Aug. 6, 1929. H. M. HOELSCHER 1,723,038

POP-UP VALVE

Filed Sept. 16, 1927 2 Sheets-Sheet 1

Fig. 1.

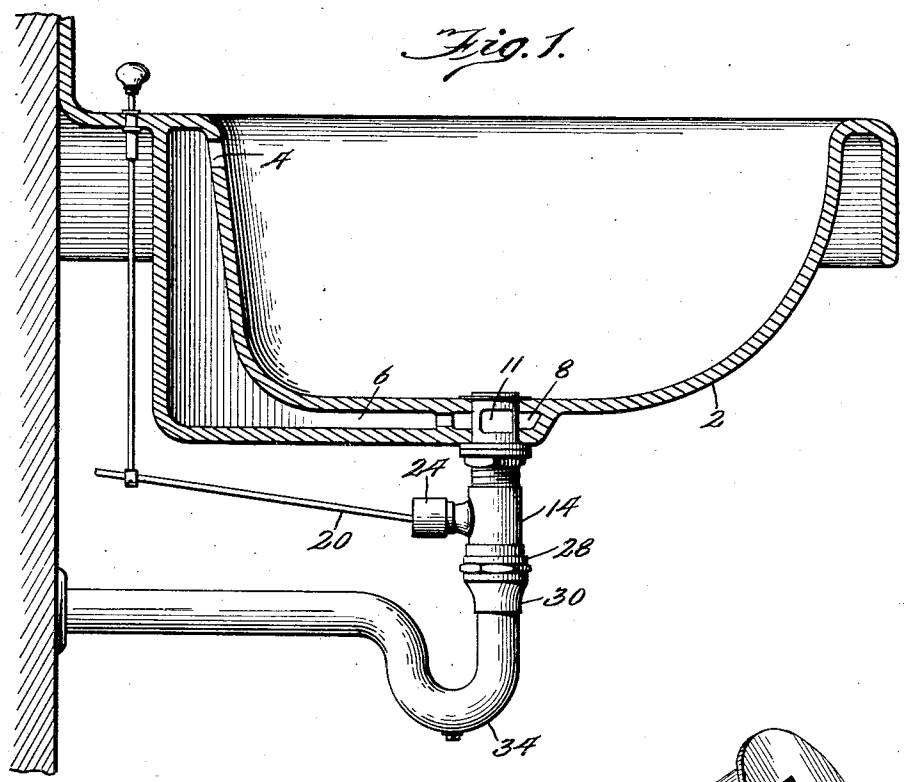
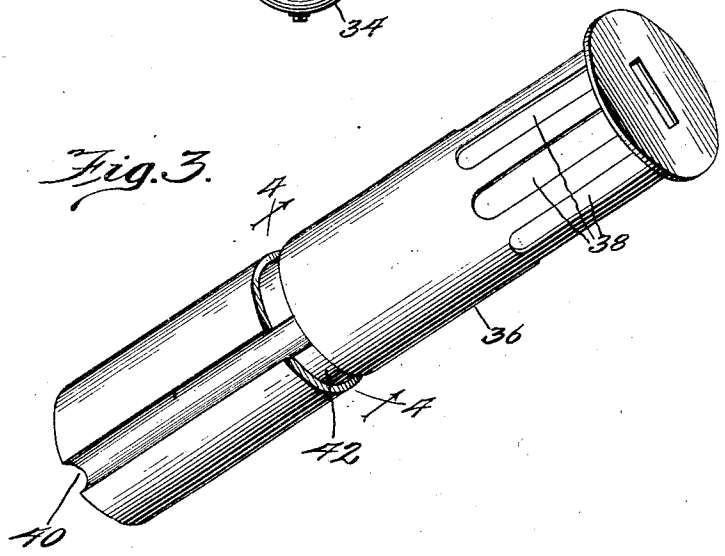


Fig. 3.



