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THE CANADIAN CONTRACT RECORD

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

EVERY THURSDAY

This paper reaches every week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and leading Contractors in all lines throughout Canada.

Vol. 8.

FEBRUARY 25, 1897

No. 4.

THE CANADIAN CONTRACT RECORD,

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As an Intermediate Edition of the "Canadian Architect and Builder."

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GRANOLITHIC WALKS

The Town of Cornwall contemplate building, during the coming summer, Granolithic Sidewalks of four (4) feet and upwards in width, and will be pleased to receive suggestions and figures as to style of construction (specifications) and cost of same from parties in that line of business.

Cheap and durable walks are what are wanted.

GEO. S. JARVIS,
Town Clerk.

Town Hall, Cornwall, 11th February, 1897.



NOTICE TO CONTRACTORS

TENDERS FOR REPAIRING SCOW

Tenders will be received, by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to 11 o'clock a. m. on MONDAY, MARCH 8th, 1897, for Repairs to Scow.

Specifications may be seen and forms of tender obtained at the office of the City Engineer, on and after March 1st.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of \$50, must accompany each and every tender, otherwise they will not be entertained.

The tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

Lowest or any tender not necessarily accepted.

ROBERT J. FLEMING (Mayor),
Chairman Board of Control.

City Hall, Toronto, February 23rd, 1897.

TENDERS

Tenders will be received by the undersigned at his office, in the Village of Dunnville, up to and inclusive of MARCH 17th, 1897, for the Lighting of the Streets of the Village of Dunnville by Electric Arc Lights of 2,000 (nominal) candle power. Specifications may be seen at the Clerk's office.

The lowest or any tender not necessarily accepted.
J. W. HOLMES,
Clerk.

TENDERS

Tenders will be received by the Architect, G. W. Gouinlock, 53 King Street East, Toronto, up to 12 O'CLOCK, NOON, ON SATURDAY, THE 27th DAY OF FEBRUARY, for the

IRON STAIRCASE WORK

required in the Temple Building, Toronto. Plans and specifications may be seen and all information obtained on and after Thursday, the 25th day of February, instant, at the office of the architect.

The lowest or any tender not necessarily accepted.

ORONHYATEKHA,
S.C.R., I.O.F.



NOTICE TO CONTRACTORS

TENDERS FOR FILLING

Tenders will be received by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to 11 o'clock a. m. on

Monday, March 8th, 1897,

for the supply and delivery of about 30,000 cubic yards of earth, required for filling in at John street slip.

Specifications may be seen and forms of tender obtained at the office of the City Engineer, on and after February 25th.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of \$50, must accompany each and every tender, otherwise they will not be entertained.

The tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

The lowest or any tender not necessarily accepted.

R. J. FLEMING (Mayor),
Chairman Board of Control.

City Hall, Toronto, February 23rd, 1897.

The annual meeting of stockholders in the Londonderry Iron Company, Montreal and Londonderry, N. S., was held on the 10th inst. The annual statements were submitted and adopted, and the following board of directors elected:—Lord Mount-Stephen, Sir Charles Tennant, Bart., A. S. McClelland, A. I. Paterson, John Turnbull, R. MacD. Paterson and Hartland S. MacDougall. The directors re-elected Mr. Paterson president and managing director, and Mr. John Turnbull vice-president.

CONTRACTS OPEN.

ROSSLAND, B. C.—A sewerage system is about to be constructed.

MANIWAKI, ONT.—A new bridge is asked for over the Gatineau river.

NORTHPORT, B. C.—It is rumored that Vancouver capitalists will erect a smelter here.

FONTHILL, ONT.—Leonard Misemer contemplates erecting two houses in the spring.

BANDA, ONT.—The Church of England congregation propose erecting a brick church.

TAVISTOCK, ONT.—P. Mehrklinger purposes erecting a brick residence next summer.

MONCTON, N. B.—The school trustees will probably erect a modern school building.

ESSEX, ONT.—The town will borrow \$2,000 to put in a new boiler at the waterworks.

LEAMINGTON, ONT.—A site has not yet been selected for the proposed I.O.O. F. building.

