

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 26, 1907 — WINNIPEG, VANCOUVER

No. 17

THE CANADIAN CONTRACT RECORD

PUBLISHED EVERY WEDNESDAY
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of Toronto, Limited.

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in advance.

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should give prompt notice of same. In doing so
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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.

TO ARCHITECTS

Architect's Superintendent or Clerk of Works is
open for immediate engagement. Apply JOHN
HOLDEN, 177 Seaton Street, Toronto.

CITY OF ST. CATHARINES

TO SEWER CONTRACTORS

Sealed Tenders, addressed to the Chairman of the
Committee on Works, will be received by the un-
dersigned until 12 o'clock noon FRIDAY, 28TH JUNE,
for the construction of the following sewers:

About 1,400 feet of 15" sewer pipe.
About 1,300 feet of 12" sewer pipe.
About 1,300 feet of 10" sewer pipe.
Manholes, Catch Basins, &c.

Plans and Specifications can be seen and Form of
Tender obtained on and after Monday, 17th June.
The lowest or any offer not necessarily accepted.

D. BENZIE, C.E., City Engineer.
City Engineer's Office, 15th June, 1907.

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."
Copies of the instructions to bidders, plans, specifi-
cations and forms of tender, may be obtained at
the Power Engineer's office, Carnegie Library Building,
Winnipeg, or may be seen at the offices of Messrs.
Smith, Kerry & Chace, 124-6 Confederation Life
Building, Toronto.

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 "In-
structions to Bidders," which cheque will become
forfeit to the Corporation in the event of the suc-
cessful tenderer refusing or neglecting to sign a
satisfactory contract when called upon to do so.
Individual tenders will be received for:

- (1) Telephone System.
- (2) General Works at Point du Bois.
- (3) 4,000 H. P. Turbines (five).
- (4) 450 H. P. Turbines (two).
- (5) 3,000 K. W. Generators (five).
- (6) 250 K. W. Generators (two).
- (7) Induction Motors (one).
- (8) Step-up Transformers (five).
- (9) Generating Station, Switching and Accessory Apparatus.
- (10) Generating Station, Light, Heat and Power Systems.
- (11) Generating Station, Oil and Air Systems.
- (12) Erection of Transmission System (75 miles).
- (13) Steel Towers.
- (14) High Tension Insulators.
- (15) Electric Transmission Cable.
- (16) Terminal Station.
- (17) Step-Down Transformers (five).
- (18) Terminal Station, Switching and Accessory Apparatus.
- (19) Terminal Station, Light, Heat and Power Systems.
- (20) Terminal Station, Oil and Air Systems.
- (21) Testing Transformers and Apparatus.
- (22) Electric Travelling Cranes (three).
- (23) Turbine Governors (seven).
- (24) Auxiliary Apparatus.
- (25) Repair Shops.

An alternative lump-sum tender will be received
for the entire work, including all of the above men-
tioned items together with additional work and
equipment necessary to install a complete working
plant. As a further alternative, tenderers may in-
clude 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.

TOWNSHIP YORK, COUNTY YORK

Sealed tenders will be received by the undersigned
up to 7 p.m. on SATURDAY, THE 13TH JULY
NEXT, for building about 6,000 lineal feet of Con-
crete sidewalk, 4 feet wide, on Reid avenue, north of
Queen street east. Specifications, plan, &c., can be
examined at the office of the undersigned, and at the
Township office, Confederation Life Building, 108
Victoria Street, Toronto.

Any tender not necessarily accepted.

P. S. GIBSON & SONS,
Township Engineers.

Willowdale, Yonge St., June 22nd, 1907.

Tenders Wanted

Town of Hawkesbury

ARTIFICIAL STONE SIDEWALKS AND MACADAMIZED ROADWAY CONSTRUCTION.

Sealed tenders endorsed "Tenders for Artifi-
cial Stone Sidewalks and Macadamized Road-
ways," and addressed to "D. Doyle, Town Clerk,
Hawkesbury, Ont.," will be received until noon on
MONDAY, JULY 8TH, 1907, for the construction
of Artificial Stone Sidewalks and Macadamized
Roadways in the Town of Hawkesbury.

Plans and Specifications of the proposed work
may be seen, and forms of tender obtained at the
office of the undersigned.

The lowest or any tender not necessarily accepted.

D. DOYLE, Town Clerk.

Town Clerk's office, Hawkesbury, June 20, 1907.



Temiskaming and North- ern Ontario Railway Commission.

TENDERS FOR STATIONS

Sealed tenders, addressed to the undersigned and
endorsed, "Tenders for Stations Diver and Red-
water," will be received up to 5 p.m. on the 28th DAY
OF JULY, 1907, for the erection of two combined
Freight and Passenger Stations, one at Diver and
one at Redwater.

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
\$1,200.00 for 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, June 14th, 1907.

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

[FOR ADDITIONAL ADVERTISEMENTS FOR TENDERS SEE NEXT PAGE]

CITY OF FREDERICTON DEBENTURES

The holders of "Fredericton Water Debentures," and "City of Fredericton Debt Debentures," falling due on July 20th and August 1st next, who wish to continue their securities, may renew same with the re-issue of City Bonds authorized at the last Session of the Legislature, running for forty years at 4% payable half yearly.

Persons wishing to continue their loans, as above, are requested to notify the undersigned without delay, stating the amount of the new bonds they are prepared to take.

I. R. GOLDING,
City Treasurer.

Fredericton, N.B., June 14th, 1907.

TENDERS FOR Concrete Arch, Concrete Abutments AND FOR Steel Highway Bridge

The Municipality of Elmia will receive tender: until one o'clock P.M. on the 13th DAY OF JULY, A.D., 1907:

1st. For the complete construction of a re-inforced concrete arch culvert of 30 feet span (including wing walls, parapet walls and the necessary excavating, grading, &c.) over the Gilkinson Drain on the Road Allowance between Concessions 13 and 12 in the Township of Elmia, in the County of Perth.

2nd. For the complete construction of two Concrete Abutments, including the necessary excavating and grading for a bridge 82½ ft. span over the south branch of the Maitland River on the Road Allowance between Concessions 13 and 14 in the said Township.

3rd. For the complete construction of two Concrete Abutments including the necessary excavating and grading for a bridge over the north branch of the Maitland River on the Side Road Allowance between Lots 30 and 31 in the 1st Concession of said Township.

4th. For the complete construction and erection of the steel superstructure of a Highway Bridge, 82½ feet span, centre to centre, over the south branch of the Maitland River, on the Road Allowance, between the said 13 and 14 concessions of said Township.

Certified cheque for \$100 to accompany each bid for the Concrete Arch and the Concrete Abutments, and certified cheque for \$200 to accompany bid for Steel Highway Bridge. The right is reserved to reject any or all tenders. Specifications and plans may be seen at the office of P. G. Ratcliffe, Township Clerk, Atwood, Ont.

Dated at Atwood the 24th June, 1907.

THE BOARD OF EDUCATION TORONTO

Tenders Wanted

Sealed tenders addressed to the Secretary-Treasurer of the Board will be received until

TUESDAY NOON, JULY 2ND, 1907,

for the several works required for the enlargement of

Withrow Avenue School

Essex Street School

Queen Alexandra School

and alterations to

Wellesley School

Jarvis Street Collegiate Institute

also for

Balance of 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. G. WILKINSON,
Secretary Treasurer,

HERBERT A. E. KENT,
Chairman of the Board.

TENDERS

Tenders, addressed to the undersigned, will be received until Noon on FRIDAY THE 27th OF JULY for building Reinforced Abutments and Concrete Floor for a Bridge in the Village of Vienna for the County of Elgin. Plans and specifications can be seen at this office. A deposit of \$200.00 must accompany each tender as a guarantee of good faith. The committee do not bind themselves to accept the lowest or any tender.

JAMES A. BELL,
County Engineer.

Town of Waterloo Trunk Sewer and Sewage Disposal Works NOTICE TO CONTRACTORS

Sealed tenders, addressed to the undersigned, will be received up to noon TUESDAY, JULY 2ND, 1907.

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

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

3rd. For the construction of four acres of Filter Beds with the necessary Sewage Carriers, Distributors, Valve Chambers, Effluent Drains, etc. Plans and specifications may be seen and forms of tender obtained after the 13th inst. at the office of the Town Clerk, Waterloo, or the Engineers, Davis & Johnston, Berlin, Ont.

