

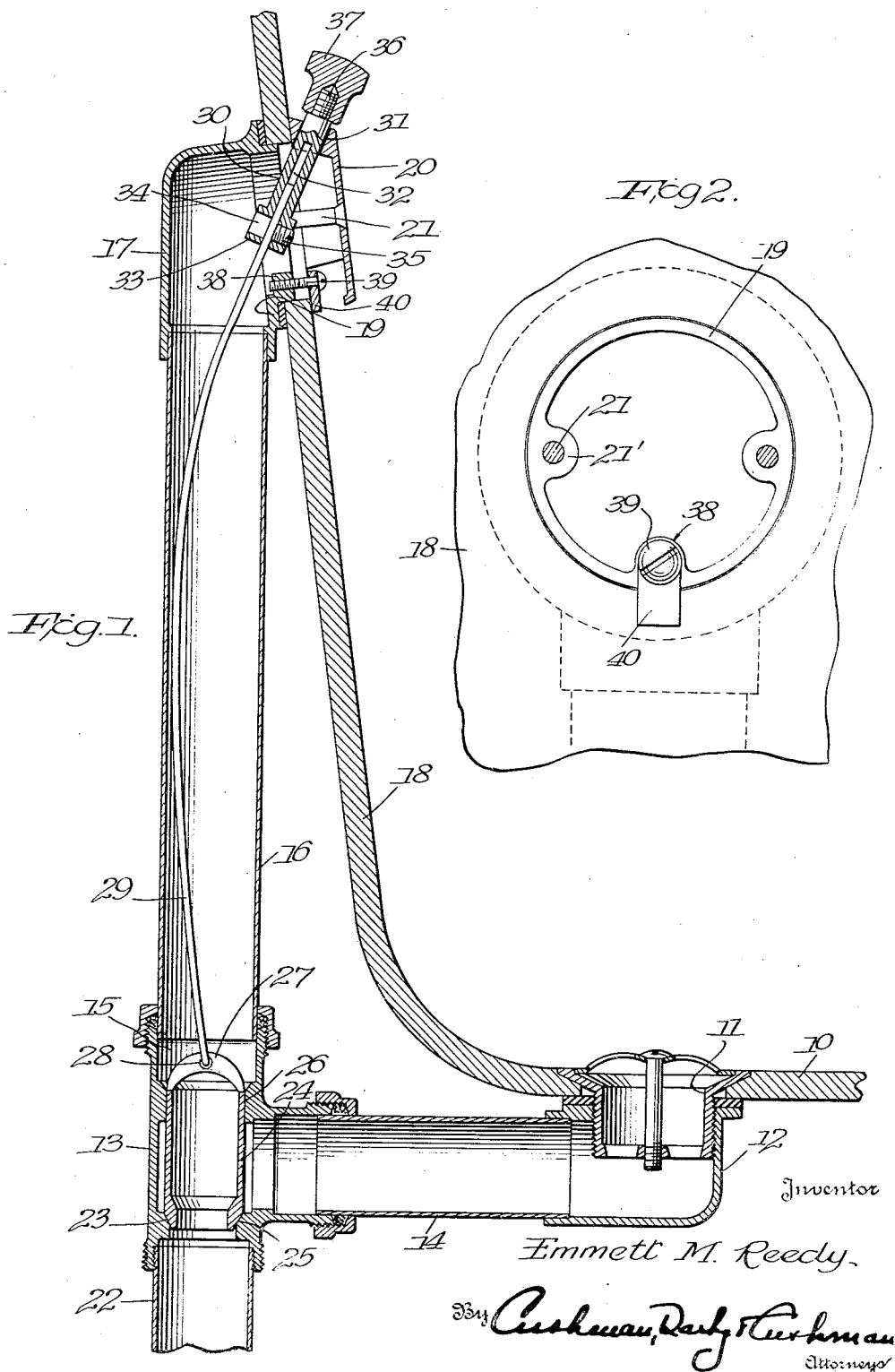
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WASTE AND OVERFLOW FITTING

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WASTE AND OVERFLOW FITTING

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The present invention relates to a waste and overflow fitting and control therefor which is particularly designed for use with a bath tub but which is adaptable for use in other similar connections, such as a lavatory or the like.

An object of the invention is to provide a combined waste and overflow fitting including a valve for controlling the discharge through the waste pipe and which is operable from the exterior of the fixture.

A further object is to provide valve operating means which will positively maintain the valve in open and closed positions.

Another object is the provision of valve operating means including a movable element capable of suspending the valve in open position and adapted to be locked in different positions of adjustment by the weight of the valve exerting a downward pull upon said element.

A still further object is the provision of a valve operating rod adapted to be locked against movement when the valve is seated and thereby prevent accidental unseating of the valve.

Another object is the provision of means for securely clamping the overflow unit to the tube when it is desired to disconnect the escutcheon plate and remove the valve from the fitting.

With the foregoing and other objects in view, the invention will now be more fully described, reference being had to the accompanying drawing in which:

Figure 1 is a sectional view of my combined waste and overflow fixture showing the valve in closed position, and

Figure 2 is an enlarged view of the overflow opening with the valve and escutcheon plate removed.

