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NOTICE TO CONTRACTORS.

Tenders will be received up to Eleven o'clock on **WEDNESDAY, NOVEMBER 8TH**, for all trades required in the erection of a

RESIDENCE

on Markham Street, Toronto. Plans and specifications may be seen at 38 Adelaide Street East.

F. PALMER, Architect.

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 THROUGHOUT CANADA.

Vol. 4. NOVEMBER 2, 1893 No. 37

THE CANADIAN CONTRACT RECORD,
PUBLISHED EVERY THURSDAY
As an Intermediate Edition of the "Canadian Architect and Builder."
Subscription price of "Canadian Architect and Builder" (including "Canadian Contract Record"), \$2 per annum, payable in advance.
C. H. MORTIMER, Publisher,
CONFEDERATION LIFE BUILDING, TORONTO.
Telephone 2362.
64 Temple Building - Montreal.
Bell Telephone 2399.
Information solicited from any part of the Dominion regarding contracts open to tender.
ADVERTISING RATES ON APPLICATION.
At its Convention held in Toronto, Nov. 30 and 31, 1889, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for tenders.
The following resolution was unanimously adopted at the First Annual Meeting of the Province of Quebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890: "Moved by M. Ferrault, seconded by A. P. Dunlop, that we the Architects of the Province of Quebec now assembled in Convention do hereby endorse the CANADIAN CONTRACT RECORD as a direct communication with the Contractors.—Resolved, that we pledge our support to it by using its columns when calling for Tenders."
Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publisher of any irregularity in delivery of paper.

TENDERS WANTED.
Tenders will be received until NOVEMBER 11TH for the various works required in the erection of NEW OFFICE AND BOILER ROOM for Reinhardt & Co., Mark street. No tender necessarily accepted.
TO CONTRACTORS.
Tenders will be received by the undersigned until noon on SATURDAY, NOVEMBER 11TH, for the various trades required in the erection of a large Addition to the Residence Trinity College, Toronto.
The lowest or any tender not necessarily accepted.
DARLING, SPROATT & PEARSON,
"Mail" Building,
October 25, 1893.

TENDERS WANTED
Whole or separate tenders will be received by the undersigned up till
SATURDAY, NOVEMBER 11th, 1893,
for the several works required in the erection of an
R. C. CHURCH IN TILBURY CENTRE.
The plans may be seen at my office up till Saturday, October, 28th, and at the office of Jos. M. Tiernan, P. L. S., Tilbury Centre, until November 11th.
Work to be commenced in the Spring of 1894.
The lowest or any tender not necessarily accepted.
HARRY J. POWELL, Architect,
Stratford, Ont.

to carry on business as builder and contractor under the firm name of A. Latour & Co.
W. H. McAlpine, lumber dealer, Montreal, is offering to compromise at 20 cents on the dollar.
A partnership has been formed between Stainlas Rochon, jr., and Simeon Rochon, to carry on business as contractors in Montreal.

CONTRACTS OPEN.
PRESTON, ONT.—Mr. Robert Walker, of the Del Monte Hotel, is about to put in an electric light plant.
BRANTFORD, ONT.—A new church will shortly be erected in West Brantford in connection with St. John's mission.
ELMIRA, ONT.—It is reported that the Elmira branch of the G. T. R. will be extended to Drayton at an early date.
LUNENBURG, N. S.—A company is being formed to construct a system of waterworks. The work of pipe laying will be commenced shortly.
MEAFORD, ONT.—The ratepayers will be asked to vote the sum of \$1,000 towards the erection of a bridge over the Big Head river at Trowbridge street.
DRUMMONDVILLE, QUE.—Mr. Watts gives notice that application will be made to Parliament to incorporate a company to build a dam across the river at this place.
WINNIPEG, MAN.—Mr. R. T. Riley, Chairman Finance Committee, will receive proposals until the 20th inst. for the purchase of \$50,000 worth of school debentures.

