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L. N. BOOSEY

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FLOOR DRAIN

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2 Sheets-Sheet 1

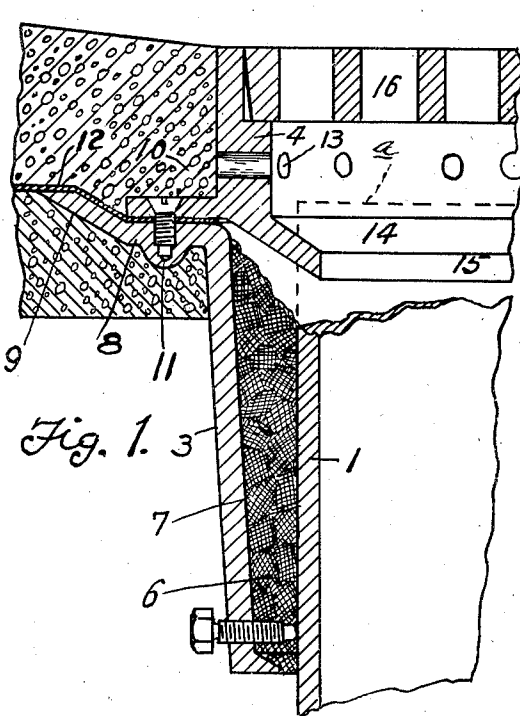


Fig. 1.

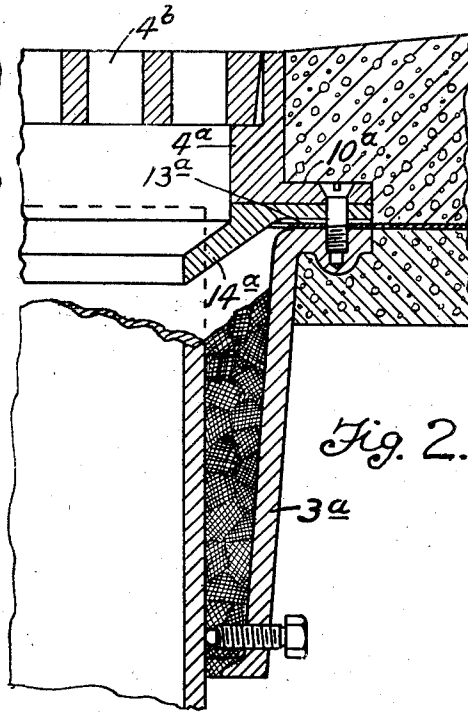


Fig. 2.

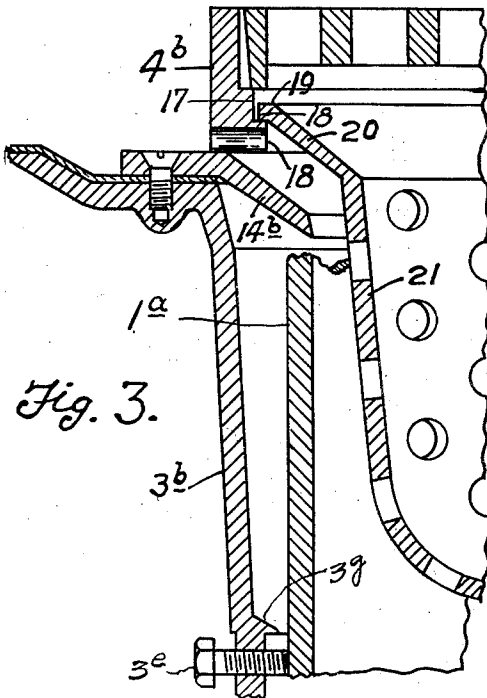


Fig. 3.

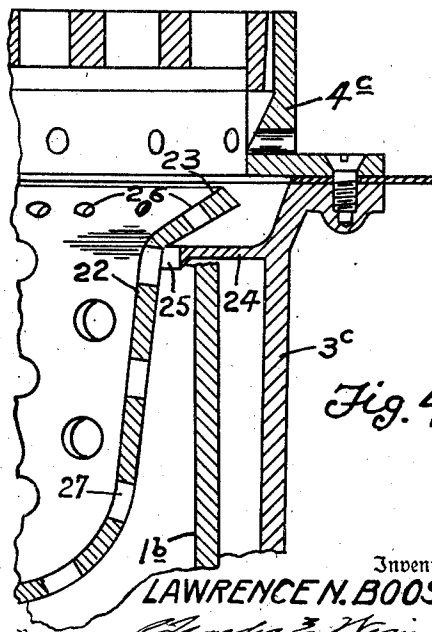


Fig. 4.

