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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.

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No. 47

THE CANADIAN CONTRACT RECORD,
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As an Intermediate Edition of the "Canadian Architect and Builder."

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CONFEDERATION LIFE BUILDING, TORONTO.
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64 Temple Building - Montreal.
Bell Telephone 2799.
Information solicited from any part of the Dominion regarding contracts open to tender.
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At its Convention held in Toronto, Nov. 20 and 21, 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. Perrault, seconded by A. F. Dunlop, that we the Architects of the Province of Quebec now assembled in Convention being satisfied that the CANADIAN CONTRACT RECORD affords us a direct communication with the Contractors, Resolved, that we pledge our support to it by using its columns when calling for Tenders."

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CANADIAN CONTRACTOR'S HAND-BOOK.

A new and thoroughly revised edition of the Canadian Contractor's Hand-Book, consisting of 350 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.

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IN THE MATTER OF THE ESTATE OF JOHN FARLEY, DECEASED.

TENDERS REQUIRED.

Tenders will be received for the purchase (en bloc) on the ground of all the plant, tools, machinery and other articles, belonging to this estate, which consists of a complete outfit of a sewer contractor's supplies, and are now lying and being in the yard used and occupied by the late John Farley on the north side of Bendish Street in the City of Toronto.

The sale will be made on application to the undersigned.

THE TRUSTS CORPORATION OF CANADA.
Administrators of the Estate of John Farley, deceased.
ROBERT F. SEIGSWORTH, Clerk Sol.

CONTRACTS OPEN.

KALSO, B. C.—A company is being organized to construct a system of waterworks.

WOODSTOCK, ONT.—The opera house recently destroyed by fire will be rebuilt in the spring.

CAPE VINCENT, ONT.—The government will be urged to construct a breakwater at this place.

WINCHESTER, ONT.—The by-law authorizing the Council to erect a new town hall was defeated by the ratepayers.

BROCKVILLE, ONT.—It is rumored that a new hotel is to be erected on King st. in the spring, but no definite information can be obtained at present.

HULL, QUE.—The Quebec Government will be asked to allow the Council to issue debentures to the amount of \$75,000 on the court house and gaol building.

OWEN SOUND, ONT.—Mr. J. C. Foster, architect, invites tenders until noon of the 13th inst. for the erection of a residence for Mr. Francis Mills in Keppel township.

EAST TORONTO, ONT.—The by-law authorizing the Council to issue debentures to the amount of \$8,000 to establish a fire alarm system was carried by the ratepayers a few days ago.

NANAIMO, B. C.—Messrs. A. R. Johnston & Co. will receive tenders until Saturday, the 20th inst. for the construction of a wharf and warehouse. The wharf will be 240 feet x 100 feet, and the warehouse 216 x 56 feet. The plans were prepared by Mr. J. Pawson.

KINGSTON, ONT.—Surveys were recently made by engineers for the proposed international bridge to be constructed across the St. Lawrence River from Morrisstown to a point near this city.—The construction of a bridge between the mainland and Howe Island is being agitated.

HAMILTON, ONT.—At a recent meeting of the Hospital Committee, the Chairman recommended that a proper building for contagious diseases be erected as soon as possible. It was decided not to proceed with the erection of the temporary wing, as intended.—Messrs. John A. Bruce & Co. have taken out a permit for the reconstruction of their warehouse, to cost \$6,000.

DARTMOUTH, N. S.—Mr. J. E. Stearns is about to commence the erection of a three story brick building at the corner of Water and Portland streets, from plans prepared by Mr. Edward Elliott, architect. The first floor will be fitted for a dry goods store, with plate glass front and on the same floor will be banking rooms for the branch of the Union Bank. The second floor will be finished and a residence.

QUEBEC, QUE.—Mr. Trudel has purchased a block of property on Palace St. Joining Coillins streets, and it is said to be his intention to erect a large hotel on the site. It is also reported that he

will build an opera house adjoining the hotel.—A bill has been passed in the Provincial Legislature providing for the payment of \$1000,000 to a syndicate for the purpose of completing a line of railway between Longueuil and Armstrong.

