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(54) **A BATH OR BASIN WASTE**

BAD- ODER BECKENABFLUSS

BONDE DE VIDAGE POUR BAIN OU CUVETTE

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(73) Proprietor: **Art Plastics Pty Ltd.**
Brisbane, QLD 4000 (AU)

(72) Inventor: **TIM, Lucas**
Brisbane, Queensland 4000 (AU)

(74) Representative: **WP Thompson**
138 Fetter Lane
London EC4A 1BT (GB)

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Description

[0001] This invention relates to fittings for bathroom facilities and in particular fittings commonly known as bath or basin outlets or wastes.

[0002] One well known basic type of bath and basin waste has an externally threaded tube defining a flow passage therethrough from its upper end to its lower end and which is adapted to fit into the drain opening provided in a bathtub or basin. A flange extends outwardly from the tube at its upper end and is arranged to engage the upper face of the bath or basin bottom about the drain opening. Typically, a flat rubber washer is fitted about the tube between the flange and the basin and a nut is screwed onto the tube so as to engage the lower face of the basin bottom and tighten the flange against the washer so that it forms a watertight seal therebetween. A trap or pipe is then connected to the lower end of the tube and in turn connected to a waste water drainage pipe which eventually is connected to the sewerage system. A grate is usually fitted in the tube adjacent the flange and is often cast therewith to prevent passage of cakes of soap, cloth and the like. Sometimes the grate is formed separately and is secured in the tube by a screw which is screwed into the centre of intersecting diametral cross bars which are cast in the tube (commonly known as a "spider"). The upper end portion adjacent the flange is usually tapered inwards away from the upper end to accommodate a removable tapered plug therein for closing the flow passage.

[0003] A more recent type of basin outlet commonly referred to as a "pop-up" waste or outlet has become popular because it does not require a separate plug. Such basin outlets typically have a tube and flange similar to the basic bath and basin outlet described above but instead of a removable plug being used to close the flow passage, a cap is mounted in the flow passage adjacent the flange for up and down movement between an open position and a closed position so as to close the passage when it is down and open the passage when it is up.

[0004] In such known pop-up type outlets the cap seals against the flange or the inner face of the tubular portion immediately adjacent the upper end when down to close the passage and is spaced above the flange when up thereby opening the passage at its upper end. Movement of the cap is controlled by an actuation device to which the cap is connected such that closing of the passage is achieved by pushing the cap down against a spring loaded catch and released by pushing the cap further down to release the catch so that it rises to the open position under the force of a spring. In such pop-up type basin wastes, the upper face of the cap is normally flush with the flange (and the upper face of the basin bottom) when the cap is down in the closed position but protrudes significantly above the flange (and the basin bottom) when in the open position.

[0005] It will be appreciated that a large number of persons who use a wash basin to quickly wash their faces and hands or clean their teeth prefer to do so with running water direct from the basin faucet while the basin outlet is open and water can flow directly out of the basin. Unfortunately, the protruding cap of the presently available basin wastes can be a nuisance in such cases. Furthermore, the basin waste is typically more aesthetically pleasing when in the closed position than the open position but is rarely in the closed position and many people prefer to leave the basin waste open when not in use so that any drips drain away rather than overflow the basin.

[0006] WO 2014/026214 and US2012102640 disclose a bath or basin waste having a plug in which the upper face of the cap is substantially below the upper face of the bottom of the bath or basin to which it is fitted when in the closed position and substantially flush with the upper face of the bottom of the bath or basin when in the open position.

[0007] In an effort to overcome some of the deficiencies associated with the aforementioned pop-up type outlets the inventor has developed an alternative basin outlet which incorporates some of the advantages of the pop-up type cutlet previously described but wherein the cap does not significantly protrude into the basin when in the open position. The inventor's pop-up type outlet, like the prior art, also includes a tube defining a flow passage for the disposal of fluid waste and a circumferential flange adjacent an upper end of said tube, as well as a cap that is mounted to and retained within said tube for selectively closing said flow passage, and whereby said cap is below an upper face of the flange when in the closed position and substantially flush with the upper face of the flange when in the open position. Up and down movement of the cap within the flow passage is controlled by a spring loaded actuation device to which the cap is connected.

[0008] For maintenance purposes the cap is releasably connected to the actuation device. However despite this, it has been found that in some instances where the actuation device has become jammed it was not possible to obtain access to the actuation device without destroying the cap.

[0009] The aim of the present invention is to provide a pop-up type outlet which will be easier to maintain than the inventor's previous pop-up type outlet.

[0010] With the foregoing in view, the invention resides broadly in a bath or basin waste according to claim 1.