FORD KUMPF,
Sec'y Board Sewerage Commissioners,
Waterloo.

CONTRACTS OPEN.

ORWELL, ONT.—E. C. Bekcett has taken tenders for erection of brick school building in this village.

DRESDEN, ONT.—A grant of \$8,000 has been made to the town with which to erect a public library building.

SMITH'S FALLS, ONT.—The Public School Board are having plans prepared for an eight-roomed High school building.

SARNIA, ONT.—A by-law will be introduced in Lambton County Council to provide for good roads construction to cost \$150,000.

LETHBRIDGE, ALTA.—A company is being formed to build a magnificent hotel on Round street. T. E. Patterson is the promoter.

PEMBROKE, ONT.—The Town Engineer has recommended the changing of the route of the new intake pipe at an estimated cost of \$48,000.

BRAMPTON, ONT.—Bids for the purchase of \$100,000 4 per cent. County debentures will be received by C. A. Irvine up to July 6th.

NEW WESTMINSTER, B.C.—Tenders will be invited immediately for large additions to the Windsor Hotel, owned by P. O. Billodeau.

ST. CATHARINES, ONT.—The ratepayers of the Township of Grantham have carried a by-law for improving roadways at a cost of \$20,000.

STRATHCONA, ALTA.—It is probable that an exclusive franchise for an electric railway will be given to the Strathcona Radial Tramway Co.

ST. THOMAS, ONT.—J. L. Thomas, C.E., architect, wants tenders up to July 6th for erection of two dwellings. Plans at architect's office.

GRANBY, QUE.—The Council have decided to macadamize Main street, from Dufferin to St. Antoine street, and to construct granolithic sidewalks.

ASHCROFT, B.C.—Plans are being prepared for improvements to the Ashcroft Hotel, recently purchased by George Ward and James Veasey.

NEWCASTLE, N.B.—It is understood that the I.C.R. have appropriated a large amount of money with which to enlarge the roundhouse in this town.

STANSTEAD PLAIN, QUE.—G. D. Storey, of Newport, is preparing plans for a bank building to be erected here by the Eastern Townships Bank.

TORONTO JUNCTION, ONT.—Williams & Poole recently sold a 90 foot lot on Weston road, north of Dundas, on which a factory building is to be erected.

COLLINGWOOD, ONT.—J. R. Arthur, Chairman Board of Works, wants tenders up to June 30th for construction of cement sidewalks in this town.

CONDIE, SASK.—A. W. Cameron wants tenders by June 29th for erection of church building for the Presbyterian congregation. Plans at Henderson Bros. store.

PARRY SOUND, ONT.—The Wood Alcohol & Charcoal Co. have asked the Town Council for a loan of \$30,000 to assist them in establishing a plant here.

FREDERICTON, N.B.—Tenders are invited by the Department of Public Works up to Monday, July 1st, for boring test wells in the counties of Sunbury and Queen's.

BRIDGEBURG, ONT.—The ratepayers have defeated by-laws to expend \$10,000 on erecting an addition to the school house and a like amount for local improvements.

UNIONVILLE, ONT.—C. H. Stover, Clerk and Treasurer Township of Markham, wants bids up to July 1st for purchase of \$6,000 5 per cent. 20 year township debentures.

REGINA, SASK.—The City Clerk has been instructed to call for tenders for two 250 h.p. steam boilers and other machinery required for the extension of the electric lighting plant.

BRANTFORD, ONT.—It is understood that the Bank of Commerce will shortly commence work on the new building to be erected at corner of Market and Dalhousie streets.

PORT ARTHUR, ONT.—C. B. Smith, C.E., Toronto, recently waited on the City Council representing a company who are prepared to undertake the development of water power at Dog Lake.

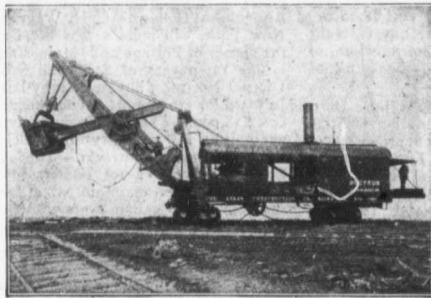
WALKERVILLE, ONT.—Hiram Walker & Sons are about to build another tank warehouse.—Mr. Riggs has purchased a lot on Victoria road on which to build a brick residence to cost \$4,500.

YORKTON, SASK.—By-laws will be submitted to the ratepayers on June 28th providing for the expenditure of \$45,000 for construction of a waterworks system and \$15,000 for construction of sewage disposal works.

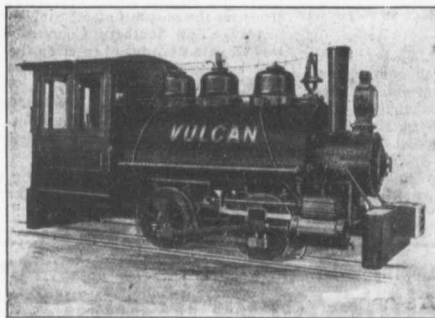
BRANDON, MAN.—A new building is to be erected on Seventh avenue by the Salvation Army to cost \$25,000.—A trunk sewer will be constructed on Tenth street, from Victoria to Park avenue, at a cost of \$22,000.

PORTAGE LA PRAIRIE, MAN.—The International Heating and Lighting Co., of Cleveland, Ohio, are having plans prepared for a brick building 35 x 75 feet. The plant which this company will install is estimated to cost \$100,000.

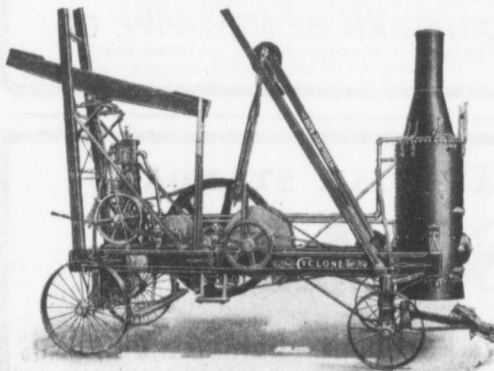
HUNTSVILLE, ONT.—A by-law will be submitted to the ratepayers on July 16th to provide for an issue of debentures of \$25,000 with which to drain and construct the macadam roadway on



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- Rail Cars
- Wheelbarrows
- Track Tools



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Main street and lay granolithic sidewalks in the town.

RENFREW, ONT.—Ross Township Council have instructed Mr. McEwen to procure plans for a cedar bridge at McLaughlin's and for a cedar bridge with concrete abutment and arch or concrete abutments with steel girders and cement covering at Jamieson's.

NORTH BATTLEFORD, SASK.—S. Cookson, Town Secretary-Treasurer, will receive tenders up to July 31st for installation of waterworks, sewerage and electric lighting systems in this town. Plans with the Secretary-Treasurer and with Willis Chipman, C. E., Toronto.

PETERBORO, ONT.—The contract will likely be awarded this week for the new office building for the Bell Telephone Co.—John Brown, Commissioner of Roads and Bridges, has recommended that the Clark bridge, near Springville, be rebuilt.

DALHOUSIE, N.B.—D. Pottinger, General Manager Intercolonial Railway, Moncton, N.B., wants tenders up to July 2nd for construction of an extension to the railway wharf in this town. Plans with the local Station Agent and at office of the Engineer of Maintenance, Moncton.

CLINTON, ONT.—The Water Commission will recommend to the City Council that upwards of \$27,000 be spent in improving the waterworks and electric lighting systems.—The ratepayers have voted in favor of guaranteeing the bonds of the Clinton Thresher Co. to assist them in rebuilding.

PETIT ROCHER, N.B.—F. Gelinas, Secretary Department of Public Works, Ottawa, will receive tenders up to July 15th for construction of an extension to the breakwater at this point. Plans with the local Postmaster; E. T. P. Shewen, St. John; G. Stead, Chatham, and above-named department.

SAULT STE. MARIE, ONT.—L. K. Jones, Secretary Department of Railways and Canals, Ottawa, will receive tenders up to July 2nd for construction of an extension to the south entrance pier at upper entrance of the Sault Ste. Marie canal. Plans at the office of the engineer in charge, this town, and with the Chief Engineer of the Department, Ottawa.

