Gould, Town Clerk, wants bids up to June 24th for construction of cement concrete sidewalks in the town.

**SYDNEY, N.S.**—The Town Council have been discussing the question of erecting a new High school building at a cost of about \$40,000.

**PRESTON, ONT.**—The ratepayers have ratified a by-law granting a loan to C. E. Hulbut, Toronto, to establish a shoe factory in this town.

**WINDSOR, N. S.**—J. M. Watt, architect, has invited tenders for erection of new building for congregation of Church of the Ascension.

**SANDWICH, N.S.**—J. M. Watt, architect, Windsor, has invited tenders for erection of memorial chapel at the Assumption College.

**IRVINE, ALTA.**—Tenders have been invited up to June 15th for erection of new church building for St. George's English church congregation.

**SYDNEY MINES, N.S.**—It is understood that plans are now being prepared for a hospital to be erected in this town.

**YORKTON, SASK.**—A site has been purchased in this town on which it is understood a \$60,000 hotel will be erected by a citizen of Saltcoats.

**CARDSTON, ALTA.**—The ratepayers have carried a by-law to complete the electric light and waterworks systems at a cost of \$20,000.

**DUNDAS, ONT.**—W. A. Edwards, architect, Hamilton, has prepared plans for a residence to be erected here by W. E. Lyons.

**HARDESTY, ALTA.**—The Provincial Government intend constructing a steel bridge about a half mile south of this town.

**SUMMERLEA, QUE.**—The Town Council are considering the calling for tenders for construction of water, sewerage and electric systems.

**DARTMOUTH, N. S.**—The ratepayers have carried a by-law to extend

the water and sewerage systems at an estimated cost of \$30,000.

**LONDON, ONT.**—The City and County of Middlesex Councils have decided not to erect the proposed tuberculosis hospital until next year.

**MIMICO, ONT.**—A by-law has been introduced in the Etobicoke Township Council providing for improvements to the Lake Shore road at a cost of \$5,000.

**CHARLOTTETOWN, P. E. I.**—C. B. Chappell, architect, this city, is preparing plans for a brick and stone Provincial jail building to cost about \$20,000.

**OWEN SOUND, ONT.**—The by-law to grant a bonus to the Bell Furniture Company to establish a furniture factory in this town has been carried by the ratepayers.

**CAMROSE, ALTA.**—G. P. Smith, Chairman Finance Committee, wants tenders up to June 1st for purchase of \$10,000 6 per cent. 20 year town debentures.

**DRYDEN, ONT.**—A. L. Orris, Township Clerk, wants tenders up to June 20th for construction of about 600 square yards of cement sidewalks in this village.

**FORT WILLIAM, ONT.**—A by-law is to be submitted to the ratepayers on July 10th to spend \$32,000 on improvements and extensions to the waterworks system.

**QUEBEC, QUE.**—The Action Sociale Catholique have purchased a building and property at a cost of \$17,000 and will remodel the premises to suit their business.

**NITHBURG, ONT.**—A. B. Robertson, Reeve Township of Welesley, wants

tenders up to June 22nd for construction of the "George Brenner" drain in this township.

**NORWOOD, ONT.**—J. Calder, Village Clerk, wants bids up to June 22nd for construction of 35,000 feet of concrete sidewalks. Specifications at clerk's office.

**HAILEYBURY, ONT.**—A deputation from this town recently waited on the Provincial Government in reference to erection of a High school building in this town.

**GRIMSBY, ONT.**—J. Brodie, Village Clerk, wants bids up to June 29th for construction of 3,500 lineal feet of cement sidewalks. Specifications with the Village Clerk.

**SACKVILLE, N.B.**—The C. Fawcett Manufacturing Co. want tenders up to June 15th for erection of brick chimney, boiler and engine house. Plans at the company's office.

**WINDSOR, ONT.**—The Hon. R. F. Sutherland is now in communication with the Dominion Government regarding the construction of a Government wharf in this city.

**WETASKIWIN, ALTA.**—J. W. Hey, City Clerk, is taking tenders up to June 15th for construction of a waterworks and sewerage system in this city. Plans at City Clerk's office.

**ATWOOD, ONT.**—The Elma Township Council have instructed G.L. Griffith, C. E., to prepare plans for two steel and concrete bridges which they purpose constructing in the township.

**NORTH BAY, ONT.**—H. W. Angus, architect, is preparing plans for a theatre building 75 x 130 feet to be erected here

## GET GOOD SEWER PIPE

Those requiring sewer pipe should see that they get the best. It is the cheapest in the end.

We manufacture the best and cheapest. It is steam pre-ssed, salt glazed, vitrified, absolutely non absorbant and once laid will last forever.

### THE CANADIAN SEWER PIPE CO.

HAMILTON, ONT. TORONTO, ONT. ST. JOHNS, QUE.



THE CANADIAN STANDARD

# STAR

THE CANADIAN PORTLAND CEMENT CO., LIMITED

502 TEMPLE BUILDING,  
TORONTO

203 BOARD OF TRADE BUILDING  
MONTREAL

We manufacture and carry in stock at all times complete lines of

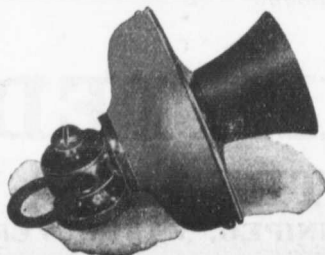
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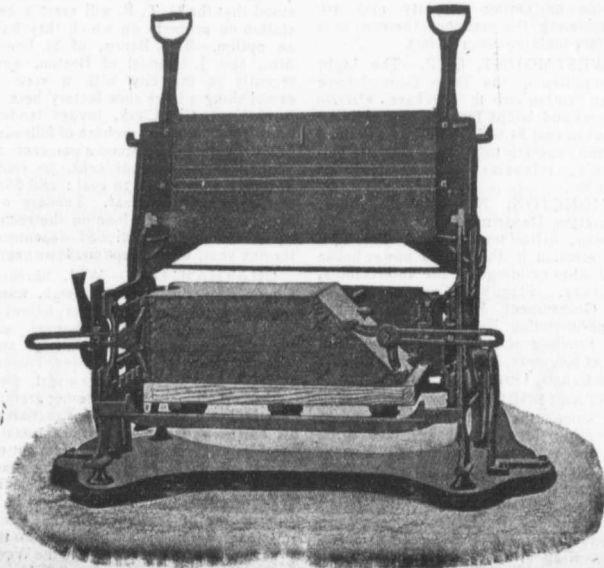
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Makes 40 Different Sizes of Stone in Any Design, as well as the Specials, viz.:

Water Table, Gable, Circle, Angle, Chimney, Cornice, Pier Blocks, etc.