[0011] In an embodiment not forming part of the present invention, the actuation device may include a base or lower end portion that is adapted to engage the tube in a plug and socket like arrangement and whereby the fit is preferably, though not necessarily, a loose fit.

[0012] However, according to the invention, the base or lower end of the actuation device simply rests upon a seat that extends outwardly from an interior wall of the tube. The seat includes one or more lugs or a continuous circumferential flange.

[0013] Preferably, the plug is adapted to sealably engage with the inner face of the tube to close the flow passage when in the closed position and to disengage

from the inner face when in the open position so as to allow water to flow through the flow passage. In a preferred form, the plug includes an outwardly extending circumferential flange which engages with a circumferential flange extending inwardly from the inner face of the tube when in the closed position thereby closing the flow passage. In such case, it will be appreciated that an annular passage is formed between the two flanges when the plug is in the open position but the annular passage is closed by engagement of the two flanges.

[0014] The closure assembly may also include guide means arranged to guide movement of the plug in generally linear up and down movement relative to the tube. In such arrangement, it is preferred that the actuation device be connected to the plug in a relatively free floating manner so as to accommodate any lateral forces which might be applied to the plug by the actuating device to prevent the plug binding with the tube. However, other suitable arrangements are possible, for example, the plug may include a flange adapted to engage the inner face of the tube when in the closed position and a circumferential recess may be formed in the tube so that the flange is disengaged when aligned with the recess.

[0015] In this specification the bath or basin waste has been described in its normal in use position when fitted to a bath or basin drain and terms such as "vertical", "upper", "lower" and the like relative terms have been used to reference parts from that perspective. However, it is to be understood that such terms are not intended to limit use of the bath or basin waste to any particular orientation.

[0016] In order that the invention may be more readily understood and put into practice, reference will now be made to the accompanying drawings wherein:

Fig. 1 is an isometric view of a basin waste according to the invention with the plug in the open position;

Fig. 2 is an isometric view of the basin waste of Fig. 1 with the plug in the closed position;

Fig. 3 is a sectional isometric view of the basin waste of Fig. 1 along a diametral vertical plane with the plug in the open position;

Fig. 4 is a sectional isometric view of the basin waste of Fig. 1 along the same diametral vertical plane as Fig. 3 with the plug in the closed position, and

Fig. 5 is an isometric view of the basin waste of Fig. 1 with all components in line for assembly.

[0017] The basin waste 10 illustrated in Figs. 1 to 5 includes a tube 11 defining a passage 12 therethrough with an inlet opening 13 at its upper end, an outlet opening 14 at its lower end, and a flange 15 extending outwardly from the tube adjacent its upper end.

[0018] The outer face of the tube is threaded as shown at 16 for screw threadedly receiving a nut thereon for securing the waste in the drain outlet of a wash basin with a flat rubber washer fitted about the tube between the flange and the basin to form a watertight seal therebetween.

[0019] The tube 11 further includes a circumferential flange 17 that extends inwardly from an interior wall of the tube and which is located adjacent the outlet opening 14. The circumferential flange 17 functions as a seat upon which a closure assembly 21 shall rest as will be described in more detail later.

[0020] The tube 11 includes a cylindrically shaped mouth 18, adjacent the inlet opening 13 which fluidly communicates with a coaxial lower, cylindrically shaped, throat portion 19, said throat portion 19 having a smaller internal diameter than the mouth 18. The mouth 18, in combination with the throat portion 19, defines the passage 12.

[0021] The closure assembly 21 includes a somewhat cylindrically shaped spindle 22 having a threaded lower end portion 23 and a pointed opposing head portion 24.

[0022] The spindle 22 further includes a track 25 having an upper terminus 26 located adjacent the head portion 24 and a lower terminus 27 that is spaced from said upper terminus 26.

[0023] The spindle 22 further includes an external shoulder 28 that is located adjacent the lower terminus 27.

[0024] The closure assembly 21 also includes a hollow, somewhat cylindrically shaped, sleeve 30 that is slideably mounted on the spindle 22 below the shoulder 28. The sleeve 30 includes a cylindrically shaped bore 31; an open lower end portion 32 and an opposing, partially closed, upper end portion 33 in which there is formed a recess 34 that is adapted to receive an upper free end portion 35 of an elongate catch 36 that also includes an opposing free lower end portion 37.

[0025] The closure assembly 21 also includes a helically shaped spring 38 that is loosely located within the bore 31 such that its upper end 39 bears against an inner face 40 of a top wall 41 of the upper end portion 33 of the sleeve 30. The lower end 42 of the spring 38 bears against the shoulder 28 of the spindle 22.