FORT WILLIAM, ONT.—Stinson,

Eley & Hood, architects, will receive tenders up to July 4th for erection of a hospital building. Plans at the Builders' Exchange and office of the architects.—The Salvation Army have had plans prepared for new barracks to cost \$8,000.—Stinson, Eley & Wood, architects, want tenders by June 28th for erection of residence for Manager of the Bank of Montreal.

LONDON, ONT.—Plans have been completed and an appropriation of \$50,000 made to cover the cost of proposed extensions to the Grand Trunk Railway Co.'s shops in this city.—The Ontario Government has consented to allow the City to erect the proposed Isolation hospital on the grounds to the west of the present building and the work will now be proceeded with immediately.

EDMONTON, ONT.—A local company has been formed for the manufacture of pressed brick. D. R. Fraser is president.—The following permits were issued last week: Muttait Bros., residence on Ottawa street, cost \$3,000; W. S. Weeks, residence on 14th street, cost \$7,000; Elizabeth Dunham, residence on Norwood street, cost \$4,000; Alex. McSparram, residence on Norwood street, cost \$1,700.

HAMILTON, ONT.—St. Paul's English Lutheran church congregation have acquired property on which to erect a new church and parsonage.—The Sherman avenue Presbyterians intend erecting a new church to cost \$17,000.—The Dominion Power & Transmission Company have decided to build another transmission line from this city to Decew Falls.

WINNIPEG, MAN.—R. Rogers, Minister of Public Works, is taking tenders up till to-day for the installation of boilers and plumbing and heating system in the dormitory building of the Agricultural College.—C. H. Wagner, of New York, will build a new hotel near the corner of Portage and Main streets.—The ratepayers of Stonewall School District No. 108 will vote on a by-law on July 3rd for erection of school house to cost \$18,000.—The Salvation Army are negotiating for property on which to erect a branch barracks.—The City Council are calling for tenders for an asphalt pavement on Main street, from the Subway to Graham avenue.

MONTREAL, QUE.—The Brothers of St. Patrick's School have been granted a permit for erection of residence to cost \$22,000.—L. O. David, City Clerk, will receive tenders up to July 2nd for supply of following materials: Cement, cast iron pipes, special castings, lumber, lead pipe, pig lead and tin. Specifications at office of the Superintendent of Waterworks.—Henry Morgan & Co. have purchased additional property bounded by Berthelet, Aylmer and City Councillors street for the purpose of erecting a new factory.—The Southern Counties Railway Co. are desirous of entering the city and establishing terminal facilities on Grey Nun street.—Hon. W. A. Weir, Minister of Public Works, has announced that the plans for the new jail for this city will be completed and tenders invited at an early date.

VANCOUVER, B. C.—Building permits have been granted to Gibb & Son for erection of five-storey brick building,

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 pressed, salt glazed, vitrified, absolutely non-absorbent and once laid will last forever.

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



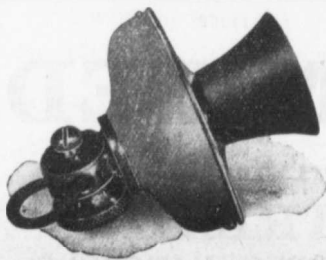
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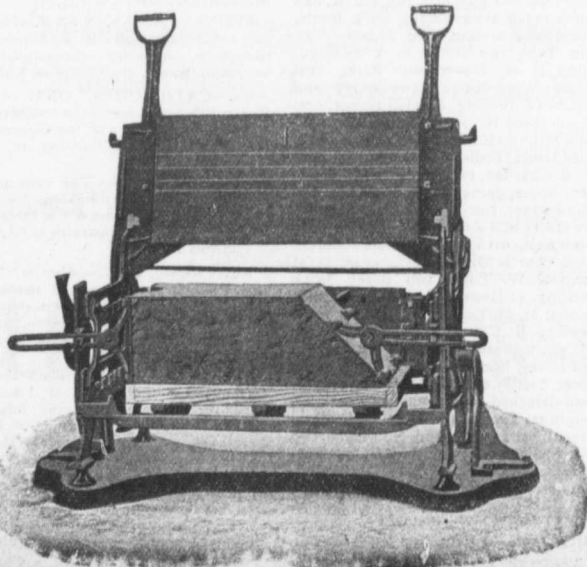
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MONTREAL.

corner Dunsmuir and Richard streets to cost \$40,000, and to Hip Tuck Lung Co. for large building on Dupont street to cost \$15,000. — Property at corner of Barnard street and Hawks avenue has been purchased by C. Heyndrickx on which he will erect an apartment house to cost \$25,000. — Robert Cassidy has purchased property corner Cordova and Granville streets, on which it is understood he will erect a four-storey brick and stone building. — The property at corner of Cordova and Homer streets has been purchased by the Dominion Trust Co., with the intention of erecting thereon a large warehouse. — At a recent meeting of representatives from the Municipal Councils of Richmond, South Vancouver and Burnaby it was decided to secure the services of an engineer to submit details of the proposed waterworks system, with an estimate of the cost. — Dr. William Saunders, Director of Dominion Experimental Farms, was here recently for the purpose of reporting to the Dominion Government on a suitable site for the establishment of an experimental farm on Vancouver Island. — It is proposed to construct a sewerage system for the district of West Fairview. — Building permits have been granted as follows: R. W. Gardner, residence on Nelson street, cost \$7,800; F. W. Leeson, residence on Barclay street, cost \$6,000; S. Bismuth, residence on Second avenue, cost \$4,800. — The Phoenix Iron Works have commenced the foundations for a large addition to their works.

TORONTO, ONT.—An addition is to be erected to the training home of the Salvation Army on Sherbourne street to cost \$25,000. — J. F. Brown, architect, has invited tenders for erection of residence at Deer Park. — The Board of Control are asking for tenders up to Tuesday, July 9th, for the removal of the slates, galvanized iron, etc., on the roof of the main building of St. Lawrence Hall and the construction of a new roof, galvanized iron flashing, etc. — A. J. Rattray, architect, has prepared plans for a pair of stores and dwellings in Sunlight Park for the Union Trust Co. — Same architect is taking tenders up to June 29th for erection of two stores and dwellings on Queen street east. — Florence E. E. Manning has purchased a lot on Palmerston Boulevard on which to build a large residence. — Six residences will be built by Thomas Holmes on property recently purchased on west side of Wells street. — T. C. Thompson's residence at 152 Bloor street east has been sold to the Home for Incurable Children. The house will be remodelled and fitted up. — The Salvation Army is considering the question of selling the present temple on Albert and James streets and erecting a larger building on one of the principal streets. — The City Engineer has completed his report on the proposed extension of the waterworks system in the north-western section of the city, for which a by-law is to be submitted to the ratepayers. This extension includes a new pumping engine and mains and the cost will be about \$700,000. — The Board of Control have appropriated \$5,000 with which to have plans and estimates of the proposed power distribution plant prepared. — The Chairman Board of Control will receive tenders up to July 2nd for construction of following works: Asphalt pavements, Albert street, Teraulay to Chestnut streets; Seaton square, from south, west and north branches; Perth avenue, Bloor street to Royce avenue; Symington street, Bloor street to Royce avenue. Asphalt block pavement, Albert street; James to Teraulay streets. Bitulithic pavement, Concord avenue, from 712 feet north of Northumberland street to Hallam street. Sewer, St. Clair avenue, from Dunvegan road to Warren

