

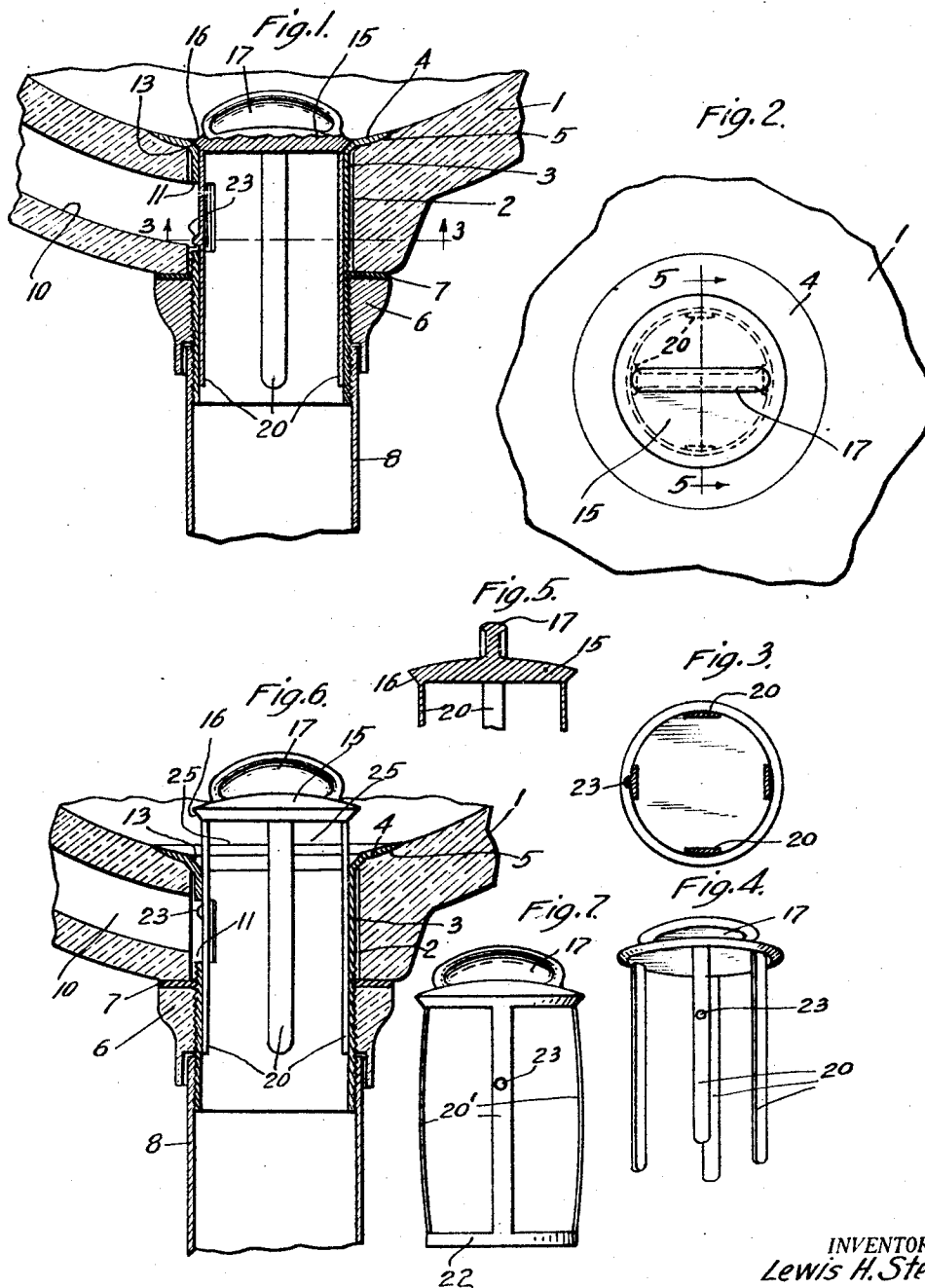
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CLOSURE MEANS FOR DISCHARGE OPENINGS OF PLUMBING FIXTURES

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CLOSURE MEANS FOR DISCHARGE OPENINGS OF PLUMBING FIXTURES.