[0026] The sleeve 30 is retained on the spindle 22 by the catch 36, its lower end portion 37 being retained within either the upper terminus 26 or the lower terminus 27 and is capable of guided movement along the track 25 between one terminus and the other.

[0027] The sleeve 30 also includes an external, outwardly extending, circumferential flange 43 and an external threaded portion 44 located between the flange 43 and the upper end portion 33.

[0028] The closure assembly 21 also includes a cap 50 that includes a centrally located bore 51 which is adapted to receive the end portion 33 of the sleeve 30, and which includes an internal threaded portion 34 that threadably engages the threaded portion 44.

[0029] The cap 50 includes a generally circular shaped

head portion 52 that is spaced from an external, outwardly extending, circumferential flange 53 in which there is formed a "T" shaped groove 54 that is adapted to retain a flexible sealing member 55.

[0030] The closure assembly 21 also includes lateral spacing means 60 including a central hub 61 having a coaxial bore 62 that is adapted to slideably receive therein a cylindrically shaped mid-portion 63 of the sleeve 30. The spacing means 60 further includes four vanes 64 that extend outwardly from the hub and are circumferentially equally spaced from one another.

[0031] The closure assembly 21 also includes a cylindrically shaped base 65 having a coaxial bore that includes an internal threaded portion 66. The base 65 further includes an upper face 67 and an opposing lower face 68 separated by a continuous side wall 69, and a plurality of flow passages 70 extending between said upper and lower faces. The base 65 is threadably connected to the lower end portion 23 of the spindle 22.

[0032] The closure assembly 21 is slideably located in the throat portion 19 such that the fit between the vanes 64 and the internal side wall of the throat portion 19 is a loose fit.

[0033] The closure assembly 21 is maintained in an operative position within the throat portion 19 by its own weight, and whereby the base 65 rests upon the circumferential flange 17.

[0034] As can be seen in Fig. 3, when the cap 50 is in the up position, characterised by an upper face of the cap being substantially flush with an upper face of the flange 15, there exists a first annular flow passage between the cap 50 and the mouth 18. This first annular flow passage fluidly communicates with a second annular flow passage that presently exists between the flange 53, and in particular the sealing member 55, (which is spaced above the throat portion 19) and the mouth 18. These two annular flow passages communicate fluidly with a third annular flow passage between the lower end portion of the closure assembly 21 and the throat portion 19, (fluid being permitted to flow between adjacent vanes and the internal side wall of the throat portion), and the third annular flow passage communicates fluidly with the flow passages 70.

[0035] The cap 50 is maintained in this "open" position by the catch 36 which itself is resisting the upwardly directed force applied to the cap 50 by the spring 38. As can be seen in figure 3, when the cap is in the "open" position, the catch's lower end portion 37 is retained in the upper terminus 26.

[0036] The cap 50 may be moved to its "closed" position by applying sufficient downwardly directed force to the cap 50 so as to move the lower end portion 37 of the catch 36 along the track 25 against the action of the ever more compressed spring 38 till it reaches the lower terminus 27 where it is retained therein.

[0037] As can be seen in figure 4, when the cap is in its "closed" position, characterised by the upper face of the cap 50 being spaced below the upper face of the flange 15, the sealing member 55 seals against the internal continuous side wall of the throat portion 19 thereby preventing the flow of fluid passing through the first annular flow passage from passing through the throat portion.

[0038] The cap 50 may be returned to the "open" position by applying sufficient downward force to the cap 50 so as to disengage the lower end portion 37 of the catch 36 from the lower terminus 27 thereby permitting said lower end portion to move along a return track, not shown, formed in the side wall of the spindle, under the force of the spring 38 to the upper terminus 26.

[0039] It will be appreciated that the vanes 64 prevent undue lateral movement of the closure assembly 21 relative to the tube 11 when the cap 50 is moved from the "open" to the "closed" position and from the "closed" position to the "open" position.

[0040] In use, the lower face of the flange 15 is adapted to engage the portion of a bath or basin that surrounds a drain opening formed therein and whereby the flange 15 is maintained in this operative position by a threaded nut 80 which includes an internal threaded portion 81 that is adapted to threadably engage the threaded portion 16.

[0041] The nut 80 further includes an upper, outwardly extending, circumferential flange 82 that provides support for a washer 83 which shall seal against a lower face of the bath or basin.

[0042] Advantageously, it will be appreciated that the basin waste 10 is aesthetically pleasing from the top when in the "open" position with the upper face of cap 50 being substantially flush with the upper face of flange 15 and showing the first annular opening between the circumferential edge of the cap and the flange 15. The waste is also aesthetically pleasing when in the "closed" (down) position with the top of the cap forming an attractive "bottom" to the passage 12 in the tube 11.