road. Piping across slips at foot of Parliament street. — The Chairman of the Board of Control will receive tenders up to July 2nd for erection of police station on Pape avenue. Plans at office of the City Architect. — The Salvation Army have purchased two brick houses at 65 and 67 Bloor street east and intend to erect an additional storey. — Plans and specifications of the various works and apparatus required in connection with the Point du Bois hydro-electric development at Winnipeg may be seen at the office of Smith, Kerry & Chace, Confederation Life Bldg., this city. — The following building permits were last week issued by the City Architect: H. Gilbrath, pair two storey roughcast dwellings, brick fronts, 1,046-8 Dufferin street, cost \$3,800; J. M. Scott, two storey and attic brick dwelling, 235 Givens street, cost \$4,000; Mr. Huffman, two storey and attic brick dwelling, 220 Delaware avenue, cost \$3,800; Geo. Myers, pair semi-detached two-storey roughcast dwellings, brick fronts, Delaware avenue, cost \$2,500; Walter Marks, five pair semi-detached two and a half storey brick dwellings, Concord Avenue, cost \$23,000; W. J. Spence, two storey brick dwelling, Alhambra, \$3,300; W. J. Faulkner, two storey brick dwelling, Geoffrey st., cost \$3,000; Mrs. R. Shipp, pair semi-detached, two storey and attic brick dwellings, Gladstone avenue, cost \$8,000; F. Coutmanche, pair semi-detached, two storey and attic brick dwellings, Parkway avenue, cost \$5,800; Jas. R. Gibson, two and a half storey dwelling, B. L. woods avenue, cost \$2,400; Miss E. M. Bride, two storey and attic brick dwelling, Markham street, cost \$4,000; John Gardner, two storey brick and steel stable, rear of 13-15 McCaul street, cost \$4,000; Imperial Glass Works, two storey brick warehouse, 33 35 Mutual street, cost \$14,000; A. A. M. Neil, pair semi-detached, two and a half storey, brick dwellings, Woodlawn avenue, cost \$7,000; Geo. Holmes, two and a half storey concrete dwelling, Markham street, cost \$2,500; Westman & Baker, two storey brick factory, 107 Jarvis street, cost \$8,000; Fred W. Cox, three attached two storey roughcast dwellings, brick fronts, 816-820 Gerrard street east, cost \$6,000; H. Milligan, pair two storey, roughcast dwellings, brick fronts, 450 Brock avenue, cost \$3,600; E. E. Wheeler, two storey and attic brick dwelling, Simpson avenue, cost \$3,200; Robert Barnes, 1 storey and attic brick dwelling, St. Clarens avenue, cost \$2,000; G. McWilliams, four attached, two and a half storey roughcast dwellings, brick fronts, Lansdowne avenue, cost \$8,000; Mrs. Ann Tate, two storey brick dwelling, South Drive, Dovercourt Park, cost \$3,000; Wm. Murray, two storey and attic brick dwelling, Kendall avenue, cost \$4,500; Fred H. Ross, four pair semi-detached, two storey roughcast dwellings, brick fronts, Bedford road, cost \$11,200; W. B. Charlton, two storey brick apartment house, corner Lowther avenue and Major street, cost \$5,000; F. W. Marlow, two storey and attic brick dwelling, 417 Bloor west, cost \$7,000; St. Anne's church, brick church Gladstone avenue, cost \$30,000; W. Tiffin, two storey brick dwelling, 41 Howard park avenue, cost \$3,000; M. McTaggart, two storey brick dwelling, St. Clarens avenue, cost \$3,000; J. Levi, pair semi-detached, two and a half storey, brick dwellings, 106-8 Argyle street, cost \$5,000, Chas. Hibberd, pair semi-detached, two storey and attic roughcast dwellings, brick fronts, Dufferin street, cost \$4,000; John S. Wren, two and a half storey brick dwelling, Brunswick avenue, cost \$3,500; D. Walton, two pair semi-detached two storey roughcast dwellings, brick fronts, Galt avenue, cost \$4,500; Robert Waldie, two storey brick stable, 75 Park road, cost \$3,500;

W. J. Vennells, one storey brick dwelling, Frizell avenue, cost \$2,200; T. H. Cooper, pair semi-detached two storey and attic brick dwellings, east side St. George street, cost \$3,000; M. Wernet, four pair semi-detached two storey and attic brick dwellings, cost \$30,000; Arent & Co., one pair semi-detached two storey and attic brick dwellings, Wilson avenue, cost \$7,000; John Kee, two detached two storey and attic brick dwellings, Lund st., cost \$6,400; D. A. Atkinson, two storey brick dwelling, Montrose avenue, cost \$6,000; James McDonald, three attached two storey and attic brick veneer dwellings, Lansdowne avenue, cost \$5,000; Thomas Kernick, two storey brick store and dwelling, 2,004 Queen east, cost \$3,500; J. M. Brown, one and a half storey roughcast dwelling, brick front, Lansdowne avenue, cost \$2,500; Charles Brownlow, two and a half storey brick dwelling, 15 Rose avenue, cost \$3,500; W. R. Travers, two and a half storey brick dwelling, corner Roxboro street and Chestnut Park road, cost \$8,000; D. A. Atkinson, pair semi-detached two storey brick dwellings, Geoffrey street, cost \$4,000; R. Lankin, pair two storey roughcast dwellings, brick fronts, 34-36 Austin avenue, cost \$3,000; J. L. O'Malley, two storey and attic brick dwelling, Liszt st., cost \$6,500; T. Ambrose Woods, alterations to dwelling, 172 Carlton street, cost \$5,000.

CONTRACTS AWARDED.

FREDERICTON, N. B.—Erection of large residence for J. F. McMurray; M. Mitchell, contractor.

VANCOUVER, B. C.—Erection of new hotel building for A. Austin; Baynes & Horrie, contractors.

VICTORIA, B. C.—D. H. Bale has been awarded contracts for erection of residences for G. W. Smith and Mr. Percy.

GUELPH, ONT.—Erection of new church building for the Paisley street Methodist congregation; McPhie & Mahony, contractors.

REGINA, SASK.—Construction of compensating and storage basins for the city; William Newman & Co., successful tenderers, at \$24,850.

MONTREAL, QUE.—Erection of factory building for the Redmond Hat Co.; John Quinlin & Co., contractors; Ross & McFarlane, architects.

BRANDON, MAN.—Erection of building for the Brandon Winter Fair & Stock Association; Brandon Construction Co., successful tenderers, at \$24,497.

SYDNEY MINES, N.S.—Erection of new Oddfellows' hall; H. R. Macdonald, this place, contractor; three stories and basement, frame, contract price \$3,895.

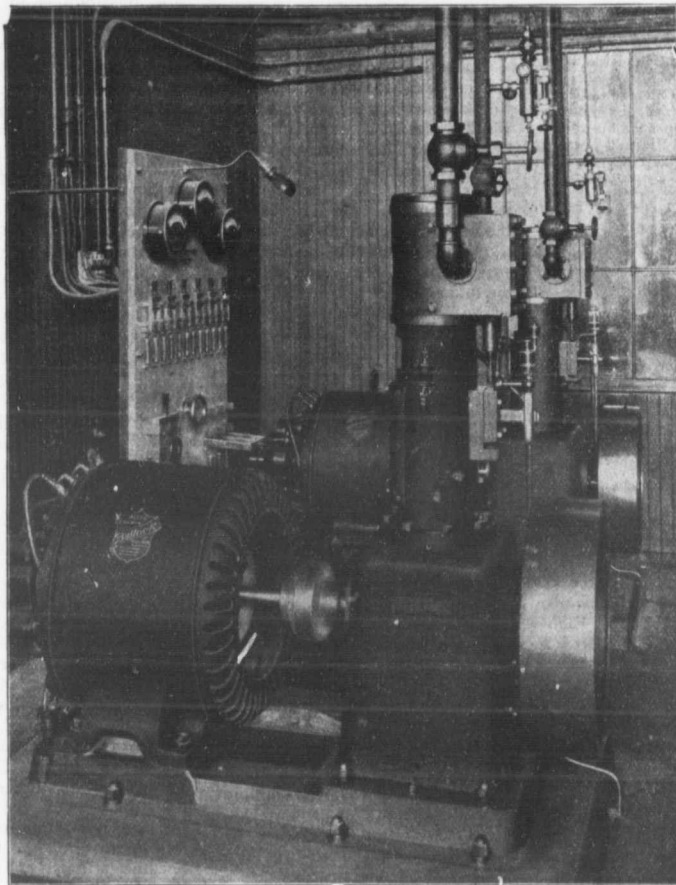
ST. CATHARINES, ONT.—John Reilly, this place, has been awarded the contract for Section 2 of the Government canal from Holland Landing to Newmarket.

NEEPAWA, MAN.—The contract for repairs to the County building has been let to Fusee, McFeeters & Co. for \$3,030, and for the heating apparatus to Skelding & Jackson at \$1,750.

RENFREW, ONT.—Horton Township Council have accepted tenders as follows for a new bridge at Castleford: Concrete work, W. H. Munroe, \$5,644; iron superstructure, Jenks & Dresser, Sarnia, \$3,200.

