

## CONTRACTS OPEN.

**MRAPOD, ONT.**—Mr. Strong, fruit dealer, will erect a building to cost about \$2,000.

**BALLYCANOR, ONT.**—The corner stone of a new Anglican church will be laid next week.

**ST. MARVS, ONT.**—The Roman Catholic congregation have decided to erect a new church, to cost \$15,000. Messrs. Post & Holmes, Toronto, are the architects.

**BELLEVILLE, ONT.**—Messrs. Peillen & Scott are preparing to erect a large soap factory here.

**WINNIPEG, MAN.**—Mr. A. Wright will erect a new block on the corner of Maine and Market streets.

**TILBURY CENTRE, ONT.**—The Methodists have decided to erect a new brick parsonage at a cost of \$2,000.

**PRESTON, ONT.**—Thos. H. Sears will receive tenders until the 25th inst., for the erection of two brick houses.

**DELHI, ONT.**—E. Morgan will receive tenders until the 2nd of July for the erection of a bridge over Big Otter creek.

**KETTLEBY, ONT.**—Tenders for the completion of Christ Church will be received up to two July 1st. Plans to be seen by applying to J. M. Walton.

**NORTH SYDNEY, C. B.**—J. N. Armstrong, Town Clerk, will receive tenders until the 2nd of July for the construction of a system of water works.

**CHATSWORTH, ONT.**—Tenders are wanted until the 30th inst. for the erection of a residence for Mr. R. Ewens. Plans may be seen at Butchart Bros' hardware store.

**KINGSTON, ONT.**—Mr. Newlands architect, is preparing plans for a new hotel to be erected on the shore of the Lake of the Mountain, at Glenora, for Mr. J. C. Wilson.

**PEMBROKE, ONT.**—Mr. W. B. McAllister has purchased a site on which to erect a large elevator, with a capacity of 200,000 bushels, the plans for which are now being prepared.

**SARNIA, ONT.**—Mr. L. C. Hand will receive tenders until the 28th inst. for the erection of a new hotel. Plans may be seen at the St. Clair House, Sarnia, and at the office of T. J. Rutley, Chatham.

**PETERBORO', ONT.**—Mr. W. A. Ramsay, C. E., is surveying the location of the proposed Peterboro', Sudbury and Sault Ste Marie railway which is to be constructed from some point on Lake Ontario northward to the Soo.

**CHATHAM, ONT.**—Mr. J. L. Wilson, architect has prepared plans for a two-roomed addition to Queen street school to cost \$1,650. He has also completed plans for a new Presbyterian church to be erected on Communion Road, Harwick, to cost \$3,000.

**GUELPH, ONT.**—John Day, architect, is calling for tenders for the erection of an office building on Douglas street for Mr. Hugh McMillan.—The Bridge Committee of Wellington County Council have recommended that tenders be called for the erection of an iron and wooden bridges at Drayton.

**NIAGARA FALLS, ONT.**—Wm. Nichols, architect, is preparing plans for a building for Messrs. F. LeBlond, R. F. Carter, and James Brundage, to be erected just north of the Cliff House. The building will be constructed of Credit Valley brown stone with plate glass front, having a tower 180 feet in height. The estimated cost is \$23,000.

**HAMILTON, ONT.**—Petitions have been received for the construction of sewers on the following streets. Grant avenue, between Main and Stinson streets, Hunter street, between Bay and Caroline streets; Jackson street, between Bay and Hess street; Main street, between Wentworth and Burlington streets.—A building permit has been granted to James Andrews for a two-story brick dwelling on Macnab street, between Stuart and Murray streets, cost \$1,100.

**ST. JOHN, N. B.**—An advertisement appears in another column asking for tenders for the construction of a system of waterworks for Fairville, a suburb of St. John, containing the Provincial lunatic asylum, the C. P. Railway yard, large brewery, several steam saw mills, etc. The daily consumption required is estimated at 200,000 gallons. The works will consist of pumping engines, water tower, about four miles of main, and

twenty hydrants.—The City Council has decided to expend the sum of \$15,000 on wharf improvements near the C.P.R. terminus.