*Catalogues and Information Cheerfully Furnished.*



This Machine makes all blocks face down—"the only practical way"—allowing of a richer and finer facing, producing blocks that are perfect in appearance and impervious to moisture.

Let us tell you how the "Miles" will pay for itself over any other machine in three months' operation.

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T. A. CHADBURN, 242 St. James Street,  
MONTREAL.

at a cost of \$35,000. A site has already been secured for the building.

**GLACE BAY, N. S.**—Improvements are to be made to the interior of St. Ann's church to cost \$5,000.—The Dalhousie Amateur Athletic Club are considering the erection of a rink building.

**GUELPH, ONT.**—Plans for the additions to the St. Andrew's church have been approved of and tenders for the work are to be called for at once. Estimated cost of improvements \$6,000.

**TORONTO JUNCTION, ONT.**—St. James Square Presbyterian church congregation are considering the erection of a mission church in the west end of the town to cost about \$4,000.

**GOLDEN, B. C.**—It has been reported that construction work will shortly commence on the Kootenay Central Railway line from this town to a point near Cranbrook, a distance of 180 miles.

**NORTH BATTLEFORD, SASK.**—The ratepayers have carried a by-law to spend \$100,000 for water, sewerage and electric lighting system and \$17,000 for street improvements and fire protection.

**SHERBROOKE, QUE.**—A by-law will be submitted to the ratepayers on June 24th for the purpose of raising \$200,000 with which to develop a water-power owned by the city at Westbury Basin.

**ALMONTE, ONT.**—B. Rosamond wants tenders up to June 17th for erection of new Victorian hospital building. Plans at Mr. Rosamond's office and with the architects, Machado & Weeks, Ottawa.

**SARNIA, ONT.**—An American syndicate, represented by T. Kenny, have applied to the Town Council for a 40 acre site on which to establish a plant for the manufacture of steel tubes and pipes.

**ESTEVAN, SASK.**—A by-law will shortly be introduced in the Town Council providing for the submission to the ratepayers of a by-law to provide for construction of a water, light and sewerage system.

**WALLACEBURG, ONT.**—It is understood that the Syderham Glass Company and the Wallaceburg Sugar Co. will lay pipes from this town to Tilbury in order to obtain a supply of natural gas.

**STRATHCONA, ALTA.**—The following by-laws have been carried by the ratepayers: Purchase of site for City Hospital, \$70,000; purchase of site for City Hall, \$19,000; purchase of site for City Market.

**VERNON, B. C.**—At the Methodist Conference held here recently plans were discussed for the establishment of a new college to cost \$30,000 and also for an addition to the Columbian College buildings to cost \$10,000.

**REGINA, SASK.**—The ratepayers have carried by-laws providing for construction of following public works: Pavements, \$225,000; sidewalks, \$50,000; sewerage, \$60,000; waterworks, \$30,000; and electric, \$60,000.

**DIDSBURY, ALTA.**—The Town Council have decided to submit to the ratepayers a by-law providing for an expenditure of \$15,000 on a system of fire protection, street grading and purchase of park property.

**CARMAN, MAN.**—By-laws will shortly be introduced in the Town Council providing for the issuance of debentures for \$8,000 for the completion of the fire protection system and \$2,000 for erection of town hall.

**ROSTOCK P.O., ONT.**—J. Krueger, Clerk Township of Ellice, will receive tenders up to June 24th for construction of three concrete culverts or bridges, and

also for repairs to the Whirl Creek drain. Plans at the Clerk's office.

**WALKERVILLE, ONT.**—C. H. Robinson, Town Clerk, invites tenders up to June 20th for construction of granolithic sidewalks and cedar block pavements on concrete foundations. Plans at office of O. McKay, C.E., this town.

**PRINCE ALBERT, SASK.**—Negotiations are now being carried on between the Canadian Northern Railway and the Saskatchewan Government regarding the construction of a bridge over the Saskatchewan river at this point.

**ROSTHERN, SASK.**—The Rosthern Athletic & Diving Club intend purchasing 25 acres of land for a race track and athletic grounds.—The Rosthern Flour Mills, Limited, have selected a site for their new mill to be erected at a cost of \$20,000.

**MILVERTON, ONT.**—The Town Council have decided to submit a by-law to the ratepayers providing for granting of a loan and other concessions to the Grosch Felt Shoe Co. as an inducement to remain in this village and erect new warehouses.

**BORNHOLM, ONT.**—J. Rudolph, Reeve Township of Logan, will receive tenders up to June 24th for construction of a drain in the Township of Logan, the estimated cost of which is \$5,623. Plans may be seen at the office of the Township Clerk, Brodhagen.

**SAULT STE. MARIE, ONT.**—The Ontario Government have made a grant of \$5,000 towards the cost of establishing a technical school in this town. The town will furnish a free site and the building is estimated to cost \$18,000.

**RATHWELL, MAN.**—W. N. Scarrow, chairman Water Supply, wants tenders up to July 1st for construction of a dam and excavation for a water pipe line. Plans with Mr. Scarrow, and at the office of the Chief Engineer, Department of Public Works, Winnipeg.

**LETHBRIDGE, ALTA.**—E. U. Rylands, Chairman Board of Management, Knox Church Congregation, invites tenders up to June 20th for erection of brick and stone church building. Plans with the above named gentleman, and at the office of the architect, J.H.G. Russell, Winnipeg.

**PETERBORO, ONT.**—It is reported that Mr. James Acton, of Toronto, will erect a brick business block in this city.—The Colonial Weaving Co. have an option on certain property and are considering the erection thereon of a factory building 200 x 50 feet.