of December for the erection of a new Roman Catholic church in this town. Plans may be seen at the residence of the pastor, Rev. George Corbet.
NIAGARA FALLS, ONT.—Mr. E. A. C. Pew was in town recently in the interest of a stock company which is being formed to build a steel bridge across the Niagara gorge near the old railway suspension bridge. The capital stock is \$40,000, most of which has been subscribed.
HAMILTON, ONT.—L. Hills, architect, 60 King St. west, invites tenders until 5 p. m. to-day (Thursday), for the erection of a block of dwellings on Park street north.—Mr. Jas. Balfour, architect, has prepared plans for a brick and stone hotel to be erected on the brow of the mountain, for Mr. Clark. The cost will be \$10,000.
LONDON, ONT.—The City Engineer invites tenders until 6 o'clock to-day for the supply of white oak timber for bridges.—Mr. F. W. Farncombe, of this city, is engaged in an extensive survey in the Township of Hullett for the drainage of some 3,000 acres of land, which will necessitate the deepening of the south branch of the Maitland river for some six miles.—The City Engineer invites tenders until the 6th inst. for the construction of a 15 inch tile sewer on Wortley Road, from Stanley street to Bryon avenue.—Mr. Roselle Pococke is about to erect a new residence on King street, to cost \$2,400.
STRATFORD, ONT.—David G. Baxter, architect, is calling for tenders for remodeling the interior, frescoing and putting in new plumbing in the residence of Ald. E. T. Difton, for the erection of a two-and-a-half story red brick residence on Nelson street for Mr. John Morris, to cost \$2,300, and for the erection of a church at Avonton, tenders received until the 24th inst. for all trades except seating and glass, the contracts for which will be awarded at a later date. The same architect is also preparing plans for a \$5,000 residence for Mr. John Watson, of Stanton, Ont., and a \$4,000 block of stores for Mr. J. J. Strong, of Gourley, Ont.
DULUTH, MINN.—The St. Clair & Lake Erie Ship Canal Construction Co. has been organized under the laws of Wisconsin, the intention of the company being to construct a canal from a point near the southeasterly corner of Lake St. Clair in Essex and Kent Counties, Ont., to a point south-east of Point Pelee on Lake Erie a distance of 30 miles. Capital amounting to \$40,000 has been secured and as soon as the formalities attending the securing of a charter from the Dominion Government have been finally completed, the work will be commenced. The company will have offices in Duluth, Milwaukee, Detroit and Tilbury Centre, Ont. Among the officers are C. A. Towner, Duluth, President; E. Arnett, New York, Constructing Engineer.
OTTAWA, ONT.—By-laws have been passed by the City Council providing for the issue of debentures to cover the cost of constructing a number of artificial stone

TO CONTRACTORS
Sealed Tenders, endorsed "New Parliament Buildings, Victoria, Contract No. 2," will be received by the Honourable Chief Commissioner of Lands and Works up to one o'clock p. m. of Thursday, 30th November, 1893, for the several trades required in the erection of New Parliament Buildings at James Bay, Victoria, B. C., viz:—
1. The excavator, mason and bricklayer's work.
2. The carpenter and joiner's work.
3. The slater's and plasterer's work.
4. The coppersmith's work.
5. The smith and ironfounder's work.
6. The plumber's work.
7. The painter's work.
Tenders will be received for any one trade or for the whole work.
The plans, details, &c., as prepared by F. M. Rattenbury, Architect, can be seen at the office of the undersigned on or after Monday, October 16th, 1893, and complete quantities clearly describing the whole of the work can be obtained on payment of \$50 for each trade. This sum will be returned to the contractors on receipt of a bona fide tender.
Each tender must be accompanied by an accepted bank cheque equal to two per cent. on the amount of each trade tendered for, which will be retained as part security for the due performance of the work. The cheque will be returned to unsuccessful competitors, but will be forfeited by any bidder who may decline to execute a contract if called upon to do so.
The lowest or any tender not necessarily accepted.
W. S. GORE,
Deputy Commissioner of Lands & Works,
Lands and Works Department,
Victoria, B. C., September 28th, 1893.

Notice to Contractors
CANADIAN CONTRACTORS' HAND-BOOK
A new and thoroughly revised edition of the *Canadian Contractors' Hand-Book*, consisting of 150 pages of the most carefully selected material, is now ready, and will be sent post-paid to any address in Canada on receipt of price. This book should be in the hands of every architect, builder and contractor who desires to have readily accessible and properly authenticated information on a wide variety of subjects adapted to his daily requirements.
Price, \$1.50; to subscribers of the CANADIAN ARCHITECT AND BUILDER, \$1.00. Address
C. H. MORTIMER, Publisher,
Confederation Life Building, TORONTO.
Montreal Office:
64 Temple Building.

