

Works, will receive tenders until Monday the 3rd of December, for the construction of a pier at Thessalon, Ont. Plans may be seen at the post-office, Thessalon, and at the above department in this city.

MONTREAL, QUE.—It is altogether probable that the Richelieu and Ontario Navigation Company will build a new steamer for next season's work. Tenders are invited by the Road Committee until Wednesday, the 21st inst., for the steel superstructure and trestle bents for bridge over the C. P. R. Company's tracks on Notre Dame street. Plans may be seen and particulars obtained at the office of the City Surveyor.—Building permits have been granted as follows: Thos. Styles, three storey brick tenement building, Conway st., cost \$3,000; P. Gillespie, 4 three storey stone front residences, corner Dorchester st. and Seymour ave., cost \$24,000; Geo. Menner, 4 two storey brick tenement buildings on Berrist., cost \$4,800; P. Routhier, three storey brick tenement building, Charlevoix street, cost \$3,500; F. W. May, alterations and additions to building on St. Catherine st., J. Laurie & Bros., machinery workshop, Tansley st., cost \$10,000. The Town Council of Cote St. Antoine has decided to build a city hall and fire station.

FIRES.

The residence of C. Hall, at Regina, N. W. T., has been destroyed by fire. S. J. Cherry's large five storey grist mill at Preston, Ont., was burned to the ground on the 4th inst. The loss will reach about \$30,000. At Lander, Man., on Sunday last, Hamlin's store and dwelling house was destroyed by fire, together with Raansay's livery stable. Loss \$7,000. The paper mills of J. C. Wilson, at Lachute, Que., were damaged by fire recently to the extent of \$5,000, which is fully covered by insurance. The building occupied by Mootehouse & Snell, awning manufacturers, Preston, Ont., was consumed by fire on Tuesday last. Loss on building \$1,800.—Two houses at Redner-ville, Ont., owned by James Lowery and W. Reddock, were burned recently.—The residence of James Piper, at Port Lambton, Ont., was destroyed by fire recently. Insurance, \$1,300.—The ice house of H. Dntresne, on Lafontaine street, Montreal, was burned on Monday last. Loss, \$4,000, covered by insurance.—James Harcourt's carding mill and turning shop at New Glasgow, Que., was totally destroyed by fire on the 3rd inst. No insurance.

CONTRACTS AWARDED.

ST. JEROME, QUE.—The contract for the erection of a school house has been awarded to J. Lapointe.

OWEN SOUND, ONT.—Messrs. John Harrison, and Martin L. Rixon & Co., of this city, have been given the contract for timber for the extensive Esplanade improvements.

HAMILTON, ONT.—D. B. Campbell, of Strathroy, has secured the contract for all the pile driving, timber work and iron piping on the Toronto, Hamilton and Buffalo Railway.

BROCKVILLE, ONT.—D. Derbyshire & Co., of this city, have been awarded the contract for supplying the furnishings for the new creamery at Renfrew. The cost will be about \$5,000.

MONTREAL, QUE.—Theo. Dionst, architect, has awarded contracts for eleven tenement buildings to be erected on St. Denis street for Messrs. P. Larivière, Jos. Jacob, A. Pallascio, Drapeau & Savignac and O. Cauchon, as follows: stone and brickwork, A. Paquette; carpenter and joiners' work, J. Jacob; plumbing and roofing, Drapeau & Savignac; plastering, H. Contant; painting and glazing, O. Cauchon.

The Hobbs Manufacturing Co., of London, Ont., are establishing works for the production of wire nails, barb-wire fencing and plumbers' and painters' supplies.

BUSINESS NOTES.

The stock of Oliver Bros., painters, Petrolia, is advertised for sale by tender.

L. Perusse, contractor, St. Alban, Que., is offering to compromise at 20c. on the dollar.

The Dominion Glass Co., of Montreal, has been incorporated, with a capital stock of \$100,000.

