Zinc Balls Clean Sewers
BY J. C. KEELEY
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SOME years ago a pipe sewer system was constructed under the supervision of E. B. Shifley, city engineer, Owensboro, Ky. It was stipulated in the specifications that a ball 2 in. smaller than the bore of the pipe should pass through without lodging. In making this test on a certain section of sewer, the ball became lodged and had to be flushed to the manhole below. When the ball appeared in the manhole, it was found carrying a half brick before it. Appreciating the significance of this accidental discovery, Mr. Shifley applied this principle to the cleaning of sewers. The writer for a number of years has used this method with excellent results. It is not successful where roots are encountered, but where silt and debris have collected in the sewer—due to the absence of flush tanks and catchbasins, or where the latter have been allowed to fill—this plan has been found to be cheaper than the drag or bucket method and entirely satisfactory.

When a sewer is flushed without a ball ahead of the stream of water, the sand or silt is pushed forward by the flow of water and the outlet is choked, thereby causing the water to back up and so lose its nozzle pressure; when a ball is used ahead of the water, the outlet is kept partly open, thus utilizing the pressure.

If the sewer is badly choked, a ball 5 to 10 in. smaller than the diameter of the pipe is placed in the sewer at the manhole and a stream of water applied behind the ball until it appears at the manhole below; the deposit is removed from the manhole, and a larger ball is then started from the manhole above and carried through as before. This plan is repeated until the sewer is clean. To insure a clean sewer, the last ball to pass through should be 2 in. smaller than the sewer. Where sewers are not badly choked, the first ball may be large, the size depending on the condition of the sewer. The ball should float and should be as light as is consistent with strength. Those used with best results are hollow and made of two thicknesses of No. 24 gage zinc, the seams being set at right angles. The sizes run from 4 to 22 in. Wooden balls have not proved satisfactory.

A fork or screen with a sandbag directly in front of it should be placed at the inlet end of the lower manhole. This is to prevent the ball, together with the silt expelled from the cleaned sewer, from escaping into the next section of sewer. A line of sewer should of course be cleaned in sections, beginning at the upper manhole.

Last year an abandoned sewer of 15-in. diameter was found to be almost filled with silt, there being a space of about 2 in. only at the top to allow passage of water. In cleaning this the writer first used a 4-in. ball, and last a 13-in. ball. With the aid of these balls, 5 cu.yd. of sand was removed from this sewer in four hours.

The accompanying sketch shows the position of the ball and its action. The view shows the material removed from a section of sewer and the balls and tools used in doing the work.

Well-Constructed Farm Entrance Drains Are an Economic Necessity
BY DONALD A. THOMAS
Michigan State Highway Department

In building culverts to connect roadside ditches at farm entrances, care should be taken that they are of adequate size, of such strength that they will not become broken and so tight that they will not leak. The

ALL THIS DIRT REMOVED FROM SEWER BY FLUSHING BALLS AND ACCESSORIES SHOWN

PERMANENCY OF CULVERT INSURED BY PROPER END WALLS CARRIED BELOW FROST LINE

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