**WESTMOUNT, QUE.**—The Light Committee of the Town Council have been authorized to purchase electric meters and lamps for the civic lighting plant to cost \$5,618.—The Town Council intend constructing new cement and wooden sidewalks to the extent of \$20,362.

**MONCTON, N.B.**—L. K. Jones, Secretary Department of Railways and Canals, invites tenders up to June 14th for erection in this city of power house and other buildings for the Intercolonial Railway. Plans with General Manager of Government Railways, this city; Superintendent Engineer of Canals of the Province of Quebec, Montreal; and Chief Engineer, Department of Railways and Canals, Ottawa.

**STRATFORD, ONT.**—The following are among the building permits issued recently: M. Schlutzauer, two brick residences, Front street; G. Young, brick residence, Cobourg street; W. T. Oman, brick residence, Douglas street; H. Taylor, residence, Chestnut street; J. Whitman, brick residence, Trow avenue; Frame & Hay Fence Co., factory, King street; S. Dunseith, brick residence, St. David street.

**MEDICINE HAT, ALTA.**—By-laws have been introduced in the City Council authorizing the issue of debentures for loan of \$70,000 to Medicine Hat Milling Company, \$25,000 for extension of waterworks system, \$20,000 for additions to natural gas mines; \$6,700 for installation of fire alarm system. The City Engineer estimates that \$23,000 will be spent on street grading this year, \$85,000 on sewerage system, \$25,000 for pavements, and \$10,000 for an isolation hospital.

**CALGARY, ALTA.**—The ratepayers have voted in favor of a by-law to construct a gravity system of waterworks at an estimated cost of \$340,000.—W. L. Waines, Secretary - Treasurer Calgary Public School Board, invites tenders up to June 15th for erection of new stone High School building. Plans at the office of the architect, R. G. Gordon, this city.

**PORTAGE LA PRAIRIE, MAN.**—A. Oldfield & Co., architects, want tenders up to June 15th for erection of brick residence for the Portage La Prairie Building Co. Plans at the architects' office.—Beaman & Co., of Winnipeg, are negotiating for the purchase of a site for a factory building.—F. W. Clayton, City Secretary-Treasurer, invites bids up to June 17th for laying of sewer pipe and construction of a concrete ejector chamber. Plans at office of the City Engineer.

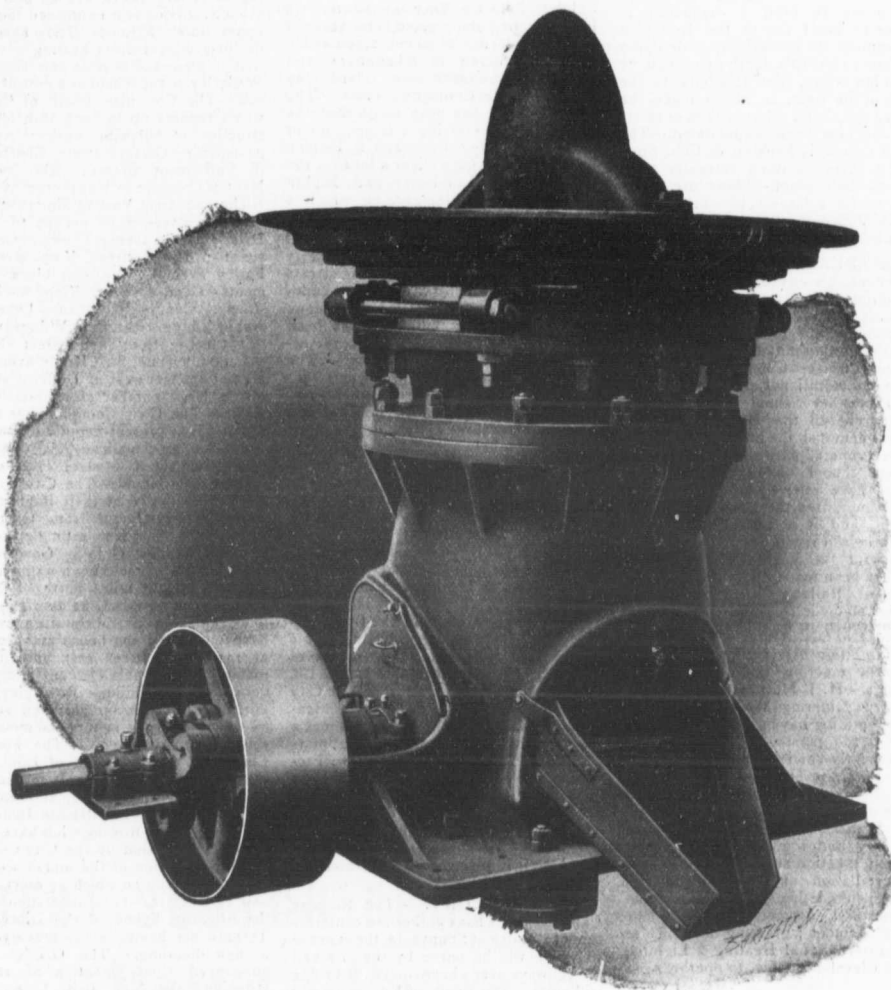
**BRANDON, MAN.**—Plans have been prepared for a warehouse to be erected by Mason & Campbell, of Chatham, Ont.—Sylvester Bros. have purchased a site on which to erect a two-story warehouse 400 x 80 feet.—F. G. Gelinax, Department of Public Works, Ottawa, wants tenders up to June 24th for erection of an armoury in this city. Plans at the office of the above named Department and with the caretaker of the Dominion Public Building, this city.

**ST. CATHARINES, ONT.**—A. Nicholson, architect, wants tenders up to June 17th for alterations to the Central school building.—The Chairman of Committee on Works wants tenders up to June 14th for construction of sewers on York and Lake streets. Plans at the office of the City Engineer.—L. K. Jones, Secretary Department of Railways and Canals, Ottawa, will receive tenders up to June 19th for widening of Welland Canal. Plans with the Superintendent Engineer of the Welland Canal, this city.