GOSFIELD SOUTH, ONT.—It is the intention of Albert Leeming to erect a new residence.

HINTONBURG, ONT.—The by-law to raise \$8,000 by the issue of debentures was carried last week.

PAKENHAM, ONT.—Tenders are asked by J. H. Francis until March 5th for slating the Presbyterian church.

AROSTOOK, N. B.—The C. P. R. will rebuild, in the spring, their station house destroyed by fire a month ago.

SPRINGHILL, N. S.—The Cumberland Railroad Company will rebuild their station burned a few weeks ago.

GRIMSBY, ONT.—It is said that the Dominion government has decided to establish a cold storage warehouse here.

ST. ANNE DE PRESCOTT, ONT.—Rev. Father Coderre has received tenders for the enlargement of the church here, to cost \$10,000.

CARP, ONT.—Tenders for the erection of an exhibition building are invited until Saturday, March 6th. Address John Argue, secretary.

HULL, QUE.—The Hull Electric Railway has been granted permission to cross the C. P. R. tracks by an overhead bridge in this city.

KEMPTVILLE, ONT.—A deputation has urged upon the Dominion government that a new bridge be constructed over the Rideau canal at this point.

LISTOWEL, ONT. W. E. Binning, architect, of this town, has prepared plans for a Presbyterian church at Molesworth, for which tenders are asked.

DELAWARE, ONT.—Edgar Wild will receive tenders until March 15th for drilling three or more wells for the Mount Brydges Oil and Gas Company.

AMHERST, N. S.—A bill has received its second reading in parliament authorizing the authorities of this town to borrow money for the construction of sewers.

KILMARNOCK, ONT.—The government has been asked to replace the bridge here with an iron or steel structure, at a cost of \$8,000. An engineer will be sent to report thereon.

FREDERICTON, N. B.—Plans are being prepared by J. C. Dumaresq, architect, of Halifax, for a brick building on York street, to be erected by J. Clark & Son.

OWEN SOUND, ONT.—The by-law to grant a bonus of \$40,000 to the C. P. R. for elevator improvements was carried last week, as well as the \$6,000 by-law for waterworks extensions.

PORT ARTHUR, ONT.—The Dominion government will be asked to grant the sum of \$6,000 for repairing the old Dawson road bridges between Port Arthur and Shebaudowan Lake.

CALGARY, N. W. T.—The City Council are discussing the advisability of renewing the bridge over the Elbow, in the east end of the city. It is estimated that a wooden bridge can be erected for \$1,500, and an iron bridge for \$2,600.

CAPE TORMENTINE, N. B.—It is said that the breakwater here is so much damaged by recent storms as to require at least an expenditure of \$50,000 for repairs. A departmental engineer from Ottawa is now making surveys.

KINGSTON, ONT.—Mr. Harty has introduced a bill in the Ontario legislature authorizing the vestry of St. George's church to issue debentures to the extent of \$35,000 to relieve the existing debt and defray the cost of improvements.

SANDRINGHAM, ONT.—The Township Council are asking for tenders until the 13th of March for the construction of the MacGregor Creek drain, estimated cost \$1,130.57. Plans may be seen at the office of the clerk, R. G. MacGregor.

INGERSOLL, ONT.—The Ingersoll Radial Electric Railway Company, which is seeking incorporation, proposes to construct an electric railway from Ingersoll to St. Marys, Tilsonburg, Brownsville and other towns. The capital stock is \$500,000.

CLAYTON, ONT.—Tenders are asked until March 10th for erecting a brick Presbyterian church here. Address John McIntosh, Chairman Building Committee.—Wm. J. Drummond asks tenders until the same date for erecting a cheese factory.

LINDSAY, ONT.—A deputation from this town urged upon the Minister of Railways and Canals the immediate construction of the Balsam Lake and Lake Simcoe branch of the Trent Canal, tenders for which were invited but indefinitely postponed last year.

CHATHAM, ONT.—The citizens will be asked to vote \$10,000 for a new market building proposed to be erected during the coming spring. In addition to this structure a \$20,000 livery and boarding stable will be erected by McGarvin Bros. The plans for the latter have been adopted.