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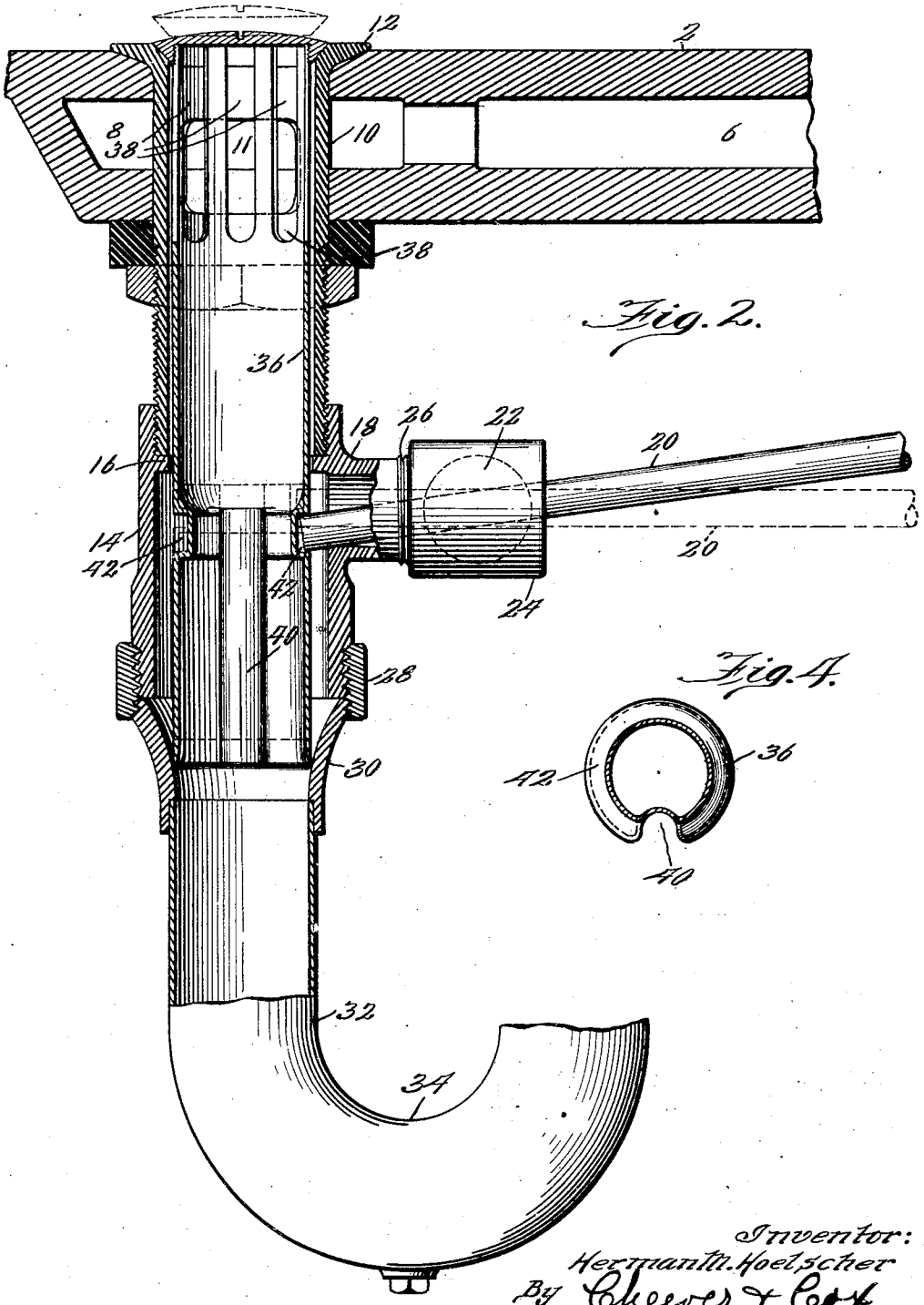


Fig. 2.

Fig. 4.

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UNITED STATES PATENT OFFICE.

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POP-UP VALVE.

Application filed September 16, 1927. Serial No. 219,882.

