

water power at Chedoke Falls for lighting the park and the southwesterly part of the city with electricity.—Debentures will shortly be issued to raise \$210,000 for pavements, new schools, and the House of Refuge.—It is stated that news have been received from Mr. J. N. Young to the effect that work will be commenced at once on the branch of the Toronto, Hamilton and Buffalo railway from this city to Brantford.

WINNIPEG, MAN.—It has been decided to erect a new church in the north end in connection with the mission recently established by Wesley church. J. F. Fowler and W. D. Pettigrew have been appointed to arrange the details.—A large four-story brick structure is to be erected on the old Princess opera house site by W. A. Pierce. The upper flats will contain 110 rooms and the ground floor will be fitted up for stores.—Tenders are invited by Mr. Robert Watson, Minister of Public Works, until Monday, September 3rd, for the excavation of a cut at the Fairford river, at its outlet from Lake Manitoba. Length of cut, 1200 feet, width, 200 feet, average depth, 9 feet. The quantity of excavation will be between sixty and seventy cubic yards. The work is to be completed before the 15th of November next.—The Committee on Works has recommended that tenders be called for the erection of the following works at Maryland street bridge: approaches and fender, estimated cost \$4,250; rubble masonry at north abutment, estimated cost, \$1,200.

OTTAWA, ONT.—Mr. Chamberlain, general manager, Mr. G. A. Mountain, chief engineer, and Mr. Fauquier, chief contractor of the Ottawa and Pelly Sound Railway, recently left on a survey of the proposed route of the railway through to the Georgian Bay, in order that during the coming winter preparations may be made for the completion of the line next summer.—Wm. Beardsley will erect a brick residence on lot 10, south side of Wilbrod street, at a cost of \$3,000.—Dr. Robinson has taken out a building permit for a residence on Frank street, to cost \$6,000.—J. H. Balderson, Secretary Department of Railways and Canals, will receive tenders until noon on Saturday, the 1st of September, for the supply and delivery of about 11,000 barrels of Portland cement. Specifications may be seen at the office of the chief engineer.—Tenders are also invited by the above department until the 18th of September for the construction of a new channel in Lake St. Louis, section No. 1. Plans for this work may be seen at the office of the chief engineer, Ottawa, and at the superintending engineer's office, Montreal.—Tenders are invited by E. F. E. Roy, Secretary Department of Public Works, until tomorrow (Friday) for the erection and placing of three tubular boilers in the Parliament buildings in this city. Plans may be seen only at the above department.—Tenders are also invited by E. F. E. Roy until the 5th of September for the construction of a hot water heating apparatus in the post office building in the city of Quebec, plans for which may be seen at the Department of Public Works in this city, and at the Dominion Public Works office, Quebec.—Plans are being prepared by the Public Works Department for a wooden bridge with non trestlework across Pond Creek, for which purpose the sum of \$3,000 was voted by Parliament last session. Tenders will be called next week.

TORONTO, ONT.—It is said that three new double-end ferries will be built the coming winter for the Hanlan Ferry Co. The boats will be of steel.—A resolution has been adopted by the Parks and Gardens Committee requesting the Commissioner to prepare an estimate of the cost of reclaiming certain marsh lands at Island Park. The above Committee has been authorized to provide funds for the construction of 1,000 seats for the various parks.—The Court of Revision will meet on Friday to confirm the assessments for a block pavement on Adelaide street, and for a sewer on Preston avenue.—Building

permits have been granted as follows: Wm. Hutchison, three two-story bk. dwellings, 203 Sherbourne st., cost \$7,000; James Clark, 2 story and attic bk. dwelling, 892 Manning ave., cost \$1,600; Col. Grasett, two story bk. addition, 66 St. Patrick street, cost \$1,000; T. Buley, two story bk. dwelling, 1 McGee st., cost \$1,500; Barchard & Co., three story bk. packing box factory, 135-151 Duke st., cost \$7,000; Jas. Blackey, 3 story bk. storage warehouse, 369 Spadina ave., cost \$3,000, A. R. Barlington, architect; Wm. Scott, 1232 King west, det. 2 story and attic bk. dwelling, 145 Dunn ave., cost \$3,000.