BUSINESS NOTES.
James Cheyne, builder, Hamilton, has assigned.
Lloyd & Co., lumber dealers, St. Boniface, Man., have assigned.
T. R. Dearle, painter, of Simcoe, Ont., has assigned to Thos. L. Gillies.
The firm of Brunet & Martial, bricklayers, Montreal, has been dissolved.
Napoleon Taillefer, contractor, Montreal, has assigned with liabilities estimated at \$8,000.
A. Latour, of Montreal, has registered

ATHENS, ONT.—The excavation for the foundation of the new Roman Catholic church has been commenced. The building operations will not likely be begun until next summer.
VANCOUVER, B. C.—The plans for the Hudson Bay Company's wholesale warehouse have been completed. The structure will be three storeys high, 124 feet deep and having a frontage of 80 feet.
NAPIERVILLE, QUE.—The engineers have completed the survey of the proposed line of railway between St. Jean Chrysostome and this place, but it will be some time before they can submit their plan and report.
ARNPRIOR, ONT.—A public meeting was held on Wednesday to consider the advisability of purchasing a chemical fire engine or the erection of additional water tanks. The decision of the meeting has not yet reached us.
BRACEBRIDGE, ONT.—On the 30th ultimo a by-law was carried by the ratepayers authorizing the Council to issue debentures to the amount of \$25,000 to cover the cost of constructing a system of waterworks and installing an electric light plant.
CORNWALL, ONT.—Mr. John Keating, Secretary St. Columbus Building Committee, will receive tenders until the 15th

sidewalks, wooden sidewalks, sewers, etc.—The tenders for the proposed contagious disease hospital have been found to be too high. The architect has consequently modified the plans and new tenders are asked for, to be sent in by 4 o'clock to-day (Thursday).—At the last meeting of the Trades and Labour Council a resolution was passed asking the Government to provide a site on which to erect a new building, and a committee was appointed to further the scheme.—The Alberta Southern Railway Company is applying for incorporation to construct a railway from Calgary to Lethbridge, and thence to the international boundary.—The sum of \$1,250 has been collected for the purpose of placing new heating apparatus in St. Paul's Presbyterian church.

MONTREAL, QUE.—The Finance Committee has granted the sum of \$10,000 to grade Cedar avenue.—The Electric Railway Committee of the City Council has reported in favor of granting the Belt Line Railway Company permission to erect an elevated road on Delorimier avenue, Ontario, St. Catharine, Craig and St. James Sts. The company are to commence work before June 1, 1894.—The Montreal Water and Power Company intend to erect a large electric power house at Perry's Island, and to construct a water main from Sault-Aux-Recollets to a large supply reservoir at Outremont.—The Harbor Commissioners are making arrangements to build a new pier next season at section 43, below the Hudon cotton factory.—It is announced that the C. P. R. intend to extend the Montreal and Ottawa railway into this city, at an early date.—The Finance Committee has decided to recommend to the City Council the submitting a bonus to the ratepayers granting the sum of \$100,000 to the proposed interprovincial traffic and railway bridge across the Ottawa river.

TORONTO, ONT.—Wm. J. Brown, 39 Adelaide street east, is desirous of securing a building lot between Spadina avenue, Euclid avenue, Queen and College streets.—Liberal subscriptions have been received towards the erection of the proposed University College Women's residence.—At a meeting of the Consumers' Gas Company held a few days ago, the President, Mr. James Austin, was empowered to purchase a lot on the Island with a view to erecting gas works there in the spring, provided the city decides to extend the lease of the lots to residences.—At a meeting of the Board of Works held on Monday last, the recommendations of the City Engineer for the paving of Broadview avenue, Bathurst street and Dundas street were sent on to Council. The board ordered that a level crossing, to cost \$2,500, without gates, be opened up at Lansdowne avenue. Mr. Keatings report on the source of water supply was left over for a special meeting. After discussing the question of constructing the proposed wharf at the foot of Yonge street at once, it was decided to leave the matter in the hands of the Property Committee to take action at an early date. The City Engineer recommended that the wooden pipe from the shore crib to the bell buoy be replaced by a steel one.—Building permits have been granted as follows: Mrs. M. Rogers, pr. s. d. 2 story and attic bk. dwellings, e. side Jameson ave., cost \$5,400; F. H. Herbert, architect, pr., det. 2 story and attic bk. and stone dwellings, e. side Walmer Rd., nr. Bloor st., cost \$18,000; Wm. Murray, 34 Wright ave., two det., 2 story and attic bk. dwellings, 103 Jameson ave., cost \$6,000; A. Nelson, 406 Manning ave., pr. s. d. 2 story and attic bk. dwellings, 69 and 71 Madison ave., cost \$10,000.