**HAMILTON, ONT.**—It is understood that the G. T. R. will erect a new station on property on which they have an option.—S. A. Bemis, of St. Louis, Mo., and J. Beamis, of Boston, were recently in this city with a view to establishing a large shoe factory here.—S. H. Kent, City Clerk, invites tenders up to June 20th for purchase of following city debentures: \$105,000 4 per cent. 20 year; \$120,000 4 per cent. 30 year; \$135,000 4 per cent. 20 year; and \$62,000 4 per cent. 30 year. Tenders will also be received for a loan on the security of the above mentioned debentures for one year, with an option of two years.

**CHATHAM, ONT.**—W. J. Shreeve, Commissioner Township Raleigh, wants tenders up to June 22nd for following works: Excavation of a channel and placing an embankment on Raleigh and Tilbury Town Line, from River Thames to G. T. R.; concrete arch culvert, steel gates and attachments for same; grading of said Town Line road; construction of an earthen dam with four automatic steel gates at north side of Jeannette's Creek and west side of Town Line road. Plans and specifications for above can be seen at office of the Township Clerk, Buxton, or at residence of the Commissioner.—The by-law providing for the granting of a loan of \$20,000 to the Woolverine Brass Goods Mfg. Co., of Grand

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Rapids, Mich., to establish a large plant in this city has been carried by the ratepayers.—It is understood that construction work will shortly commence on the road of the Chatham, Wallaceburg & Lake Erie Electric Railway.

**NEW WESTMINSTER, B.C.**—The citizens have, in conjunction with residents of the surrounding district, passed a resolution to send a deputation to Ottawa to point out to the Dominion Government the advisability of dredging the Fraser river to a depth of at least 25 feet at low water, from this city to the mouth of the river, so as to make the river navigable for a larger type of vessel than can now be accommodated.—The British Columbia Packing & Cold Storage Co. intend making extensive additions to their plant.—Plans are being prepared for a large cold storage plant for the Vancouver-Prince Rupert Meat Co., Limited.

**MONTREAL, QUE.**—J. D. Kuppenheimer, of this city and New York, is negotiating with several Ontario towns regarding erection of a large factory for the manufacture of silk clothes.—The Civic Roads Committee have decided to ask the Finance Committee to provide \$92,000 for additional street pavements. The Protestant School Commissioners have purchased the Boulevard school and will demolish the building and erect on the property a two-storey steel and concrete school building.—The City Council have referred to the Fire and Light Committee the question of street lighting, and it is probable that that committee will recommend the calling of tenders for the work.—The announcement has been made that the Canadian Northern Railway will erect large machine shops in this city.

**EDMONTON, ALTA.**—The Edmonton Exhibition Association will spend \$6,000 in erecting additions to their buildings.—H. J. Murphy, of Fargo, N. D., is considering the erection of a theatre building having a seating capacity for 1,200 persons.—The ratepayers have recently carried the following by-laws: Purchase of new site for power house, \$26,000; improving and extending the electric lighting and power system, \$120,000; purchase of road machinery and scavenging equipment, \$22,000; erection of two new fire halls and installation of fire alarm system, \$41,000; completing and equipping isolation hospital, \$10,000; for the public hospital, \$50,000; granting a franchise to the International Heating & Lighting Co., of Cleveland, Ohio, to operate a gas plant.

**OTTAWA, ONT.**—Building permits have been issued to M. Rosenthal for brick residence on McLeod street, to cost \$6,500, and J. G. Davidson, for brick residence on McLeod street, to cost \$3,500.—P. E. Ryan, Secretary Transcontinental Railway Commission, will receive tenders up to June 25th for supply of 65,371 tons of 80 lb. steel rails, and also up to same date for necessary fastenings for same. Specifications may be obtained from H. D. Lumsden, Chief Engineer, this city.—J. Davidson, Chairman Board of Works, wants tenders up to June 15th for construction of an asphalt pavement on Gladstone avenue. Specifications at City Engineer's office.—P. E. Ryan, Secretary Transcontinental Railway Commission, wants tenders up to June 25th for construction of a section of the Transcontinental Railway from Chipman, N.B., a distance of eight miles east. Plans at offices of the Chief Engineer of the Commissioners, this city, and of the District Engineer, G. C. Dunn, St. John, N.B.

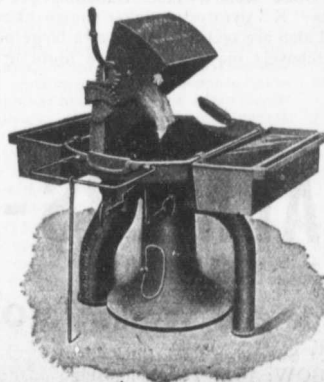
**VANCOUVER, B.C.**—Engineers have left to make a detailed survey of the

proposed line of the Esquimalt & Nanaimo Railway from Duncan's Station to Cowichan Lake.—A deputation from the Vancouver, North and South Vancouver, and Burnaby Councils, will shortly wait on the Provincial Government to urge the necessity of constructing a traffic and Railway bridge across Second Narrows.—The Canadian Pacific Sulphite Pulp Co. have invited tenders for excavating about 6,000 cubic yards of rock and placing of about 2,500 cubic yards of concrete in foundations and buildings at Swanson Bay. Plans may be seen at the Company's office.—The announcement has been made that the C.P.R. intend erecting a large summer hotel in this city.—Cavanagh & Holden have purchased for a client a lot 61 x 120 feet, corner Westminster and Eighth avenues, Mount Pleasant, on which a large building is to be erected.

**WINNIPEG, MAN.**—The Provincial Government have purchased property corner McDermott and Charlotte streets as a site for the central exchange building of the Government telephone system. The plans for the building have been completed and tenders for its construction will be called for shortly.—The Chairman Board of Control wants tenders up to June 14th for supply of a gasoline engine for quarantine hospital and for erection of three disinfecting tanks at the said hospital. Specifications for the engine are at office of the City Engineer; specifications for disinfecting tanks at office of Medical Health Officer.—The General Distillery Co., of Toronto, are negotiating for the purchase of 35 acres of land on which to erect a large distillery.—Chairman Board of Control invites tenders up to June 26th for supply of 100 arc lamps and two regulators. Specifications at office of the City Electrician.—J. Chisholm, architect, wants tenders up to June 12th for erection of brick warehouse for the Jobin Marrin Co. Plans at the architect's office.—The City Council have given notice of their intention of commencing the construction of a high pressure water system at an estimated cost of \$23,000.—H. J. Agnew, Provincial Treasurer, invites tenders up to July 1st for purchase of \$500,000 4 per cent. 40 year Government debentures.—W. Hespeler has sold property on Portage avenue, having a frontage of 40 feet, on which it is believed a large building will be erected.