LONDON, ONT.—A petition has been presented to the Board of Works for the construction of a tile drain on Waterloo street and a bridge over the Thames at Wharncliffe road.—A building permit has been granted to James A. Welford for a two-story brick residence on Queen's avenue, to cost \$2,000.—Mr. F. E. Robson, County Clerk, will receive tenders until noon on Wednesday, the 24th inst. for the erection of an iron bridge over Doty's creek between the townships of North Dorchester and West Missouri, tenders to furnish plans, specifications and strain sheets.—At a meeting of the Waterworks Committee held on Tuesday last, it was decided to advertise for tenders for new pumps with a capacity of \$4,000,000 gallons per day, to be completed by 1st of June.

MONTREAL, QUE.—The Consumers' Gas Company are building a cofferdam across the River St. Pierre, near the bridge. It is the intention of the company to put down two large pipes, 3 1/2 feet below the bed of the river, with a diameter of 24 and 16 inches.—Tenders will be called for the paving of Notre Dame street east, from Lacroix to Papineau road. It is reported that the Canadian Pacific Railway Company will build an opera house in this city, to cost \$100,000.—Mr. L. O. David, City Clerk, will receive tenders until Thursday, the 18th inst., for 10,000 feet of fire hose, with patent couplings and 50 salvage covers.—The Montreal Park and Island Railway Company contemplate the erection of a station, and are looking for a suitable site.—The Y. M. C. A. of McGill University has received a donation of \$5,000 from Mr. George Hague, manager of the Merchants' Bank in Canada, towards the erection of a Y. M. C. A. building on the college grounds. A permanent building has been talked of for some time, and this donation will form the nucleus of the fund.

WINNIPEG, MAN.—The final meeting of the plans committee of the Wesley College Board was held last week. The plans prepared by Messrs. Browne and Peters were finally revised, and a resolution was adopted, recommending them to the college board. A meeting of the board is to be held at an early date.—Extensive repairs and improvements are to be made to the Vulcan Iron Works in this city.—At the last meeting of the City Council it was resolved that the Legislation Committee be requested to consider the advisability of seeking power from the Legislature to be given as a branch to the Dominion Government, by the construction of a dock and pier on the Red River at St. John's Rapids, although it is a long time since the ratepayers

OTTAWA, ONT.—Mr. Alex. Robertson has purchased property on the west side of Bank street, between Slater and Maria streets, and will immediately remodel the buildings thereon. In the spring three new stores will be erected on the vacant land adjoining the buildings.—Mr. Robert Surtees, City Engineer, will receive tenders until Tuesday, the 16th inst., for timber and masonry work required for the construction of a bridge over the Rideau River at Porter's Island. Plans may be seen at the City Engineer's office.—The survey for the interprovincial bridge between Hull and Nepean point will be begun next week under the direction of Mr. D. Harris, chief engineer of the Gatineau Valley and Pontiac railways.

The plans for the proposed Maternity Hospital, near the Lady Stanley Institute have been prepared by Messrs. Arnold & Calderon, architects. The dimensions of the building will be 60 x 42 feet. The foundation and basement will be of stone and the upper stories of brick. The estimated cost is \$6,000.—The Public Works Department will shortly call for boilers for a new dredge.—Plans have been prepared for the erection of a large brick building at the corner of Bank, Queen and Albert streets, to be five stories high, having a frontage of two hundred feet on Bank street and one hundred and thirty two feet on Albert and Queen sts. The second floor will be devoted to an opera house with seating capacity of 1,900. The corner of Queen and Bank will be taken up by a large hotel with 150 rooms. The ground floor facing on Bank street will be occupied as stores. The building when completed will, it is estimated, cost \$150,000. Work is to be begun in the spring.—E. F. E. Roy, Secretary Department of Public Works, will receive tenders until Monday, the 15th inst. for the construction and delivery at Sorel, Que., of two cylindrical straightway boilers.