**LONDON, ONT.**—The congregation of Park avenue Presbyterian church contemplate the erection of a new edifice.—The Prison Gate Home Association have appointed Dr. Arnott and Mr. Grigg to select a site for their new building.—The Board of Education are considering the erection of a new school on Colborne street, cost \$16,000; a four-roomed addition at Princess ave. school, cost \$8,000; two-roomed addition at Quebec street school, cost \$3,400, addition to Talbot street school, cost \$2,000; also the purchase of heating apparatus for the above schools.

**MONTREAL, QUE.**—It is proposed to erect a colossal tower in rear of Boussecours church.—New sewers have been recommended on Elizabeth street; Alexander street, below Lagauchetiere; Beaudry street; Albert street, west of Canning; King street and Pine avenue, from Oxenden ave. to Durocher street.—Tenders will be received at the office of the City Clerk, until Wednesday, the 6th June for the construction of sewers in the following streets: Champlain street from Sherbrooke street southward, Mignonne street, from Frontenac to Iberville street; Mary Ann street from Montana street to St. Hubert street; St. Hubert street, from Mary Ann street to Mount Royal avenue; Mount Royal avenue, from St. Hubert street to St. Denis street, Ontario street, from Elin avenue to Gale street.—E. Maxwell, architect, is preparing plans for a new block to be erected on the corner of St. Catherine street and Phillip Square, for Henry Burk & Co., to cost about \$60,000.—A Gendron, architect, is calling for tenders for the erection of a residence on Sherbrooke street.—W. H. Hodson, architect, is preparing plans for a block of houses and alterations to adjoining buildings corner of St. Urbaine and Dorchester streets.

**TORONTO, ONT.**—Mr. S. H. Janes is prepared to erect a building on King street between Youge and Victoria streets suitable for tenant, also on Victoria street, just north of King street.—The Trustee Board of Gerrard Street Methodist Church held a meeting last week to consider the means for providing increased accommodation. It was decided that a new building would have to be erected, and arrangements were made to solicit subscriptions.—The Council of the County of York, at a meeting held recently, decided that a steel bridge be built across the Don river at Hog's Hollow.—The City Council has given notice of its intention to construct a cedar block pavement on McMurch street, from Davenport Road to Belmont street, at a cost of \$2,370.—Ground has been broken for the foundation of the new St. John's church at Norway.—At a meeting of the Industrial Board of the House of Industry, held on Tuesday last, a committee was appointed to consider the enlargement of the present buildings. They will meet on Monday next to present a report.—Mr. Schreiber, Government engineer, has reported in favor of a high level bridge over the Don at Queen street.—The City Engineer has ordered the construction of new sewers on Glen Road, St. Clarens, Emerson, Tyndall and Roxboro avenues, also cobblestone paving of lane between York and Simcoe streets, north of King, and Excelsior sidewalk on Carlton street from Yonge to Blecker streets.—Building permits have been granted as follows: Wm. Boulton, 52 St. Albans st., alterations to residence, cost, \$4,000; R. O. Wilson, 46 Wright ave., two pr. s. d. 2-story & attic bk. dwellings, w. side Close ave., s. of King st., cost, \$10,000; J. A. Fowler, 24 Shannon st., det. 2-story & attic bk. dwelling, 29 Shannon st., cost, \$6,000; E. Terry, cor. King st. and Dunn ave., two det. 2-story & attic bk. dwellings, w. side Tyndall ave., n. of Huxley st., cost, \$8,000; Jos. White, pr. att. 3-story bk. stores and dwellings, n. e. cor. of Queen and Hamilton sts., cost, \$4,500; Wm. Belshaw, ten 2-story b. f. dwellings, new street running south from Wilton ave., between Sackville and Blair ave., cost, \$20,000.