**TORONTO, ONT.**—The Railway Commissioners have authorized construction of a bridge at Sunnyside, the expense of which will be borne by the city and the railways over whose tracks the bridge will cross.—The Board of Education will make additions to school buildings as follows: Withrow avenue school, six rooms, \$27,000; Leslie street school, four rooms, \$18,000; Pape avenue school,

four rooms, \$19,000; King Edward school, eight rooms in an additional storey, \$32,000; Essex street school, six rooms, \$27,000; Perth avenue school, five rooms, \$24,000; Grace street school, six rooms, \$30,000. They will also erect a four room building to replace Howard school, \$20,000, and an eight room building to relieve Brock avenue and other schools, leaving four unfinished rooms in upper storey, \$33,000. They have also decided to reconstruct heating and ventilation plant and provide new closets at Wellesley street school at a cost of \$15,000.—The Chairman Board of Control wants tenders up to June 18th for construction of following works: Asphalt pavements—Gerrard street, Sherbourne to Parliament streets; Elm avenue, Nanton Crescent to Hawthorne avenue; Richmond street, York to Simcoe streets; Huntley street, Elm avenue to South Drive; Carlaw avenue, Queen to Gerrard streets; Brant street, King street to Farley avenue. Vitriified block pavements—George street, King to Front streets. Concrete pavement—Lane, first east of Yonge street, from Wilton avenue to 155 feet north of Shuter street. Sewer—Lappin avenue, St. Clares avenue to a point 430 feet west of Dufferin street; also a large number of concrete sidewalks.—The Civic Commissioner of Industries is at present negotiating with a Mr. Shaw, an American, relative to the establishment of a steel industry on Fishermen's Island.—The City Council have given notice of their intention to extend James Street from Queen to Richmond streets at an estimated cost of \$150,000.—The Ontario Government have decided to construct a wagon road from a point 153 miles north of North Bay into the Larder Lake district.—The management of St. Margarete's College have purchased the house and grounds at 144 Bloor street east and intend making considerable changes and additions to the building.—R. Bigley has purchased property on Soraraen avenue on which to erect a factory and moulding shop to cost \$20,000.—The Finance Committee of the Board of Education are in favor of spending \$6,000 in improving the lighting, heating and ventilating of Jarvis street Collegiate Institute.—The Argonaut Rowing Club have been granted permission by the City Council to fill in a portion of the marsh west of Mugg's Landing on which to erect their new club house.—It is understood that the Anglican Synod of the Diocese of Toronto are having plans prepared for a new building.—The G.T.R. have announced their intention of reconstructing the old Belt Line from the Don Valley to Yonge street.—The Lautz Marble Co., Buffalo, N.Y., have selected a site on which to erect their branch factory.—Col. Grasset has



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purchased property corner Bernard avenue and Admiral road on which to erect a residence.—T. H. Bright has purchased property on the opposite corner and will also erect a large residence.—The City Council have granted permission to the Alexandra Yacht Club to erect a club house at foot of Cherry street.—C. H. Bishop, Superintendent of School Buildings, is working on the plans for the new Technical High School to be erected on Bloor east at a cost of about \$225,000.—Presbyterians in the Rosedale district have acquired a site corner of Huntly street and Scarth road for their new church. Rev. Dr. Wallace is in charge of the preliminary work.—F. H. Ross and J. J. Walsh have formed a syndicate and have applied to the City Council for permission to erect 150 brick veneer dwellings on property recently purchased by them and bounded by Danforth, Broadview, Riverdale and Carlaw avenues.—The Salvation Army propose erecting nine branch buildings in this city.—Secretary-Treasurer Board of Education wants tenders up to June 17th for enlargement of the King Edward and Leslie street schools and for the usual mid-summer repairs to school buildings.

**CONTRACTS AWARDED.**

INDIAN HEAD, SASK.—Erection of fire hall building: A. Simmons, contractor.  
AYLMER, ONT.—Erection of residence for Mr. Wegenast: Balcolm & Co., contractors.  
NEW GLASGOW, N. S.—Erection of residence for J. S. Fraser: Douglas Bros., contractors.  
GRANDVIEW, MAN.—Erection of two storey addition to W. J. Rawson's hotel: Burrell & Eckhoff, contractors.

WESTMOUNT, QUE.—Construction of fire proof vault in municipal building: J. Stewart & Co., successful tenderers at \$3,500.

BRANTFORD, ONT.—Erection of fire hall building: Riddolls & Wright, successful tenderers at \$5,907. G. W. Hall, architect.

ST. CATHARINES, ONT.—Construction of granolithic sidewalks for the city: Longley & Rymer, successful tenderers at 11½ cents per square foot. Other bidders, Wilson & Jones, 11¼ cents and Newman Bros., 12 cents.

PETERBORO, ONT.—Installation of plumbing in new Dominion Government armoury: F. H. J. McPherson, successful tenderer. Estimated cost \$4,500.—Necessary dredging of the river for the city: D. Mahoney, successful tenderer at

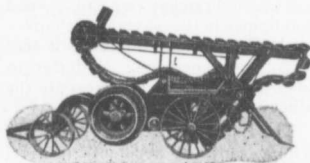
8½ cents per cubic yard. Other bidders, M. Kylie, 12 cents; F. J. Conroy, 19 cents; J. McDonald, 23 cents.

TORONTO, ONT.—The Board of Control have awarded the following contracts for erection of new morgue and ambulance stations, subject to the approval of the city architect: Masonry, Self Bros., \$16,200; plastering, Beaver Co., \$1,409; carpentering, G. Henry, \$6,374; roofing, A. B. Ormsby, Limited, \$713; painting, Taylor & Co., \$500; tiling, Brooks Sandford Co., \$736.95; electric wiring, W. J. McGuire, Limited, \$300; plumbing and hot water, Bennett & Wright, \$2,010.—Dredging Toronto Harbor for Dominion Government: Windsor Dredging Co., successful tenderers.

