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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF
 PUBLIC WORKS • TENDERS •
 ADVANCE INFORMATION •
 AND ALL THE LATEST NEWS OF THE
 EVERY AND ALL THE LATEST NEWS OF THE SATURDAY

Vol. 3.

Toronto and Montreal, Canada, August 6, 1892.

No. 26

THE CANADIAN CONTRACT RECORD,
 PUBLISHED EVERY SATURDAY
 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,

14 KING ST. WEST, TORONTO, CANADA.
 Telephone 2362.

64 Temple Building, Montreal
 Bell Telephone 2299.

Information solicited from any part of
 the Dominion regarding contracts open to
 tender.

ADVERTISING RATES ON APPLICATION

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 con-
 tractors with respect to advertisements for
 Tenders.

The following resolution was unanimously
 adopted at the First Annual Meeting of the
 Province of Quebec Association of Archi-
 tects, held in Montreal, Oct. 10th and 11th,
 1890: "Moved by M. Perrault, seconded by
 A. P. Dumont, that we the Architects of the
 Province of Quebec now assembled in Con-
 vention being satisfied that the CANADIAN
 CONTRACT RECORD affords us a direct
 communication with the Contractors,—Re-
 solved, that we pledge our support to it by
 using its columns when calling for Ten-
 ders."

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

will be received at our offices until 5 p.m. FRI-
 DAY, AUGUST 12TH, for

**Hot Water Heating, Plumbing and Gasfitting,
 Electric Bells, Elevator, Mantels, &c.,**

for new Hospital for the Sisters of St. Joseph.
 Plans and specifications at said offices. No
 tender necessarily accepted.

MOORE & HENRY, Architects.
 London, Canada.



Notice to Contractors

Tenders will be received by registered post,
 addressed to the City Engineer, Toronto, up to
 eleven o'clock a. m. on TUESDAY, AUGUST
 16TH, 1892, for the construction of an

18 Inch Tile Pipe Sewer

in connection with the new cattle market and
 subway.

Specifications and forms of tender may be ob-
 tained on and after the 9th inst. at the office of
 the City Engineer. A deposit in the form of a
 marked cheque payable to the order of the City
 Treasurer for the sum of 2 1/2 per cent. on the
 value of the work tendered for must accompany
 each and every tender, otherwise it will not be
 entertained. All tenders must bear the bona fide
 signatures of the contractor and his sureties (see
 specifications) or they will be ruled out as in-
 formal.

The Committee do not bind themselves to
 accept the lowest or any tender.

JOHN SHAW,

Chairman Committee on Works,
 Committee Room, Toronto, Aug. 5th, 1892.

TENDERS

Will be received up till SATURDAY, AUGUST
 13TH, for all trades in connection with the erec-
 tion of an

Addition to Hospital on Major Street.

Plans and specifications may be seen at the
 office of

DARLING, SPROATT & PEARSON,
 Mail Building, Toronto.

Lowest or any tender not necessarily accepted.

SEALED TENDERS

For the various works required in the erection of
 an Addition to the Protestant Hospital for the
 Insane, Verdun, Que., will be received at the
 office of the undersigned up to noon on

Friday, August 19th.

Plans and specifications can be seen at our
 office on and after Tuesday, August 9th.

The lowest or any tender not necessarily ac-
 cepted.

WRIGHT & SON, Architects.
 Rooms 14 & 15, Mechanics' Building,
 St. James Street, Montreal.

SEALED TENDERS

will be received by the Corporation of the County
 of Bruce at the County Clerk's office, Walkerton,
 until noon on WEDNESDAY, THE 31ST AUG-
 UST, for the

Construction of a Sewer

from the County Gaol to Durham street in said
 town, a distance of about twelve hundred feet.

Parties may tender separately for the excava-
 tion, and furnishing and laying of sewer-pipe.

Plans and specifications may be seen at the
 office of the undersigned.

