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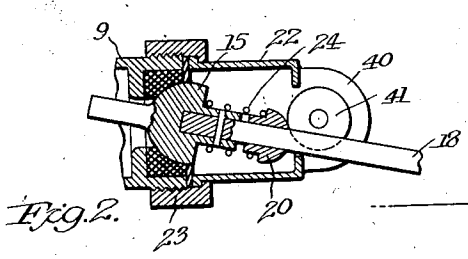


Fig. 2.

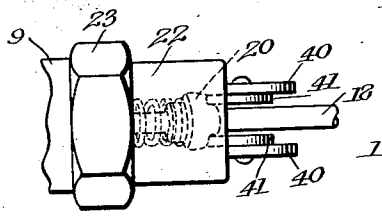


Fig. 3.

Fig. 1.

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BATH OR BASIN OUTLET-VALVE MECHANISM.

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The present invention relates to improvements in outlet valve mechanisms for lavatories, bath tubs etc., of the type which are commonly termed "pop-up drains".

Among the objects of the invention it may be noted that the construction hereinafter described provides a simple means by which the plumber, or other person familiar with the construction, may readily disconnect the outlet plug per se from the actuating devices, but unless one has knowledge of the exact construction, it is difficult to disconnect these parts, and thus theft of the plug is prevented.

A further object of the invention is to provide a very simple and readily operable means by which the valve plug will be automatically retained in either its open or closed position.

In the accompanying drawing:—

Figure 1 is a vertical section through a portion of a fixture provided with a waste outlet mechanism constructed in accordance with the present invention.

Figure 2 is a sectional detail, illustrating a slight modification of a part of the structure of Figure 1.

Figure 3 is a plan of the parts shown in Figure 2.

In the drawing 1 designates the body of the basin, which, as shown, has a waste outlet 2 in its bottom that communicates with a suitable waste pipe 3.

The valve mechanism controlling the outlet 2 comprises a tubular valve 5 having an enlarged head 4 adapted to be seated in a seat 6 formed at the upper end of a tube 7 which is an extension of a fitting 8, having also a lateral extension 9. The lower end of the body of the fitting 8 communicates with the waste discharge pipe 3 and the section 7 which is provided at its upper end with the valve seat 6 is shown as being externally threaded and screwed into the body of the fitting. Near its upper end the member 7 is provided with lateral inlets which communicate with a passage 1^a formed in the wall of the tub or basin, and communicating with overflow apertures 1^b in the usual manner.

The tubular valve 5 is provided with lateral ports or openings 10 in the usual manner, and said valve is adapted to be vertically reciprocated in the extension member 7 of the fitting by a lever mechanism that will be hereinafter more particularly described.

The member 7 is shown as being held close against the body of the tub or basin 1 by a suitable nut washer 11 engaging the external thread and a gasket 12 is interposed between said washer and the body of the basin or tub.

It will be understood that many of the parts herein referred to are shown more or less diagrammatically, and that there may, of course, be considerable variation from the exact details or proportions of parts shown without departing from the invention. The latter relates more particularly to the actuating devices, which will be hereinafter described, for reciprocating the valve 5 and the latter as well as the valve seat means cooperating therewith may be of any suitable style.

Reciprocating movement is imparted to the valve 5 by a lever which extends through the lateral extension 9 of the fitting before referred to and is shown as provided with an enlargement 15 that cooperates with a packing body 16 within said enlargement so that the lever is free to move in any direction. The inner end of the lever 17 extends through an aperture formed in the side wall of the tubular valve 5, and as the lever is rocked said valve will be moved from the open position shown into the lower position in which the enlarged head thereof will be closely seated in the valve seat 6 and escape of water through the outlet 2 prevented.