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## CONSTRUCTION OF STANDPIPES

The Engineering News discussed in a recent number the construction of standpipes for water storage. The views and criticisms it advanced are radical, and they will call forth counter argument. On account of the importance of the subject, the Engineering News article is republished:

The long series of accidents to steel standpipes used for water storage has led many engineers to abandon this type of structure and use in its place a tank resting on a high tower.

We illustrate and describe in this issue a reinforced concrete standpipe, which may, we believe, bring back the standpipe into favor with engineers. The advantages of the concrete standpipe over the steel standpipe are many, and several of them are enumerated in the article, but there is one particular advantage which we have nowhere seen stated, and which is worth special consideration, and that is the much smaller formation of ice in a concrete standpipe. As our readers know, ice in a steel standpipe has been a most prolific cause of accidents. In cold climates it is certain to form, and its presence is a constant source of anxiety and danger. In a concrete standpipe, however, the water is protected from loss of heat by a wall of concrete 8 to 18 inches thick instead of by a thin plate of steel.

As the heat conductivity of concrete is probably not a twentieth as much as the conductivity of steel, the loss of heat to the air from a concrete standpipe of probably 20 times the average thickness of the steel should be hardly the four-hundredth part of the rate of loss from a steel standpipe. Of course the actual rate of loss from the steel standpipe is influenced also by the transmission from the water to the metal and from the metal to the air; but as a practical fact we should expect little or no ice to form inside a concrete standpipe well covered and with an ample flow of the water in and out. Not only is this of importance on account of the standpipe itself, but on account of preserving the water in the standpipe from being unduly chilled in regions where deep frosts occur, and frozen mains and service pipes are troubles to be guarded against.

The detailed account of the construction of the Attleboro standpipe makes clear that successful structures of this type can be erected; but that their erection demands competent engineering design, intelligent work by the contractor, and first-rate inspection from start to finish. A head of 100 feet of water is to be treated with due respect, as many builders of steel standpipes have found. One batch of concrete in which the cement or

the mortar is a little shy, due to oversight of the men at the mixer, may make a lot of trouble when it is put under water pressure. The case is not at all dissimilar to that of a reinforced concrete building, except that even greater vigilance is needed, as every square inch of exposed surface will be tested by searching pressure.

The experience of Attleboro, however, shows that this work can be done and success can be attained. At a cost less than that of a steel standpipe, a reinforced concrete standpipe can be built which will outlast a dozen steel pipes, which will be far safer from accident, and which may be made an ornament to the landscape instead of an ugly blot.

### OTHER SIDE OF THE ARGUMENT.

The indictment against steel standpipes is too severe, perhaps—at least, that is the way it will strike many persons. A letter to Insurance Engineering presents the other side of the argument:

The Engineering News speaks of a long series of accidents to steel standpipes. Never has one failed, for whatsoever cause—ice, wind or gravity—unless the unit stresses due to load of water were more than 17,000 lbs. to the unit inch of material on the efficiency of the joints; and the failures where stresses were below 25,000 lbs. to the unit inch of the material have been few. There are any number of structures standing in this country where the stresses on the material per unit inch are over 25,000 lbs. at this time, and they have been in service for many years. Furthermore, the conclusion is irresistible that the failures have been directly traceable to faulty design—without bothering to investigate material or workmanship.

The Engineering News draws conclusions from one example at Attleboro of concrete used with metal to make a standpipe:

- (1) The cost is less;
- (2) Will outlast a dozen steel pipes;
- (3) Safer from accident.
- (4) Ornament to the landscape.

(1) This is not worth while answering, as no one will believe it or give it a moment's consideration. The same metal is required in either case, with the same unit stresses assumed.

(2) Will outlast a dozen steel pipes! A very moderate suggestion being 100 years of life for a steel pipe, (as many have been in use over 30 years and show no waste), 1,200 years must be conceded to the concrete structure!

(3) Safer from accident. The Attleboro standpipe is 100 feet high by 50 feet in diameter. It has

88/100 of an inch of metal to take up the unit tension at its base per inch high; that is, the stress on the rods is 14,712 lbs. per square inch. This for the entire section of the rod, on the assumption of the connection either by the clamps or by the concrete, gets 100 per cent. efficiency. It is asserted that it would have taken 95 per cent. more in plate metal for a metal standpipe to have withstood this stress.

In the Engineering News of October 26, 1905, is described a water tank for a gas holder, 195 feet in diameter and 39¼ feet high. It contains about six times the volume of water and its unit stress at the bottom is 53 per cent. greater than it is in the Attleboro tank. The stress on the gross material at the bottom of this tank is 12,200 lbs. to the inch, on the net material 13,290 lbs. to the inch. If the Attleboro standpipe had been built with plates for the same stress they would have been exactly 1 inch thick at the base. In making the comparisons with the concrete structure it was asserted 75 per cent. more strength of material at the base was necessary than for a metal standpipe.

As to the atmosphere, through which this subject was approached, 88 units of metal, as used in the Attleboro work, are doing the work that it, was asserted, 175 would have to be used for a steel standpipe.

The descriptive article of the Attleboro shows that two years and three months elapsed from the time the contract was let until the work was accepted of the contractor. The illustrations indicate a great washing of the surface by water and the article clearly indicates the difficulty in preventing leakage. That the parties responsible for this work had their nerve with them is apparent. That they succeeded as well as they have is greatly to their credit. That they have built an especially safe structure has yet to be proved.

Owing to the amount of exploiting this particular work has had in the press, other communities have attempted to pattern after it, but have been unable to get tenders for the same class of work at prices that would justify the building and have been most grievously disappointed. One instance came to our notice where a letting was postponed three times, in the hope of getting a tender from the parties who constructed this particular work; but that hope was abandoned and a standpipe 80 feet high and 50 feet in diameter is now being built. It is to be covered with a concrete case, and this brings us to—

- (4) The ornament to the land-



scape, the truly aesthetic; There is nothing new in the fact that a metal structure can be encased in brick, stone, wood or concrete. I know of no one who is disposed to limit the expenditures for ornamental work other than the party who pays the bills.

