certain sewers at intervals of 1,000 to 1,500 feet. They are held shut by a bar of iron with a forked end jammed against an inclined rod, and when sufficient amount of water has accumulated behind the gate the bar is pulled or knocked out—the door swings back or is lifted (if for tile), and the flush is immediate and substantial. Both kinds have been found satisfactory. Along the north sewer, inlets have been made to utilize the creek water for flushing purposes. Each inlet consists of a large and small chamber, the former being 4 feet by 6 feet by 14 feet long, having an outlet to the sewer two feet from the bottom, and being separated from the small chamber by a 14-inch wall at the other end. This latter is really two chambers covered with gratings set in the bed of the creek. One of these small chambers connects with the large one by a grating, and is intended for an ordinary flow (which can be controlled in a similar manner to that by which storm water is). Should a large flush be required, it can be had by opening a gate-valve connecting the other half of the small chamber with the large one. This large chamber has a sand catching capacity of about 3 cubic yards, and will be required to be cleaned out occasionally.

To carry the sewer across the river at King street a bridge was built, and this was made to serve highway purposes as well. The bridge has a central span of 162 feet, and viaduct approaches of 468 feet, making a total floor length of 630 feet. A steel rivetted pipe 36 inches in diameter was carried under the floor throughout the length. This pipe was made of ¼-inch metal, painted with two coats of graphite over one coat of red lead, and its construction (and that of the floor beams supporting it) is clearly shown in the photograph accompanying. Inside the pipe no rivet heads show below the horizontal diameter. The piers and pedestals for the viaduct columns were all constructed of 1-2-6 concrete, with 3-inch facing of 2 to 1 mortar, and covered with six inches of concrete composed of one of cement, one of sand and three of crushed screenings. This concrete became extremely hard, and proved harder cutting than limestone three months after completion. A good hard clay foundation was found for the east river pier at about 6 feet depth, while for the other river pier the clay was ten feet lower, and oak piles spaced 2 feet 6 inches centres each way were driven and covered with a timber platform to receive the concrete. In the construction of the superstructure, attention is drawn to the floor beams, which are shown well in the photograph. They are spaced 18 feet apart throughout the whole length of bridge and viaduct. The steel pipes were brought on the ground in 32 feet lengths (4-8 foot plates), and as much as 200 feet of them were laid in position in one day. To facilitate jointing, the butt-strips on the pipes were made in two parts—on one length this strip being shop-rivetted to the lower, and on the next length to the upper half, thus saving some trouble in fitting. The curves were made to a 74 foot radius, the centre of each cross seam lying on the arc of the circle. The work went easily together, and in only a few cases was it necessary to alter the positions of the saddles on the beams. About five joints were rivetted and caulked in a day.

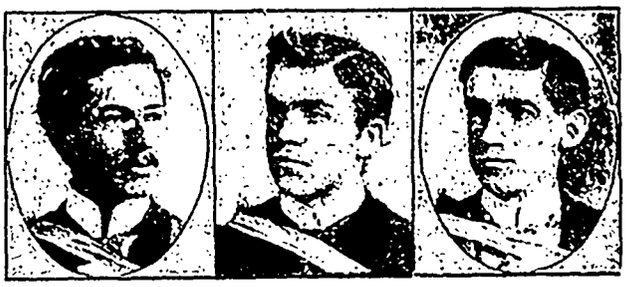
(To be continued).

YALE CHAIN BLOCKS.

These are the only differential blocks made under direct license from the inventor and patentee, Thos. A. Weston. They are durable, smooth and easy working because constructed with Yale chain, which is gauged by patented machinery, tested before using and of special material, and the sheaves are from machine made patterns.

The Yale-Weston triplex blocks are claimed to have an actual efficiency of 80 per cent., and to be the most efficient blocks in the world. This means that only 20 per cent. of the operator's labor is wasted in overcoming friction; showing that this type of block has twice the efficiency of blocks of the screw-gear type and triple the efficiency of those of the differential type. By employing the Yale differential block the load is always self-sustained, and one man can lift 800 lbs. 4 feet per minute; with the Yale duplex block, load always self-sustained, one man can lift 1,700 lbs. 2½ feet per minute, and with the Yale triplex block, load always self-sustained, one man can lift 2,000 lbs. 4 feet per minute. The Fairbanks Co., 749 Craig street, Montreal, has been appointed exclusive agents for Canada for these goods.

MCGILL PRIZEMEN IN APPLIED SCIENCE, '99.



WALTER W. COLPITTS, British Association medal in Civil Engineering.

A. G. GRIER, British Association medal in Electrical Engineering.

W. B MCLEAN, British Association medal in Mechanical Engineering.

STAFFORD F. KIRKPATRICK, British Association medal in Mining Engineering.

W. S. HUTCHISON, British Association medal in Chemistry.

GEORGE T. HYDE, British Association medal in Architecture.

NEW CATALOGUES.

The Ballard Electric and Machine Co., Ltd., dealers in general electrical supplies, machinists and instrument makers, 6 and 8 Adelaide street west, Toronto, have just issued a very neat catalogue of some hundred pages, which lists the electrical supplies of the company, such as telephones and telephone outfits of several different sorts, burglar alarm and other annunciators, automatic indicators, storage batteries of many makes, electric bells and buzzers, push buttons, electro-medical apparatus, such as induction coils, electrodes, combs and brushes, etc.; speaking tube material, telegraph apparatus, electric gaslighters, door openers, motor fans, model motors and generators, electric lighting goods. There are also a number of blank pages for memoranda, and a most interesting series of tables of decimal equivalents, bicycle gear table, table of melting points, specific gravity and conductivity of various metals, comparative table of gauges, table of the number, diameter, weight, length and resistance of pure copper wire (Brown & Sharp gauge). A number of illustrations of standard tools are also listed. These are by such well-known makers as the Stevens Arms & Tool Co., the J. M. Carpenter Tap and Die Co., Brown & Sharpe Mnfg. Co., etc. These catalogues will be sent free on application to the publishers.

The Cummer Dryers is a new catalogue which has just reached us from the F. D. Cummer & Son Co., Cleveland, O., U.S.A., which sets out in an attractive way the advantages of using the Cummer dryers, processes, roasters, hot air apparatus and systems which are now doing duty in the United States, Canada and Australia, Great Britain, France, Belgium and Germany. It is claimed for these dryers that they employ almost every unit of heat in drying as against a usual efficiency of perhaps 25 per cent. These dryers are now drying the following: Sand, asbestos, kaolin, marl, chalk, clays of all kinds, infusorial earth, paint stocks, wood chips, chemicals, nitrate of soda, wool, sawdust, wood pulp, digested hair, fertilizers, by-products, muck, rubber, phosphate, blood, tankage carbonate of soda, yarn, brewers' grains, bones, distillery slop, starch-feed, all grains, brick, terra cotta, cement briquettes, tile, pottery, salt, cotton, gypsum, cloth, impalpable silica or quartz, ores of all kinds, concentrates, all very wet and sticky materials, coal, peat, guano, tobacco, moss, copra, cocoa.