My invention relates to pop-up valve constructions for waste pipes and bowls, tubs and the like. The present invention comprehends improved details of construction over the device disclosed in my co-pending application Serial Number 218,800, filed September 10, 1927, and wherein the shiftable valve is formed as an imperforate sleeve into which the waste water passes and which is provided with an actuating mechanism therefor constructed and arranged to operate the sleeve by means of connections disposed wholly on the exterior of the sleeve whereby the waste water does not come in contact with the operating mechanism for the sleeve and whereby the sleeve itself is wholly devoid of perforations or other obstructions, by means of which and to which soap, grease or other foreign matter in the waste water cannot possibly adhere to clog the sleeve or operating mechanism.

The object of my present invention is to provide a more easily assembled and demountable sleeve construction whereby the ready installation of the pop-up valve is made possible, while at the same time preserving the imperforate character of the sleeve of the valve and its operation in a manner so that the waste water does not come into contact with the sleeve operating means.

Yet another object of my invention resides in forming a pop-up valve construction of the hereinbefore described character wherein I provide the shiftable imperforate sleeve with an exteriorly surface located means constructed and arranged with a manually operable sleeve-shifting member, and which exteriorly constructed means is adapted to permit the valve sleeve to be detached freely from its actuating connections without disturbing the actuating connections themselves.

These and other objects of my invention will be apparent from a perusal of the following specification when taken in connection with the accompanying drawings, wherein

Fig. 1 illustrates the manner in which my improved pop-up valve construction is applied, for instance, to an ordinary type of lavatory bowl;

Fig. 2 is a sectional view taken through the lower portion of the bowl and through the pop-up valve construction;

Fig. 3 is a perspective view of the inner sleeve of my valve; and

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

Referring now to Fig. 1, I have shown my improved pop-up valve as installed on a present type of bowl, but it is understood that the valve is capable of installation in connection with many other types of bowls, tubs or other containers provided with drain outlets. In the present instance the bowl 2 is shown as provided with the usual drain 4 and drain passageway 6, leading to the central drain 8 through and in which my valve is installed.

Referring now in detail to Fig. 2 of the drawings, it will be seen that the valve comprises an outer sleeve or plug 10 provided on its upper end with its usual rim 12 which seats in a water-tight manner in the surrounding drain outlet of the bowl 2. In addition the upper portion of the sleeve is provided with a drain opening 11. This sleeve is of considerable length and is preferably provided with exterior threads on its lower portion adapted to screw into a T-shaped fitting 14 and to abut an interior flange 16, which flange is located immediately below the exterior threads of the T-shaped fitting. In addition the fitting 14 is provided with a lateral integral sleeve 18 for receiving and housing the actuating mechanism for the shiftable member of the pop-up valve. In the present instance this actuating member as shown has a lever 20 having a ball 22, shown in dotted lines, adapted to seat on the inner wall surface of this lateral sleeve 18.

As is well known in the art, the inner surface of this sleeve 18 is provided with the usual packing gland so as to provide a watertight fit for this ball-like portion 22 of the lever 20. In addition there is provided a closing cap 24 which screws on the thread 26 on the upper surface of the sleeve 18 for firmly and snugly holding the ball 22 seated against its packing whereby to prevent the escape of water through the sleeve 18. The outer end of the lever 20 passes through the usual opening of the outer cap 24. It will be appreciated that my present invention is not restricted to

the operation of the shiftable member of my pop-up valve by means of a lever 20, since it contemplates the operation of this valve by means of any type of manually operable means.

The lower portion of the fitting 14 is preferably screw-threaded on its outer periphery to receive the ring or collar 28 which is adapted to threadably engage the upper portion of the conically shaped collar 30, the inner walls of which curve and flare outwardly from bottom to top for purposes hereinafter described. The inner lower wall of this conical wall 30 is provided with a shoulder to receive the upper end of the drain pipe 32 so that the inner wall at the junction of this collar 30 and the drain pipe 32 is smooth, unbroken and continuous. Drain pipe 32 is provided with the usual drain trap 34 as is well known in the art.

The movable portion of my improved pop-up valve comprises an inner sleeve 36 shown clearly in Fig. 3 of the drawings.