The Engineering News concludes that this evolution in standpipe building of concrete will revolutionize the building of elevated tanks on towers of metal and asserts they have come into use on account of the hazard of standpipes. When water is wanted at an elevation from 80 feet to 250 feet above the general level towers and tanks are preferably used because they best fit the conditions. That is, approx-

imately, water, with three times the potential energy, may be stored for a given cost in an elevated tank, as in a standpipe.—Insurance Engineering.

**STONE CRUSHERS.**

Stone crushers are necessary wherever broken stone is to be used, as they have wholly superseded the old method of breaking by hand. Among the points of note regarding them are:

(1) They may be used for crushing quarry stone, field boulders, or stone from coarse gravel beds.

(2) Crushers may be either portable or stationary. Portable crushers are mounted on wheels, may be moved from place to place, and are

generally used for crushing field stone. Stationary crushers are heavier, and are designed for permanent location in quarries.

(3) Crushers may be either of the jaw type or the gyratory type. The latter are used only for stationary work.

(4) A rotary screen should always be used to grade the crushed stone so that the large size may be placed in the bottom of the road and the fine on top.

(5) A crusher should have capacity for 100 cubic yards in ten hours. Small sizes are not as a rule satisfactory.

(6) The efficiency of any crusher depends largely on the skill and method with which it is operated.

**BRICK**

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*As indicated in the last issue the Ontario Government recently published a report on Clay and the Clay Industry of Ontario.*

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[From Page 8 Ontario Government Report]

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FERRIC OXIDE . . . . .	7.28	"
Lime . . . . .	3.92	"
Magnesia . . . . .	3.32	"
Soda . . . . .	.40	"
Potash . . . . .	3.06	"
Sulphur Trioxide . . . . .	0.00	"
Loss by heat . . . . .	6.40	"

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(7) The cost of crushing depends largely on the price of labor, the hardness of the stone, the size to which it is broken, and the ability of the man in charge.

Crushers are used in boulder pits, or in pits of very coarse gravel. By putting all the material, fine and coarse, through the crusher, then through a rotary screen, an excellent road metal is produced, free from dirt, and graded according to size.

Where field stone is plentiful, the property owners are very glad as a rule to have a means of disposing of them, especially when they can be hauled in winter time. If the stone is stored for future crushing it should be put in piles on both sides of where the crusher is to be set up. Much can be saved by setting up a crusher so that it can be fed directly from the wagons instead of wheeling the stones in barrows. To permit of this the crusher may permanently set in an excavation on a hill side, wagons driving over the crusher, or a platform may be erected to the level of the crusher. The broken stone should always be received into bins from the crusher, and from these a wagon containing a quarter of a cord can be loaded in from two to four minutes.

By using a rotary screen the crushed stone may be separated into grades according to size. By

placing the coarse stone in the bottom of the road and the finest on top a smoother and more durable road is obtained. The screen is operated by the power used for the crusher. The mesh of the screen varies, but an ordinary screen has one section with 1 1/4 inch perforations, a second with 2 inch perforations, while all larger stone passes out of the end of the screen. The 1 1/4 inch mesh makes a good top dressing, the 2 inch mesh provides a good middle course for the road, while the larger grade is put in the bottom of the road.

From the screen the broken stone passes to elevated bins, and from these through chutes to the wagons, the latter being quickly loaded.

Portable crushers with a capacity of sixty yards in ten hours are commonly used, but the larger size, such as will crush an average of seventy-five or one hundred cubic yards in ten hours, is more economical as the cost of operation is nearly the same in either case. Where field stone is used, or where quarries are numerous throughout the township, a portable crusher is desirable,

(Continued on Page 14).

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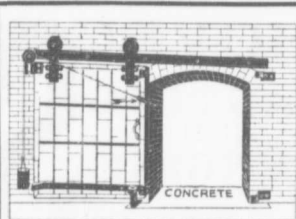


but if the crusher is to remain stationary a portable crusher is at a disadvantage. For a crusher of the capacity suggested an engine of about of fifteen horse power is desirable, and this can usually be rented from the owner of a threshing machine for from \$3.00 to \$5.00 a day.

The cost of a crusher varies from time to time, and intending purchasers should communicate with the manufacturers, who can each give their figures. The cost of crusher and screen may be placed at about \$1,000 or \$1,100, but this is merely an approximation.

The cost of crushing varies with many circumstances — often from day to day. The wages of men and cost of teams, the hardness of the stone, the size of the stone laid down at the crusher, the degree of fineness to which it is to be broken, the facilities for setting up and feeding are among the factors which affect the cost. With stone piled at the crusher, and with an engineer, a foreman, two men feeding the crusher, a team hauling to the crusher, two men loading in

Continued on Page 16.



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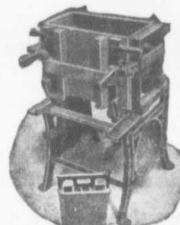
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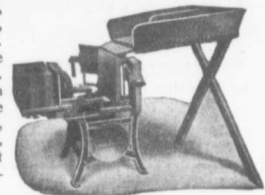
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wagons, a man at the bins and an extra team, an average cost would be 40 cents a cubic yard at the crusher.—From the Eighth Annual Report on Highway Improvement, Province of Ontario.

#### PERSONAL.

Mr. J. F. C. Menlove has been appointed to succeed the late Mr. A. G. McDougall as Town Clerk of Viriden, Man.

Mr. R. S. Lea, C. E., of Montreal, has gone to Winnipeg where he has been appointed a member of a board of consulting engineers to investigate the various methods of furnishing that city with a water supply.

A very sad drowning accident occurred at Milles Isles' Rapids at the foot of Lake of Two Mountains on June 1st when Mr. Charles C. Malloch, C. E., of Ottawa, was the victim. Mr. Malloch was out in a gasoline launch assisting in the taking of hydraulic levels and was caught in a cable and carried overboard. Deceased was 20 years of age and was the son of the late Dr. Malloch, of Ottawa.

The International Portland Cement Company, Hull, Que., recently broke all their previous records for quantity of cement shipped in any one day, when on June 1st 3,242 barrels left their mill. To keep up with their orders the plant is being kept in operation both night and day.

