July 28, 1936. H. VAN DER HORST ET AL 2,049,340

DRAIN

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Fig. 1.

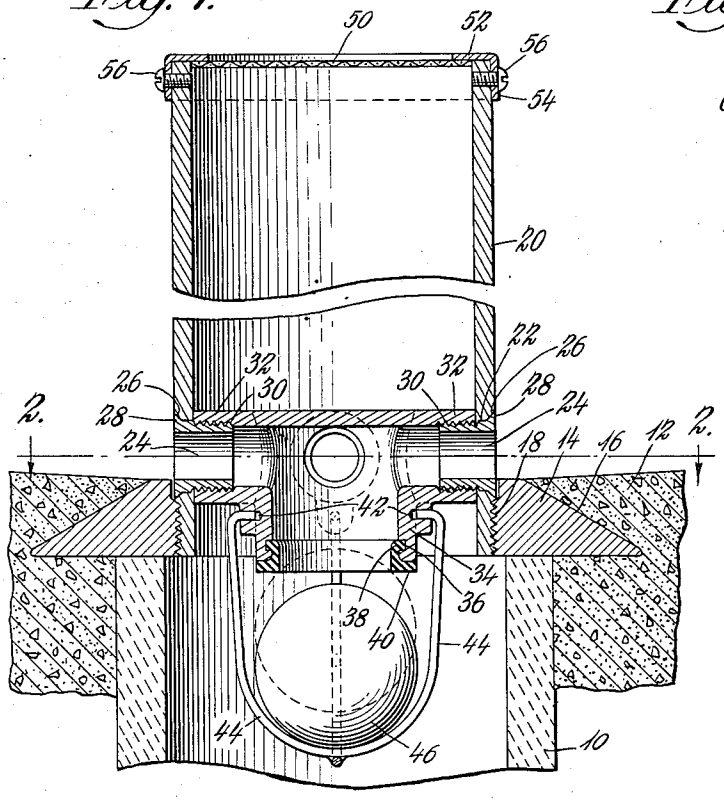


Fig. 3.

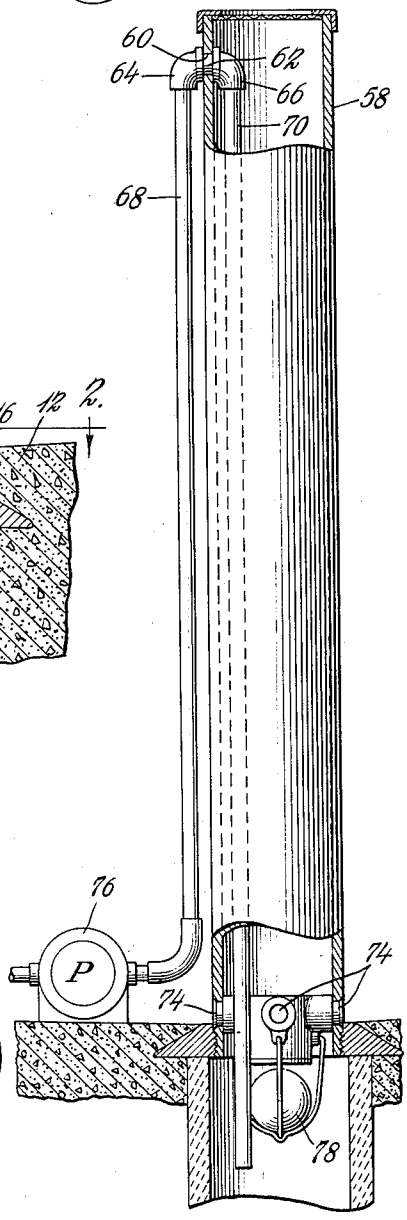
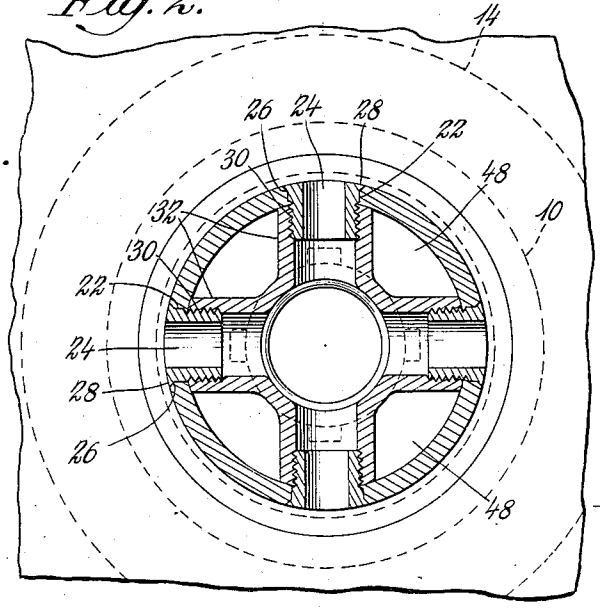


Fig. 2.