TORONTO, ONT.—Dr. McCully, Yonge Street Arcade, wants tenders at once for heating three small houses with hot air.—Mr. E. B. Jarvis, architect, has prepared plans for the new hotel to be erected on the Island by Mr. Edward Hanlan, and a company will be organized at once to build it.—The City Engineer is making arrangements for constructing permanent pavements on the following streets: McCaul street, Bathurst street, north of College street, Bloor street west, Broadway avenue, completing Church street, and other streets on which electric cars are to run. Work will be commenced early in the spring.—Mrs. Mead proposes erecting an addition to her buildings at Centre Island; to be 100 x 90 feet.—Additional accommodation is to be provided at the Gladstone avenue, Queen, Victoria and Denison streets.—The construction of a bridge over the St. Lawrence between Beverley and Capreol is contemplated.—Messrs. Miller, White, Crowl and Montgomery have been given notice that applications will be made at the next session of the Council

Legislature for an act to incorporate the Toronto and Collingwood Air Line Railway and Navigation Company, with power to construct and operate a railway from a point in or near Collingwood to a point near Toronto.—A project is on foot to utilize the water of the Credit River for power purposes. Incident to the scheme will be the building of a dam, the formation of a lake, two miles long, for a fish reserve. The promoters of the scheme are Sir Melville Parker, Mr. William McKenzie and Ald. J. Enoch Thompson.—Another meeting was held on Tuesday last to consider the erection of a suitable memorial to the late W. H. Howland. It was decided to solicit subscriptions for the erection of a new drill hall at the Mimico Industrial school, towards which Mr. H. A. Massey has already donated the sum of \$3,000. The cost of the building, according to plans already prepared will be about \$8,000. The erection of a monument in Queen's avenue was also considered.—Building permits have been granted as follows: M. Nasmith, 14 Maitland st., three att. 2 story and attic bk. dwellings, 124-6 Bond st., cost \$6,000; C. Page, Lowther ave., 2 story bk. add. in rear and alterations to 202-210 Yonge st., cost \$6,000; R. A. Graydon, det. 2 story and attic bk. dwelling, Homewood ave., cor. Maitland Place, cost \$5,000; J. C. Price, det. 2 story and attic b. f. dwelling, 105 Morse st., cost \$1,300; Dr. Temple, alterations to stores, 440 Spadina ave., cost \$2,000.

FIRES.

The St. Urbain Academy, situated on St. Urbain street, Montreal, was damaged by fire recently to the extent of \$3,000.—Four large buildings at Yarmouth, N. S., owned by Walter Thompson, were destroyed by fire on Tuesday last. The loss is partly covered by insurance.—The Methodist church at Munster, Ont., a brick structure valued at \$3,000, was destroyed by fire on Saturday last. The loss is covered by insurance.—Comyn Bros. furniture store at Wingham, Ont., was burned on the 8th inst.—Fire at Sault Ste Marie, Ont., on Monday last destroyed McQuarrie's grocery store, Thomas' stationery store and Stark's shoe store. Loss, \$10,000; partly covered by insurance.—A building at 700 Queen st. west, Toronto, owned by the Land Security Co., was damaged by fire last week to the extent of \$1,000.—E. Teucut's office and Downing Bro's. butcher shop at Lucan, Ont., owned by William Stanley, were burned to the ground recently. The loss is covered by insurance.—The residence of Mr. M. Brown, at Rat Portage, Ont., was destroyed by fire on the 5th inst.

CONTRACTS AWARDED.

SMITH'S FALLS, ONT.—Mr. R. S. Nichols, of Toronto, has been awarded the contract for new public school to be erected in this town, his price for the work being \$7,000.

REGINA, N. W. T.—The Council have purchased from Mr. J. D. Randall, of Brussels, Ont., his World's Fair gold medal steam fire engine. Price, \$3,200, including automatic steel tubular heater.

TORONTO, ONT.—Mr. Geo. F. Bostwick, has been awarded the contract for the new fittings of the Ontario Bank in this city, also for the offices of Messrs. John Stark & Co. and the Queen City Oil Works, Front street east.

VANCOUVER, B. C.—Mr. T. McKinnon has been awarded the contract for the erection of the Inns of Court building at the corner of Hastings and Hamilton streets. The building is being erected by Dr. Powell, from plans prepared by Mr. C. M. Frippie, architect, and will extend 2 feet on Hastings street and 120 feet on Hamilton street.