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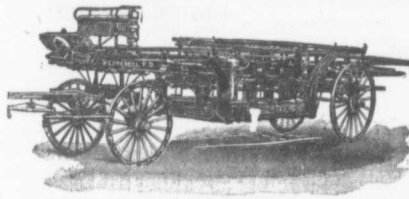
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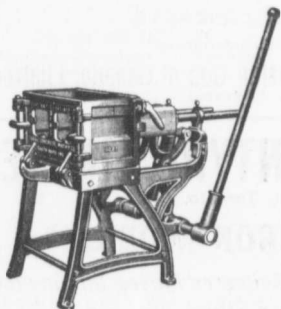
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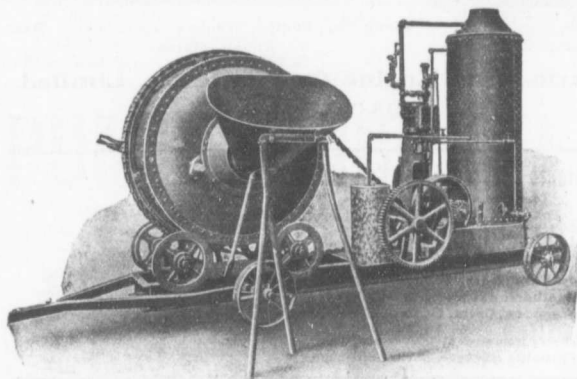
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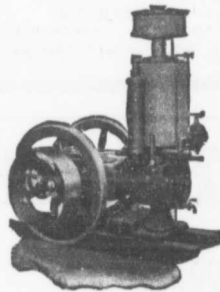
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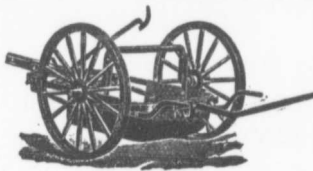
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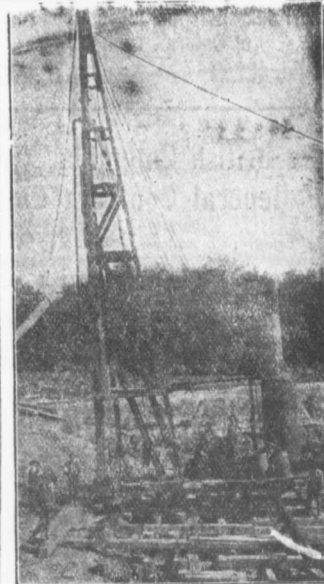
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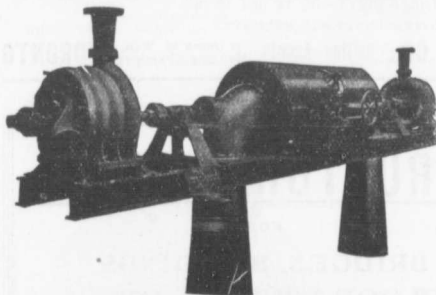
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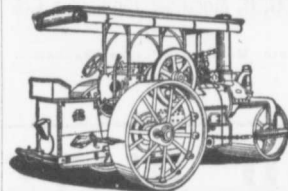
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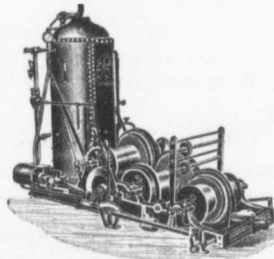
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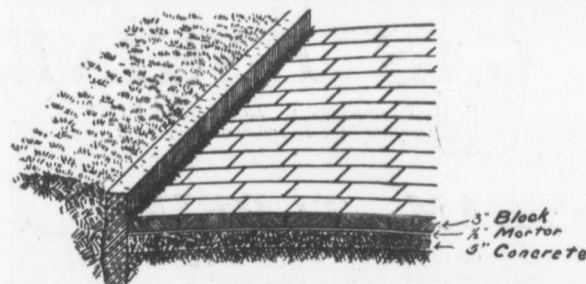
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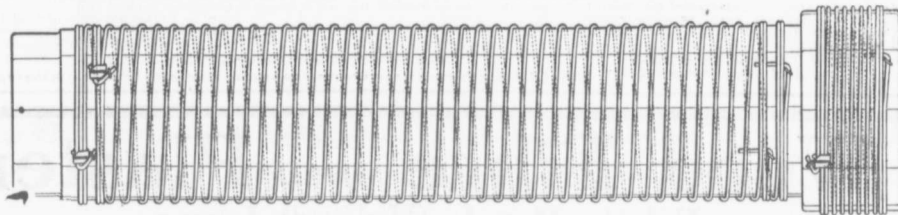
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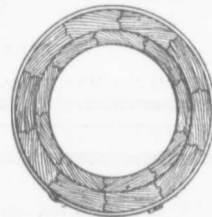
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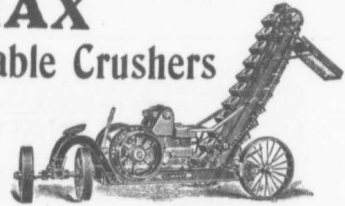
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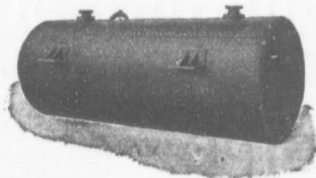
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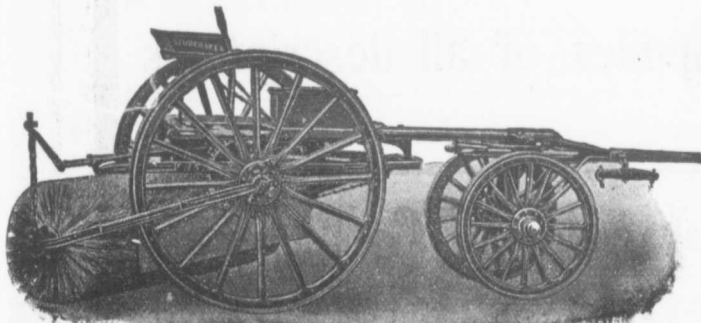
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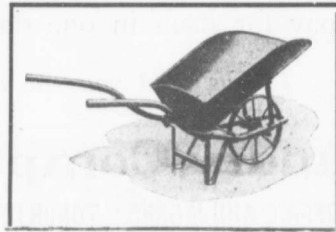
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