RAT PORTAGE, ONT.—It is reported that a Toronto capitalist has purchased property here and will erect a large block, to cost \$60,000.—Messrs. Peters & Head, architects, have extended the time for receiving tenders for Robinson & Brydon's stone and brick block until the 27th inst.

SANDWICH, ONT.—At a recent meeting of the Mecca Sanitarium Company, a motion was adopted instructing the directors to secure options of purchase on lands suitable for the erection of a sanitarium. The directors are Jno. Davis,

W. J. McKee, Ernest Girardot, Gordon J. Leggatt and August Soper.

HALIFAX, N. S.—A bill is now before the provincial legislature to incorporate the Halifax and Bedford Electric Company, for the purpose of operating an electric tramway and supplying electric power. The capital stock is to be \$300,000, and among the promoters are W. E. Crowe and A. E. Sullis.

QUEBEC, QUE.—David Ouellet, architect, is preparing plans for a wooden chapel for the Portneuf mission, Saguenay county. Same architect is calling for tenders for the heating of the S. Sebastian church, of Aylmer.—Mr. G. E. Tanguay is preparing plans for extensive reparations to the residence of Mr. J. T. Fremont.

LONDON, ONT.—The London Street Railway Company will double track the line to the water works park in the spring.—The County Clerk of Elgin has asked the city to join in a petition for improvements at the Port Stanley harbor.—McBride & Jones, architects, ask tenders until March 1st for alterations and additions to a warehouse.

WINDSOR, ONT.—The township of Tilbury west has accepted the plans of Mr. Newman, C. E., for the enlargement and improvement of Big Creek in that township. This creek drains part of five townships and about 55,000 acres will be affected by the improvement. The estimated cost of the work is \$45,000.—The late R. P. Payzant left \$20,000 to be used for the erection of a hospital, and steps are being taken to secure the erection of the same.—The town is seeking authority to borrow money for the erection of a school house.

HAMILTON, ONT.—The County Council have decided to advertise for tenders for a steel bridge near the Valley Inn, the estimated cost being \$2,000.—The Westinghouse Air Brake Company have asked that the present 4-inch main on Brant street be replaced by one of 6 inches, 950 feet in length.—The Hamilton, Grimsby and Beamsville Railway Company are not likely to build the proposed extension from Beamsville to St. Catharines, and it is said that Hamilton capitalists are prepared to build the line.—A permit has been issued to William and Walter Stewart for alterations to a building on James street south, for Robert Thomson, to cost \$2,600.—Ratepayers are petitioning for a pipe sewer on George and Locke streets.

ST. JOHN, N. B.—Mr. Siveright asked in the provincial legislature when tenders will be asked for the construction of the Nepisquit bridge. Mr. Emerson replied that the plans and specifications would be completed in a few days and tenders asked for the construction of the sub-structure of the bridge.—The Common Council will consider the establishment of a fire alarm system in Carleton, the building of a new fire house in North End, and the construction of a building for the Ambulance and Salvage Corps.—It is definitely settled that the erection of a free public library be commenced this spring, to commemorate Her Majesty's 60th year of reign. Cost \$20,000.—The C. P. R. Telegraph Co. are remodelling the ground floor rooms of the Aberdeen Hotel and fitting them up for use as their city offices.—The construction of water mains, at a cost of \$3,100, has been recommended.—The Common Council have resolved to build the proposed wharves at the harbor by contract, and Mr. Hurd Peters, C. E., has been instructed to prepare plans and invite tenders.

WINNIPEG MAN.—The Board of Trade have resolved to memorialize the Dominion government to provide in the estimates a sufficient sum to permit of work being proceeded with on the Red river improve-

ments.—The Legislative committee has been instructed to endeavor to obtain legislation to raise \$27,500 without having to submit a by-law to the people for the purpose of replacing the Main street bridge with a wider one.—A committee appointed by the City Council to report on the engagement of an expert to consider and advise regarding a waterworks system, have recommended the appointment of Mr. J. F. Fanning, C. E. of Minneapolis, and Rudolph Herbig, C. E., of New York.—It is understood that Messrs. Seach and Sharp have secured the lease of a desirable property on McDermott avenue, between Main and Albert streets, which is to be converted into an opera house. Plans have been prepared for remodelling the block and work will be commenced at once.