HAMILTON, ONT.—The Finance Committee has accepted the tender of the Bank of Hamilton for the purchase of \$2,250,000 worth of debentures, the price being \$2,274,000. The other tenderers were Messrs. Wyatt & Jarvis, of Toronto,

and the Bank of Montreal.—The directors of the Hamilton, Grimsby and Beamsville railway has awarded a contract to Messrs. Ahearn & Soper, of Ottawa, for building eleven trolley cars. They have also ordered 50 tons of copper wire from the Eugene F. Phillips Electrical Works of Montreal.

ARCHITECTURAL COMPETITIONS.

Plans are invited until Feb. 20th for a Court House at Pittsfield, Ill. Particulars may be obtained on application to the County Clerk, Pittsfield, Ill

BUSINESS NOTES.

Longueil & Hubley, plumbers, Halifax, N. S., have dissolved partnership, Mr. R. Longueil continuing the business.

Mr. R. Audet has been appointed liquidator of the estate of N. Lemieux & Noel, wholesale and retail hardware merchants, Quebec.—Messrs. Theriault & Campagne have formed a partnership as stone contractors in Montreal.

The *Legal and Commercial Exchange* report the following: P. S. McManns, contractor, Moncton, N. B., has assigned.—Nelson & Maughan, sash and door manufacturers, Richmond, Que., have dissolved partnership.

FACTORS OF SAFETY FOR STEEL GIRDERS.

By GEO. H. BLAGROVE.

In the tests for steel to which we have referred, it will be noticed that no compressive tests are prescribed. In the kind of steel we have been describing it is usual to reckon the compressive as equal to the tensile resistance, although it is generally rather more. Assuming that we can have steel girder plates whose ultimate tensile and compressive resistance are not less than 28 tons per inch, what factors of safety must we employ? Mr. C. A. Marshall, when lecturing before the American Society of Civil Engineers in 1887, observed, from experiments upon wrought iron and steel, that, with solid bars, the elastic limit was the chief factor in determining the ultimate resistance of struts of ordinary length. This observation, of course, has reference to transverse strains, and is therefore equally applicable to girders. Mr. Marshall's experiments showed that steel whose ultimate tensile resistance was about 30 tons or more had an elastic limit of about 18 to 19 tons, or from 3/5 to nearly 2/3. In wrought iron of about 25 tons ultimate tensile resistance, he found the elastic limit from about 5/7 to 2/3. These are higher proportions than in the steel, but then we know that wrought iron is in this respect subject to great variations. In Styffe's experiments, previously quoted, steel containing 7 to 42 per cent. of carbon showed an ultimate tensile resistance of 31.07 tons, with an elastic limit of 15.3. In the report of the Steel Committee (1868-70) we find records of experiments upon Bessemer steel showing an ultimate tenacity of 33.66 tons, with a yielding stress, of 16 tons, and sometimes more; and Lowmoor steel with an ultimate tenacity of 27.8 to 24.07 tons, and an elastic limit of 14 to 12 tons. The committee found that the stress at which the material broke down was in all cases nearly the same for tension and compression that the amount of compression and extension by equal forces per unit of area was nearly equal, and that it was less for steel than for wrought iron. Bauschinger's experiments upon Ternitz steel containing 55 per cent. of carbon showed an ultimate tenacity of 35.9 tons, with elastic limits of 20.98 tons for tension and 22.22 tons for compression. In experimenting with repetitions of stress upon mild steel plates having an ultimate tenacity of 28.5 tons, he raised the elastic limit from 15.6 to 19.4 tons by 6.68 million repetitions of a load of 16 tons. It would appear that had the load been kept below the original elastic limit, the metal would have endured an indefinite number of repetitions of it without fracture. Hence we might infer that a live load of nine tons per inch would be perfectly safe. Wohles's experiments up-

on cast-steel axes showed that a live load of 23 tons was equivalent to a mixed load of 38.2 tons, whence it might be inferred that where we could use a live load of nine tons a mixed load of 14.8 tons would be admissible. It would not be wise, however, to approach so near to the elastic limit as this, though it is certain that we may employ lower factors with steel than with iron, owing to the greater homogeneity and uniformity in quality of the former material. The homogeneity of mild steel was forcibly illustrated in experiments by the Board of Trade, reported in 1881. The ultimate tensile strength and the yield point were the same whether the stress was applied lengthwise or crosswise to the plates tested, only the ultimate elongation and contraction of sectional area differed. The following are some of the results quoted:

	Yield point in tons per inch.	Ultimate tenacity.	Percentage of elongation in 10 in.	Percentage of contraction.
1/2 in. plate tested lengthwise...	19	31	23.5	46
Ditto, tested crosswise...	19.1	31.4	21.2	39.9
1 in. plate tested lengthwise...	14.9	28	30.6	50.4
Ditto, tested crosswise...	14.8	28	25.6	42.4

We can only rely upon a limit of working strength equal to half the ultimate strength, and we can approach nearer to this limit than in wrought iron, owing to the greater uniformity in the quality of the metal. It is generally agreed that the working stress of 6 1/2 tons per inch, prescribed by the Board of Trade for steel bridges, is far too little for economy. Barlow prescribes the working stresses of eight tons for plates and nine tons for bars. Mr. F. T. Reade, in a paper on "The Application of Iron and Steel for Building Purposes" read before the Royal Institute of British Architects in 1889, prescribed a working stress of seven tons per inch for dead loads upon steel girders, somewhat curiously allowing 8 1/2 tons for mixed loads. Possibly it is intended that, with dead loads, a margin is left for the further occurrence of occasional live stresses; otherwise we should naturally take a high working stress for dead loads. R. H. Thurston, in his work on "The Materials of Engineering" (New York, 1883), Part II, page 341, prescribes the following factors on the ultimate strength of soft steel: dead, 3; live, 6; shock, 8; and the following on the elastic limit: dead, 1; live, 2; shock, 3. This evidently assumes the elastic limit at one-third of the ultimate strength. As we have shown, it is more than this, and about one-third of the ultimate strength, or about nine to ten tons, would be a safe stress for dead loads. For mixed loads 8 1/2 tons would be proportionately safe, taking five tons for live loads.

(To be Continued.)

HOW TO MAKE GRANITE COLUMNS.

Granite for columns, balusters, round posts and urns is now worked chiefly in lathes, which, for the heaviest work, are made large enough to handle blocks twenty-five feet long and five feet in diameter. Instead of being turned to the desired size by sharp cutting instruments, as in ordinary machines for turning wood and metal, granite is turned, or rather ground away, by the wedge-like action of rather thick steel discs, rotated by the pressure of the stone as it slowly turns in the lathe. The discs, which are six or eight inches in diameter, are set at quite an angle to the stone, and move with an automatic carriage along the lathe bed. Large lathes have four discs, two on each side, and a column may be reduced some two inches in diameter the whole length of the stone by one lateral movement of the carriage along the bed. The first lathe for turning granite cut only cylindrical or conical columns, but an improved form is so made that the templates or patterns may be inserted to guide the carriages, and

columns having any desired swell may be readily turned. For fine grinding and polishing the granite is transferred to another lathe, where the only machinery used is to produce a simple turning or revolution of the stone against iron blocks carrying the necessary grinding or polishing materials.

MUNICIPAL DEPARTMENT.

HEIGHT OF BUILDINGS IN LONDON.

The London County Council, at a recent meeting, adopted the recommendation of the Building Act Committee that the proposed Bill to be introduced next session to consolidate and amend the Acts relating to streets and buildings in the County of London should contain clauses providing:—

(a) That the existing buildings should not be raised or extended so as to contravene the provisions of the Bill as to height and open space in front which are applicable to new buildings, or where they already contravene such provisions they should not be raised or extended so as to make matters worse.

The next recommendation was designed to meet a grave defect in the existing law, whereby the Council had practically no control over such buildings as blocks of artisans' dwellings not fronting any street, but enclosed in a courtyard exclusively belonging to them.

(b) That domestic buildings not abutting upon any streets shall be subjected to restrictions as to height and open space about them similar, mutatis mutandis, to those to which buildings abutting on streets are subject.