FIRES.

The residence of H. Stevens at Peterborough, Ont., was destroyed by fire last week. Loss, \$1,600; insurance \$1,100.—The saw mill of Messrs. Davidson & Davidson, at Cape Chien, Georgian Bay, was burned to the ground on the 26th ultimo. Loss, \$4,000; no insurance.—

The tannery and storehouse of C. Deguise, valued at from \$10,000 to \$12,000, was destroyed by fire recently at Ste. Genevieve de Batiscan, Que.—A large brick residence owned and occupied by Mr. Thomas Walker and situated about two miles from Port Elgin, Ont., was destroyed by fire on Thursday of last week. Loss \$2,000.—Fire at Ashburnham, Ont., on the 25th ultimo, destroyed the Maple Leaf hotel, owned by George Lipsitt, a cooper shop owned by Mrs. McGregor and the residence of Stuart Wright.—The Georgian bay box factory and planing mills at Midland, Ont., were burned recently. Loss on building and machinery, \$12,000; insurance \$6,000; drying kiln, \$2,500; insurance \$1,500. The company purpose rebuilding at once.—The old Westbrook hotel at Cainsville, Ont., owned by E. H. Welling, of Brantford, was burned on Tuesday last. Insurance \$800.

CONTRACTS AWARDED.

BEEOTN, ONT.—A syndicate is being formed here to erect a block of stores.

COLLINGWOOD, ONT.—Improvements are to be made in the Maple street Methodist church here, costing about \$8,000.

KINGSTON, ONT.—The Kingston and Montreal Forwarding Company have been awarded the contract to make the necessary repairs to the Ogdensburg steamer Hecla. The repairs will cost over \$10,000.

HAMILTON, ONT.—The Sewers Committee has accepted the tender of J. J. Armstrong for a sewer on Milton avenue, at 49 cents per foot, and that of G. F. Cooper for a sewer on Brant avenue, at \$1.05 per foot.

TORONTO, ONT.—Mr. Geo. F. Bostwick has been awarded the contract for interior fittings, including counters shelving, show cases, office fittings, etc., required in the new store of Messrs. Michie & Co. now being erected on King street west.

OTTAWA, ONT.—Mr. Bourque, contractor, of Hull, has signed a contract with the authorities of the University of Ottawa for the construction of a large building at the corner of Theodore and Cumberland streets to be used as a juniorate. The contract price is \$30,000.

GALT, ONT.—Mr. W. Hallman has secured the contract for the erection of four brick dwellings in the Gilholm survey for Dr. Lowery. The figure is in the neighborhood of \$1,500 for each house. He will also build three houses in the spring for Mr. Aaron Ross, costing \$2,600 each.

CARTAGE OF EXCAVATED MATERIAL.

In excavations a contractor occasionally has the good fortune to strike upon a bed of sand or gravel which was not anticipated, and it rarely happens that he is not allowed to enjoy the whole advantage of the material. A case has occurred in Glasgow, and has given rise to litigation, which presents a rather novel claim that was founded on discovery. Mr. John Young obtained a contract for a section of the works on the Glasgow Central Railway, and in August 1890 he agreed with a firm of cartage contractors, named Young & Co., to carry materials from the cuttings to a spoil-bank at the rate of 5s. per ton. Sand was found in 1891, and was sold by Mr. Young to builders, who removed it at their own expense and in their own carts. His cartage contractors claimed the monopoly of removing their stuff, but it was not allowed. In September 1891 a deep bed of sand was reached, and again the question arose whether Mr. Young was entitled to sell or store the sand without being bound to give Messrs. Young the cartage of it. They reasserted their claim to "the cartage of everything excavated." Mr. Young, while denying their right to this, proposed that they should cart all the sand that was intended for the store on time-payment, and when they refused they ordered off their carts and employed other carters. Messrs. Young thereupon brought an action for