[0043] It will be appreciated that because the entire closure assembly 21 is retained in the tube 11 only by its own weight access to the actuation device for cleaning and/or maintenance purposes can be easily achieved by simply lifting the entire closure assembly 21 out of the tube 11. This can be done by gripping the circumferential edge of the cap 50 say with the tips of your fingers and applying an upward force to the cap so as to lift it from the confines of the tube. Alternatively, a hook like end portion of a tool may be extended through the first annular flow passage so as to permit the hook like end portion to engage an underside of the cap 50 and, by pulling on the tool, thereby apply an upwardly directed force to be the cap 50 sufficient to extract the closure assembly 21 from the throat portion.

[0044] The foregoing description has been given by way of illustrative example of the invention and many modifications and variations which will be apparent to persons skilled in the art may be made without departing from the scope of the invention as defined by the appended claims.

Claims

1. A bath or basin waste, including:

   a tube (11) having an interior wall defining a flow passage (12) with an inlet at its upper end and an outlet at its lower end, said tube terminating at its upper end in an outwardly extending flange (15), and
   a closure assembly (21) within said flow passage, said closure assembly including a plug for selectively closing said flow passage and an actuation device connected to said plug for effecting up and down movement of said plug relative to said flow passage between an open position in which said plug is up and a closed position when it is down, said plug having an upper face which is substantially flush with said upper face of said flange when in the open position and below said upper face of said flange when in the closed position, said plug and said tube defining a space therebetween and said space being the only entry for flow to said flow passage when said plug is in the open position, **characterized in that**
   said closure assembly resting on a seat extending inwardly from said interior wall and said closure assembly being retained within said flow passage only by the weight of said closure assembly, wherein said seat is provided by a continuous circumferential flange (17) or one or more lugs extending from said interior wall.

2. A bath or basin waste as claimed in Claim 1 wherein said closure assembly includes a base adapted to rest on said flange or lugs.

3. A bath or basin waste as claimed in Claim 2 **characterised in that** said closure includes a central spindle and said base is threadedly connected to said central spindle.

4. A bath or basin waste as claimed in Claim 3 **characterised in that** said base includes a continuous side wall and flow passages between said side wall and said central spindle.

5. A bath or basin waste as claimed in any one of the preceding claims, wherein said plug is adapted to sealably engage with an inner face of said tube to close said flow passage when in the closed position and to disengage from said inner face when in the open position so as to allow water to flow through said flow passage.

6. A bath or basin waste as claimed in any one of the preceding claims, wherein said closure assembly includes guide means arranged so as to guide movement of said plug in generally linear up and down movement relative to said tube.

Patentansprüche

1. Badewannen- oder Waschbeckenabfluss, der Folgendes umfasst:

   eine Röhre (11) mit einer Innenwand, die einen Strömungsdurchgang (12) mit einem Einlass an seinem oberen Ende und einem Auslass an seinem unteren Ende definiert,
   wobei die Röhre an ihrem oberen Ende in einem sich nach außen erstreckenden Flansch (15) endet, und
   eine Verschlussanordnung (21) in dem Strömungsdurchgang, wobei die Verschlussanordnung Folgendes umfasst: einen Stöpsel zum selektiven Verschließen des Strömungsdurchgangs und eine mit dem Stöpsel verbundene Betätigungsvorrichtung zum Bewirken von Bewegung nach oben und nach unten des Stöpsels relativ zu dem Strömungsdurchgang zwischen einer offenen Stellung, in der der Stöpsel oben ist, und einer geschlossenen Stellung, wenn er unten ist, wobei der Stöpsel eine obere Oberfläche aufweist, die im Wesentlichen mit der oberen Oberfläche des Flanschs bündig ist, wenn er sich in der offenen Stellung befindet, und sich unter der oberen Oberfläche des Flanschs befindet, wenn er sich in der geschlossenen Stellung befindet, wobei der Stöpsel und die Röhre einen Zwischenraum dazwischen definieren und der Zwischenraum der einzige Eingang für Strömung zu dem Strömungsdurchgang ist, wenn sich der Stöpsel in der offenen Stellung befindet, **dadurch gekennzeichnet, dass**
   die Verschlussanordnung auf einem Sitz aufliegt, der sich von der Innenwand nach innen erstreckt, und die Verschlussanordnung nur von dem Gewicht der Verschlussanordnung in dem Strömungsdurchgang gehalten wird, wobei der Sitz von einem durchgehenden Umfangsflansch (17) oder einer oder mehrerer Nasen, die sich von der Innenwand erstrecken, bereitgestellt wird.