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This invention relates to closure means or stoppers for the drain pipes or discharge openings of wash basins, bath tubs, laundry trays, sinks, and other plumbing fixtures.

5 The principal objects of the invention are to provide a closure means which is simple and inexpensive to manufacture, which is simple and positive in operation, and whose stopper member is not so easily dislodged
10 or removed from the discharge opening as to cause danger of misplacement thereof, while said stopper member may readily be moved into open or closed position by simple manual operation, and upon application of somewhat
15 greater force may be entirely removed from the discharge opening so as to permit cleaning thereof.

A further object of the invention is to provide a closure means which is of simple construction and provides for maximum freedom of passage of water therethrough when in open position, and presents a minimum opportunity for lodgement of foreign material therein which would tend to obstruct the passage of water and interfere with the operation of the stopper.

The closure means of my invention comprises essentially, in combination with the usual outlet nipple or drain pipe provided
30 with a bevelled seat at its upper end, a stopper or closure member of metal or other material, suitably shaped and provided with a bevelled edge adapted to engage said seat on the discharge nipple, and suitable resilient friction means tending to hold said
35 stopper in any position to which it may be moved. In a preferred form of construction, the stopper is provided with resilient friction means projecting downwardly therefrom while leaving openings between or
40 through said resilient means for passage of water when the closure member is raised out of engagement with said seat, said resilient means frictionally engaging the interior of the discharge nipple so as to resiliently resist movement of the closure member and hold the same in any position to which it is moved. The closure member is preferably further provided with suitable
45 handle means on the top of said closure member for facilitating manual movement thereof. The invention further preferably comprises means on said resilient means cooperating with means on said discharge nipple for
50 limiting upward movement of said stopper so as to prevent complete removal of the stopper

by the force ordinarily applied thereto in opening the same, while permitting the stopper to be completely removed by application of a somewhat greater force thereto. 60

The accompanying drawings illustrate embodiments of my invention and referring thereto—

Fig. 1 is a vertical section of a form of closure means according to my invention, 65 with the stopper in closed position.

Fig. 2 is a plan view thereof.

Fig. 3 is an inverted horizontal section of the stopper on line 3—3 in Fig. 1.

Fig. 4 is a perspective view of the stopper 70 removed from the discharge opening.

Fig. 5 is a vertical section of the upper portion of the stopper on line 5—5 in Fig. 2.

Fig. 6 is a view with the stopper in raised position and is similar to Fig. 1 except that 75 the stopper itself is shown in elevation.

Fig. 7 is a side elevation of a stopper provided with a modified form of resilient friction means.

In Fig. 1 of the drawings the lower portion 80 of a wash basin is indicated at 1, said wash basin being provided with the usual discharge opening 2 within which is mounted the vertical walled discharge nipple 3 which is ordinarily flared at its upper end as indicated 85 at 4 to engage a bevelled seat 5 around the discharge opening. The discharge nipple is threaded at its lower end and is held in water tight engagement with the basin by means of nut 6, a washer 7 of rubber or suitable packing 90 material being interposed between the nut and the lower face of the basin. The drain pipe or discharge pipe 8 is also secured to the lower part of the threaded portion of nipple 3, said drain pipe leading to suitable means for conducting away the waste water from the basin. 95

In wash basins and certain other types of plumbing fixtures overflow openings are provided somewhat below the top of the water receptacle of the fixture, and an overflow passage is formed in the rear portion of the basin 100 or other fixture as indicated at 10, said passage communicating at its upper end with said overflow openings and at its lower end with the discharge opening 2 as shown. 105

The discharge nipple 3 for such a fixture is provided with an opening or cut out portion 11 in its side wall, said nipple being so mounted as to bring said opening or cut out portion in alignment with the overflow passage 10 so 110 as to permit flow of water therethrough.

The discharge nipple 3 is also provided

with a bevelled seat 13 at its upper end. The stopper itself comprises a stopper or closure member 15 usually of circular shape to conform to the shape of the discharge nipple and having a bevelled edge 16 engaging seat 13 to provide a substantially water tight closure. The stopper is further provided with handle means or knob 17 projecting upwardly from the top thereof and being either formed integrally therewith or secured thereto in any suitable manner.

