

than for large installations. They can adapt themselves to large variations of flow, and in the case of small or medium-sized works, where constant supervision is not available, this is a great advantage. We may add that these trays are better suited for the distribution of a large volume of weak liquid than a small volume of strong liquid.

"The distribution is seldom perfect by either of these forms of distribution, and consequently it is advisable to have deep beds where they are adopted. Further, owing to the fact that the delivery of liquid in both cases is more or less constant, medium-sized or coarse material should be used, to prevent ponding.

"A certain amount of supervision is necessary as a tray may become blocked or a trough may fail to tip."

The above conclusions appear to be fair, apart, however, from the classifying of drip trays along with tipping troughs. Drip trays have, to our knowledge, proved satisfactory in many small installations, when the tipping trough has failed. The best form of drip tray is that invented by Mr. F. Wallis Stoddart, which will be understood from the accompanying sketches. The distributor consists of corrugated sheet-iron plates laid evenly over the surface of the bed in the form of

Stoddart's method of distribution came into vogue in 1898, and was preceded by a somewhat similar method adopted at Salford, (England), by Corbett, the city engineer, who conceived the method of leading sewage into percolating filters by means of wood troughs or channels placed about 3 feet above the filters, the sewage overflowing the troughs and splashing in the surface of the filters. Corbett, however, replaced his distributing troughs by fixed perforated pipes, through which the sewage was discharged periodically by aid of a syphon. This is really the parent of the fixed spray principal. It was not long before Corbett improved the form, resulting in the fixed fountain spray (which has become known as the Salford spray), and adopted by Watson, of Birmingham, on a large scale, at Columbus, Ohio; and at Hamilton, Ontario; etc.

The fixed spray necessitates a working head of from two to eight feet. The sewage is distributed from a collecting tank, (after the solids have been removed), by pipes either placed on the surface of the filter or within the bed of the media. From these pipes perpendicular junctions, pieces are led to above the surface of the bed, terminating with a spray nozzle. The sewage is emitted from the nozzle

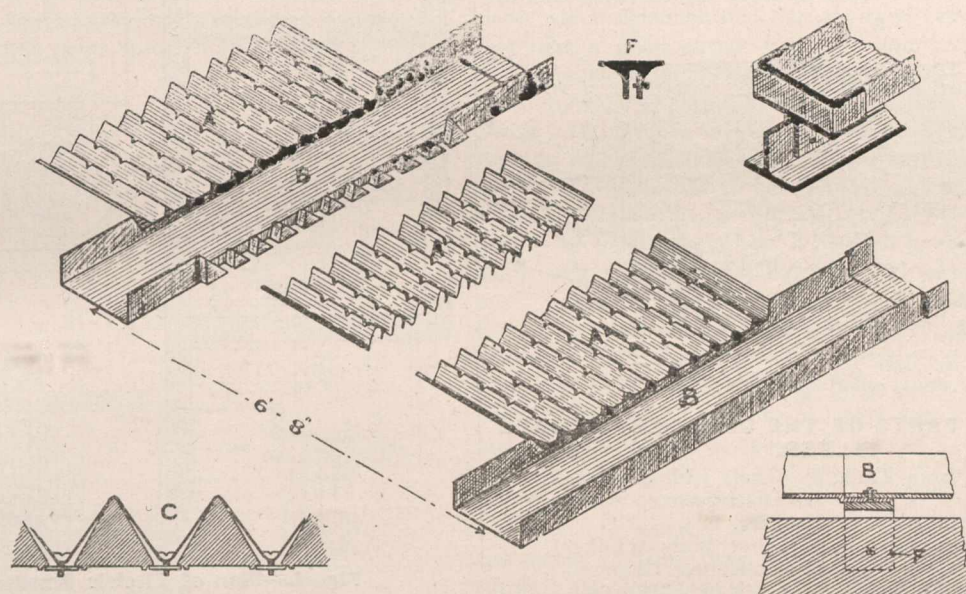


FIG. 1.—SKETCH OF THE STODDART SEWAGE DISTRIBUTOR (PATENT).

A—Distributor.
B—Supply Channel

C—Attachment of Distributor to Channel.
F—Chair with Set Screw.

channels with perforations on top. On the lower face of the channelling there are placed at intervals projecting points from which the liquid drops to the surface of the bed.

Messrs. Galt and Smith (Engineers, Toronto), have recently installed the above method of distribution in connection with a biological filtration plant at Vernon, B.C. They claim that its chief advantages apart from distribution are,—no moving parts which can be affected by frost, and that in the case of a small installation, it can be readily covered in and protected. There is no doubt that the simplicity and effectiveness of the method recommend themselves for small beds. In the case of large works, however, difficulty is encountered in laying the channelling evenly, and maintaining the proper levels, so as to prevent overdosing at certain points to the exclusion of others. The system has been successfully applied at numerous country houses, and private and public institutions, but has had no wide adoption in the case of larger works.

by virtue of the head pressure in the form of a circular fountain spray. The surface of the filter presenting any number of these circular sprays as arranged. Usually the filter beds are arranged as squares or rectangles, and each separate spray being a circle, the intervening space between each circle receives no sewage, consequently a large area of the filtering material is continually out of use.

Further, in spite of all efforts to vary and improve upon the form of nozzle, an even and equal distribution of sewage over the surface, contained in the circle area has been found impossible.

The fact that there are no moving parts connected with the fixed spray has led the Massachusetts Board of Health to make a number of experiments in this direction; it being thought, that, where it is a question of frost, the fixed spray presented advantages over the revolving sprinkler. In this connection we would quote the conclusions arrived at, published in 1907, State Board of Health Report.