## FIRES.

The post office building at Sault Ste Marie, Ont. was destroyed by fire on Monday last, Loss, \$2,000; Insurance, \$1,500.—A residence on Durham street, Kingston, owned by Mr. Roddy, was burned on the 18th inst.—The Ontario Wire

Fencing Company's buildings at Picton, Ont., were entirely consumed by fire on Saturday last, involving a loss of \$10,000. Insurance, \$8,000.—The Franklin County creamery at St. Alban, Que., was destroyed by fire on Monday last. The loss is about \$21,000, fully covered by insurance.—The Morocco leather and wool factory of H. W. & A. Lusby, at Amherst, N. S., was burned on the 18th inst. Loss, \$3,000; insurance, \$1,400.

## CONTRACTS AWARDED.

**TORONTO JUNCTION, ONT.**—The Council have accepted the tender of the Hamilton and Toronto Sewer Pipe Company for the supply of sewer pipe.

**HALIFAX, N. S.**—The Board of Works have accepted the tender of J. W. Macdonald, of Picton, for the improvement of the Esplanade, at the price of \$5,755.

**BANGOR, P. E. I.**—Messrs. Stewart McCabe & Quinn, have been awarded the contract for building ten miles of the Aroostook and Bangor railway, from Houlton to Brownville, at \$12,000 per mile.

**VANCOUVER, B. C.**—The contract for building a new fire hall at Mount Pleasant has been awarded to Messrs. McLeod & McDermott, whose tender was \$3,000.—Eight tenders were received by the City Council for laying new water pipes through the Narrows. The contract has been awarded to Mr. W. S. Westcott, at \$3,990.

**QUEBEC, QUE.**—D. Ouellet, architect, has awarded the contract for the erection of a new church in the parish of St. DeGise du Lac Noir, Megantic County, to Mr. Elzear Metivier, of the parish of Buckland; estimated cost \$18,000; also for a new church in the parish of St. Pierre-Baptiste, Megantic County, to Mr. J. Bererou, of St. Leonard, at the price of \$16,000.

**OWEN SOUND, J. C.** Forster, architect, has awarded contracts for the following works: P. Nicholson's residence, bulk contractor, Robert Clarke; sub contractor, Drever & Hindson; Wm. Brown's residence, bulk contractor, Alex. Green; sub contractor for brick and stone, A. Sinclair; heating H. E. Smith's residence, Christie & Agar, Maxton boiler; General Hospital, bulk contractor, A. Green, sub contractor for brick and stone, A. Sinclair.

**MONTREAL, QUE.**—The contract for repairing the Boussecours market has been awarded to Mr. Z. Valiquette, the price being \$1,779.—The contract for building the railway from Lawrenceville to Kingsbury has been awarded to Messrs. C. C. Smith & Son.—The Road Committee have received the following tenders for the construction of permanent sidewalks Asphalt—Mr. G. W. Reid, Val de Travers, \$2.70 per sq. yard; Limner, \$2.24; Neufchatel, \$2.70; Rolled, \$1.85; and Trinidad, \$2 per sq. yard; Bastien & Valiquette, Limner, \$2.30; Catania, \$2.40; J. Cochrane, Limner, \$2.06; Catania, \$2.06; Vormhole, \$2.06. Mr. Cochrane's tender was recommended for acceptance. Composition sidewalks—Mr. Forsyth, granite concrete, \$2.63 and \$2.78; Firmité Paving Company, \$2.85; "Hyrolithic" (J. Cochrane), \$2.59; Valiquette & Co., artificial stone, \$5.9. The whole were recommended to Council for consideration.