The Committee do not bind themselves to ac-
 cept the lowest or any tender.

GEORGE GOULD,
 Clerk County Bruce

Walkerton 1st August 1892



Notice to Contractors

Tenders will be received by registered post,
 addressed to the City Engineer, Toronto, up to
 Eleven o'clock a. m. on TUESDAY, AUGUST
 9TH, 1892, for the following work and supply of
 Cement:

CEDAR BLOCK PAVEMENT

On McMurrich Street, from Davenport Road
 to Belmont Street.

Supply of Cement for the current year.

Specifications and forms of tender may be
 obtained on and after August 2nd, 1892, at the
 office of the City Engineer

A deposit in the form of a marked cheque pay-
 able to the order of the City Treasurer, for the
 sum of Five per cent. on the value of the work
 tendered for under \$1,000, and 2 1/2 per cent. for
 the value of the work tendered for over that
 amount, must accompany each and every tender,
 otherwise it will not be entertained.

All tenders must bear the bona fide signatures
 of the contractor and his sureties (see specifica-
 tions), or they will be ruled out as informal.

The committee do not bind themselves to ac-
 cept the lowest or any tender.

JOHN SHAW,

Chairman of Committee on Works,
 Committee Room, Toronto, July 28, 1892.

TENDERS

will be received by the undersigned for the con-
 struction of the Township of York for

Grading and Macadamizing

on Howland Ave and Bridgeman street from
 Davenport road south to C. P. R. (the above
 roads are about 40 rods east of Bathurst St.)

Plans, specifications, etc., can be seen at the
 office of the undersigned, and tenders will be re-
 ceived up to

**5 o'clock p. m. on Tuesday, 23rd
 August, 1892.**

The lowest or any tender not necessarily ac-
 cepted.

PETER S. GIBSON, C. E.
 York Tp. Engineer.

Willowdale, Aug. 4th, 1892.

TENDERS FOR

PIPE SEWER

Sealed tenders will be received by the Chair-
 man of the Board of Works of the Town of Owen
 Sound, up to 6 p. m., SATURDAY, AUG 13TH
 1892, for the construction of a Pipe Sewer, 3420
 feet long on Bay St. in said town. Also at the
 same time sealed tenders will be received for sup-
 plying the following approximate lengths of sewer
 pipe F. O. B. at the Town of Owen Sound, to be
 delivered on or before Aug. 20th 1892:

81 feet of 6 inch pipe.
18 " " 9 " "
546 " " 12 " "
138 " " 12 " x 6 in. bevel junction pipe.
1872 " " 15 inch pipe.
396 " " 15 " x 6 inch bevel junction pipe.
435 " " 18 " "

Each pipe to be 3 feet in length.
 An accepted Bank Cheque payable to the order
 of the Treasurer of the Town of Owen Sound for
 the sum of two hundred dollars (\$200) must ac-
 company each tender for the construction of Pipe
 Sewer—and a like accepted Bank Cheque must
 accompany each tender for the supply of pipe.
 In either case this cheque will be forfeited if the
 party decline the contract, or fail in the perform-
 ance thereof—and will be returned in case of non-
 acceptance of tender.

Plans and specifications to be seen at the office
 of the Town Engineer.

The Board of Works reserve the right to reject
 any or all tenders.

R. Mc DOWALL, CHAS. GORDON,
 Engineer in charge. Chairman Bd of Works.

UNDERPINNING BY BORE-HOLES.