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4 Claims. (Cl. 182—31)

Our invention relates to drainage equipment, and has among its objects and advantages the provision of an improved floor drain and the like in which means is embodied for closing the drain by the reverse flow of drainage to prevent such drainage from overflowing.

In the accompanying drawing:

Fig. 1 is a sectional view illustrating our floor drain;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1; and

Fig. 3 is a sectional view of a different form.

In the embodiment selected to illustrate our invention, we make use of a section of tile 10 comprising a conventional drain conduit associated with the floor 12. Within the material of the floor 12, we imbed a metallic plate 14 having a wedge-shaped peripheral margin 16 anchored in the cement. This plate is provided with a threaded opening 18 for the reception of the threaded end of an upstanding pipe 20. The pipe extends above the floor line a sufficient distance to prevent the overflow of backwater, but includes means for the escape of water which may accumulate on the floor 12.

We provide the pipe 20 with a plurality of openings 22 within which nipples 24 are positioned. The openings 22 terminate in flared enlargements 26, whereby the outer ends of the nipples may be riveted at 28 for connecting purposes. The nipples are threaded at 30 and screwed into the ends of tubular extensions 32 formed integrally with and communicating with a depending tubular member 34. It will be noted that the nipples 24 are so positioned with respect to the floor level as to permit complete drainage of water upon the floor.

A groove 36 is formed in the inner wall of the tubular member 34 for the reception of the flange 38 carried by a rubber valve seat 40 abutting the end of the member 34. Bores 42 are provided in the tubular member 34 for the reception of wires 44 shaped to loosely support a ball valve 46. This ball is normally positioned according to Fig. 1, at which time water accumulating on the floor 12 may flow into the tile 10.

In operation, should backwater rise in the tile 10, the ball 46 would engage the seat 40, thereby preventing the backwater from flooding the floor 12 through the medium of the tubular member 34 and the nipples 24. In connection with the rise of backwater, it is essential to provide facilities for accommodating destructive forces incident to the rising level of the water. To this end, our construction operates through the medium of the ball 46 to prevent overflow with respect to the floor 12, but permits the backwater to rise to its normal level within the pipe 20 because of the arrangement of the nipples 24, whereby passages 48 are provided between the nipples.

Across the upper end of the pipe 20 we place a screen 50. The screen is attached to a flange 52 having a depending flange 54 embracing the outer wall of the tube 20 and secured thereto by means of screws 56. The screen operates to provide venting facilities for the pipe 20 to accommodate the rising backwater, in addition to preventing large objects from being dropped into the pipe 20, which might impair the efficient operation of the ball 46. Similarly, screens may be attached to the pipe across the open nipples 24.

In Fig. 3, we illustrate a slightly different form of construction in which the pipe 58 corresponding to the pipe 20 is provided with an opening 60 near its upper end for the reception of a nipple 62 connected with elbows 64 and 66, connected with pipes 68 and 70, respectively.

In many cases it may be desirable to provide means for passing drainage accumulating upon the floor or other places into the pipe 58 when the ball 78 is in its elevated position for preventing backwater from flowing through the nipples 74. With the ball 78 in its closing position with respect to the nipples, water may be pumped into the tube 68 by means of a suitable pump indicated generally at 76 and connected with the pipe 68.

When the ball 78 is in its elevated position, the tube 68 has communication with the drain pipe with which it is associated so that the water pumped into the tube will seek the normal level of the backwater. We prefer to extend the pipe 70 below the ball 78 to eliminate noise due to splashing. Thus, we provide facilities for the disposition of water through the medium of the tube 68 even though the ball 78 is in its closed position.

In constructing the device, the tubular member 34 is positioned inside the tube and the nipples 24 screwed into the extensions 32, after which the ends of the nipples are riveted.

Without further elaboration, the foregoing will so fully explain our invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

We claim:

1. The combination with a floor having a drain pipe associated therewith, of a tube connected

with the floor in operative relation with the drain pipe, means associated with the tube for conveying floor drainage to the drain pipe, and means co-operating with said first-named means for establishing a closure with respect to backwater, said first-named means being shaped to permit the backwater to rise into the tube.

2. The combination with a floor having a drain pipe associated therewith, of a tube connected with the floor in draining relation with the drain pipe, means associated with the tube for receiving floor drainage and delivering the same to the drain pipe, said means being so constructed and arranged as to establish communication between the tube and the drain pipe, to permit backwater to rise into the tube, and valve means associated with said first-named means and actuated by rising backwater, to prevent the backwater from flooding the floor.

3. The combination with a floor having a drain pipe associated therewith, of a tube mounted on the floor in draining relation with the drain pipe, a spider mounted inside the tube and being of tubular formation for conveying floor drainage to the drain pipe, valve means associated with said spider and operated by backwater, to prevent the same from flooding the floor, said spider operating to permit backwater to rise in the tube.

4. In a device of the type described, a tube having a spider mounted therein, said spider being of tubular construction and constituting a conduit for drainage, and valve means associated with the spider and actuated by rising backwater, to prevent the backwater from flowing through the spider, said spider being shaped to permit backwater to rise into the tube.

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