In the paint shop of the Chicago, Burlington and Northern, coaches coming in off the road are cleaned by the use of oxalic acid. The solution is made as strong as can be dissolved. It will not remove grease unless such grease is upon a coating of dirt, between which and the paint the acid can penetrate. Using this acid does not in any way injure the paint. This has been proved by more than a year of experience with it, and by testing it repeatedly in the shop by the use of panels, which were washed frequently without resulting in any damage whatever to the paint. The only care necessary to be exercised in its use is not to allow it to dry upon the car. Where it dries the surface will appear streaked, and it will be impossible to get this off. Before the acid is dry it should be washed off with clean water. An immense amount of time and labor is saved by this process, and it was the necessity for keeping all of the equipment on the road as much of the time as possible that first led to its use by this road.—*Railway Master Mechanic.*

## MUNICIPAL DEPARTMENT.

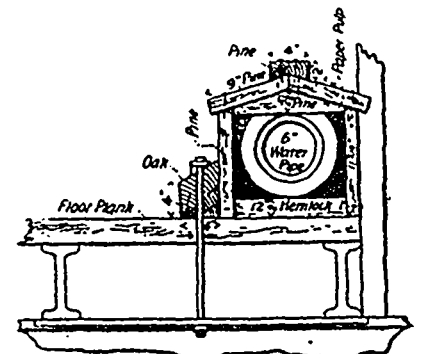
## PROTECTION OF EXPOSED WATER MAINS CROSSING BRIDGES.\*

I think it will be generally conceded that frozen mains and services are one of the most annoying accompaniments of the winter months in our northern latitudes. Adequate fire protection demands that a frozen main be put in order at once and at any expense.

The distribution system of mains in most all water works require that some, or many courses, or rivers, be crossed, either underneath the bed or over bridges. Many under crossings are difficult of original construction, and sometimes uncertain as to permanency, while an overhead bridge crossing is always accessible if leaky, the defects are apparent at once, and are only liable to the one objection of freezing.

In designing the Little Falls (N.Y.) Water-Works system I found it necessary to make four crossings, three over water courses (the largest one, the Mohawk River), and one overhead railway crossing. In all these cases an under crossing was entirely impracticable.

Desiring to use the best and most serviceable non-conducting material, I examined various works in which the subject of non-conducting materials is mentioned. I found that all the tests are based upon the radiation of heat from steam pipes, and not a single author gives any data upon natural temperatures in cold pipes. Steam means a vapor of water heated up to a normal or sensible temperature of 212°, or the boiling point, and a surplus of about 966° of latent heat, which freezing itself, produces the desired heat or warmth through radiation from



METHOD OF PROTECTING WATER MAIN ON BRIDGE AT LITTLE FALLS, N. Y.

the pipes containing or transmitting the steam. The condition is entirely different from the case of a water main. Water in a main in winter is at about the temperature of 50° F., while the freezing point is 32°. The water may be kept fluid so long as the temperature in the main does not fall below 36, or 38°. The temperature of steam being so high, all non-conducting materials used in connection with it must possess, in addition to the qualification of non-conducting properties, also an element of non-combustibility—while the non-combustibility properties cut no figure with water mains. I found that Haswell, in the well known "Engineers' and Mechanics' Pocket Book," gives the relative non-conductibility of materials, based upon hair felt at 100 as follows:

Hair felt, 100; mineral wool No 1, 83.2; sawdust 68; mineral wool No 2, 67.5; charcoal, 63.2; pine wood, 63.2; loam, 55; lime, slacked, 48; asbestos, 36.3; coal ashes, 34.5; air space, 2 in., 13.6.

In Vol. V. and VI. of the Proceedings of the American Society of Mechanical Engineers will be found a very elaborate paper on the subject of non-conducting coverings for steam pipes, prepared by Prof. John M. Ordway, Boston, Mass. He arranges the various materials in order of efficiency as follows—Fahrenheit units, 1 sq. ft. in one hour: Glazed cotton wadding, 47.6; wool wadding, 81;

\*A paper by Mr. S. E. Babcock, Chief Engineer of the Little Falls, N. Y., Water-Works, read before the American Water-Works Association, May 18, 1892.