TORONTO, ONT.—The Finance Committee of the Board of Education have recommended that the following tenders be accepted: Erection of Leslie street school; Carpentering, E. Hollett, \$7,978; heating and ventilating, W. F. Rutley & Co., \$3,795; masonry, French & Hewitt, \$8,448; metal ceilings, Douglas Bros., \$1,024; roofing, G. M. Bryan, \$1,275; painting, J. Phinmore, \$1,125; steel construction, McGregor & McIntyre,

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\$1,184. Addition to King Edward school: Carpentering, E. Hollett, \$8,755; heating and ventilating, F. Armstrong, \$940; masonry, Self Bros., \$13,900; painting, T. Barrett, \$1,800; plastering, T. Blackburn, \$1,747; roofing and tinsmithing, A. B. Ormsby, \$1,597; steel construction, McGregor & McIntyre, \$448.

WINNIPEG, MAN.—The contract for grading of the Grand Trunk Pacific line from this city to Portage la Prairie has been awarded to Treat & Johnston.—The Board of Control have finally accepted the tender of Evans, Coleman & Evans for supply of water pipe, as follows: 5,000 ft. 4 in., \$46.15 per ton f.o.b. Winnipeg; 30,000 ft. 6 in., \$42.89; 5,000 ft. 8 in., \$42.31; 3,000 ft. 10 in., \$42.31; 17,500 ft. 12 in., \$41.68; 1,500 ft. 18 in., \$41.24.

FIRES.

Furniture factory of Wm. Cyr, Ottawa East, loss \$8,000.—Dalhousie Lumber Company's saw mill, Dalhousie, N. B., loss \$65,000.

BIDS.

HALIFAX, N. S.—The following bids have been received by the City Council for street paving: Warren Co., asphalt, \$2.59 per foot, bitulithic, \$2.88 per foot; Sicily Asphalt Co., asphalt, \$3.50 per foot; Barbour Co., asphalt, \$2.59 per foot.

NEW COMPANIES.

Portage la Prairie Construction Company, Portage la Prairie, Man., incorporated, capital \$1,000,000. Incorporators, H. Stephens, G. B. Houser, W. Armstrong, W. Richardson, and others, all of Portage la Prairie.

Winnipeg Casket Company, Limited, Winnipeg, incorporated, capital \$150,000. Incorporators, F. C. Bell, C. H. Enderton, C. P. Bell, C. W. Fillmore, and others, all of Winnipeg.

City Gas Company of Oshawa, Limited, Oshawa, Ont., incorporated, capital \$40,000. Directors, W. C. Noxon, G. E. Noxon, W. C. Brent, C. H. Burgess, and C. Swabey.

Chaudiere Lumber Company, Limited, Ottawa, Ont., incorporated, capital \$50,000. Directors, W. H. McAuliffe, A. M. Davis and M. J. Gorman.

King Radiator Company, Limited, Toronto, Ont., incorporated, capital \$100,000. Directors, W. P. Parker, G. McP. Clark, J. A. McEvoy, and others.

The Cody Manufacturing Company, Limited, Sarnia, Ont., incorporated, to manufacture heating and lighting apparatus, capital \$50,000. Directors, A. S. Cody, R. D. Cody, T. French, C. R. Black and F. C. Kenny.

Tilbury Town Gas Company, Limited, Chatham, Ont., incorporated, capital \$40,000. Directors, R. E. Kizer, G. W. Holmes, K. H. Holmes, and others.

Georgian Bay Trap Rock Company, Limited, Windsor, Ont., incorporated, capital \$40,000. Directors, C. W. Cadwell, B. F. Comfort, J. M. Young, and others.

A license has been granted the National Corundum Wheel Co. to transact business in the Province of Ontario. J. R. Roaf, Toronto, is attorney.

BUILDERS' AND CONTRACTORS' EXHIBITION.

Under the auspices of the Builders' Exchange of Montreal an exhibition, to be known as the "Dominion Builders' and Contractors' Exhibition," will be held at Victoria Rink, Montreal, August 19 to 23 next. Other mercantile and business associations are also interested in the venture. Several first-class attractions have been booked and every effort is being put forth by the management to bring the enterprise to a successful issue. The exhibits will include everything connected with the Builders', Contractors' and Hardware trade.

The object of the exhibition is to familiarize the public with all the modern improvements and latest building devices, with a view to the economy of time, labor, general expenses of construction, reduction of insurance rates, etc. Canada is now enjoying an era of prosperity unprecedented in the history and in no branch of business has there been such a boom as in construction, building and real estate. Hence an exhibition of this character comes at a peculiarly opportune time.

NOTES.

Mr. Jack Burnett, well-known in London as a prominent builder for years, has received the appointment of inspector of cement work on the McArthur section of the Grand Trunk Pacific east of Winnipeg.

The Stanton Iron Works Company, Limited, near Nottingham, England, have recently appointed Mr. W. Beverley Robinson, of Montreal, to represent them in Canada. They are probably the largest makers of cast iron water pipe, columns, etc., in the world, having an annual output of 100,000 tons, and a capacity for turning out

pipe up to 72 inches in diameter. A large tonnage of the material manufactured by this company has been supplied to various cities in Canada through merchant houses in the Old Country, but, recognizing the possibilities for trade in the Dominion, they have decided to enter into more active competition than was possible heretofore.

In the rebuilding of San Francisco methods of economical leveling and construction have been practised to a greater degree, probably, than at any other time and place. A typical instance is the work done on the Crocker Building, standing at the corner of Post and Market streets. This structure, which is ten stories in height, with a frontage of about 200 ft., escaped any serious damage from the earthquake, but was gutted by fire. The frame of the building being intact, nothing more was necessary than a reconstruction of its interior, and the contractors hit upon the profitable plan of utilizing for concrete mixture all bricks, tiling, stone work and flooring which had to be removed. Suitable apparatus was therefore installed, and, as fast as the work of tearing down made this material available, it went direct to a Gates breaker fed from bins supplied by chutes from various sections of the building. After being crushed to the desired fineness the product of the breaker passed to a mixer, and as the concrete issued from the latter it was taken by a system of elevators and conveyors to all parts of the building where need. The significant feature of this process lies in the fact that, from the moment the material was taken from the walls and floors until the time it again became a part of the structure, there was not the slightest break or loss in its handling.

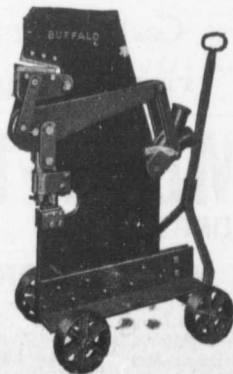
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MADE OF ARMOUR PLATE

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Punches a 3/4-inch hole in 1/2-inch plate.
7-inch Throat — 58 inches High
— Weight 850 lbs. —

Tensile Strength armour plate 175,000 pounds;

Cast Iron 10,000 pounds.

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ELECTRIC PUMPING.

Electrically-driven turbine pumps were the subject of discussion at one of the sessions of the American Waterworks Association which convened in Toronto last week. The paper of Mr. Henry L. Lyon, Deputy Water Commissioner of Buffalo, contended that the cost per million gallons of water pumped by electrically-driven engines was \$4.84, while the steam driven pumps required \$5.22 per million gallons.

As a general proposition this was disputed by Messrs. Will J. Sando, consulting engineer, Milwaukee, Chas. A. Hague, consulting engineer, New York, and D.W. French, superintendent, Weekawken, N. J. It was claimed that the proximity of Buffalo to the Falls, and the consequent cheapness of electrical power there, weakened the argument in favor of the electrical pumps. In Boston, where coal costs \$3.87 a ton, as against \$2.50 in Buffalo, equalizing the head pumped against, the price of pumping was only \$4 as against \$5.22 in Buffalo. Seven municipal and fifteen individual steam pumping stations in the United States pump water cheaper than Buffalo, notwithstanding the favorable conditions existing at Buffalo.

The world's record for economy and efficiency of waterworks pump-

ing engines is held by the plant at Bissell's Point, St. Louis, Mo., built by Allis-Chalmers Company, of Milwaukee. The duty reached at the official test was 181,068,605 foot pounds. In order that engineers may know exactly how these figures were reached the company printed in bulletin form complete details of the test. These and other bulletins containing information not usually made public but of great value to those interested in waterworks were distributed among the members of the American Waterworks Association by the Allis-

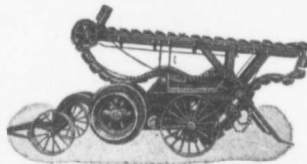
Chalmers-Bullock, Limited, in a handsome souvenir cover.