2. Badewannen- oder Waschbeckenabfluss nach Anspruch 1, wobei die Verschlussanordnung eine Basis umfasst, die dazu angepasst ist, auf dem Flansch oder den Nasen aufzuliegen.

3. Badewannen- oder Waschbeckenabfluss nach Anspruch 2, **dadurch gekennzeichnet, dass** der Verschluss eine zentrale Spindel umfasst und die Basis mittels Gewinden mit der zentralen Spindel verbunden ist.

4. Badewannen- oder Waschbeckenabfluss nach Anspruch 3, **dadurch gekennzeichnet, dass** die Basis eine durchgehende Seitenwand und Strömungsdurchgänge zwischen der Seitenwand und der zentralen Spindel umfasst.

5. Badewannen- oder Waschbeckenabfluss nach einem der vorangehenden Ansprüche, wobei der Stöpsel dazu angepasst ist, sich mit einer inneren Oberfläche der Röhre in dichtendem Eingriff zu befinden, um den Strömungsdurchgang zu verschließen, wenn er sich in der geschlossenen Stellung befindet, und sich von der inneren Oberfläche zu lösen, wenn er sich in der offenen Stellung befindet, um Wasser durch den Strömungsdurchgang strömen zu lassen.

6. Badewannen- oder Waschbeckenabfluss nach einem der vorangehenden Ansprüche, wobei die Verschlussanordnung Führungsmittel umfasst, die angeordnet sind, um die Bewegung des Stöpsels in allgemein linearer Bewegung nach oben und nach unten relativ zu der Röhre zu führen.

Revendications

1. Bonde de vidage de baignoire ou de lavabo, comprenant :

   un tube (11) ayant une paroi intérieure définissant un passage d'écoulement (12) avec une entrée au niveau de son extrémité supérieure et une sortie au niveau de son extrémité inférieure, ledit tube se terminant au niveau de son extrémité supérieure dans une bride s'étendant vers l'extérieur (15), et
   un ensemble de fermeture (21) à l'intérieur dudit passage d'écoulement, ledit ensemble de fermeture comprenant un clapet servant à fermer de manière sélective ledit passage d'écoulement et un dispositif d'actionnement raccordé audit clapet pour effectuer un mouvement vers le haut et vers le bas dudit clapet par rapport audit passage d'écoulement entre une position ouverte dans laquelle ledit clapet est en haut et une position fermée quand il est en bas, ledit clapet ayant une face supérieure qui est sensiblement de niveau par rapport à ladite face supérieure de ladite bride quand il se trouve dans la position ouverte et sous ladite face supérieure de ladite bride quand il se trouve dans la position fermée, ledit clapet et ledit tube définissant un espace entre eux et ledit espace étant la seule entrée à des fins d'écoulement vers ledit passage d'écoulement quand ledit clapet se trouve dans la positon ouverte, **caractérisée en ce que** ledit ensemble de fermeture repose sur un siège s'étendant vers l'intérieur depuis ladite paroi intérieure et ledit ensemble de fermeture est retenu dans ledit passage d'écoulement uniquement sous l'effet du poids dudit ensemble de fermeture, dans laquelle ledit siège est mis en œuvre par une bride circonférentielle continue (17) ou par une ou plusieurs oreilles s'étendant depuis ladite paroi intérieure.

2. Bonde de vidage de baignoire ou de lavabo selon la revendication 1, dans laquelle ledit ensemble de fermeture comprend une base adaptée pour se reposer sur ladite bride ou lesdites oreilles.

3. Bonde de vidage de baignoire ou de lavabo selon la revendication 2, **caractérisée en ce que** ladite fermeture comprend une broche centrale et ladite base est raccordée par filetage à ladite broche centrale.

4. Bonde de vidage de baignoire ou de lavabo selon la revendication 3, **caractérisée en ce que** ladite base comprend une paroi latérale continue et des passages d'écoulement entre ladite paroi latérale et ladite broche centrale.

5. Bonde de vidage de baignoire ou de lavabo selon l'une quelconque des revendications précédentes, dans laquelle ledit clapet est adapté pour se mettre en prise de manière étanche avec une face intérieure dudit tube pour fermer ledit passage d'écoulement quand il se trouve dans la position fermée et pour se séparer de ladite face intérieure quand il se trouve dans la position ouverte de manière à permettre à l'eau de s'écouler au travers dudit passage d'écoulement.

6. Bonde de vidage de baignoire ou de lavabo selon l'une quelconque des revendications précédentes, dans laquelle ledit ensemble de fermeture comprend des moyens de guidage agencés pour guider le mouvement dudit clapet selon un mouvement vers le haut et vers le bas généralement linéaire par rapport audit tube.