Referring now to the drawing, the numeral 10 designates the bottom wall of a bath tub having an opening in which is positioned a drain strainer 11. This strainer is detachably connected to a drain elbow 12 which is placed in communication with a T joint 13 by means of a drain pipe 14. This T joint is provided with a vertical passage 15, the upper end of which is coupled to the lower end of an overflow pipe 16. Pipe 16, at its upper end, is connected to an overflow elbow 17 which engages the outer face of an end wall 18 of the bath tub. This wall is provided with an opening adjacent its upper end within which is seated an annular flange 19 of the elbow. An escutcheon plate or overflow strainer 20 is suitably mounted on the inner face of the wall 18 opposite the elbow 17. This plate is secured in operative position by means of two spaced screws

21 threadedly engaging openings formed in cylindrical projections 21' which extend inwardly from and integral with the flange 19. Tightening of the screws 21 clamp the escutcheon plate and elbow to opposite sides of the wall 18.

The T joint 13 is connected to an outlet pipe 22, the upper end of which is in vertical alignment with the overflow pipe 16. The T joint is also provided with an internal conical valve seat 23 for receiving the drain valve 24. This valve is of substantially cylindrical formation having a lower conical or tapered portion 25, which co-operates with the valve seat 23 to provide a tight joint or fit when the valve is seated. The T connection 13 is also provided with an annular guide 26 adjacent its upper end within which the valve 24 slides and which is adapted to guide the valve onto and off its seat 23.

The valve 24 is provided with a substantially rounded top portion 27 having a transverse opening or hole 28 formed therein. This opening is designed to receive the lower end of a lift wire 29 and form therewith a pivotal connection between the lift wire and valve 24. The lift wire extends through the upper end of the overflow pipe 16, and is detachably connected to a valve operating rod 30. This rod is slidably mounted in an opening 31 formed in the top of the escutcheon plate 20. The opening 31 is of a size to provide a substantially close sliding fit with the rod 30, and as will be observed, is positioned at an angle to the longitudinal axis of the overflow pipe 16. The rod 30 is provided with a central passage 32 terminating adjacent the upper end of the rod and which receives the upper end of the lift wire 29. The lower end of the rod is formed with an enlargement constituting a stop member 33, which is provided with a transverse opening 34 extending through the rod and communicating with the passage 32. One portion of the opening 34 is screw threaded and receives a set screw 35 which is adapted to engage the upper end of the lift rod 29 and detachably and adjustably lock the same to the operating rod 30.

The upper end of the rod 30 is provided with a reduced threaded stud 36 which receives an internally threaded drain knob 37. This knob at all times is located exteriorly of the escutcheon plate and comprises an upper stop element co-operating with the enlargement 33 to limit the sliding movement of the rod in the escutcheon plate 20.

With the valve in its closed position, as shown in the drawing, water is prevented from draining from the tub through the drain pipe 14.

However, when it is desired to empty the tub, it is merely necessary to grasp the drain knob 37 and pull the rod upwardly in the escutcheon plate 20. This operation lifts the wire 29 and in turn raises the valve 24 off its seat, permitting water to drain through the T joint 13 and into the discharge or outlet passage 22.

When the operating rod 30 is raised, it will be observed that the valve is suspended above its seat upon the lower end of the lift wire 29. The valve furthermore is maintained in its open position by reason of the fact that its weight exerts, through the wire 29, a downward pull upon the lower end of the rod 30. Since the rod is positioned at an angle to the axis of the overflow pipe and valve seat, the downward pull upon the rod effects a binding of the rod in the opening 31 of the escutcheon plate 20 sufficient to lock the rod against slippage or downward movement. Thus, the valve is positively maintained in open position. It is to be understood that the locking action between the rod and the opening 31 is effective throughout different positions of adjustment of the rod, and that it is not necessary to entirely pull the rod out to its full open position in order to suspend the valve 24 in open position. The valve is shown in the drawing as being of hollow construction, but may be solid or semi-solid as desired, the only requisite being that it is of sufficient weight to impose a pull upon the lower end of the rod 30 sufficient to effect a binding action between the rod and the opening 31.

In addition to effectively maintaining the valve in open position, the operating rod 30 is also capable of maintaining the valve in closed position and preventing any accidental unseating of the valve. This is accomplished by associating the valve, wire 29, and operating rod 30 so that when the valve is seated, the wire 29 will be placed under tension. This tensioning of the wire 29 has the effect of exerting an upward thrust upon the lower end of the rod 30, which, similar to the downward pull upon the rod when the valve is open, causes a binding action of the rod in the opening 31. The rod 30 is thus locked against upward movement when the valve is seated, and any upward thrust on the valve will have the effect of exerting greater lateral pressure on the lower end of the rod and thus effect a greater binding action of the rod in its opening 31. It is to be understood that while the tensioning of the wire 29 is sufficient to effect a positive locking of the rod 30 against accidental upward movement, it does not interfere with the operation of the rod when it is desired to open the valve, since the rod may be easily and quickly raised when the drain knob 37 is grasped and pulled upwardly.