As regarded the difficulty of setting back buildings in old streets or on old foundations, they thought the setting back should be compulsory, and, as regards the public convenience, there was no sufficient reason why the public should not pay a fair price for what it required. They therefore recommended:

(c) That buildings erected anew upon old foundations shall, unless the Council otherwise allow, be subject to the same restrictions of height as new buildings erected upon new sites.

(d) That buildings erected anew upon old foundations, or erected in old streets, shall, unless the Council otherwise allow, be set back at the same distance from the centre of the road, as applies to new buildings erected on vacant land, but that in their case the owner shall not be compelled to give up the public way the land so left free from buildings.

It was becoming more and more the practice to erect large blocks of buildings which entailed certain peculiarities of construction. Amongst others, it was often found necessary to light many of their rooms by internal areas or courtyards; therefore they recommended

That provision be made for the adequate ventilation of internal areas of shafts constructed with a view to providing light and air to rooms in domestic buildings, and for regulating the dimensions of the same.

As the law stood at present, the committee often found itself in a difficulty as to new streets; therefore they recommended:

(f) That it should be an offence to lay out any new street without the sanction of the Council in writing.

(g) That in cases arising in the administration of the Building Act the Council shall have power, under proper safeguards, to close or divert useless roads, paths, or rights of way.

(h) That the Council be empowered to frame by-laws to regulate lamps, signs, or other things attached to houses and overhanging the public way, such by-laws to be enforced by the vestries.

LEGAL DECISIONS AFFECTING MUNICIPALITIES

W. P. ST. GEORGE VS. TOWN OF LONGUEUIL.—This action was taken because the town used street gulleys which were alleged to be an infringement of plain

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

patent. The infringement was alleged to consist principally in the manufacture and use of a gully made of sections, circular in form, having an outlet to the sewer and a square top, with opening on the side, and a manhole cover. The defence brought several witnesses, but each in turn admitted that in certain respects the gulleys were identical with the plaintiff's. Counsel for the defence argued that his clients acted in good faith, having seen the letters patent granted for the Colas gully and that, therefore, they were not to blame. The law, however, is very clear on this point and holds the user of an infringement liable as well as the manufacturer. His Honor Mr. Justice Tait said that the infringement was proven beyond a doubt, and he would grant a perpetual injunction against the manufacture or use of the Colas gully. He would not be very hard in regard to damages, as he believed the defendants acted in good faith. He would condemn them to pay \$35 and the costs of the case. This he deemed sufficient to protect Mr. St. George.

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

Gentlemen: In reply to yours of September 19th 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

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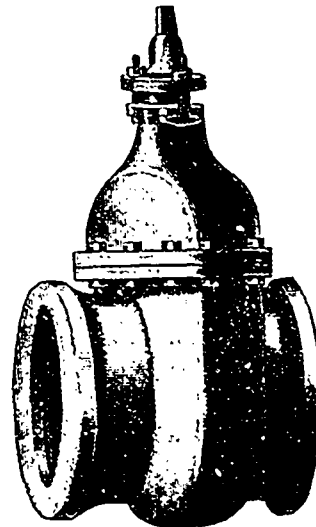
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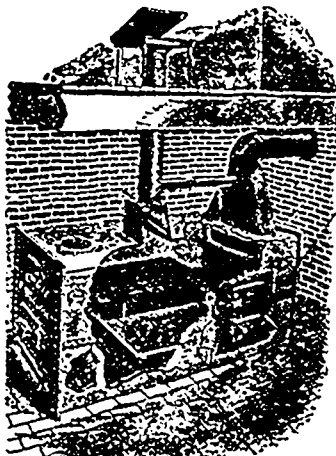
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LUMBER.

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Table listing lumber prices for various types of wood and products in Toronto and Montreal.

Toronto. Montreal.

Table listing various building materials like planks, shingles, brick, and cement with prices in Toronto and Montreal.

Table listing prices for sand and stone materials.

Table listing prices for slate roofing and building stone.

Table listing prices for various paints.

Toronto. Montreal.

Table listing prices for various oils, putty, and cement types.

INDEX TO ADVERTISEMENTS

Large index listing various contractors, suppliers, and services with their contact information.