MONTREAL, QUE.—The City Surveyor has been instructed to advertise for tenders for the annual supply of lumber required by the city.—The waterworks superintendent has submitted a report on permanent work to be done in 1897, included in which is the following: Repairing valves, \$3,500; altering valves, pipe track, \$6,500; connecting 30-in. main from No. 1 turbine to the two 24-in. mains in the tunnel at wheel house, \$1,200; connecting the 30-in. main of No. 1 engine to the 30-in. main of No. 1 turbine, \$1,600; connecting No. 2 engine to the 30-in. main of No. 1 turbine, \$1,700; repairs to the reservoir, \$10,000; meters, \$63,662; repairs to permanent pavements, \$2,000. In addition to the above about \$20,000 is required for laying water mains.—Hon. E. J. Flynn, Premier of Quebec, has expressed himself in favor of building a bridge from Montreal to Longueuil, and of the extension of the Victoria bridge.—Gamelin & Huot, architects, are preparing plans for a residence to be built on Stanley street for Patrick Ryan.—W. E. Doran is calling for tenders for houses to be erected at the corner of Sherbrooke and Victoria streets, Westmount, for Thos. Lamb.—The Road Committee is asking for tenders until Thursday, March 4th, for the following work: Supplying each kind of asphalt, mastic and composition sidewalks required during the year; for the supply of flagstone, curbstone and scoria blocks for sidewalks and crossings; for the laying and relaying of flagstone sidewalks and crossings, laying and relaying of granite, porphyry and scoria blocks, and the laying and relaying of curbstone; and for the following supplies: Vitriified clay pipes and inverts, bricks, cement, lumber, spikes, hardware, castings and coal. Particulars may be obtained by addressing Mr. P. W. St. George, City Surveyor.—The Richelieu and Ontario Navigation Company propose to construct two side-wheel steamers, 265 feet in length, at a combined cost of \$300,000. Tenders for construction will be invited shortly.

TORONTO, ONT.—The County Council have decided to rebuild the York Mills bridge on the old site.—The estimates of the Ontario government have been presented. Upon public buildings there will be an expenditure of \$109,155, and repairs amounting to \$14,900. At Hamilton \$15,525 will be required, of which \$10,000 is to complete the infirmary building. At Brockville the expenditure will be \$15,800, the principal items being \$6,500 for balance of contracts for completing main building and cottages and medical superintendent's residence, and \$5,000 for furniture, furnishings, etc. At Orillia \$13,300 will be expended, of which \$9,500 will be required for the completion of improvements to furnaces and boilers and installation of the Frue system of heating and ventilating. For public works \$1,000 is asked to remove the rock shoal at Devil's Elbow, inner channel of Georgian Bay; \$4,850 for Peninsula Creek improvement; \$1,884, Gull and

Burnt river works; \$5,147, Mary and Fairy lakes improvements, \$1,100, (re-vote) to construct a swing bridge at Combermere, Madawaska river, \$2,000 (conditional re-vote), removing obstruction from River aux Ralsin; \$1,000 (conditional re-vote), Nation River improvement at Inkerman; \$1,500 (conditional re-vote), improvement at Ferguson's Falls, Mississippi River; \$5,000 (conditional re-vote), Caistor River improvement; \$2,000, Union Creek. The sum of \$35,000 is to be expended for mining roads, the principal items being Wabigoon, Manitou and Rainy Lake mining roads, to open about 14 miles, and construct dam, etc., \$8,000; English River and Saw Bill Lake mining road, to construct about 35 miles as a wagon road, \$12,000; other mining roads, to construct where, upon examination, they are deemed necessary, \$10,000.—Tenders are asked until Saturday next for the iron staircase work required in the Temple building. Plans at the office of Geo. W. Gouinlock, architect.—The York Pioneers have asked for a grant of \$2,000 from the City Council for the erection of a monument to Lord Simcoe.—At the annual meeting of the Industrial Exhibition Association, the annual report of the directors was presented, which recommended the erection of a new building for the swine exhibit, the enlargement of the present main building, the erection of a new art gallery, and a new building for heating apparatus.—The town of North Toronto desires tenders for enlarging the well at the engine house. Plans at the office of the Town Clerk, W. J. Douglas.