Inventor  
**LAWRENCE N. BOOSEY.**  
*Charles E. Tracy*

Attorney

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L. N. BOOSEY

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2 Sheets-Sheet 2

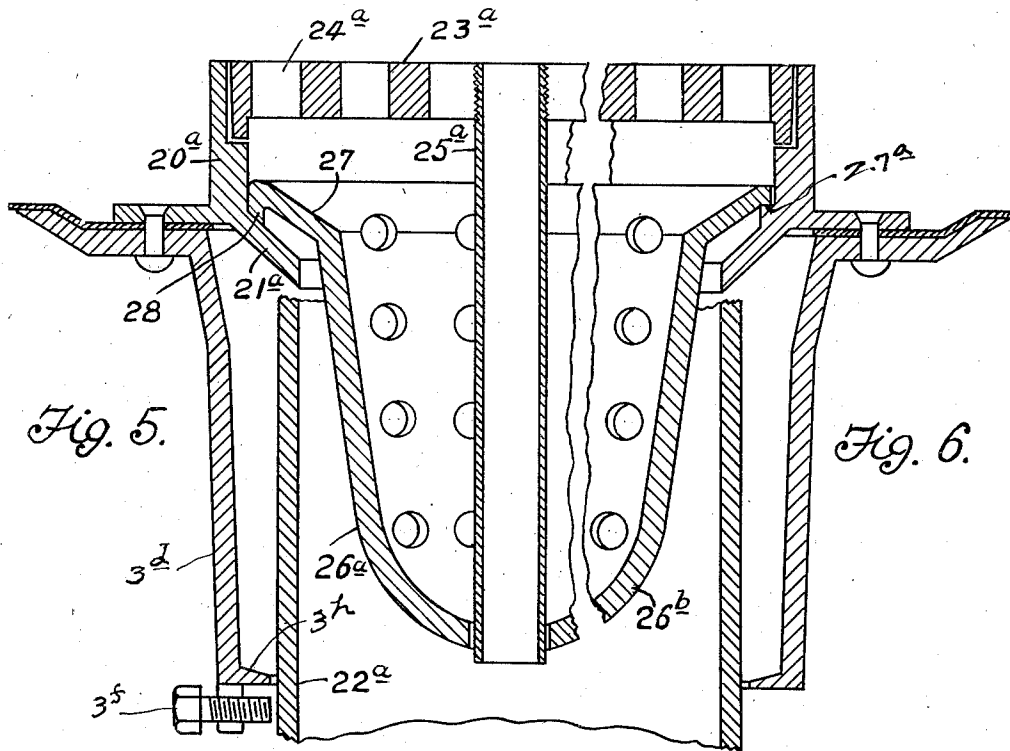


Fig. 5.

Fig. 6.

INVENTOR.  
LAWRENCE N. BOOSEY.  
BY  
*Charles E. Hooper*  
H234.

# UNITED STATES PATENT OFFICE

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## FLOOR DRAIN

Lawrence N. Boosey, Detroit, Mich., assignor to  
Norman Boosey Manufacturing Company, De-  
troit, Mich., a corporation of Michigan

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6 Claims. (Cl. 182—31)

This invention relates to floor drains adapted to be secured to the upper end of the conduit leading to the sewer.

Usually the conduits are positioned in a building structure prior to the laying of the floor which is usually of concrete and are originally set with the upper end sufficiently above the base on which the floor is to be laid and the drain conduit is usually required to be cut off at the upper end or broken as by a chisel to permit the floor drain head to be positioned with the upper surface thereof at approximately the floor level. This usual procedure results in a ragged upper edge of the conduit which catches lint and other refuse discharging through the drain head.

The purpose of this invention therefore is to provide a drain head with which is associated an internal flange angularly disposed downwardly and inwardly and of a length to overlie the upper ragged end of the conduit to which the drain head is to be attached thereby preventing clogging of the inlet end of the outlet conduit.

Several forms of drainage fittings of such structure as to secure the said features and objects of the invention are shown in the accompanying drawings in which—

Fig. 1 is a vertical section through a floor drain showing an integral internal flange overlying the inlet end of the outlet conduit.

Fig. 2 is a half section showing another form of my improved drainage fitting including a separate flange overlying the upper end of the waste conduit.

Fig. 3 is a vertical section showing an alternative form of a drainage fitting for use in conjunction with a basket having an external flange supported by the drain head.

Fig. 4 is a similar view showing the basket formed with an out-turned flange supported by a flange provided on the body.

Fig. 5 is a vertical section of a drainage fitting showing a basket removably supported by the flange of the drain head and including a means permitting flow of liquid into the outlet conduit when the basket becomes clogged.