breach of contract, and claimed 1,500/ damages. Their agreement "to do the cartage of gravel, sand, &c., of the cutting of the new railway," it was maintained, gave them a right to remove all material excavated. The Court decided against the carters. On appeal the judgment was upheld. It was laid down that there was nothing in the contract giving the plaintiffs right to the cartage of everything excavated, the contract rather being that they were to have the carting of what required to be carted, and that the defendant was the judge of the quantity. Scotch law does not correspond with what is followed in England. An English Judge would be likely to arrive at an opposite decision. Apparently the intention of the parties was that the carters were to remove all the stuff from the cuttings, and if the sand, gravel, &c., caused extra inconvenience, the carters would have to take the risk. The discovery of the valuable beds of sand made the cartage unnecessary, for the purchasers used their own carts. But how could a general agreement be affected by their contingency that was not referred in any way?

MUNICIPAL DEPARTMENT.

PROPER METHOD OF TESTING PUMPING ENGINES.

The American Society of Mechanical Engineers' committee, on "a standard method of conducting duty trials of pumping engines," has recommended that the duty be expressed in foot pounds of work per 1,000,000 British thermal units. The duty so expressed is equivalent to that per 100 pounds of coal if each pound of coal gives 10,000 B. T. U. to the steam. This is a fair value of coal under good working conditions, so that the new basis does not differ widely from the old in usual cases, and is a much fairer standard. Or, as stated in the report of the above-mentioned committee, "The proposed new unit is thus, in reality, though not in name, in close accord with the existing unit, and, furthermore, it retains its numerical simplicity."

$$\text{Duty} = \frac{\text{Foot pounds of work done}}{\text{Pounds of coal burned}} \times 100.$$

With the proposed unit:

$$\text{Duty} = \frac{\text{Foot pounds of work done}}{\text{Total number of heat units supplied} \times 1,000,000}.$$

The difficulty of determining the number of heat units supplied is no greater than that met in determining the quantity of steam used, providing the steam is corrected for entrained moisture or superheat; and this should always be done. In fact the quantity of heat is derived directly from the same observations.

The heat supplied is equal to the quantity of steam times its total heat (the proper correction being made for the quality of the steam). The total heat of steam of the pressure and quality used is found from the steam tables.

All steam used in operating the plant, including that used in the steam cylinders of the pumping engine, jackets, for air and circulating pumps, and for boiler-feeding device, pumps or injectors, is to be included.

As to the means of measuring the work done by the pump several methods are possible.

In engines of large capacity a direct measurement of the water delivered is usually impracticable; but this quantity may be determined more or less closely, by the use of a weir, or standard orifice, or nozzle, in case the pump delivers into a reservoir, or if the water can be run to waste during the trial; by means of an orifice or what is known as the Venturi tube, inserted in the delivery pipe; or by measuring the displacement of the plungers. Each of these methods has its own sources of error, and often the latter method is the only one practicable. The latter method indicates an excess of work

done owing to the slip of the pump. In operation the pump valves do not close completely the instant the end of the stroke is reached, and consequently, a quantity of the water displaced by the plungers flows back into the water cylinder (or chamber) as the plungers begin the return stroke. This loss, with the leakage of the valves and plungers, and failure of the pump to fill completely at each stroke, make up what is known as the slip of the pumps. It is evident that the net delivery of water is somewhat smaller than the total volume displaced by the plungers. If the proper correction for slip is not made, it is clear that an error is introduced; and the greater the slip, the higher will be the apparent duty of the pump. If a given pump has a slip of 3 per cent., the net useful work will be 97 per cent. of the work calculated on the basis of plunger displacement; while with a ten per cent. slip, the net work would be but 90 per cent. of this amount. The total plunger displacement and the total head being the same in each of these supposed cases, the apparent delivery would be the same; but, evidently the latter pump (all other conditions being equal) would require less steam than the former (as it does less work) and the duty would be correspondingly changed if calculated on this basis. This point was well illustrated in a recent experience of the writer, in making some trials upon water and upon a thicker liquid, or mixture with the same plant. It was found that in the latter case the sluggish action of the valves so increased the slip that the pump had to run about 35 per cent. faster than with water, to give the same actual discharge; the net effective work being greatly reduced; though the steam consumption and plunger displacement were substantially the same in both cases.