A very ingenious system of securing
 foundations of quay walls, bridge piers,
 reservoir embankments, and other struc-
 tures from further yielding or sinking is
 proposed by Mr. Walter R. Kimpfle, M.
 Inst. C. E., in an article in Engineering.
 It consists of underpinning by means of
 grouting and stock ramming, introduced
 through bore-holes or tubes, by which
 means the foundations are strengthened
 and widened, and the underlying strata
 made firmer. Mr. Kimpfle says: "should
 the wall be founded on sand or gravel, all
 that would be necessary would be to put
 down a series of bore-holes of, say, three
 inches to six inches in diameter at inter-

vals along the line of wall, and several in
 the width of wall." These bores are
 made through the vertical section, and on
 each side of the wall, and will reach below
 the footings into the strata beneath.
 Pipes are then placed in the bore-holes
 and thick neat Portland cement grout is
 then passed through the pipes, or forced
 down and this will fill up the crevices,
 rendering the foundation compact, and
 will cement the wall to the stratum of sand
 or gravel on which it is founded, and the
 stratum will also be cemented together or
 rendered firm for several inches, thus
 adding a new foundation course below the
 wall. A second solidified stratum can be
 added below the first if necessary.

The bore-holes may in some cases be
 bored in oblique directions through the
 wall, so that the foundations could be
 widened by this means. If the underlying
 stratum is of clay, or of a clayey nature, the
 author proposes, instead of forcing down
 cement grout, to force down the tubes
 clay worked up with hydraulic lime, sand
 mixed with iron filings and salammoniac,
 partly-set neat Portland Medina cement
 concrete, such materials to be made up
 into convenient sized balls or rolls, put into
 the tubes, and rammed down with a heavy
 ram or monkey worked by a hand, or
 steam-ringing, or pile-driving machine so
 as to force the balls into the soft stratum,
 and consolidate it. By this means the
 foundations can be wiped beyond the base
 of walls. After one layer has been de-
 posited, the bore-holes can be sunk deep-
 er and another layer added. This plan is
 called "stock ramming," and is applicable
 to many purposes, such as stopping leaks
 under reservoir embankments. Mr. Kin-
 pple has used these methods with suc-
 cessful results. The method appears to
 be applicable also to the foundations of
 buildings which have settled, in which case
 the bore-holes would be made in an
 oblique direction on each side of the wall.
 As a mode of underpinning, the plan has
 advantages over the ordinary laborious
 methods, and it can be done expeditiously
 and without disturbing or removing the
 soil on either side of the wall. It may
 also with advantage be used, as suggested,
 for raising walls and factory chimneys, or
 for bringing them back to the perpendicular.

The North American Chemical, Man-
 ufacturing Company is making
 application for permission to change its
 name to the Owen Sound Portland Cement
 Company.

CONTRACTS OPEN.

CARMAN, MAN.—A new Baptist church is to be erected here.

HARTLANDS, N.B.—A system of water-works is shortly to be constructed.

SEAFORTH, ONT.—Mr. G. A. Strong is calling for tenders for the erection of a brick block on Main street.

TORONTO JUNCTION, ONT.—Mr. J. A. Ellis, architect, is preparing plans for new stables to be erected in connection with the Peacock hotel, to cost \$1,500.

LEAMINGTON, ONT.—The Town Council will be asked to submit a by-law to the ratepayers to raise the sum of \$5,500 for the purchase of an electric light plant.

WINDSOR, ONT.—Mr. Wm. Newman, C. E., has received instructions to prepare a survey of the Sandwich, Windsor and Amherstburg street railway to the latter point.

GUELPH, ONT.—Mr. James Hewer will receive tenders until Wednesday, the 10th inst., for the construction of a stone highway bridge over the River Speed, on the Edinburgh road.

BRANTFORD, ONT.—The Government architect is at present preparing plans for the new drill shed to be erected here and it is expected that tenders will be asked in a couple of weeks.

ARNPRIOR, ONT.—It is stated that a new hotel building is to be erected here, at a cost of \$20,000. —McLaughlin Bros. are about to erect a new steam saw mill on the bank of the river a little south of the present water power mill.

HAMILTON, ONT.—Mr. C. Carroll, 63 James street south, will receive tenders until Monday, the 8th inst., for the erection of a brick house on George street for Mr. O. A. Horning.—A committee has been appointed to procure a design for the Macdonald Memorial statue.

