

box was finished, a cribwork of 6 in. x 8 in. timbers was built up around the mouth to a level with the top of the box and extending back about 8 feet. The raft was then floated into position and the crib filled with stone to sink it. The whole raft and box was then covered over with stone, forming a solid wall as a protection from floating logs, etc. In the canal this wall runs half way across the stream so as to turn the full force of the current directly past the mouth of the sewer and carry the sewage right away.

In laying the sewers under water at the outfall, a cofferdam was built to keep out the water. Stakes were driven in, leaving a space of two feet between them; these were planked up on the inside, and the space between them filled with well rammed clay. This made a very tight dam, effectually keeping the water out until the necessary pipe and masonry had been laid. At the Bogg st. outfall the sewer pipe under water was laid in a bed of cement and covered with the same to a depth of 6 inches.

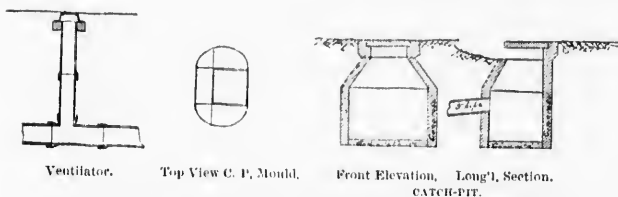
MANHOLES, VENTILATORS AND CATCH PITS.

Wherever two or more sewers meet, there is a manhole, and at every change of grade a lamp-hole and ventilator, so that there is no sewer in the town which is not open to thorough inspection.



MANHOLE.

The catch basins are connected with the sewer by a 9 in. pipe always with a good fall. All catch basins and manholes are made of concrete instead of brick, which elsewhere is generally used for the purpose.



Ventilator.

Top View C. P. Mould.

Front Elevation, Long'l. Section.
CATCH-PIT.

The catch pits, of which there are 42, were designed by Mr. E. H. Keating, M.L.C.E., then city engineer of Halifax, now city engineer of Toronto. The moulds are made in sections fastened together on the inside by pieces of iron about 2 in x 4 in. and $\frac{1}{4}$ in. thick, and common wood screws. The bottoms of the catch pits are 6 feet below the level of the sidewalks. The lower 3 feet 3 in., as will be seen by referring to the plan (Plate IV), is elliptical in shape, $4\frac{1}{2}$ feet long x 3 feet wide, then they begin to narrow and are 2 feet square at the top. The side away from the gutter is perpendicular, while the other side runs out under the gutter. The sides are 6 in. thick; the excavation is taken out, so as to leave a space of from 6 to 8 in. outside the mould. This space is filled with concrete to a height of 3 ft. 6 in., the connection with the sewer having been put in two feet from the bottom. After this, stones are built up around to keep the concrete of the proper thickness till it is built to a height of five feet. Then the top mould, having grooves for the reception of the concrete covers, are put on, and the top finished with a grout of 2 to 1 gravel and cement. After the concrete is set, a man goes inside with a screw-driver, takes the moulds apart, and passes them up piece by piece through the top. The mould is then put together and carted to the next hole. The bottom, which is of concrete with a stone foundation, is then put in. A catch pit of