OTTAWA, ONT.—Parliament will be asked for a charter for a railway from Chesterfield Inlet, Hudson Bay, to Great Slave Lake, and from the Mackenzie to the Yukon.—Separate or bulk tenders are asked before the 27th inst. for the erection of a new school building on Osgoode street, from plans by E. L. Horwood, architect, Bank Street Chambers; also for a four room addition to Archibald street school, according to plans to be seen at the office of M. C. Edey, architect, 51 Sparks street.—Mr. Rudolph Hering, C.E., of New York, was in the city last week obtaining data for his report on the main drainage system.—It is understood that a subsidy of \$3,200 per mile will be granted during the coming session towards the construction of a line of railway across the province of New Brunswick, from Edmundston to Barry's Mills. The charter to build this road was obtained some years ago by the late John J. Macdonald, who built the Temiscouata Railway, and it is this company that now controls it and purposes building the new short line.—The Ottawa and Gatineau Valley Ry. will in all probability be extended to Desert this spring, a distance of 25 miles. At Lake Luce a large hotel will be built whenever the road passes through that locality.—The Department of Railways and Canals have extended the time for receiving tenders for Portland and hydraulic cement until the 20th of March.—The City Council has decided to ask the Ontario Legislature for permission to raise \$75,000 for extending the water mains and \$55,000 for increased fire appliances.—The Ottawa Street Railway Company propose erecting a large pavilion at the West End park.—The City Engineer has stated that it would cost \$24,000 for improving the power of the pumps at the waterworks; for enlarging certain mains and laying another 12-inch pipe on Wellington street, together with one hundred hydrants, \$30,000 would be required.—G. M. Bayley, architect, will receive tenders until noon on March 6th for the erection of a building on Queen street.—The American Bank Note Company are reported to have purchased property on Wellington street,

on which it is proposed to erect a brick block.—A sufficient number of signatures has been secured for the petition to pave Wellington street, and the work is likely to be proceeded with in the early spring. Massillon brick will be used.

FIRES.

The residence of James Klock, M. P., at Klock's Mills, Ont., was destroyed by fire last week.—A large brick cottage at Colborne, Ont., owned by Mrs. Richard Clark, was burned on Saturday last; insurance \$800.—Piling & Schooler's general store at Miami, Man., was destroyed by fire last week. Loss \$5,000; insurance \$4,000.—The large pottery of S. F. Glass, of Pottersburg, Ont., was consumed by fire on the 21st inst. The loss is placed at \$42,000, and is only partly covered by insurance.—Amos Estabrook's house at Upper Lachine, N. B., was burned lately.—Cavanagh's hotel at Elkhorn, Man., was burned on the 22nd inst. Insurance \$7,000.—A disastrous fire occurred at Windsor Mills, Que., on Tuesday last, destroying McCabe's block, a \$10,000 structure, Begin & Duchesneau's block, Millett's block, Bowie's block and several outbuildings.

CONTRACTS AWARDED.

PICTOU, N. S.—Jos. McDonald has secured the contract for moving and repairing the freight sheds at Pictou station.

TORONTO, ONT.—The Fensom Elevator Works, of this city, have closed a contract with the directors of the Ontario Chambers, Ottawa, for an electric elevator.

MONTREAL, QUE.—W. E. Doran, architect, has awarded contracts as follows for a warehouse to be erected at the corner of Wellington and Marie streets for the Union Cold Storage Company: Masonry, John Quinlan; carpenter and joiner's work, Bulmer & Bulmer; roofing, Montreal Roofing Co.—Contracts have

been awarded as follows, by A. C. Hutchison, architect, for four houses, three stories, comprising four tenements, on Dorchester street for Wm. Rutherford & Sons. Masonry, J. H. Hutchison, carpenter and joiner's work, Wm. Rutherford & Sons, roofing, Montreal Roofing Co., plumbing and heating, W. J. Hughes; brickwork, Thos. W. Peel, plastering, Knott & Gardner, painting and glazing, A. Craig, iron work, Dominion Bridge Co.