KINGSTON, ONT.—Sufficient funds cannot be secured to proceed with the erection of a Masonic hall.—Sir John Thompson, was interviewed recently regarding the breakwater to be constructed at the wharf. He stated that the work would be commenced as soon as the city was ready.

WINNIPEG, MAN.—Ald. Hallam, of Toronto, was in the city recently arranging for the erection of a large wholesale block on Princess street.—Tenders are now being asked for the plumbing, heating and sewer connection of the new addition to the Manitoba college.—Tenders are now being asked for the construction of a number of sewers.

TORONTO, ONT.—It is reported that the C. P. R. authorities have decided on the erection of a large hotel, the site chosen being the old Bishop Strachan property on Front Street West, opposite the present Union Station. It is said that the plans for the proposed building have already been drafted, and that the transfer of the land to the company will take place at an early date.—The Village Council of North Toronto has decided to erect a fire station in rear of the present town hall.—The Medical Health officer has reported in favor of the erection of another crematory in the northwestern part of the city. The Council has ordered that the same be built.—Building permits have been granted as follows: Jas. R. Dunn, 202 Spadina Ave., 2 story and attic bk. dwelling, e. side Bathurst st., n. of Lowther Ave., cost \$3,000; City and County Loan Association, alterations to office, 32 and 34 Queen st. east, cost \$3,000; Ontario Flats and Power Co., Niagara st., bk. add. to factory, cost \$3500.

OTTAWA, ONT.—T. Trudeau, Deputy Minister of Canals will receive tenders until Tuesday, the 23rd inst., for works connected with Sections No. 1 and 2, Soulanges Canal, situated at the Cascades Point, Que.—The Dominion Government has decided to ask for tenders for the extension of the wharf at the Grosse Isle quarantine station into deep water, and for the construction of a new wharf at Albert Head, the quarantine station on the Pacific side near Victoria harbor, B.C.—It is understood that there will be added large steel cylinders for the disinfection of clothing by superheated steam.—The Department of Marine will erect a new lighthouse in the Gulf of St. Lawrence, off the coast of Labrador. The Chief Engineer will shortly locate the site.—Archbishop Duhamel has purchased a site on the Richmond Road on which to erect a magnificent

archepiscopal palace.—E. F. E. Roy, Secretary Department of Public Works, will receive tenders until Thursday, 8th September, for the erection of a Court House, etc., at Moose Jaw, N. W. T.

MONTREAL, QUE.—Mr. James Baxter, of St. James street, has decided to erect a large block on St. Lawrence street, above Sherbrooke street, containing thirty-one stores and a large hall overhead. The block will be of cut stone, three and four stories high, costing \$275,000 and it is said will be the largest block in the city.—The proprietors of the franchise of the Yule bridge over the Rapids of the Richelieu River at Chambly Canton, are considering the erection of a new bridge, to connect the village of Richelieu and Chambly Canton, and invite offers for the purchase of the stone piers and abutments contained in the old bridge.—Notice has been given to the ratepayers that sewers will be constructed on the following streets: Colenline street, from Charlevoix street to Butler street; Fullum extends on, from Canadian Pacific Railway to Moreau street; Rushbrooke street, from Charlevoix street to Butler street; Ryde street, from Charlevoix street to Butler street.—A new building is to be erected for the Sisters of the Holy Name at Outremont, to be used as a mother house. The site is on the mountain slope of the Cote des Neiges road, and consists of sixty-seven acres. Plans are now being prepared and ground will be broken next spring.—The City Surveyor will receive tenders until Wednesday the 17th inst., for the construction of sewers on the following streets: St. Antoine street, from Guy street to Desrivieres street; St. Catherine street, from Harbor street to DeLevis street, Dorchester street, from Cadieux street to German street, German street, from Craig street to Dorchester street; Moreau street, projected Forsyth street to projected Hochelaga street; Seaver street, from St. Catherine street to Robillard street.—A special meeting of the Outremont Council was held last week to take steps to secure the extension of the Montreal electric street railway to that place.—A. Dubreuil, architect, is preparing plans for two houses to be erected on Amherst street for Mr. J. Gaudet. Tenders will be asked for shortly.—James Aimes, architect, is preparing plans for a house at Montreal Junction, for Mr. Lusher.—Messrs. Isaac Collins and M. G. Cruickshank will each erect a residence at Point St. Charles.—Wright & Son, architects, are calling for tenders up to Monday next, for the erection of a bakery and stable on Bleury street for Messrs. W. & J. S. Wylie.—Mr. A. F. Dunlop, architect, has purchased the Valve's Point at St. Ann's and will erect a summer cottage thereon.