The resilient friction means may comprise a plurality of resilient arms or fingers 20 formed integrally with the closure member 15 or secured thereto in any suitable manner and extending downwardly in close engagement with the interior of discharge nipple 3. These resilient members may be free at their lower ends as shown in Figs. 1, 4 and 6 or they may be secured at their lower ends. For example a ring or band 22 may be provided at the lower ends of said members as in Fig. 7, said ring being secured thereto in any suitable manner or formed integrally therewith. When this latter construction is employed the resilient members 20' are preferably bowed outward slightly at their central portions so as to provide the necessary resilient frictional engagement with the wall of the discharge nipple.

Suitable means are provided on one or more of the resilient friction members for preventing complete removal of the stopper by the force ordinarily applied thereto in opening the same while permitting the stopper to be completely removed by application of a considerably greater force particularly if such force is applied suddenly. Such means may comprise for example a small lug or projection 23 formed upon one of the friction members 20, the stopper being inserted in such position as to cause said projection to engage the opening or recessed portion 11 in the discharge nipple. It will be understood that this projection may readily be made of such dimensions as to prevent removal of the stopper on ordinary operation thereof, due to engagement with the upper edge of opening 11, while permitting the same to be pulled upwardly beyond this point upon sudden application of a stronger upward force, due to the resiliency of the member 20. It will be understood that any form of opening or recessed means in the wall of discharge nipple 3 will serve the purpose of engaging the projection 23 to retain the stopper in position and in cases where the discharge nipple is not ordinarily provided with an opening 11 for communication with the overflow passage, a similar opening or other cut out portion may be especially provided therein for the purpose above mentioned.

The manner of operation of the above described stopper will be apparent from the drawings and the foregoing description. The

stopper may be removed to closed position as shown in Fig. 1 or to open position as shown in Fig. 6, or to any intermediate position and will be held in any raised position by frictional engagement of the resilient members 20 with the interior of nipple 3. When the closure member is in raised position relatively free passage of the water is permitted through the openings 25 between the resilient members 20. It will be noted that the number of moving parts is reduced to a minimum and there is therefore little opportunity for lodgement of foreign matter in or around the stopper, such as occurs with certain more complicated forms of stopper and which not only obstructs the passage of water, but also frequently interferes with the operation of the stopper.

I claim:

1. A closure means for the discharge opening of a plumbing fixture comprising, in combination with means defining a discharge passage and a bevelled seat around the upper end of said passage, a stopper member movable longitudinally of said passage, into or out of engagement with said seat, and a plurality of resilient friction members secured to said stopper member and projecting therefrom into said passage and substantially parallel to the walls thereof throughout their length, said friction members being free at their lower ends and frictionally engaging the walls of the passage throughout substantially their entire length so as to hold said stopper member in any position to which it may be moved with respect to said seat.

2. A closure means for the discharge opening of a plumbing fixture comprising, in combination with a substantially vertical walled discharge pipe having a bevelled seat at its upper end, a stopper member movable vertically downwardly into engagement with said seat or upwardly out of such engagement, and a plurality of resilient friction members secured to said stopper member and projecting downwardly therefrom within said passage, said friction members extending substantially parallel to and in frictional engagement with the inside of said pipe throughout substantially their entire length so as to hold said stopper member in any position to which it may be moved.

3. A device comprising in combination with a discharge nipple of a plumbing fixture having a bevelled seat at its upper end and a cut out portion in its side wall, a stopper comprising a closure member movable into or out of engagement with said seat and a plurality of resilient friction members secured to said closure member and frictionally engaging the interior of said nipple, and a projection on one of said friction members engaging said cut out portion to limit the movement of said stopper.

4. A device comprising, in combination

with a discharge nipple of a plumbing fixture having a bevelled seat at its upper end, a closure member movable into or out of engagement with said seat and a plurality of
5 resilient friction members secured to said closure member and frictionally engaging the interior of said nipple, one of said resilient friction members and the wall of said nipple being provided with interengaging projecting and recessed means adapted to limit
10 movement of the closure member.

In testimony whereof I have hereunto subscribed my name this 25th day of June 1927.

LEWIS H. STEAD.