#### FIRES.

The old Methodist church and a house belonging to P. Lane, at Lachute, Que., were completely destroyed by fire recently. Loss, \$10,000.—A building at Paris, Ont., belonging to Gillies Bros., lumber merchants, has been destroyed by fire. Loss \$5,000.—A store building at Bryanston, Ont., owned by David Bann, of Biddulph, was destroyed by fire last week. The loss is partially covered by insurance.—A house at Acadia Mines, N. S., owned by J. M. Blaikie, was burned recently. No insurance.—McKechnie's saw mill and lumber yard at Durham, Ont., was damaged by fire recently to the extent of \$15,000; no insurance.—The Fleming wood and lumber mills in Tay township, near Midland, Ont., were destroyed by fire last week. Loss about \$15,000.—Mr. Blueman's brick dwelling at Beaverton, Ont., was burned on the 23rd inst. The loss is partially covered by insurance.—Mr. Wurtel's saw and grist mills at River David, near Sorel, Que., were burned last week. No insurance. They will be rebuilt immediately.—Philip's heading and stave mills at Courtright, Ont., were destroyed by fire on the 27th inst. Loss, \$3,000; no insurance.—William Dore's carriage factory at Wingham, Ont., was burned recently. The loss is mostly covered by insurance.—The large flour mill of Tew & Marshall, at Plattsville, Ont., was consumed by fire on the 22nd inst. The loss will reach \$30,000; insurance \$6,000.—A large brick mansion near Newcastle, Ont., owned by Asa Wilmot, was burned to the ground a few days ago. The residence was insured.—The public school building on cedar street, Ottawa, was consumed by fire on the 26th inst. Loss, \$8,000; insurance \$4,000.—The premises of T. Moore, lumber merchant, on Mignonne street, Montreal, were destroyed by fire on Tuesday last. Loss, \$10,000.

#### CONTRACTS AWARDED.

TILBURY CENTRE, ONT.—Messrs. Bechard & Oldershaw, of Chatham, have been awarded the contract for erecting the new R. C. parsonage here. The cost will be about \$2,500.

MONTREAL, QUE.—Chas. Bernier, architect, has awarded contracts for a six story tenement building to be erected on Beaudry street for Mme. Jos. Lachapelle, as follows: masonry, L. David; brickwork, Z. Theriault; carpenter and joiner's work, N. Gauthier; plastering, G. Leveille; plumbing and roofing, G. O. Quintal; painting, E. Belanger.—A. Prefontaine, architect, has awarded contracts for a contagious disease hospital in connection with Villa Maria Convent, Notre Dame de Grace, as follows: masonry, O. Martineau; brickwork, P. Brunet; carpenter and joiner's work, Chas. Prefontaine; other trades not let.—L. G. Chausse, architect, has awarded contracts for a three story tenement building on St. Cuthbert street for Mr. J. McD. Hains as follows: masonry, Latreille & Frere; carpenter and joiner's work, G. G. Frere; other trades not let.—Theo. Daoust, architect, has awarded contracts for a cottage on Elm avenue, Cote St. Antoine, for Miss A. B. Coughlin as follows: masonry, Latreille & Frere; carpenter and joiner's work, P. Chapleau; roofing, plumbing, etc. Louis Landry; brickwork, Jos. Carriere; plastering, H. Contant; painting and glazing, A. Carriere.

#### BUSINESS NOTES.

D. Turcot & Fils, stone masons, have dissolved partnership.

Wm. J. Adams, builder, of Brantford, Ont., has assigned to Charles E. Oles.

Collerette & Fessier, carpenters and joiners, Montreal, have dissolved partnership.

The Toronto Lumber and Manufacturing Co. are reported to have assigned to G. M. Gardner, with liabilities about \$20,000, and assets nominally the same.

A statement of the affairs of Messrs. Stevens & Burns, machinists, of London, shows assets of about \$20,000, and liabilities \$180,000. It is probable that arrangements will be made which will enable the company to continue business.

#### CRANES AND CHAINS

Entire establishments are very often brought to a complete standstill on account of a crane being unable to lift a load, which the crane itself is strong enough to hold up, but which the hoisting gear is not powerful enough to raise or control. The purpose of this article is to point out some ways by which, as long as the structure itself—the mast, the boom and the rest of its framing—is strong enough as well as the building to which it is fixed, if it is so fastened, the lifting power of the gears may be increased.

Once in a while with hand cranes this is done by having, instead of the ordinarily-used spur and pinion, another pair having greater pitch ratio; thus if there is for "every-day" use a 46 in. spur served by an 8 in. pinion, making four and one-half to one, with a distance between centres of 22 in., to have another pair with a ratio of seven to one, the spur having a pitch diameter of 38 in., to the pinion's 5½ in. The four and one-half to one gears being removed, the seven to one can be keyed on in their place. These gears should have wider faces than those who do less work, as the strain on the teeth is greater.