FILES.

The main building of the Stormont cotton mills at Cornwall, Ont., was destroyed by fire on Thursday last. Loss, \$15,000.—The Restigouche Spool Company's factory at Jacquet River, N.B., was destroyed by fire on the 2nd inst. Loss, \$30,000.—A brick building on the corner of Albert & Princess streets, at Clinton, Ont., known as the Clinton Carriage Works, was burned on Tuesday last. The building was owned by Henry Camleton.—Kelly Bros. saw mills at River Herbert, N.S., were burned on Saturday last. Loss, \$12,000.—Mr. George Temple's dwelling house at Alvinston, Ont., was destroyed by fire on the 31st ultimo. Insurance, \$500.—A serious fire occurred at Strathtroy, Ont., on Wednesday last, destroying the four-story factory of the Strathtroy Knitting Company and the Roman Catholic church opposite. Loss on factory, \$100,000; insurance, between \$60,000 and \$70,000. Loss on church \$8,000, with \$3,580 insurance.

CONTRACTS AWARDED.

MONTREAL JUNCTION, QUE.—Messrs. Anthony & Lapp have been awarded the contract for the erection of a Presbyterian church.

PETERBORO, ONT.—The Central Bridge Company, of this town, has secured the contract for the erection of a new bridge at Bobcaygeon.

WINNIPEG, MAN.—The contract for the supply of vitrified, glazed Scotch fire-clay drain pipes has been awarded to Francis Hyde & Co., of Montreal. About \$5,000 worth will be required.

MONTREAL, QUE.—The contract for feed wire for the electric street railway has been awarded to

the Eugene Phillips Electrical Works, and for ground wire to the Royal Electric Company.

STRATFORD, ONT.—Messrs. A. J. Bailey and R. Ledman, of this city, have the contract to erect an iron bridge, with stone abutments, at Smith Creek, Port Dover Junction, for the Grand Trunk Railway.

PRESTON, ONT.—The Canadian Office and School Furniture Company, of this town have been awarded the contract for the seating of opera houses at Ottawa, Victoria, B. C., and Truro, N. S. They have also secured the contract for the furniture and interior fittings of the New Court House at Woodstock.

HAMILTON, ONT.—Contracts have been awarded as follows for the erection of a large warehouse at the corner of King William and Hughson streets, for Messrs. Wood, Vallance & Co. Brick and stone work, George E. Mills, carpenter work, William Halliday; galvanized iron work, Thomas Irwin & Sons.

OTTAWA, ONT.—The contract for section 13 of the Soulanges Canal was first awarded to Messrs. D. O'Brien & Son, of Montreal. This firm being unwilling to proceed with the work, the Minister of Railways and Canals has decided to award the contract to Mr. Randolph Macdonald, of Toronto, at the price of \$515,000.

ST. JOHN, N.B.—The following tenders have been received for the harbor improvements at Sand Point: Beatty & Thompson, \$165,000; G. S. Mayes, \$152,000, and N. K. & M. Connolly, \$133,000. The Board of Works has decided to award the contract to N. K. & M. Connolly.