The part of the slip made up by actual leakage of plungers, and of valves when closed, when estimated or measured by a special test, but that part due to the action of the valve cannot be so readily derived except in the unusual cases where the actual discharge can be measured. When the engine delivers into a reservoir, or the water can run to waste during the trial, weir measurements give a check on the total slip; but such conditions are rather exceptional, and even when applied they are subject to the errors of the weir measurement.

The determination of the leakage should be by a special test, and the computation of the percentage of leakage from these observations. This in part corrects for the slip but leaves the error due to defective action of the valves.

VEGETABLE GROWTH IN WATER MAINS.

A vegetable growth in the water mains at St. Paul, Minn., has lately, according to the *Engineering Record*, been the cause of some trouble. The first case was discovered by the superintendent, in one of two service pipes in a single trench supplying a double house. A complaint was made of bad water which flushing failed to improve. One of the pipes delivered pure water and one supplied a muddy liquid that was of no use. This fact led to the conclusion that one of the services was foul; and the remedy applied on this supposition proved effective. The boiler of a portable engine was connected with the faucet of the kitchen sink from which the muddy water came, and a steam pressure of 70 pounds forced against the 35 pounds water pressure for 30 minutes, thereby driving the water out of the pipe. Since that time the pipe has always delivered clear water, and twelve similar cases have been successfully treated in the same manner. Great care has to be taken that there are no leaks in the service pipes, and that none of the fittings are open during the steaming process.

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Thorold, Ontario.

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CHIEF ENGINEER'S OFFICE,
HAMILTON, ONT., Oct. 17, 1893.

REPRESENTATIVES OF THE
ESTATE OF JOHN BATTLE,
THOROLD, ONT.

Gentlemen: In reply to yours of September 18th last as to the cement manufactured at the John Battle Works, Thorold, Ontario, we have been using it on this Division of the Grand Trunk Railway for many years, and have found it to be of good quality.

Yours truly,
JOSEPH HOBSON,
Chief Engineer.

Canada Pipe Foundry,

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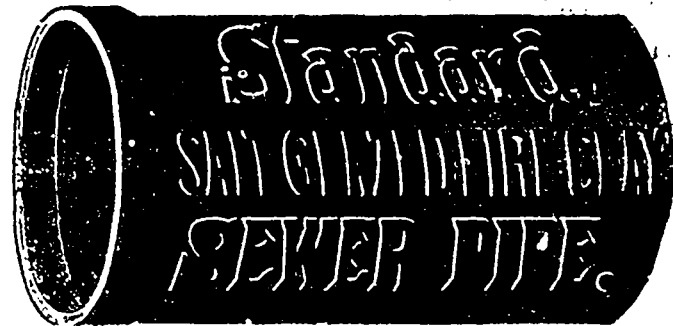
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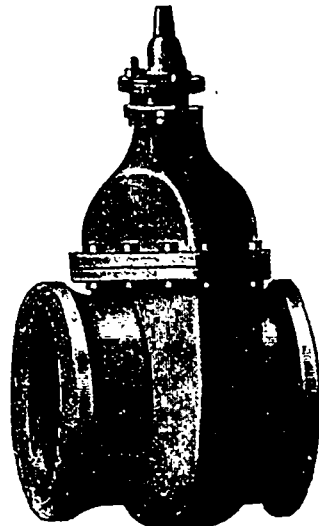
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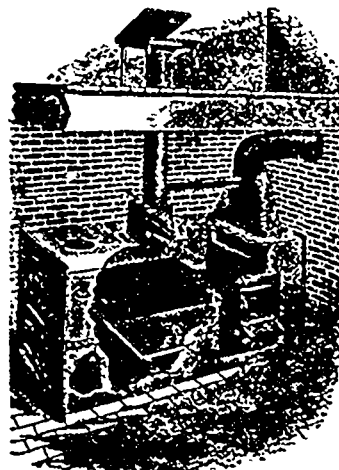
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