As shown, the operating lever comprises the portion just described and a rod-like member 18, which has one end inserted in a suitable socket in the enlarged portion 15, the two members being connected by a pin 19. Mounted on the member 18 of the lever is a sliding sleeve 20 having a slightly enlarged head which cooperates with an abutment supported by the member 9 of the main fitting. As shown in Figure 1, this abutment 21 is formed on the inner surface of the outer head of a cap 22, the base of which bears against the fitting member 9 and is secured thereto by a coupling sleeve 23. The lever member 18 extends through a slot in the head of said cap-like member and the abutment 21 is provided on both sides of said slot. A coiled spring 24 surrounds the valve lever between the fulcrum enlargement 15 thereof and the head 20 of the sleeve above referred to, said spring acting to con-

stantly hold said sleeve in contact with the abutment 21, but permitting it to yield and move slightly longitudinally of the lever as the latter is rocked from the position shown in the drawings to that indicated by the dotted lines which it assumes when the valve is closed, as above described.

It will be seen that as the enlarged head 20 of the sleeve on the lever is moved past the abutment surface 21 in rocking the lever about its fulcrum said spring will be placed under compression, and as the lever approaches the limit of its movement in either direction the expanding of the spring will accelerate such movement and tend to positively complete the shifting movement. Also, the spring acts as a lock to retain the parts in either the position shown in the drawing, or in the opposite position in which the valve is closed.

Instead of forming the abutment 21 as an integral part of the cap 22, as illustrated in Figure 1 and above described, the construction shown in Figures 2 and 3 may be employed.

In this embodiment of the invention outwardly projecting ears 40 are provided on the end wall of the casing 22 at opposite sides of the slot in said wall through which the lever member 18 extends. Roller disks 41 are rotatably supported on pins projecting laterally from the inner faces of the ears 40, the peripheries of said rollers extending into the aforesaid slot in the end wall of casing 22 and abutting the head 20 on the lever member 18.

With this arrangement the disks 41 constitute the abutment which coacts with the spring pressed sliding head 20 to lock the actuating lever in either its upper or lower position.

As the lever is shifted from one position to the other the disks 41 will be rotated slightly and thereby there will be less wear on the contacting parts than with the construction of Figure 1 in which the abutment 21 is a rigid, unyielding, element.

Movement of the actuating lever is effected by a push rod comprising two members, the inner one 30 having at one end an eye through which the lever member 18 projects, and having its other end formed as a fork between the members of which is arranged a coupling collar 31. The outer member or section 32 of the push rod has its stem extending through suitable eyes in the members of the fork of the inner section 30, and also through the collar 31, which is held in position at any desired point in the length of said member 32 by a set screw 33. By means of the set screw 33 the effective length of the push rod for actuating the valve lever may be varied to accommodate the improvement to fixtures of different dimensions.

The outer section 32 of the push rod extends through a fitting that is secured to the slab or rim 1e of the tub or basin, and at its outer end is, as usual, provided with a knob or handle 34.

As shown the arms of the fork at the upper end of push rod member 30 are of greater length than the diameter of the collar 31. Therefore, the push rod member 32 may be freely rotated relative to the member 30. This makes it impossible to unscrew the knob or handle at the upper end of the push rod member 32 from said member. Any attempt to unscrew such knob or handle will merely cause rotation of the member 32 in the coupling connecting it with the rod member 30.

The fitting or guide for the push rod 32, which is secured to the member 1e of the tub or basin includes an externally threaded body 35 that extends through a suitable passage in the support 1e and is rigidly secured in position. As shown, the engagement between said member 35 and the relatively stationary support is effected by a washer 36 which is pressed upward by a suitable nut 37 and is also provided with a plurality of set screws 38, which project through the washer 36 and bear close against the underside of the support 1e.

As usual, the member 35 is provided with means for engaging the body of the support 1e and the portion of the push rod at the outer end of said guide is surrounded by an escutcheon 39, which is commonly made of vitreous material.

Means are preferably provided whereby movement of the push rod to open the valve will be limited so that there will be no danger of the knob or handle 34 striking the vitreous escutcheon 39 and breaking it.