TORONTO.—The Pease Furnace Co. have been awarded the contracts for heating as follows: Residence of Hon. Edward Blake, Jarvis St.; residence of Rev. Provost Boddy, Trinity College; St. Simon's Church, Howard St.; Mr. H. D. Warren's residence, Wellesley St.; Strickland & Symons, architects.—The Local Board of Health have accepted the following tenders for the erection of the Isolation hospital Masonry and brickwork, Davidge & Lunn, \$9,700; carpenter work, Hutchins & Burns, \$6,066; galvanized iron and slating, Douglas & Plunkett, \$1,265; plastering, Duckworth Bros., \$1,947; painting, W. J. Moore, \$714; drainage, plumbing, flooring and heating are not included in the contracts awarded.—The Canadian Granite Company of Ottawa has been awarded the contract for supplying 60,000 blocks of granite for paving King and Yonge streets.

USEFUL HINTS.

HARDENING CEMENT BRIQUETTES.—M. Le Chatelier, the well known French engineer, says *Engineering*, advocates the practice of hardening cement briquettes in hot water. In this way the chemical reactions are accelerated, and in the case of good cement, the briquette is said to be as strong, after two days' hardening in hot water, as after seven days' in cold, or after seven days' hardening in hot water the briquette gives the same results as after twenty-eight days in cold. This method is also of value in detecting the presence of free lime in the specimen; as in that case the briquette flies to pieces, from the expansion of the lime, if the hardening takes place in warm water.

In erecting a chimney says the *Master Steam Fitter* care should be taken that the building is not proceeded with too rapidly. It is sometimes restricted to a rate not exceeding 6 feet a day in height. It is advisable to build chimneys when the work can be most steadily proceeded with. When the structure is built up too rapidly, and the mortar has not time to set, a gale of wind is liable to press the chimney over to one side, where it stays. The compressible nature of the mortar offering little or no resistance, consequently the less mortar used the better. Cement, owing to its crumbling when exposed to a high temperature, cannot be recommended except for the top of the shaft, where it may, however, be usefully employed. Grouting should, as a rule, not be attempted.

MUNICIPAL DEPARTMENT.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

CITY OF HALIFAX V. LORDLY. L was walking along the sidewalk of a street in Halifax at night, when an electric light went out, and in the darkness she fell over a hydrant and was injured. In an action against the city corporation for damages it was shown that there was a space of seven or eight feet between the hydrant and the inner line of the sidewalk, and that L. was aware of the position of the hydrant and accustomed to walk on that street. The statutes respecting the government of the city do not oblige the council to keep the streets lighted, but authorize them to enter into contracts for that purpose. At the time of this accident the city was lighted by electricity by a company which had contracted with the corporation thereof. Evidence was given to show that it was not possible to prevent a single lamp or a batch of lamps going out at times. The Supreme Court of Canada held that the city was not liable; that the corporation being under no statutory duty to light the streets, the relation between it and contractors was not that of master and servant or principal and agent, but but that of employer and independent contractors, and the corporation was not liable for negligence in the performance of the service; that the position of the hydrant was not in itself evidence of negligence in the corporation; and that L. could have avoided the accident by the exercise of reasonable care.

GOOD POINTS ON STREET PAVING.

The report of the Kansas City Municipal Improvement association's committee on pavements, submitted to that body at a recent meeting, contains many good points on street pavements, and from which we quote as follows:

The records of the past demonstrate that as nations increased and grew in wealth, education and power, so surely did the streets and avenues of the cities, also highways and thoroughfares of the country, become paved and beautified, and one of the first evidences of the deterioration and decay of nations is to be found in the neglect and carelessness shown in the maintenance of the roads and avenues, until eventually they become in most cases no more than winding paths.

Recent excavations disclose the fact that the inhabitants of Egypt, Babylon and Greece more than 3,000 years ago made the pavements of their residences, the courts to their palaces and public buildings, as well as the roads and streets of their cities and the highways connecting them, a constant study. Later, as the Romans increased in power and assumed control of the most of the then known world, in that proportion did their roads and streets improve, so that 2,000 years ago they had attained such a degree of perfection that many of them remain to this day, the attention of the traveling public being directed to them by the residents of the countries through which they are laid, with pride.