Cloris Roy has been registered proprietor of the firm of Edmund Roy Co., plumbers, Montreal.

A. W. Glassford, brass goods and plumber's supplies, Montreal, is offering to compromise at 33 1/2c. on the dollar.

P. A. Connally and Joseph A. Marier will carry on business in Montreal, as plumbers, under the style of Connally & Marier.

COMPARATIVE STRENGTH OF MATERIALS.

Cast-iron weighs 444 pounds to the cubic foot, and a one-inch square bar will sustain a weight of 16,500 pounds, bronze, weight 525 pounds, tenacity 3,600; wrought-iron, weight 480, tenacity, 50,000, hard "struck" steel, weight 490, tenacity, 78,000, aluminum, weight 168, tenacity 26,000. We are accustomed to think of metals as being stronger than wood, and so they are generally speaking, if only pieces of the same size be tested. But when equal weights of the two materials are compared, it is then found that several varieties of wood are stronger than ordinary steel. A bar of pine just as heavy as a bar of steel an inch square will hold up 125,000 pounds; the best ash 175,000 pounds, and some hemlock 200,000 pounds. Wood is bulky. It occupies ten or twelve times the space of steel. The best steel castings made for the United States Navy have a tenacity of 65,000 to 75,000 pounds to the square inch. By solidifying such castings under great pressure, a tensile strength of 80,000 to 120,000 pounds may be obtained. Railway Review.

MINING ROOFING SLATE.

Slate is not taken out in shafts. It is quarried out of big holes in the earth, blasted out in huge blocks and hoisted to the surface by steam. These big blocks are taken hold of by the workmen who cut a notch in one end. Then with a chisel and mallet they split the blocks in almost any way they please. Practice has made them very skillful at this. Another set of men take the smaller pieces thus produced and split them up into sheets of the proper thickness for roofing slate with a long bladed instrument shaped something like a putty knife but many times larger. Here again the dexterity shown is marvellous, for some of the men can take a sheet of slate only an inch thick and split it thirty two times. The sheets are then taken and cut into squares by machinery, after which they are all ready for use.

WOODWORK THAT WILL NOT BURN.

In a London paper is published a letter from Mr. F. H. Gossage, who makes some very important statements. He says: "I find that painting woodwork of any kind with several coats of solution of silicate of soda, and finishing off with a mixture of this solution and sufficient common white lead to make it about as thick as ordinary paint, is a most excellent protection against fire. Wood treated in this way will not take fire from mere contact with flame; it requires to be heated till destructive distillation begins. Then of course, gases are given out which ignite, and the wood is gradually converted into charcoal, but until destructive distillation takes place the coated wood will not support combustion. A few years since I had some screens made like ordinary doors, some prepared as I have described, and some not. They were then placed over a fire of shavings, which was kept constantly renewed. In ten minutes

the unprepared screens were blazing away, and so nearly consumed that they had to be supported by an iron bar. The flames continued to lick the prepared screens for thirty minutes before the distillation commenced. After forty-five minutes the coated screens were still intact, and able to support themselves; they held together for an hour, although pierced in many places with holes, and when the fire was removed they did not continue to burn. This was a splendid success, and I still have the remains of the screens. The experiments were made at my suggestion for the managers of the Liverpool Philharmonic Society, and the woodwork of their splendid hall at Liverpool was treated in this manner.

INFLUENCE OF INTENSE COLD ON STEEL AND IRON.

The correctness of the popular idea (strongly encouraged by railways) that intense cold renders iron or steel brittle, and may hence occasion the failure of the tires of wheels during severe frost which has caused many deplorable railway accidents, has long been doubted by practical physicists. The subject has now been again investigated, and from the experiments of Dr. Joule, it would appear to be satisfactorily determined that a low temperature has no effect in rendering iron more brittle. Dr. Joule's experiments were practically decisive, and consisted of applying weights suspended from the middle of steel needles at different temperatures, and letting the blunt edges of a steel chisel fall on cast iron nails under similar circumstances. His general conclusion is that frost does not make either iron cast or wrought or steel brittle; and that accidents arise from the neglect of the railways to submit wheels, axles, and all other parts of their rolling stock to a practical and sufficient test before using them.