OTTAWA, ONT.—The contract for a temporary roof for the burned Western block of the Parliament buildings has been let to Joseph Bourque, of Hull.—The contract for the construction of the wharf at L'Original has been awarded to Messrs. Murray & Munro, of Pembroke.—The contract has been awarded to Mr. E. Gillespie, of the Upper Ottawa Improvement Company, for constructing a pier 150 feet long and 20 feet in width, in front of the Britannia Boating Club's boat house.—Messrs. Ahearn & Soper have been awarded the contract for equipping the electric railway between Montreal and Lachine.—Campbell & Sutherland have been awarded the contract for plastering Pittaway's building, recently destroyed by fire. Asbestos plaster will be used.

HAMILTON, ONT.—Plans are being prepared for improvements in the Grand Opera house.—The council have awarded contracts for annual supplies as follows. Fire Department clothing, Fraick & Co., winter coats, \$9.25 each; vests, \$2.45; trousers, \$4.75 a pair; caps, helmets, etc., R. P. Leask, \$386.35; Fire Department hose, Gutta Percha and Rubber Manufacturing Company, Toronto, 1,000 feet at 85-cents a foot. Waterworks Department hose, Wood, Vallance & Co., 35½ cents a foot; ten tons half-inch lead pipe, Wood, Vallance & Co., at \$4.15; twelve tons pig lead, Adam Hope & Co.,

(Concluded on Page 4.)

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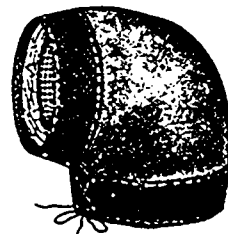
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at \$2.96; brass work, Hamilton Brass Co., \$1,002 50, the other tenderers being A Hope & Co., \$1,058; Dodson & Sutton, \$1,073; cast iron pipe, A. Gartshore & Co., \$25 per ton; junctions, bends, etc., Gartshore & Co., \$2.25 per 100 pounds, ordinary castings, A. J. Nic & Co., \$1.75 per 100 pounds; stop cock boxes, Nic & Co., \$1.15 each; stop valves, Gartshore & Co., 12-inch, \$33 each; 6-inch, \$12; hydrants, Hamilton Fire Escape Co., \$29.50 each; other tenderer, A. J. Nic & Co., \$29.75 each.—W. P. Witton, architect, has taken out a permit for the new building for the Hamilton Spectator. It will be six stories high, with three-story annex in rear, and will cost about \$33,000. The masonry contract has been let to Geo. Webb and the carpentry to R. Press.

POOR TOOLS.

There is in every business and calling a too general disposition to waste strength and time in endeavoring to effect a good deal of work with poor tools. The farmer too often wears out his horses with operating dull ploughs, blunted harrows, uncoiled rollers, and edgeless mowers, harvesters, and headers, and his own strength with dull hoes and clumsy appliances of many kinds.

The merchant too often has an insufficient stock of hammers, hatchets, screw-drivers, box-openers, knives, shovels, etc., or allows them to get dull-edged, broken, and generally unserviceable. His desk is too often but poorly supplied with writing materials and his book-keeping often suffers from a lack of suitable books of primary and final entry. If he handles bulky and heavy produce or goods, his storage-room is often narrow, poorly lighted, hard of approach, or devoid of elevators, truck, and other labour-saving devices.

Many more pride themselves somewhat upon the fact that in their days such conveniences were unthought of, and therefore argue that it is a sign of laziness or effeminacy to provide better things for the needs of modern business. They seem to forget that every delay caused by poor tools, inconvenient conditions, insufficient power, etc., often means the loss of one man's entire daily labour where five or six men are employed under such disadvantages.

There are still thousands of men who in one way or another, insist on using poor tools and on wasting their own strength, health and spirit in constant effort to make up for their inefficiency. Not all conveniences are improvements, but the sharp edge cuts cleanly and quickly; the square-faced hammer hits the nail and does not cripple the fingers; the convenient approach and exit leaves the teamster room for prompt action, and every labour saving device which is efficient and not too costly for the business done is a necessity. It does not pay for a business man to exhaust his own strength, temper, and health in false economies of the kind described.