The experience of the city of Montreal in the matter of electric pumping was given to the American Waterworks Association in a bulletin by the John McDougall Caledonian Iron Works Co., Limited, containing a report of the official test on the three stage 14 inch Worthington pump driven by a 400 h. p. Allis-Chalmers-Bullock induction motor installed by them at the McTavish street pumping station.

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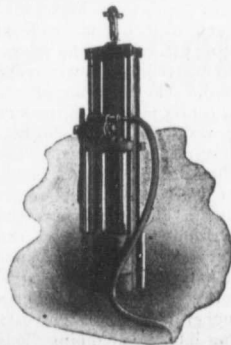
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Georgian Bay Engineering Works
MIDLAND, ONT.

The Kirkfield Hydraulic Lift Lock

The hydraulic lift lock at Kirkfield, Ontario, on the Trent Canal, between Balsam Lake and Lake Simcoe, is practically completed. This will be the fifth lock of this type in operation, there being three in Europe and one at Peterborough, Ontario.

The lock consists of a pair of chambers mounted on the pistons of two hydraulic presses. The chambers are closed by means of gates at both ends, which can be opened so as to connect the locks with the canal. The power for operating the lock is obtained by making the chambers counterbalance each other, and by putting into the upper one a greater weight than into the lower. This is readily accomplished by increasing the depth of the water in the upper one, 100 tons of water making a depth of only $8\frac{1}{4}$ in. for the area of the chamber. After the gates are closed the two presses are connected by a valve and the greater pressure in the cylinder below the higher chamber forces the water from it into the

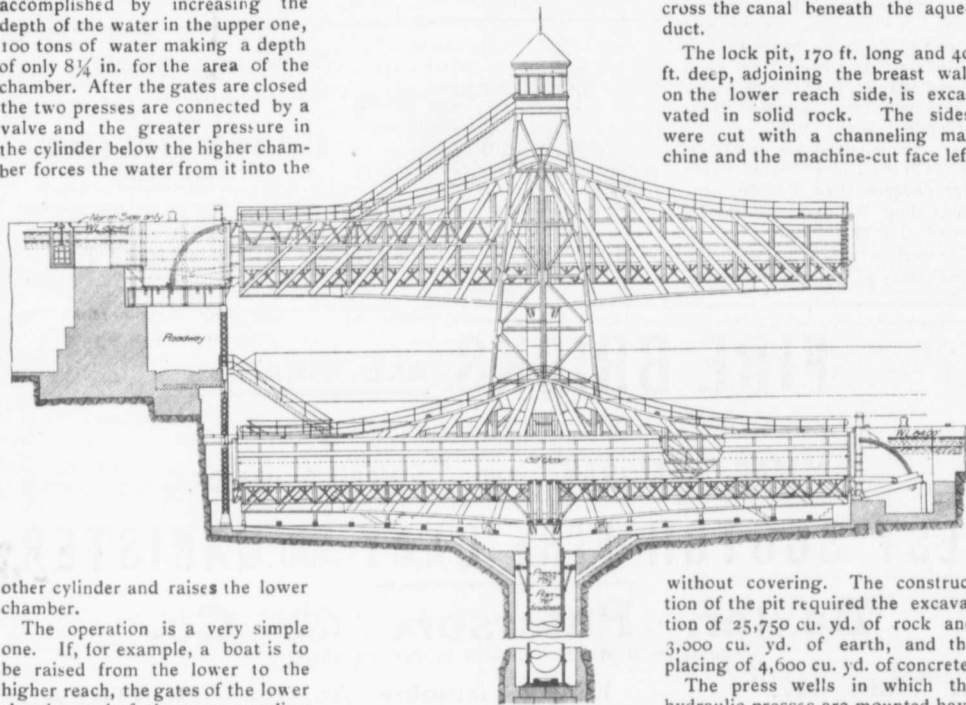
lower reach to her starting under her own steam in the upper one.

The chambers, towers, gates and aqueduct are of steel, the retaining walls, breast wall, abutments and foundations of concrete. The breast wall is normal to the axis of the canal, and terminates the upper reach. At a distance of 650 ft. from this wall the canal begins to widen from its normal width of 50 ft. At the breast wall it is $88\frac{1}{2}$ ft. wide and is divided into two channels by a center concrete pier 24 ft. 5 in. wide. The upper approach of the lock for a distance of 1,050 ft. consists of concrete side walls and a concrete-floored bottom. The breast wall is 22 ft. $9\frac{3}{4}$ in. wide at

near the surface. The excavations for them included 4,500 cu. yd. of earth, and 7,000 cu. yd. of rock. There are 25,200 cu. yd. of concrete. The forms were made very carefully, the facing being of 3 in. plank with rabbetted joints.

Connected with the front of the breast wall are two steel channels called aqueducts, which connect the branches of the upper reach with the chambers. Their length is 24 ft. and the clear depth 8 ft., the bottom being at the same elevation as the top of the breast wall. One end rests on a seat in the breast wall and the other end on steel columns which run down to foundations in the pit beneath the chambers. A roadway and foot walk cross the canal beneath the aqueduct.

The lock pit, 170 ft. long and 40 ft. deep, adjoining the breast wall on the lower reach side, is excavated in solid rock. The sides were cut with a channeling machine and the machine-cut face left



KIRKFIELD HYDRAULIC LOCK—SECTION THROUGH ONE OF THE CHAMBERS.

other cylinder and raises the lower chamber.

The operation is a very simple one. If, for example, a boat is to be raised from the lower to the higher reach, the gates of the lower chamber and of the corresponding branch of the reach are opened, the boat enters the chamber and the gates are closed. The necessary quantity of water to counteract the weight of the lower chamber, its contents of water and vessel, and the friction on the guides, is put into the upper chamber, the valve connecting the presses is opened, and the lower chamber ascends while the upper one descends. When the elevations of the reaches are obtained, the chambers stop, the upper one is connected with the upper reach by opening the proper gates and the vessel proceeds on its way. The entire operation takes but a short time, the record lockage at the Peterborough lock, already referred to, being $6\frac{1}{2}$ min. from the time of stopping the vessel

the base and 16 ft. $9\frac{3}{4}$ in. wide at the top, 40.44 ft. above the elevation of the water in the lower reach of the canal. The elevation of the top of the center pier and of the side retaining walls is 10 ft. higher. Heavy rip-rap backing was placed against the retaining walls. Inside the breast wall and parallel to its length runs a chamber where the pressure pumps for operating the lock are located. A drainage channel with a valve is provided through the north retaining wall, for emptying the upper reach into culverts discharging into the adjoining Talbot River. The foundations rest on the solid rock, which was found

without covering. The construction of the pit required the excavation of 25,750 cu. yd. of rock and 3,000 cu. yd. of earth, and the placing of 4,600 cu. yd. of concrete.

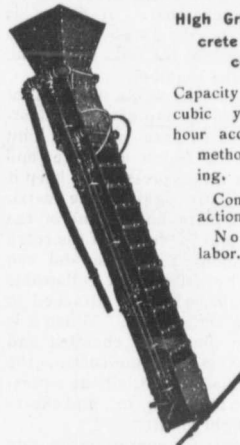
The press wells in which the hydraulic presses are mounted have an extreme depth of 64 ft. below the bottom of the lock pit. The rock excavation for them measured 16 ft. 6 in. in diameter. At the bottom a perfectly level bed was bush-hammered on the solid rock, and a granite foundation of three courses was carefully laid up. On account of the total load of the chambers coming on these foundations each stone was carefully dressed, the courses well bonded and all joints limited to a thickness of $5/16$ in. The mortar used was composed of 3 parts of Portland cement and 1 of sharp sand. The stones were handled by a gantry crane, a $1\frac{1}{2}$ in. eye-bolt being inserted through a hole in the stone and screwed into a nut countersunk in the under bed to allow easy

handling. After setting the stones the eye-bolts were unscrewed, leaving the nut below. The wells were connected by lining them with concrete about 14 in. thick, leaving a clear diameter of 14 ft. 2 in. In order to prevent the head of water in the rock from percolating through the green concrete, the water in the well was allowed to rise as rapidly as the concrete work was carried upward. The form used in placing the lining was a collapsible cylinder 6 ft. long, which was moved upward 5 ft. at a time.