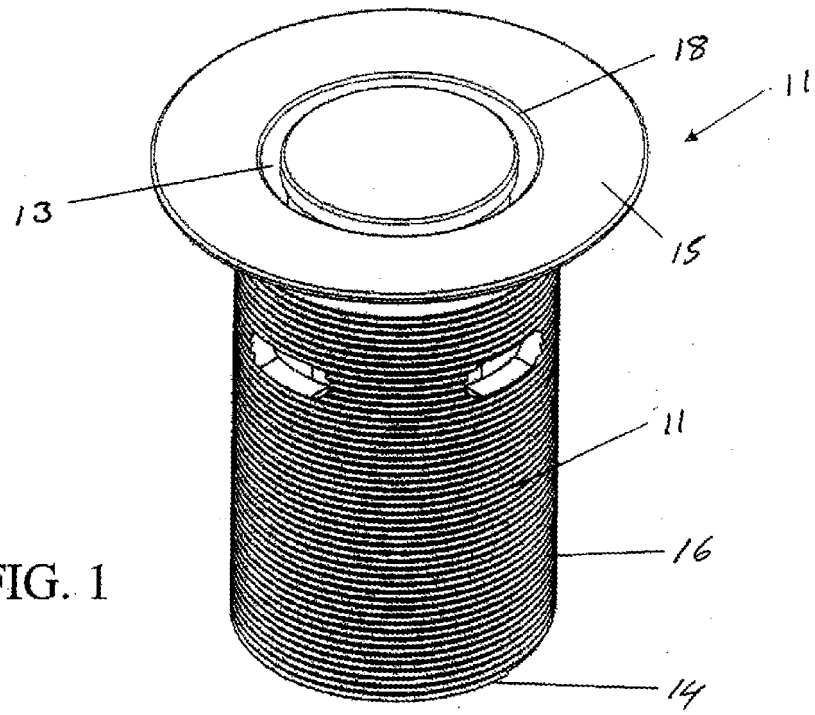


FIG. 1

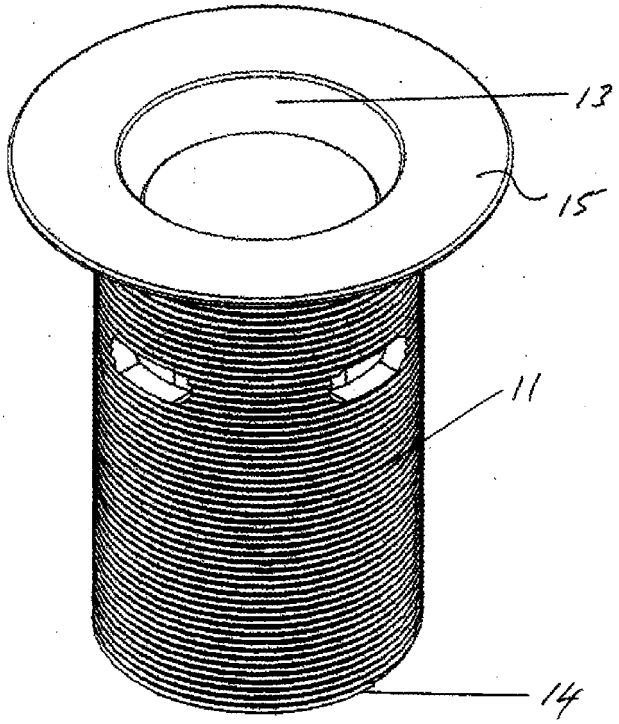


FIG. 2

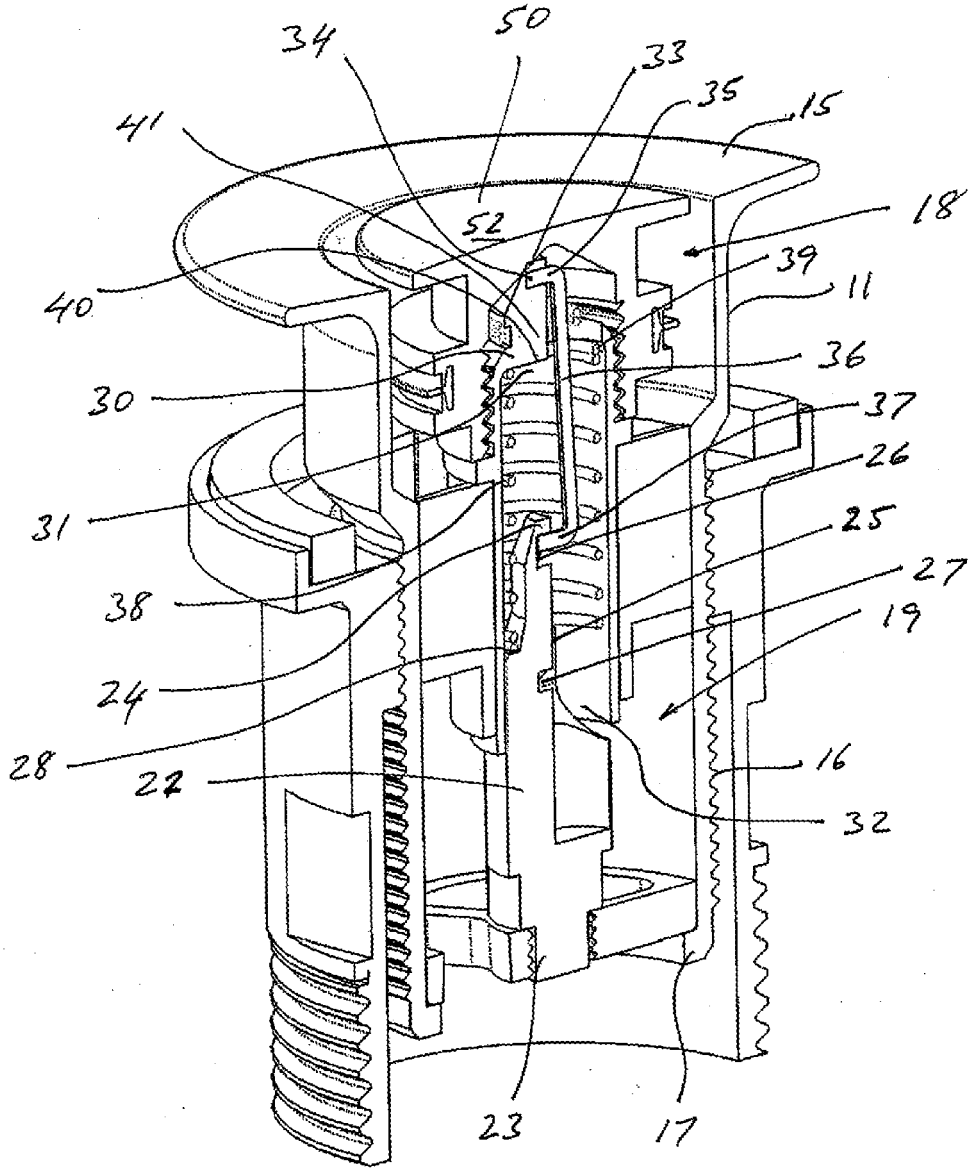