Fig. 6 is a vertical section showing another form of construction showing a drainage by-pass through the basket.

The invention in its simplest form is shown in Fig. 1 in which the usual vertical portion of the outlet conduit is shown at 1 and which originally extended upwardly a distance above the upper end indicated by the dotted lines *a* in Fig. 1.

Prior to the placing of the concrete and after the floor level is established, the fitting compris-

ing the body 3 and head 4, are placed in position in assembled relation and the concrete is then poured subsequent to securing the body 3 to the conduit as by means of the threaded bolts 5 which center the fitting on the conduit 1. The space 6 is provided between the body 3 and the conduit to receive a caulking material 7 shown in Fig. 1, as is the usual practice. Caulking material is similarly used in each of the forms of the invention shown.

The body 3 is provided with a flange 8 shown at the left side of Fig. 1 which may have the upturned flange 9 or it may be made without such upturned flange as is shown at the right hand side of Fig. 2.

The drain head 4 as shown in Fig. 1 has an integral peripheral flange 10 which is secured as by means of screws 11 to the flange 8 of the body. Between the two flanges 8 and 10 is secured a flashing 12 usually provided to prevent seepage through the concrete floor. A series of apertures 13 are provided above the flange 10 as shown to permit any liquids seeping into the concrete to discharge into the fitting. However drainage may be provided in either of the forms of the invention shown as is illustrated at 13*a* in Fig. 2, in which case openings 13 need not be provided.

In the form of my improved drainage fitting shown in Fig. 2 the flange 10*a* is integral with the head and carries the internal flange 14*a* which overlies the upper end of the waste conduit and serves the same purpose as the flange 14 of Fig. 1.

The principal feature of the invention as above described resides in the provision of a downwardly inclined flange 14 or 14*a* having an opening 15 in the bottom of approximately the same diameter as the internal diameter of the drainage conduit 1 and thus extends over the upper end of the conduit 1 and directs all material flowing through the grating 16 or the drainage openings 13 or 13*a* into the discharge conduit 1. The flange prevents floating material, such as lint for instance, from accumulating on the ragged upper end of the conduit 1.

The drain head 4*a* is similar to that shown in Fig. 1 in that it has an inturned flange or apron 14*a* that extends over the upper end of the drainage conduit 1*a* but is not an integral part of the head 4*a*. The head 4*a* has drainage openings 13*a* leading to within the body of the drain head as described relative to the structure shown in Fig. 1, and also has a removable grating.

In the form of the invention shown in Fig. 3 the head 4*c* has lugs 17 on the upper end of

which the grating rests. These lugs have a recess 18 to receive the outer edge 19 of the flange 20 of the perforate basket 21. By removal of the grating the basket may be removed for the purpose of cleaning and to permit access to the flange 14b which may be required to be cleaned and which prevents the hand of the person from coming into contact with the ragged or broken end of the conduit 1a.

As shown in Fig. 4 the head 4c is not provided with an internal flange but the basket 22 is provided with an inclined wall 23 supported by an internal flange 24 integral with the body and overlying the upper ragged edge of the waste conduit 1b. Upon removal of the basket and grating for the purpose of cleaning, the flange 24 serves as a protection for the hand. By providing notches 25 in the inner edge of the flange 24 and apertures 26 in the inclined flange 23 of the basket, liquid may still pass to the outlet when the lower apertures 27 of the basket become clogged by accumulation of dirt and refuse.

In the form of the invention shown in Fig. 5, the drain head 20a has an inwardly and downwardly projecting flange 21a overlying the upper end of the outlet conduit 22a. The grating member 23a has drainage apertures 24a and centrally disposed in the grating member 23a is a vertical conduit 25a opening through the upper face of the grating preferably at its center and extending through an aperture provided therefor in the bottom of the basket.

The perforate basket 26a has its flange 27 provided with a downwardly turned edge portion 28 supported on the flange 21a of the drain head and the conduit 25a opens to the bottom of the basket which is perforate in character. By this arrangement, and particularly in the case of the flooding of the floor surface or in the event of clogging the apertures of the grating by debris from the floor, water may still flow through the conduit 25 directly to the outlet. Also in the event the apertures of the basket become clogged water may flow through the by-pass conduit 25a.

Fig. 6 is an alternative arrangement of the structure shown in Fig. 5 and includes the vertical conduit 25a. In this arrangement however the basket 26b is supported by the drain head as indicated at 27a rather than by the flange 21a shown in Fig. 5 but in both the structures of Fig. 5 and Fig. 6 the flange of the basket is spaced about its major width from the flange of the drain head.