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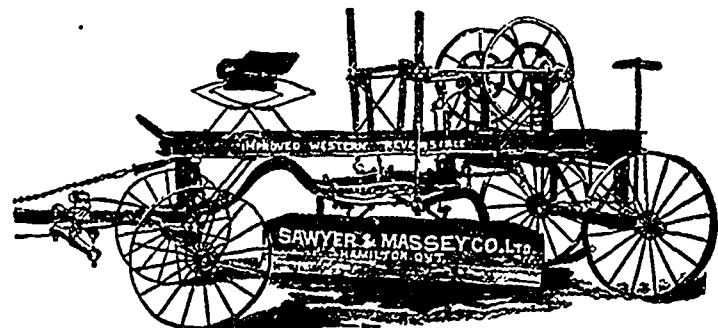
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MUNICIPAL DEPARTMENT

AMERICAN UTILIZATION PROCESS OF GARBAGE DISPOSAL.*

By W. E. GARRIGUES.

(Concluded.)

CLASS B.

HOLTHAUS SYSTEM: Bridgeport, Conn.

The collection wagon empties its load directly into a dump car standing on an elevator. The car holds one ton and on reaching the upper floor is pushed out upon a track leading between two rows of digesting tanks. A broad funnel fitting into the man-hole at the top of the digester enables the complete contents of the car to be dumped into it at once.

The tank is made of plates of heavy cast iron bolted together, is six feet in diameter and charges five to seven tons raw garbage. Inside is a perforated steel cylinder head fitting snugly and supported from above by a thick piston passing out through the center of the top of the tank. Powerful hydraulic pressure exerted on the piston forces it down onto the contents of the tank.

Below the tank is closed by two 24-inch valves, one above the other and opening into the dryer. Two tanks connected with each dryer.

The charge of garbage is flooded with water, about fifty pounds oil of virriol added and steam under thirty pounds pressure admitted for five or six hours. The perforated head is now forced down by hydraulic pumps in motion and the grease and water pressed out of the material. These escape through perforated pipes running up the sides (the head is cut out to slide down over them), and also around the bottom. When all the liquid has been removed in this way, the large valves are opened and the charge forced into the dryer by again applying the pressure from above.

The dryer is a steam jacketed cylinder and fitted with a steam reel, fed and exhausted through a hollow shaft. The drying of a charge occupies about four hours.

The grease and water are led to a settling tank where they separate by gravity, and the former is skimmed off by a mechanical device which in action is similar to drawing a stick across the surface. The grease goes to a second tank where air is continually sucked through it to the grate bars under the boilers. The water is led into a cast iron evaporating pan heated with lead coils, where it is concentrated until it has the consistency of liquid glue (about 50% solid matters), some of this being added to each charge of tankage in the dryer. All the tankage is ground in a Denmead mill and screened for shipment. The dryers and evaporating pans

are exhausted by a vacuum pump and all vapors are condensed with cold water.

POWTER SYSTEM: Pittsburg and Philadelphia. Wagons deliver the garbage into a pit from where a bucket elevator hoists it into a horizontal conveyor on the upper floor—thence into the digester. These are heated by steam jackets and connected below by an 8-inch valve with the dryer. Two digesters to each dryer. Five tons constitute a charge in the tanks, some water and sulphuric acid being added. The digestion is carried on in the usual way with high pressure steam. After settling a couple of hours to permit the grease to rise to the surface, water is introduced below in order to raise the grease to the level of the draw-off cocks, through which it runs into the storage tank.

After removal of the grease, the valve below is thrown open, allowing the sludge to run into the dryer. Here is added phosphate rock and sulphate of potash and sufficient additional sulphuric acid to render the phosphoric acid in the rock "available" as plant food, or chemically stated, to convert the tricalcium into mono and dicalcium phosphate. The drying occupies from 8 to 16 hours. The resulting product is screened and sold as a complete fertilizer.