Contractors find a great convenience, says the American Machinist, in being able to rent almost any kind of machinery they may require in most large cities. This is particularly true in regard to small jobs in outlying towns, taken by contractors living, perhaps, a thousand or more miles away. A hoisting engine, for instance, is required for a short time, and it is cheaper and more convenient to rent one near at hand than to bring one from the distance. And so with other things that may be needed. Good, stiff prices are charged by those who keep such machinery for rent. For example, we know a contractor who wanted a steam pump to use on a job a few miles away from New York. He readily found what he wanted in New York. When new this pump might have been listed at \$250, although that would have been a round price. At second hand, as it was, it would hardly sell for \$150. It was rented one month for \$60. This looks like a high price, but such rented machinery is generally pretty hardily used, and this pump will be likely to go back in need of a rather thorough overhauling and the renewal of some of its parts, and perhaps not be rented again for a year, so that, after all, the rent was probably, not exorbitant. Other machinery was charged for at proportionately rather lower rates, it apparently being taken into consideration that the pump would get the hardest usage, which was true enough, as it handled about as much sand as water.

MUNICIPAL DEPARTMENT.

SLAG PAVEMENTS.

What is known as the Woodward street paving block, made of blast furnace slag, is said to be already in demand in England to the extent of 100,000 blocks per week, the success attending the use of the article calling for a supply constantly to meet the needs of streets in London and in foreign towns and cities as well. The

idea of utilizing furnace slag for the purpose is not wholly a recent one, but the method of production in this case appears to possess some decided advantages. The slag is run into a ladle, from which it is poured into cast iron molds secured to the periphery of a horizontal wheel, each mold having a hinged bottom, and the wheel being slowly rotated, the bottoms of the molds are released in succession; the blocks, molten inside, but solid at the surface, drop upon a soft bed of granulated slag, and are quickly removed and stacked in an annealing stove; when full, the doors of the stove are closed, and the blocks allowed to anneal themselves without extraneous heat. In about eight hours the doors are opened and the blocks withdrawn, at which stage they are in a suitable condition for the use intended. It is stated, however, that without annealing they would soon crumble to pieces from internal stresses.

THE ANDERSON PROCESS OF GARBAGE CREMATION:

The method of burning brick on cars, which was devised by J. C. Anderson, President of the Anderson Coke, Gas, Power, and Reduction Company, having its head office in the Rookery Building, at Chicago, Ill., has been recently adopted by the designer for the cremation of garbage. A model of the brick kiln in the Government Building at the Columbian Exposition was accompanied by the following description: "This is a continuous kiln or double tunnel, through which two trains of fire-proof cars, loaded with green brick to be burned, pass in opposite direction, the heat from the burned brick at the outgoing end being transmitted to the green brick in the opposite tunnel in a sufficient degree to raise the water smoke and partially burn them before they reach the furnace. The water smoke being decomposed and utilized as hydrogen gas, is drawn forward to the furnace fires located in each of the side walls near the center of the tunnel and there burned. Crude oil is generally used as a fuel. The fireproof cars are sealed so as to protect them from the effect of the heat and to prevent the ingress of cold air to the burning chamber. Whenever a car of green brick is forced into the tunnel a car of burned brick is ejected from the opposite end of the same tunnel, and thus the operation of burning may be continued indefinitely without interruption for cooling of the product."

The recent experiments for burning garbage were carried on in one of these tunnel kilns in Chicago, which had been in use for the past four years in the manufacture of fine pressed brick. Its construction was changed to adapt it to the new purpose, and temporary appliances for loading and unloading the cars automatically were supplied.

DEBENTURES WANTED.

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