Another way is to fasten to the end of a beam a ring or a stud to which the hook of the hoisting rope or chain may be attached after the rope or chain is passed through a single block having a hook to which the load may be made fast. The result of this will be that for every foot of chain that is hauled in by the windlass the load will be raised only 9 in.; so that the hoisting power of the crab will be about doubled. It would be just doubled if it were not for the friction of the extra block.

Of course neither of these methods will enable a crane to raise a weight greater than can be properly put on its frame or on the chain and gears. If there should be any doubt about the latter, the windlass may be made to do double work without putting an extra strain on the frame which bears it, or on the chain itself, by catching hold of one end of the load and raising it, using the other as a fulcrum; raising as high as convenient, blocking up at raised end, catching hold of the other end and doing the same thing, and so on, alternately raising, blocking, and shifting. This plan will answer better for long articles, such as very heavy girders or posts, or for long cylindrical boilers, than for short ones like marine engines.

This plan of increasing the hoisting power of a crane is sometimes desirable, not because the crane itself or its chain or gear may be weak, but because of lack of good hoisting power. In some parts of the country, or in some conditions of the labour market, there may be insufficient man power at the crane; but if the gear may be changed from four and one-half to one up to seven to one, one strong man can do as much work with it as two light ones, or two light men do as much work as two strong ones.

Where there is no crane that may be made of sufficient power, or where the existing cranes will not reach, there should be someone about the place who has ingenuity enough to rig up a tackle out of a few ropes or chains, and blocks, attached to the overhead timbers of the building, if

there are any available; and if there are not, by the use of spars or of long balks resting on the wall plates or in the upper window opening or set in a tripod on the ground. Such spars should be lashed together with a rigger's hitch or with some of the suitable rope fastenings which may be learned from Brainard's little book on "Knots, Splices, Bends, Hitches, and Lashings." Care should be taken to have the spread of the timbers as great as possible in order to give sufficient room among them to manoeuvre the piece to be lifted, although it must also be remembered that the more spread such tripod has, for a given length of leg, the less load it can carry—a fact which must be borne in mind in handling heavy weights with long light timbers, the strength of which has never been proved. (All such timbers, if not perfectly square in cross section, should be so placed that the strain will come on them in the direction of their greatest width. Thus a two by eight is sixteen times as strong edgewise as crosswise to a load applied at right angles to its length; and while this same ratio does not apply to where it is used as the legs of a tripod, and gets strain partly endwise and partly crosswise, this fact should be borne in mind and taken advantage of).

All hoisting chains should be annealed from time to time. After they break and kill someone is the wrong time to anneal them; prevention is better.

The bearings of all blocks should be kept well lubricated with black lead, either with or without tallow or other grease. Those which have hinged shells are better than those with solid blocks, because they will permit the rapid reeving through them of ropes or of chains having hooks on their ends, it being easier to open a snap block, lay the rope or chain in the groove, and close and latch the shell, than to unbend the rope from the hook or detach the chain from it—especially in view of the swivel that should be at the hook.

A large masonry weir has recently been completed across the Goulburn River in Victoria under the direction of Mr. Stuart Murray. It is 695 feet long, exclusive of the space occupied by regulators of the irrigating canals at each end, which add 230 feet more. The masonry weir itself is about 33 feet high, 43 feet wide at the base and 11 feet wide on top, and rests on alternating beds of sandstone, slate, and pipeclay standing almost vertical. The body of the work, according to a report issued by the Victorian Government, consists of large blocks of concrete banded together, bedded and jointed in cement mortar, the facing of the masonry being cut granite. The blocks were made up of 1 part of Portland cement, 2 parts of sand, and 4½ of 2½-inch broken stone. Above the masonry are 21 flood gates, each 20 feet long and 10 feet high, which can be lowered into recesses in the concrete when it is necessary to pass the flood water. The gates are operated by screw gearing driven by three 30½-inch Leffel turbines.

#### MUNICIPAL DEPARTMENT.

##### CONVENTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

The annual convention of the American Public Health Association will take place in Montreal on the 25th, 26th, 27th and 28th of September. It is expected that about three hundred members of the association will be in attendance. Among others, the following questions will be brought up for consideration: The pollution of water supplies; the disposal of garbage and refuse; the nomenclature of diseases and forms of statistics; protective inoculation in infectious diseases; national health legislation; the cause and prevention of diphtheria; the prevention of the spread of yellow fever.

Mr. James Woodyatt, City Clerk of Brantford, Ont., died at Belleville on the 20th inst., at the age of 75 years. He had held the position for 35 years.