The upper portion of this sleeve is provided with the usual elongated drain slots 38 for permitting the drain of the water either from the bowl 2 proper or from the overflow passage 6. In addition the top of the valve is provided with the usual imperforate cap 40 which is formed on its outer end surface with an inclined or beveled annular seat 42 adapted to seat in a watertight manner on the corresponding annular seat of the outer sleeve 10.

The novel feature of my present invention over the construction shown in my co-pending application resides in forming that portion of the sleeve 36 which is below the drain slots 38 with actuating connections constructed and arranged to permit the sleeve to be operated by and yet freely to detach from the inner end of the hand lever 20 without disturbing or demounting the lever 20 or collar 24 from its assembled position on the pop-up valve.

Obviously my invention comprehends a variety of constructions whereby this function may be accomplished, while at the same time the imperforate character of this sleeve 36 below the drain openings 38 is maintained. In the present instance I form the outer surface of the lower portion of this sleeve 36 with a longitudinally extending channel 40 which communicates with an annular channel 42. In the present instance these channels 40 and 42 are formed as indents and preferably by de-forming the metal of the sleeve whereby the exterior of the walls of the sleeve lie in a common circumferential plane so that the sleeve may fit snugly within and pass longitudinally through the outer sleeve of the pop-up valve. It is understood of course that these inwardly extending indents 40 and 42 are made as shallow as possible, but sufficiently deep so that the inner portion of the actuating lever 20 may seat within the annular indent 42 so as to raise and lower the sleeve 36 in the opening and closing movements of the pop-up valve. The lower portion of the sleeve 36 is provided with a beveled wall so as to snugly fit the flaring wall of the conical washer or the collar on the upper end of the drain pipe when the parts are in assembled position.

It will be obvious from the foregoing that by reason of the above described construction the inner sleeve 36 may be assembled in position by passing its lower end through the outer sleeve 10 of the pop-up valve, in which case the longitudinal channel 40 is turned so that it aligns with the inner end of the lever 20, thus permitting the sleeve 26 to be slid into position as shown in Fig. 2. Thereafter the sleeve is given an annular movement so that the inner end of the lever 20 is carried into the annular channel 42, in which position the sleeve is locked in operative connection with this inner end of the lever 20, while at the same time through these operative connections by raising and lowering the sleeve 20, the sleeve 36 may be raised and lowered on its seat to open and close the pop-up valve.

It will be seen that the sleeve 36 may be assembled and demounted from the remainder of the pop-up valve construction, and particularly from its operative connection with the inner end of the lever 20, or with any equivalent actuating mechanism, without disturbing or demounting the actuating connection; and it will be further seen that my present described actuating connection is located wholly on the exterior of this sleeve 36 and that the sleeve is wholly imperforate at this actuating connection whereby the drain water passing through the sleeve does not have access to the operating connections of the lever 20, so that grease, soap or other foreign matter in the waste water cannot clog or obstruct the actuating connections and prevent the opening and closing of the valve.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a pop-up valve construction, the combination of an outer sleeve and manually operable means, an inner sleeve forming a waste water conduit, said inner sleeve having imperforate wall portions indented longitudinally thereof and annularly thereof whereby said inner sleeve may be operatively inserted in the said outer sleeve without disturbing the actuating means and turned angularly to operably connect with the actuating means.

2. In a device of the class described, the combination of a bowl having a drain opening, an outer sleeve seated in said drain and

having a valve seat and a threaded exterior, a fitting threadedly engaging the exterior of the sleeve, said fitting having a lateral opening, an actuating member shiftably mounted in said opening with its inner end projecting into the bore of said sleeve, an inner sleeve mounted in said outer sleeve and having a valve to seat in the seat of said outer sleeve, a drain pipe, means for connecting the drain pipe with the fitting, the lower portion of said inner sleeve adjacent said fitting and opposite the actuating means being wholly imperforate and having a longitudinal indent adapted to register with the inner end of the actuating means and having an annular indent connecting with the longitudinal indent whereby the inner end of the actuating means may be operably seated in the annular indent for locking the inner sleeve against detachability while permitting its free opening and closing.

In witness whereof, I have hereunto subscribed my name.

HERMAN M. HOELSCHER.