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(54) PUSH-UP PLUG OUTLET FITTING FOR A WASH-BASIN OR THE LIKE

(71) We, IDEAL-STANDARD GMBH, a German company, of Euskirchener Strasse 80, 53 Bonn 1, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to a push-up plug outlet fitting for a wash-basin, bidet or similar sanitary installation, of the type which when installed for use consists of an outlet socket arranged in the outlet aperture of the sanitary appliance, a plunger, 15 affording a plug, located therein so as to be longitudinally displaceable, and an actuating rod, one end of which is in connection with an actuator member and the other end of which co-operates with the plunger. 20

With the previously known designs the adjustment of the exact position of the plug relative to the actuating rod is effected by means of a screw held in the lower end of the plunger. For securing the adjustment 25 it is known to use check nuts or to form the lower end of the plunger, provided with an internal screw-thread, in such a way that it results in a self-locking arrangement for the screw. A disadvantage with these designs is that the brass screws used are relatively costly and that a screwdriver is necessary for the adjustment, and the setting of a ring seal around the plug for sealing with the outlet socket when the plug is in its 35 closed position is complicated.

An object of the invention is to provide a push-up plug outlet fitting which avoids these disadvantages, which has a simple construction and which operates reliably. 40

According to the present invention there is provided a push-up plug outlet fitting for a wash-basin or the like, comprising an outlet socket adapted to be arranged in the outlet aperture of the wash-basin, a plunger 45 which is in the form of a plug and a stem and which is locatable in the socket so as to be longitudinally displaceable therein, and an actuating rod adapted to be movably mounted relative to the socket, one 50

end of which rod is connectible with an actuator member and the other end being cooperable with the plunger, the plug and one end of the stem being connected together by a screw-threaded connection 55 whereby the distance between the plug and the other end of the stem may be adjusted in a stepless manner, and the plug being provided with a sealing ring for sealing against the outlet socket when the plug is in a closed position. 60

Preferably, the plug is provided with an internal screw-thread which engages on an externally screw-threaded end of the stem.

Advantageously, the plug is afforded by a mushroom-shaped plunger head having an internally screw-threaded spigot, the wall of the spigot being provided with a longitudinally extending slot whereby the spigot wall is resilient and can be clamped onto the stem in the manner of an expanding sleeve. 70

In a fitting in accordance with the invention, the adjustment of an exact distance between the plug, or more especially the ring seal, and the lower end of the plunger may be effected quickly and easily by hand without using a tool. The plunger consists of simple and relatively cheap components and its manufacture presents no difficulties. No problems are encountered when fitting the ring seal. 80

The invention may be carried into practice in a number of ways but one specific embodiment will now be described, by way of example only with reference to the accompanying drawing which shows a push-up plug outlet fitting for a wash-basin. The fitting consists of an outlet socket 3 arranged in the outlet aperture 2 of the wash-basin 1, a plunger 4 held therein so as to be displaceable up and down parallel to its axis and an actuating rod 5, one end of which is in connection with a push/pull actuator rod 6, while its other end 5' co-operates with the plunger 4. 85 90 95

The plunger 4 has a head portion 4" and a stem 4' which is made of a resilient plastics material and is in the form of a tube having three radially outwardly extending 100

webs 13 which at their outer edges contact a sleeve 15 mounted in the outlet socket 3; these webs 13 which extend over approximately a third of the length of the tubular stem 4' act as guides to ensure that the plunger 4 can move only up and down and cannot tilt. The head portion 4" which forms a plug has a ring seal 10 which in the closed position of the plug seals against a flared seat formed at the top of the outlet socket, and is held onto the stem 4' by a screw-thread connection so that the distance between the head 4", or more especially the ring seal 10, and the lower end of the plunger 4 may be manually altered in a stepless manner so as to be able to obtain a proper opening action and so that the position of the plug may be adjusted precisely to obtain good sealing in the closed position of the plug. The head 4" is mushroom-shaped and it has a short spigot 11 which is provided with an internal screw-thread and which is also formed with a longitudinal slot 12 for a clamped connection in the manner of an expanding sleeve.

The stem 4' of the plunger 4 is provided at its lower end with an opening 7 extending transversely through the stem 4' for receiving the end 5' of the actuating rod 5. The periphery 8 of the opening 7 is generally circular but the opening 7 has a through slot 9 below it so that as viewed along the actuating rod 5 the opening 7 and the slot 9 together look like a keyhole which is open at the bottom. Since the stem 4' is made of resilient material the end 5' of the actuating rod 5, the diameter of which is greater than the width of the slot 9, may be snapped into position through the slot 9 into the opening 7. This makes assembly very easy and ensures that when the plug fitting is opened by pushing the push/pull rod 6 down thereby causing the actuating rod 5 to pivot clockwise and lift the plunger 4, the plunger 4 does not jump out of the outlet socket 3 and is not raised so far that it assumes a tilted position.

Whilst in the construction described and illustrated the head 4" has a spigot 11 with an internal screw-thread which fits over the top of the stem 4' it would alternatively be possible to provide a smaller diameter spigot which is externally screw-threaded and which fits into a tapped hole in the top of the stem.

A similar fitting is described in our co-pending application No. 21002/77 (Serial No. 1,582,771).

WHAT WE CLAIM IS:—

1. A push-up plug outlet fitting for a

wash-basin or the like, comprising an outlet socket adapted to be arranged in the outlet aperture of the wash-basin, a plunger which is in the form of a plug and a stem and which is locatable in the socket so as to be longitudinally displaceable therein, and an actuating rod adapted to be movably mounted relative to the socket, one end of which rod is connectible with an actuator member and the other end being cooperable with the plunger, the plug and one end of the stem being connected together by a screw-threaded connection whereby the distance between the plug and the other end of the stem may be adjusted in a stepless manner, and the plug being provided with a sealing ring for sealing against the outlet socket when the plug is in a closed position.

2. A fitting as claimed in Claim 1, in which the stem is adapted to cooperate with the outlet socket so as to guide the plunger for longitudinal movement in the socket without tilting.

3. A fitting as claimed in Claim 2, in which the stem carries a plurality of radially outwardly extending webs, the outer edges of which, in use, cooperate with a sleeve in the outlet socket to guide the longitudinal movement of the plunger.

4. A fitting as claimed in any one of Claims 1 to 3, in which the plug is provided with an internal screw-thread which engages on an externally screw-threaded end of the stem.

5. A fitting as claimed in Claim 4, in which the plug is afforded by a mushroom-shaped plunger head having an internally screw-threaded spigot, the wall of the spigot being provided with a longitudinally extending slit whereby the spigot wall is resilient and can be clamped onto the stem in the manner of an expanding sleeve.

6. A fitting as claimed in any one of the preceding claims, in which the stem, at or adjacent its said other end, is adapted to be connected to the said other end of the actuating rod by a snap-on connection.

7. A fitting as claimed in any one of the preceding claims when mounted on a sanitary installation with the plunger movably mounted in the socket and with the actuating rod mounted for pivotal movement relative to the outlet socket and connected with the plunger stem, a push/pull actuator member being provided in connection with the actuator rod for pivoting the latter to cause the plunger to move and thereby displace the plug into its closed or open position.

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