BANK STREET (OTTAWA) BRIDGE REPAVING.

By L. McLaren Hunter,
Pavement Engineer, Ottawa, Ont.

DURING the season of 1913 a creosoted wood block pavement was laid on Bank Street high-level bridge, Ottawa, and since then the blocks between the track have occasionally given trouble, especially in the fall and spring, at which time they used to heave out of position, causing delay to the street car service and also making the street look anything but desirable in appearance.

A glance at Fig. 1 will readily show the cause of this trouble. The city was apparently so eager to have the street paved that they used a wooden strip dipped in tar, against which to butt the blocks between the tracks; this

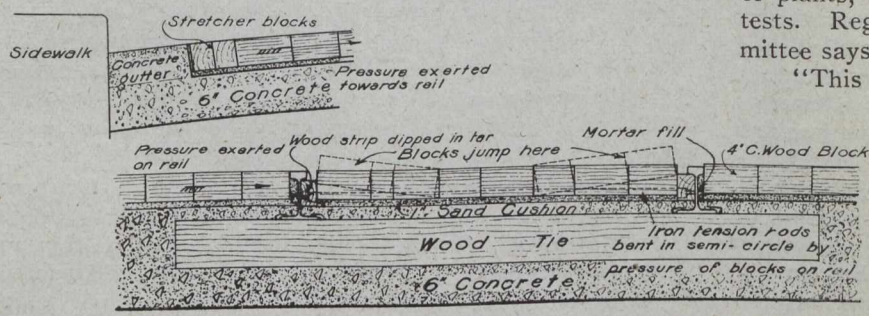

Fig. 1.

expanded and contracted according to temperature conditions with the above results. At the sidewalk there was not enough expansion allowed for. A week after being laid, the blocks used up the expansion which was left, then the pressure was naturally exerted towards the rail, pushing it over to an angle of 80 degrees, and causing the cars to jump the track. This pressure on the rail in turn caused the iron tension rods to bend, which displaced most of the blocks from the tracks.

To remedy these faults, more expansion was allowed at the gutter. In order to do this, one of the stretcher blocks was lifted, cut in half and relaid, as shown in Fig. 2. The space left at the gutter was then filled with asphalt cement at a penetration of 53, and thus the pressure on the rail was relieved.

In relaying the blocks between the rails a special creosoted wood strip was made to fit under the head of the rail, as shown in Fig. 2, and a specially nosed block was made to allow of working room for car wheel flanges.

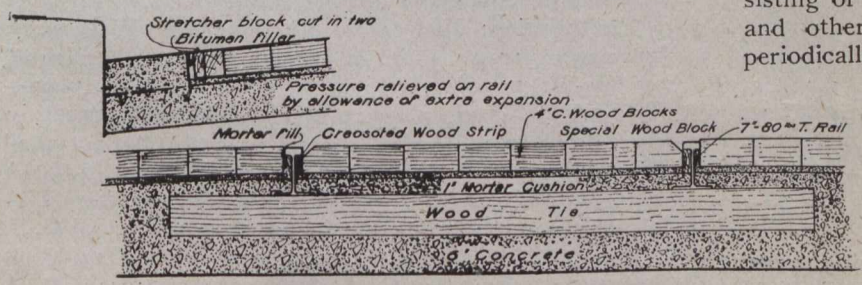

Fig. 2.

These were supplied by the Creosoted Block Paving Co., Limited, of Toronto. The old blocks were used wherever possible, and were cleaned by soaking in boiling water for half an hour, then taken out and the old bitumen scraped off with trowel. After being laid, the blocks were thoroughly tamped down and given a squeegee coat of asphalt cement; sand was then spread over the surface and allowed to stand for twenty-four hours, when it was swept clean and traffic resumed.

The blocks were laid on a mortar cushion, composed of two parts of sand to one part cement. When the blocks were originally laid it was on a sand cushion only.

The work was done by day labor at a cost of $2.50 per square yard.

OPERATION OF SEWAGE TREATMENT PLANTS.

IN a report recently made by the committee on sewage works operation of the American Public Health Association, special emphasis is placed upon the great importance of analytical tests and proper supervision of plants, and suggests the following lists of analytical tests. Regarding the amount of sewage treated the committee says:—

"This is of prime importance to successful operation, for otherwise retention in tanks and rates on filters are indeterminate and it is difficult, if not impossible, to know whether unsatisfactory results are due to overloading of the parts of the works or to improper methods of operation.

"Where fall is available a weir, preferably with an automatic recording device, is a simple and inexpensive method to use. Where the sewage has to be pumped, the venturi meter has proven successful. In works having a dosing tank, an approximation of the rate of flow may be obtained by the use of a float-actuated counter, which indicates the number of discharges of the dosing tank. In the case of heavy flow, when a considerable amount of sewage runs in while the tank is discharging, the total discharge may be obtained by the following formula:

$$D = (n + \frac{ne}{f})\, v$$

in which D = total discharge in unit of time; n = number of discharges in the same unit of time; e = time of emptying; f = time of filling; v = volume of dosing tank.

"When e is very small as compared with f, then $\frac{ne}{f}$ may be omitted and $D = nv$."

Concerning control of plants, the committee reports:

"In some states, associations of those interested consisting of sewage works superintendents, state engineers and others are now being formed to hold meetings periodically to discuss practical questions on operation. The formation of such bodies and their frequent gatherings are highly recommended by your committee. Such meetings stimulate interest and are sources of information to many.

"The state boards of health are the logical bodies to provide this supervision, due to their uniform relation to all the municipalities in each state and with similar boards in adjacent states.

"Furthermore, the sanitary disposal of sewage is a matter generally affecting the commonwealth more than the individual community. The state is interested in requiring that sewage treatment works accomplish the best results possible, while the separate communities are