As shown, when the valve is fully open the knob or handle 34 is situated some distance above the escutcheon 39, and the means by which the latter is retained in position. Any suitable cooperating stops on the push rod and guide may be employed for this purpose. For example the construction disclosed and claimed in a companion application of Philip Mueller, Lucien W. Mueller and William J. Mix, Serial No. 64,571.

It is believed that the operation and advantages of the improvements will be readily understood from the foregoing description.

It will be seen that a slight downward movement of the push rod will initiate rocking movement of the lever, and the latter will be assisted by the spring 24 which also serves in connection with the spring pressed sliding head or sleeve 20 and coacting abutment to effectually lock the parts with the valve in either open or closed position.

In case it is desired to remove the valve 5, it is only necessary to effect a pull on the lever member 18 in the direction of its length sufficient to withdraw the end 17 from the

aperture in the valve body 5. The spring 24 readily permits of this movement and acts to restore the parts to normal position when pull on the member 18 is released. Persons unacquainted with the exact construction will, however, find it quite difficult to detach the valve from its actuating devices, and, therefore, the theft of the valve plugs, which is a rather common occurrence in fixtures employed in public places will be prevented. It is evident that no amount of pull on the valve itself will act to disconnect it from the lever and the only way in which such disconnection can be effected is by movement of the lever in the direction of its length as above described.

We claim:—

1. In a waste outlet fitting, the combination of a valve seat, a valve extending through the seat and provided with a head adapted to cooperate with the seat, means for reciprocating the valve to carry the head thereof from or into contact with the seat including a lever detachably connected with the valve, a spring acting to maintain the lever in engagement with the valve and to permit disengagement thereof by movement of the lever in the direction of its length, and means cooperating with said spring for retaining the valve in either open or closed position.

2. In a waste outlet fitting, the combination of a valve seat, a valve extending through the seat and provided with a head adapted to cooperate with the seat, means for reciprocating the valve to carry the head thereof from or into contact with the seat including a lever detachably connected with the valve, a spring acting to maintain the lever in engagement with the valve and to permit disengagement thereof by movement of the lever in the direction of its length, a sleeve fitted to slide on the lever and constituting an abutment for said spring, and a stop cooperating with said sleeve to lock the lever in position to retain the valve at the limit of its movement in either direction.

3. In a waste outlet fitting, the combination of a pop-up drain valve and a lever for actuating the same, of a push rod member engaging the valve actuating lever at one end and provided at its other end with a lateral fork, a second member extending freely through aligned openings in the arms of said fork and having a handle or knob secured to its other end by a threaded connection, and a collar adjustably secured to said second member and positioned between the arms of the fork in the lever engaging member.

4. In a waste outlet fitting, the combination with a valve seat, and a valve having a stem extending through said seat and a head adapted to cooperate with the seat, of means for reciprocating the valve to carry the valve head from or into contact with the seat including a lever engaging the valve stem, and means for retaining the valve in position to lock the valve at the limit of its movement in either direction comprising a member mounted on the lever and a pivotally mounted abutment extending into the path of movement of said member.

5. In a waste outlet fitting, the combination with a valve seat, and a valve having a stem extending through said seat and a head adapted to cooperate with the seat, of means for reciprocating the valve to carry the valve head from or into contact with the seat including a lever engaging the valve stem, and means for retaining the valve in position to lock the valve at the limit of its movement in either direction comprising a member mounted on the lever and a rotatable abutment extending into the path of movement of said member.

6. In a waste outlet fitting, the combination with a valve seat, and a valve having a stem extending through said seat and a head adapted to cooperate with the seat, of means for reciprocating the valve to carry the valve head from or into contact with the seat including a lever engaging the valve stem, and means for retaining the valve in position to lock the valve at the limit of its movement in either direction comprising a member mounted on the lever and two rotatable abutment disks positioned at opposite sides of said lever and having their peripheries extending into the path of movement of said member.

In testimony whereof we have hereunto set our hands.

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