The dryers are exhausted by a vacuum pump, the vapors passed through cold water, and then to the flues under the boilers.

CLASS C.

SIMONIN SYSTEM. Providence and Cincinnati. The garbage is allowed to drain of superfluous water on a concrete floor and then loaded into carriages which are at once rolled into the horizontal extractors. These carriages support each a series of trays, made of coarse wire netting, enabling the garbage to be spread in layers of about six inches deep.

The extractors, which the loaded carriages almost completely fill, charge about 8 tons. When loaded the head is bolted over the opening, serving as an entrance for the carriages, and the whole pumped full of naphtha. The naphtha is gradually vaporized by means of a closed steam coil in the bottom, carrying with it the water vapor from the garbage. The mixed vapor after passing off at the top is condensed in a worm cooled by a water jacket and the naphtha and water allowed to separate by gravity. The water is rejected and the naphtha used over continuously.

The evaporation in the extractor is continued until the lowest level of the charge of garbage has been reached, when the liquid is drawn off and replaced by a fresh charge of naphtha. This is continued until the grease extraction is complete and all water is driven out of the garbage by the hot naphtha vapor passing through it.

The mixture of grease and naphtha, with some water, drawn from the bottom of the extractor, is settled, the water run off and the naphtha distilled in a separate still heated by steam. The residue is the grease.

The tankage is steamed, with live steam, in the extractor to drive out all adhering

naphtha, and is then ground and screened ready for sale. (The Providence plant, which is the one here described, has been abandoned.)

MERZ SYSTEM. Buffalo. On arrival at the works the load is hauled into a raised platform and backed up to a dump car standing on a track below. The car has a capacity of one ton, and when filled is pushed onto an elevator and taken to the upper floor, where it is dumped into receiving tanks.

These tanks have an opening below at a convenient level with the floor, and here the garbage is raked out and shoveled through 12 inch shafts to the dryers. These are horizontal, fitted with a solid reel and heated by steam jackets. Three thousand pounds contribute a charge, each machine having a capacity of 4 charges or 6 tons in 24 hours. The vapors from the dryers are carried by fans to the open air, there being no apparent necessity for avoiding odors.

After discharging from the dryers, a system of conveyors and elevators takes the garbage again to the upper floor and deposits it in the extractor. Ten tons of the dry material, equivalent to about 40 tons raw garbage, constitutes a charge.

The extractor is a simple iron tank with perforated false bottom on which the charge rests. It is heated by a steam coil below. Naphtha is pumped in to a level with the top of the charge and heated, maintaining a pressure of about 10 pounds, controlled by a valve blowing off into a condenser above. The boiling is continued about 4 hours, after which the naphtha and grease with a little remaining water is run through a continuous separator. First the water is removed by gravity, then the naphtha by superheated steam, the grease remaining. The tankage is freed from adhering naphtha by open steaming, ground and screened. All naphtha vapors pass through one condenser and are recovered for further use.

MERZ IMPROVED. Buffalo. The change made is that digestion by steam precedes the drying. The garbage is dumped directly into digesters fitted with a perforated false bottom on which the charge rests. Steam is introduced at the top under pressure, exhausting through a small vent below the false bottom. The accumulation of water and actual cooking is thus avoided. Five to six tons is a charge and 8 hours is consumed by this operation.

The grease and water drawn off below are separated by gravity and the water evaporated off in a vacuum pan. The solid residue thus obtained is added in small quantities to the dryers. From the digesters the garbage goes to the dryers and thence to the extractors—the process being identical with that last described. The modification introduced in Detroit is of a similar nature, steam digestion preceding drying and extracting as by the old Merz system.

The grade of the tankage produced from garbage varies with the season and the manner in which it is obtained. The following figures, however, probably cover the extremes:

Nitrogen	2.5 to 3.5%
Phosphoric acid	1.5 to 4.0%
Potash	1.0 to 1.5%

* Abstract of a paper read before the Engineers' Society of Western Pennsylvania.

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MONTREAL: The market for builders' supplies has exhibited more life during the past couple of weeks, and the statement that several projected works of construction are about to be carried out has caused dealers to take a more favorable view of the outlook for spring trade.

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