The lock chambers are 33x139 ft. in the clear, inside dimensions, and are plated for a height of 9 ft. 10 in. above the floor. The clear depth of water for which the chambers are designed is 8 ft. The total load of water which each of the lock chambers holds is 1,700 tons, and since a floating vessel displaces its own weight of water this is the maximum load that will be handled. Double cantilever trusses 32 ft. deep in the center, on each side of the chambers carry the load to the top of the pistons. It is not necessary to provide for any alternate stresses, since the load is always similarly placed. All the truss connections are riveted. The top chord cover plate is 30 in. wide. Universal mill plates are used for diagonals. The plating of the floor is 3/8 in. thick, and on the sides 5/16 in. thick, with riveted butt joints, with both

edges calked. The floor system is very heavy and the load is brought on top of the pistons through four girders 9 ft. deep. Slides are attached at the center to the outside

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of the upper and lower chords and engage guides in the towers, so as to maintain the chambers in their upright position. There are three steel towers, one on the center pier dividing the lock chambers and one on each bank of the canal. Steel bridges span the lock chambers connecting the towers and have their lower chord 73.44 ft. above the water level in the lower reach. These bridges allow a clearance of 25 ft. above the water level of the chambers when the latter are raised

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This is very pleasing to us, but the demand has been so steady that we cannot guarantee immediate shipment to new customers — WE WILL SHIP WHEN WE SAY, but would advise orders to be placed as early as possible in order to avoid disappointment, for we can't ship all at once.

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to their greatest height with full depth of water. On top of the central tower is the lockmaster's cabin, from which the lock is operated by a system of interlocked levers.

The pistons or rams of the hydraulic presses are $7\frac{1}{2}$ ft. in diameter working in cylinders 7 ft. $8\frac{1}{2}$ in. in diameter. The full working stroke corresponding with the total lift of the lock is 48.44 ft. The pistons are of cast iron $3\frac{1}{4}$ in. thick, built in sections 5 ft. 3 in. long and bolted together with forty $1\frac{1}{4}$ in. bolts. The joints are rabbeted and tongued, and filled with a gasket of pure copper $1/10$ in. thick and $3/4$ in. wide. The gasket is inserted flat and when the bolts are drawn up tight the copper conforms with the rabbet and gives a water-tight joint. The press cylinders are made of steel castings $3\frac{1}{2}$ in. thick and built up in the same manner as the pistons, except that a lead gasket is used in a V-shaped groove in addition to the copper gasket. Fifty-six bolts, $1\frac{5}{8}$ in. in diameter, were used in the cylinder joints. All the sections of both pistons and cylinders are tested before insertion in the work under a pressure of 1,200 lb. per sq. in., which is double the working pressure.

The top of each press is fitted with a stuffing box, 1 in. wide and 10 in. deep, packed with rings of braided hemp and tallow packing, which is tightened by a steel gland held in place by 36 bolts. The presses are braced against the sides of the wells with adjustable struts which allowed accurate centering before the erection of the lock chambers was begun. The erection of the plungers was accomplished by a very simple and convenient method. After the completion of the press cylinder it was filled to the top with water and the discharge opening closed. The base of the plunger was then lowered by means of a derrick into the cylinder. The packing was at once placed, the gland screwed down and when the derrick hooks were removed the base was supported on the water confined in the cylinder. The next plunger section was then placed on the base and after the joint between the two sections was finished water was permitted to escape from the cylinder until the top of the section had sunk nearly to the top of the stuffing box. In this manner the whole plunger was successfully erected.

The ends of the chambers and of the reaches are closed with water-tight gates operated by hydraulic cylinders. The gates are hinged at their lower ends and rendered practically buoyant by galvanized-iron air tanks. They are built of steel with vertical I-beam posts connecting with a girder which allows the stresses to be computed readily and properly cared for. The plating is on the outer side of the

gates, and is $5/16$ in. thick in the upper part and $3/8$ in. below, with joints riveted and calked like those of the chamber plating. Each pair of gates, one on the chamber and one on the reach, operate in connection with each other and engage automatically. The gates are operated by means of a high-pressure water cylinder. The latter falls to the inside of the reach and the chamber gate folds over it away from the chamber. A recess is provided for the gates when open so as to allow the use of the full depth of the chamber.

The gates are made water-tight by a $1/2 \times 2\frac{1}{2}$ in. flap of rubber fastened so as to close over the joint between the frame and gate, and allow the water pressure to keep it pressed tightly against the metal. The space between the end of the chamber and the frame of the reach gates is about 2 in. wide and can be filled by inflating a collapsible rubber tube, which is attached to the frame of the reach. When it is desired to place the chamber and the reach in communication, the tube is inflated with air at a pressure of 10 lb. per sq. in., and effects a water-tight joint.

The power for operating the gate cylinders and supplying water to the presses is furnished by intensifier pumps operated by the head of water, about 48 ft., due to the difference in level of the two reaches. The engine end of the pumps consists of a double-acting water cylinder 40 in. in diameter. The piston of this cylinder is placed midway of the length of the 6 in. piston rod, the ends of which form the pump plungers. The stroke is 24 in. and the capacity of each pump 60 gal. per minute. The data in this article relating to the concrete work were furnished by Mr. A. J. Grant, superintending engineer of the Trent Canal, and the rest of the data appeared in a paper by Mr. W. J. Francis, before the Canadian Society of Civil Engineers. The contractor for the iron and steel work was the Dominion Bridge Co., Limited, Montreal, and for all the other work Messrs. Larkin & Sangster, St. Catharines, Ontario.—Engineering Record.

AMERICAN WATERWORKS ASSOCIATION.

Under the most favorable conditions the twenty-seventh annual convention of the American Waterworks Association was opened in the Assembly Room of the City Hall, Toronto, on Tuesday, June 18th. His Worship Mayor Coatsworth officially welcomed the members to Toronto. A letter of welcome was also read from the Engineers' Club of Toronto. President D. H. Maury then made his address, in the course of which he remarked that "there was more good fresh drinking water within a

radius of 250 miles of this city than in any other large city on the continent." The Secretary-Treasurer reported that 120 applications for membership had been received, which would bring the total membership up to 698. The rest of the day was devoted to the reading of several interesting papers.

On Wednesday morning the election of officers took place, with the following result: Mr. Geo. H. Felix, Reading, Pa., President; Mr. D. W. French, Hoboken, N. J., First Vice-President; Dr. Wm. P. Mason, Troy, N. Y., Second Vice-President; Mr. Jerry O'Shaughnessy, Columbus, Ohio, Third Vice-President; Mr. Alexander Milne, St. Catharines, Ont., Fourth Vice-President; Mr. Charles Henderson, Waterloo, Iowa, Fifth Vice-President; Mr. John M. Diven, Charleston, S. C., Secretary-Treasurer. The Finance Committee was re-elected.

The selection of the next place of convention came next, the honor going to Washington. In the afternoon the members made a tour of the city in trolley cars.

Thursday evening about 600 members and their lady friends enjoyed a moonlight excursion on the steamer Chicora, as the guests of the City. On Thursday a resolution was passed appointing Dr. John Galbraith, L. L. D., of the University of Toronto, an honorary member of the association. The balance of the day and Friday were almost wholly devoted to the reading of technical papers and discussion thereon.

ON COLORING CONCRETE.

The incorporation of pigments in the concrete manufacture has not always been successful. It has often been overdone, the colors being too virulent and the work becomes streaky and discolored from the effects of rain or soot, while the colors often fade or discolor after a short period. The first two difficulties are overcome by the exercise of just a little common sense and care, and are not traceable to inherent defects in the pigment, tells the Builders' Journal. The last trouble, however, is caused by using an unsuitable pigment. There is lime in Portland cement, which we all know destroys or seriously affects the color of many pigments; others do not weather well. Of course, it is obviously foolish to expect a vegetable pigment to be of any service; if not destroyed by the cement, it will quickly lose its color in the open air. The chemical action of the cement in setting is one which will effect all pigments, except those which are inert, basic or alkaline. The oxides of iron are, on the whole, cheapest and most preferable. They should be ob-

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tained from a reliable manufacturer. Abroad, especially in Germany, Belgium and Scandinavia, artificial stone in various colors is largely manufactured, and also Dutch tiles and glazed roofing tiles are made with Portland cement colored. In Italy, of course, the practice of coloring cement concrete has been practised for centuries. The importance of the industry abroad has led manufacturers to lay themselves out specially to manufacture colors suitable for the purpose.