With the present construction, it will be apparent that I have provided an operation mechanism for a drain valve which is effective to not only maintain the valve in unseated position, but to lock the valve in closed position against accidental unseating.

While the screws 21 are effective to clamp the escutcheon plate and overflow pipe to the tub, they cannot be utilized to clamp the overflow pipe to the tub when it is necessary to remove the valve 24 and escutcheon plate. Unless some other means are provided, considerable strain would be imposed on the drain strainer 11. Furthermore, if the overflow pipe is in a free position, that is, free to move relative to the tub, when the escutcheon plate is removed, there is a pos-

sibility that it might slip or become misaligned and thereby cause the plumber considerable trouble in realigning it with the opening escutcheon. In order to overcome this objectionable feature, the flange 19 is provided with a third lug or projection 38, preferably at its lowest point between the projections 21' (see Fig. 2). This latter projection is designed to project into the overflow opening similar to the projections 21' and is provided with a threaded opening to receive a screw 39. A plate or finger 40 cooperates with the projection 38 and screw 39 to securely clamp the overflow pipe in operative position. This plate is provided with an unthreaded opening for receiving the screw 39, which opening registers with the opening in the projection 38 when the several elements are clamped to the tub. The finger is positioned on the inside of the tub in spaced relation to the lower end of the escutcheon plate, and thereby does not interfere with the discharge of water through the overflow opening.

It is to be understood that the invention is not limited to the details of construction shown in the drawing and described in the specification, and that the example of the use of the device which has been given does not include all the uses of which it is capable; also, that the phraseology employed in the specification is for the purpose of description and not of limitation.

I claim:

1. A combined waste and overflow fitting including a waste pipe and an overflow pipe communicating therewith, a valve movable in said overflow pipe for controlling the discharge through said waste pipe, and operating means for said valve including an element slidably mounted in said fitting adjacent the upper end of the overflow pipe, and a flexible connection between said valve and element for permitting the valve to be suspended in open position, the weight of the valve being adapted to exert a downward pull upon said element sufficient to lock said element in different positions of adjustment.

2. A combined waste and overflow fitting including a waste pipe and an overflow pipe communicating therewith, a valve movable in said overflow pipe for controlling the discharge through said waste pipe, an escutcheon plate associated with the upper end of said overflow pipe and provided with an opening located at an angle to the overflow pipe, a valve operating rod slidable in said opening, and a flexible connection between the upper end of said valve and the lower end of said rod, the weight of said valve being adapted to exert a downward pull upon said rod and cause a binding action of said rod in the opening sufficient to maintain the rod in different positions of adjustment.

3. A combined waste and overflow fitting including a waste pipe and an overflow pipe communicating therewith, a valve movable in said overflow pipe for controlling the discharge through said waste pipe, an escutcheon plate associated with the upper end of said overflow pipe and provided with an opening located at an angle to the overflow pipe, a valve operating rod slidable in said opening, and a flexible wire having one end thereof connected to said valve and its other end secured to said rod, said rod being freely slidable in the opening to permit seating and unseating of the valve but adapted to be locked in different positions of adjustment when a lateral force is applied to the lower end thereof

sufficient to cause a binding of the rod in the opening.

4. In a plumbing fixture, a drain pipe, a valve associated therewith for controlling the discharge through said pipe, and operating means for said valve including a rod slidably mounted in said fixture above the valve, and a flexible connection between said valve and rod for permitting the valve to be suspended in open position, said rod being responsive to lateral pressures to lock the same in different positions of adjustment.

5. A combined waste and overflow fitting including a waste pipe and an overflow pipe communicating therewith, a valve movable in said overflow pipe for controlling the discharge through said waste pipe, and operating means for said valve including a rod slidably mounted in an opening in said fitting adjacent the upper end of the overflow pipe, and a spring wire connecting the valve to the rod to permit the valve to be suspended in open position and exert a downward pull upon said rod sufficient to cause a binding action of said rod in the opening and thereby lock the rod against accidental movement, said spring wire being placed under tension when the valve is seated to exert an upward lateral thrust upon said rod and thereby lock the same against valve opening movement.

6. In a plumbing fixture, a tub having an overflow opening, an overflow pipe having one end thereof provided with a flange seated in said

overflow opening, said flange having a plurality of spaced inwardly disposed projections, an escutcheon plate positioned within the tub and substantially covering the overflow opening, means engageable with said escutcheon plate and certain of said projections for clamping said plate and overflow pipe to the tub, and means engageable with another of said projections and the inner surface of the tub for clamping the overflow pipe to the tub independently of the first mentioned means.

7. In a plumbing fixture, a tub having an overflow opening, an overflow pipe having one end thereof provided with a flange seated in said overflow opening, said flange having a plurality of spaced inwardly disposed projections, each projection being provided with a threaded opening, an escutcheon plate positioned within the tub and substantially covering the overflow opening, screws engageable with said escutcheon plate and the threaded openings of certain of said projections for clamping said plate and overflow to the tub, a flat plate-like finger positioned on the inside of the tub and having an opening registering with the opening in another of said projections, and a screw passing through said aligned openings and clamping the overflow pipe to the tub independently of the said first mentioned screws.

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