Seepage may be provided for in the forms of the invention shown in Figs. 5 and 6 by means of channels 20a formed in the under surface of the flange thereof as shown at 13a in Fig. 2.

In either of the forms shown in Figs. 3 and 5 the body 3b in Fig. 3 and the body 3d in Fig. 5 have the bolts 3e and 3f below the respective flange 3g or 3h rather than above the corresponding flange as shown in Fig. 1. In the arrangement shown in Fig. 1 the retaining bolts enter the caulking space 6 and are subject to breakage due to the caulking being hammered forcibly to place. In the form shown in Figs. 3 and 5 the bolts are not subjected to such strain by introduction of the caulking.

In the form of the invention shown in Fig. 4 the flange 24 being integral with the body 3c will prevent introduction of the caulking between the upper end of the outlet conduit and the body. Therefore in the use of the device shown in Fig. 4 the outlet conduit 1b would have a cement or other plastic applied to the exterior of the con-

duit 1b and the member 3c assembled therewith while the cement or plastic material is in soft condition whereby portions of the caulking material would be forced into the space between the conduit 1b and the body 3c in forcing the body to final position.

The preferred form of the invention is shown in Fig. 3.

In either of the structural forms shown the same object is obtained namely, the floor drain may be positioned at the time the floor level is determined and prior to the pouring of the concrete and subsequent to the breaking or cutting off the upper end of the outlet conduit, it being understood that the shortening of the outlet conduit 1a when necessary be done at the time the floor level is determined and prior to the positioning of the drainage fitting on the conduit.

Once the fitting is assembled with the conduit, subsequent cleaning of the floor drain may be readily accomplished without interference with the drain conduit.

It is believed evident from the foregoing description that the various features and objects of the invention are attained by the structures described.

Having thus briefly described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. A drainage fitting for waste conduits comprising a body member and a drain head, said body member being of tubular form into which the upper end of the waste conduit extends and having an external flange at the upper end, a drain head arranged to support a grating at its upper end and having an external flange secured to the flange of the body, and further having an internal downwardly inclined flange extending over in spaced relation with the end of the waste conduit to which the fitting is secured.

2. A drainage fitting for positioning in a floor comprising a body member having an external flange at its upper end, means at its lower end for adjustably securing a waste conduit therewithin, a drain head having an open upper end arranged to receive a grating and an external flange at its lower end arranged to be secured to the body flange, the flanges being adapted to receive a seepage apron, said head having an inwardly extending downwardly inclined flange overlying the upper end of the conduit in spaced relation therewith and having an opening practically equal in diameter to the internal diameter of the waste conduit, and a removable grating supported in the upper end of the head practically flush with the floor surface.

3. A drainage fitting for association with a waste conduit, comprising a hollow body member adapted to receive the upper end of the waste conduit, and a drain head securable thereto, the body member having an external flange at its upper end, and the drain head having an open upper end positioned approximately at the floor line and through which liquid material from the floor may discharge, means integral with the head providing an inwardly extending downwardly inclined flange overlying the upper end of the waste conduit in spaced relation therewith and providing an opening through which waste liquid discharging into the fitting is directed into the waste conduit.

4. A floor drain comprising a hollow body member having an external flange at its upper end for positioning within a floor and a drain

head having an external flange for securing to the body flange, the upper end of the said head being practically flush with the floor surface adjacent thereto, a grating for said head supported in the upper end thereof practically flush with the floor level adjacent thereto, means for securing the body member to the waste conduit, said head including an internal downwardly inclined flange overlying the inlet end of the conduit in vertically spaced relation therewith and having a central opening, said flange functioning to lead waste liquids into the conduit and further providing a shield for preventing the hands of an attendant from contact with the upper end of the waste conduit when cleaning the interior of the head and flange.

5. In a floor drain, a hollow body member arranged to receive liquid from a floor surface at its upper end and adapted at its lower end for connection with the inlet end of a waste con-

duit, means intermediate the upper and lower ends of the body providing for discharge of inflowing liquid from the body into the waste conduit, said means comprising an inwardly extending downwardly inclined flange within the body and overlying the inlet end of the conduit in vertically spaced relation therewith, said flange providing a central opening approximately equal to the internal diameter of the waste conduit through which all liquid entering the drain is discharged directly into the conduit.

6. In a floor drain, a drain head arranged to receive liquid from a floor surface, a body member to which the drain head is secured, means for securing the body member to a waste conduit, a flange intermediate the head and the body and having a downwardly inclined imperforate portion overlying the inlet end of the waste conduit in vertically spaced relation therewith.

LAWRENCE N. BOOSEY.