FIRE-PROOF CEMENT.

No cement containing what is called organic matter, that is to say, matter obtained from animals or vegetables, such as glue, starch, flour, gum, etc., can be made to withstand a low red heat. In other words, no such cement can be fire-proof. And yet in spite of this well-known fact, we very often see oils and glues recommended as ingredients in fireproof cements. As soon as they are exposed to a low red heat these ingredients are decomposed and reduced to a crumbly mass which has no strength whatever.

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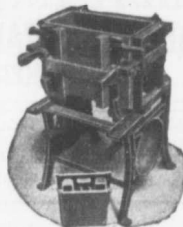
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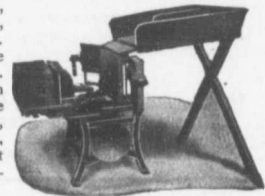
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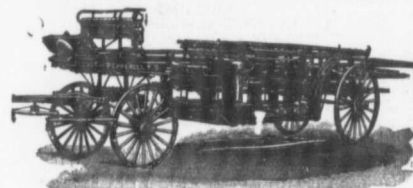
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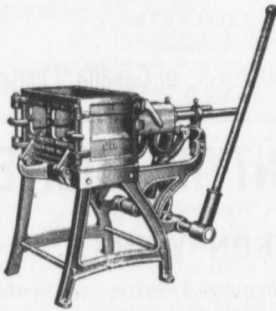
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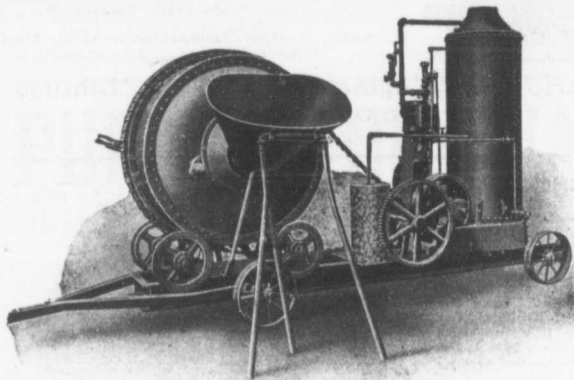
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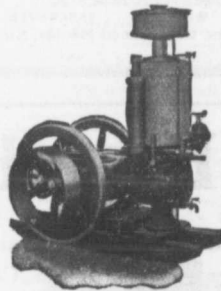
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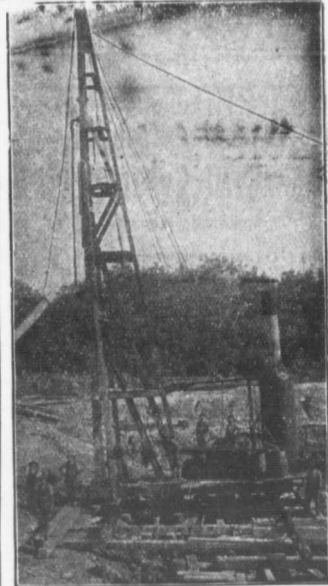
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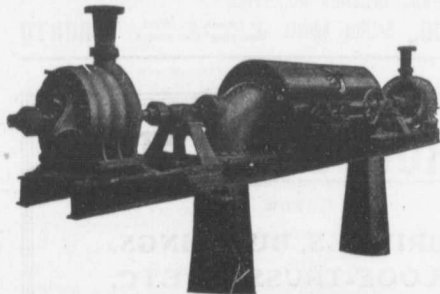
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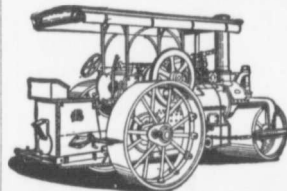
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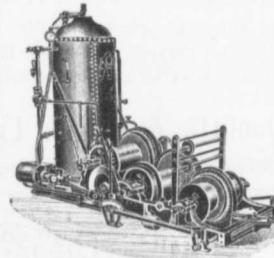
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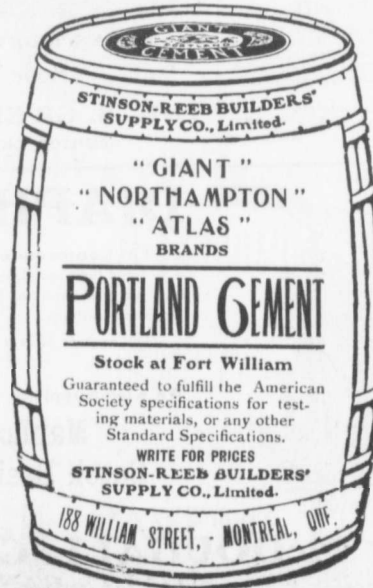
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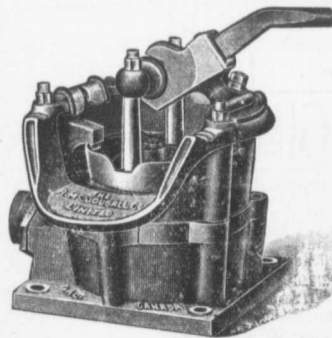
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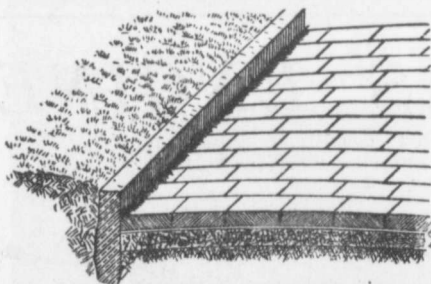
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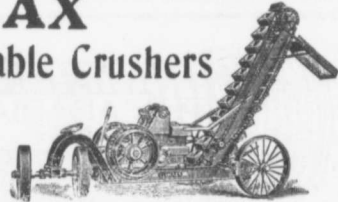
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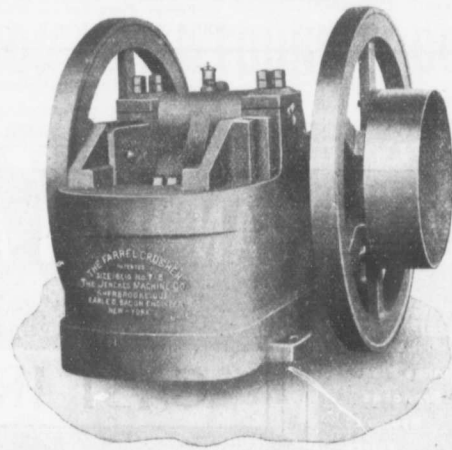
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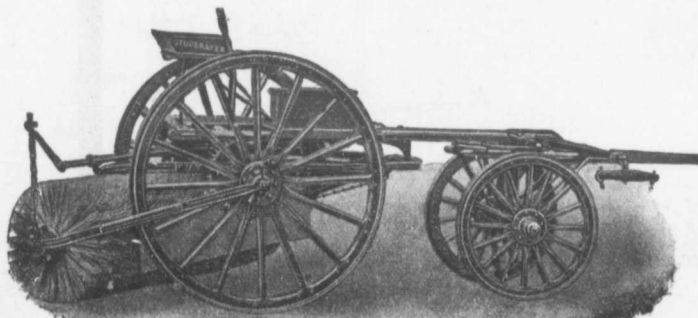
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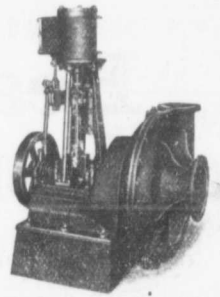
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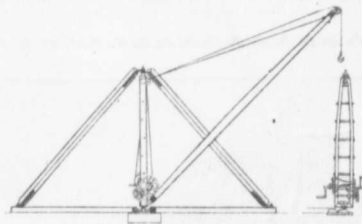
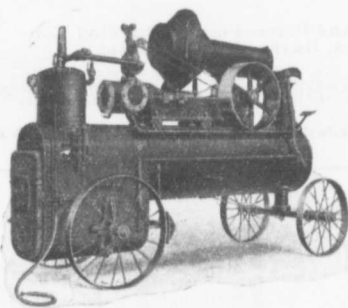


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