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FIG. 3

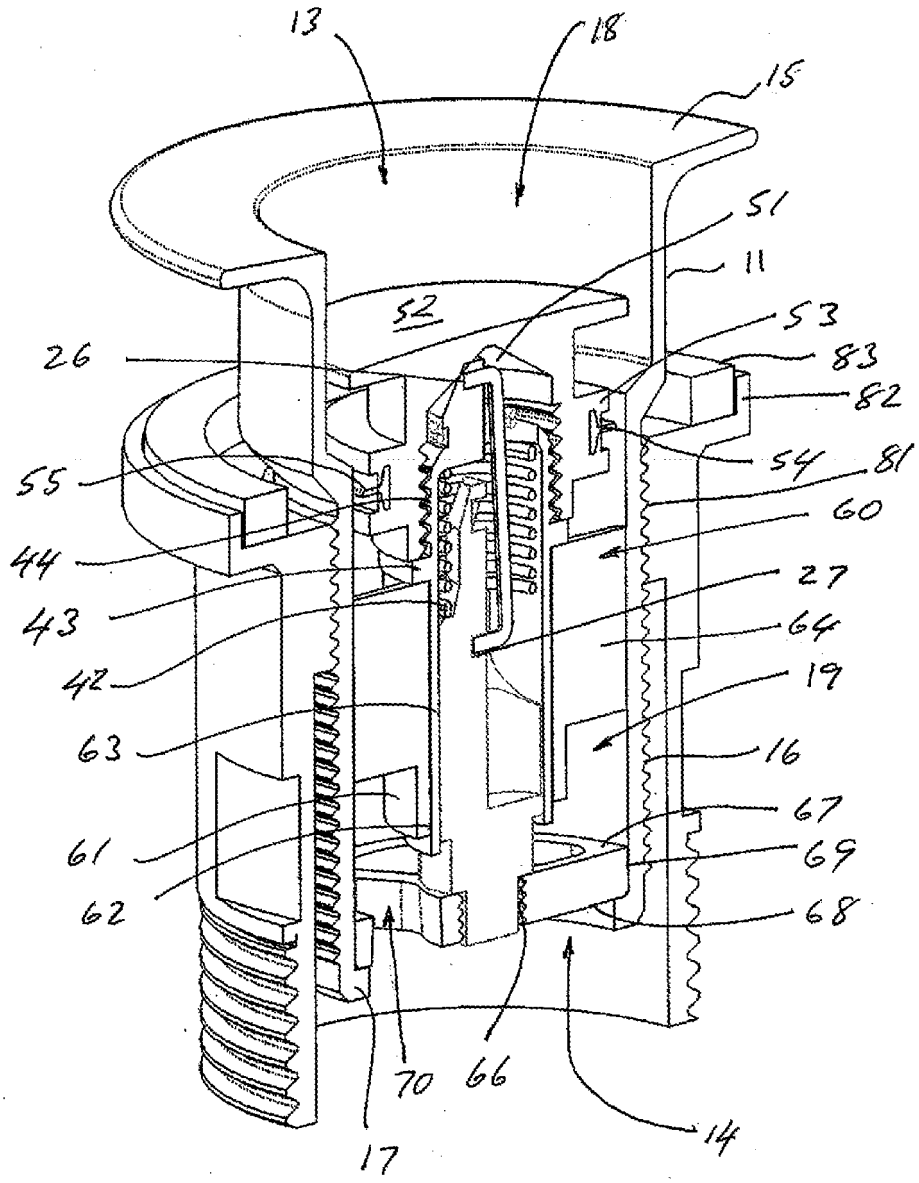

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FIG. 4