At the end of the eighteenth century the roads of northern Europe, England and Scotland had fallen into such a condition as to be almost impassable, as the writings of the most eminent men of that period now show. This emergency developed two men who have become almost revered by the people of England and Scotland for the great good achieved by them in the paving of the roadways in the cities and townships of Great Britain. The first of these two was John London Macadam, who came to the United States when fourteen years of age, remained until near thirty and then returned to England. In 1811 he addressed a memorial on the subject of roads and

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

their pavements to the house of commons, which led to the adoption of his system and to his appointment as surveyor of roads. Within a few years he had personally supervised the road making in twenty-eight counties in England and during his life nearly every traveled road and street in Great Britain was a monument of his success. Being a retiring man he declined the order of knighthood. His remains now rest in a village churchyard of one of Scotland's smallest towns.

Thomas Telford was the second. He was made president of the Institute of Civil Engineering of London from its commencement, and retained the position until his death, many years afterward. He received the order of knighthood early in his paving career and is admitted to have been one of the greatest engineers of the world. His remains now rest in Westminster abbey, where England finds a final resting place for those whom she highly honors.

The system of paving inaugurated by these men has since been followed in the building of seven-eighths of all the paved roads and streets now existing, not only abroad, but in our own country as well.

The value of a good pavement, and the importance of keeping it in good condition in our larger cities, can not be over-estimated. A perfect pavement has not and probably never will be found. It should be smooth and hard to give a sure foot-hold for animals, not becoming slippery by use, be as noiseless and free from dust and mud as possible, be easily and cheaply cleaned, and be of such material and construction that it can be readily taken up and relaid when necessary gas and sewer connections are to be made. Economy of maintenance also requires that the material used at the surface be of such nature as will form perfect bond and be durable.

Streets used for different purposes demand different pavements. Thus, a street in the centre of a wholesale district in a large city where transferring of heavy merchandise is constantly being done, requires an altogether different pavement from a street used for part or boulevard purposes, where no heavy drafting is allowed. The question before us naturally divides itself into the following heads or subdivisions:

First—Pavement adapted to the wholesale and other districts of our cities where heavy drafting is done.

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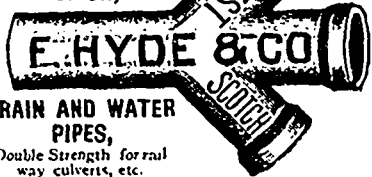
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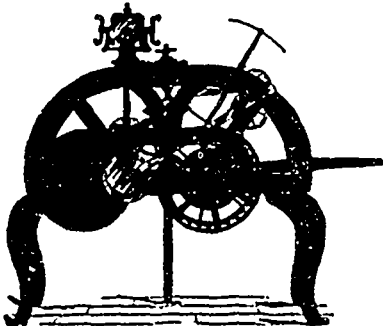
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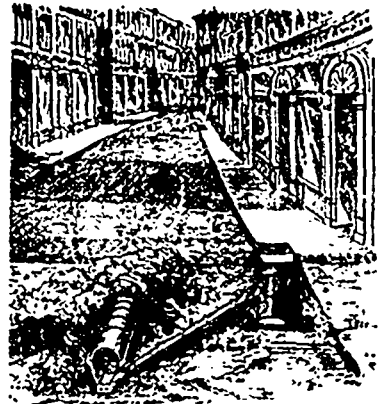
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Table listing prices for hardware, iron, and other materials, including items like nails, steel, and cast iron.

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Table listing prices for finishing materials, slating, and other specialized building supplies.

INDEX TO ADVERTISEMENTS

Index listing various advertisements for architects, engineers, contractors, and suppliers, organized by profession and location.