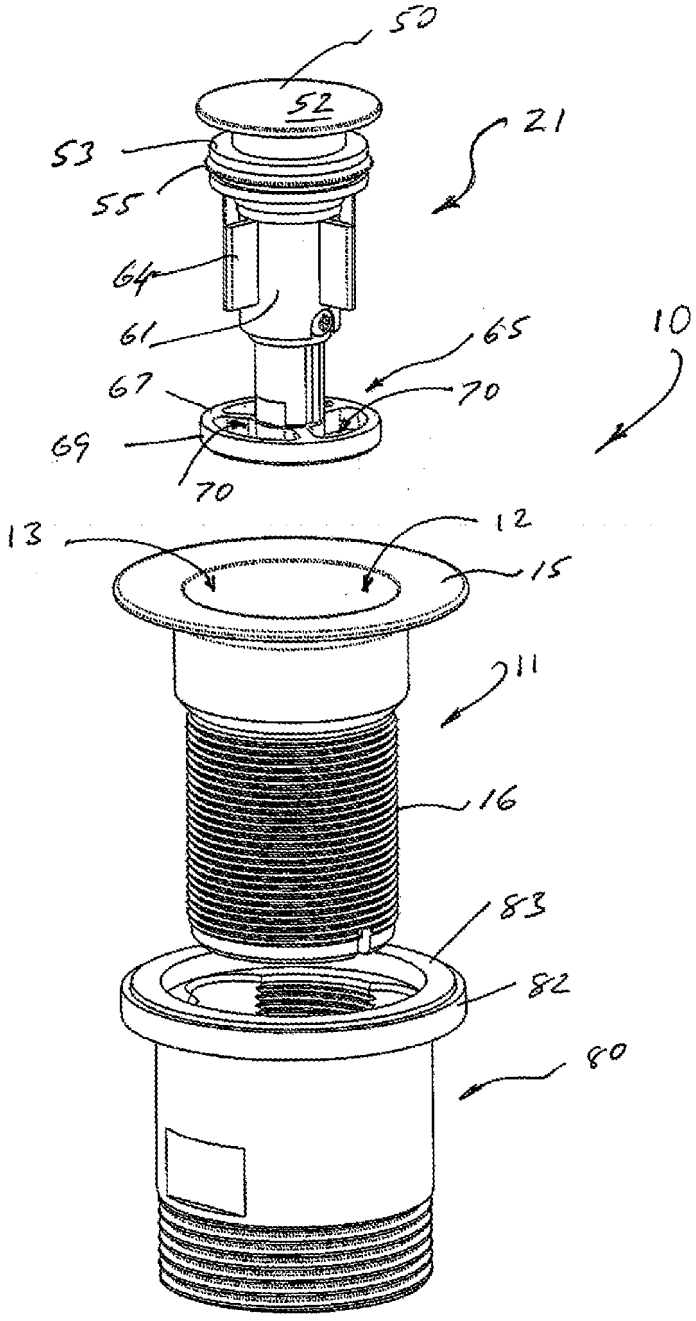


FIG. 5.

REFERENCES CITED IN THE DESCRIPTION

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