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(54) **Waste water and overflow control device for sinks or bath basins**

(57) The invention relates to an assembly which allows a closure (20) for a waste aperture (14) in a sink (2), bath or other liquid collecting means, to be selectively moved between open and closed positions. The assembly includes a member (44) which is located on the sink, bath or other liquid collecting means at a location spaced from the closure (20) and which member (44) can be

moved by a user via actuating means (22) such that movement of the member (44) is transferred to cause movement of said closure (20). In one embodiment, said actuating means (22) is located at the overflow aperture (16) of the sink (2), bath or fluid collecting means.

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## Description

**[0001]** The invention to which this application relates is to an assembly for use in a sink or bath or any other fluid collecting means. In particular, the application relates to the waste aperture which allows the normal evacuation of fluid, and the overflow aperture which allows the evacuation of fluid when the level of fluid in the sink or bath has reached a potentially hazardous level, such as, for example, which may occur when a person, having turned the tap or taps on, with the waste aperture closed, forgets that they have done so.

**[0002]** Conventionally, the overflow is an aperture in the sink or bath which is open and is provided towards the top edge of a sidewall of the bath or sink. The overflow has been regarded as a necessity for safety purposes, for the reasons indicated above to prevent the collection of a body of fluid to a level above the overflow position, and thereby avoid or minimise the risk of flooding.

**[0003]** The waste aperture is typically provided with a closure which, in certain instances, may be a plug which is manually inserted into position to form a seal with the aperture or, more typically, is provided to be moved between open and closed positions via a mechanism arrangement formed of first and second members which are joined together, with one end acting on the closure and the other end being user operable via a switch or member typically mounted at the taps of the sink or bath. This allows the closure to be moved between open and closed positions by a user remotely from the closure. However this mechanism is prone to failure and when it fails it requires the user to operate the closure as they would a conventional plug.

**[0004]** The aim of the present invention is to provide a means whereby the problems relating to the conventional waste aperture in a bath or sink are addressed and an advantageous solution is provided to a user of the same.

**[0005]** In a first aspect of the invention, there is provided a bath or sink or other fluid collecting apparatus having a waste aperture, a closure movable between an open position in which fluid can drain through the waste aperture and a closed position in which fluid is prevented from passing through the waste aperture and wherein said apparatus further includes a member, said member connected to the closure for the waste aperture to operate the same and, when said member is in a first position the closure is in the open position and when the member is in a second position the closure is in the closed position, and wherein an end of said member is connected to a user actuating means mounted to be movable with respect to an overflow aperture of the bath, sink or other fluid collecting means.

**[0006]** Typically the said actuating means is provided at the location of the overflow aperture which is provided on the side wall of the sink, bath or other fluid collecting apparatus.

**[0007]** Typically, the movement of the member to the first position is to a position such that the actuating means

closes or at least partially restricts the flow of fluid through the overflow aperture and causes the closure at the waste aperture to move to an open position and movement of the member to the second position moves the actuating means to open the overflow to greater fluid flow there-through, if required, and causes movement of the closure to the closed position in the waste aperture. It should also be appreciated that in either case, the movement of the closure by the user from one position to the other will cause a matching movement of the member and actuating means connected thereto.

**[0008]** In one embodiment, the member is moved to the first position by the user to move the closure to an open position. In one embodiment the closure of the waste aperture is moved by the user to a closed position which also causes the member of the overflow to be moved to the second position. Alternatively the said actuating means may be moved to the second position by the user to move the member and hence move the closure to the closed position.

**[0009]** By providing the relative movement of the member and closure as herein described, so it is ensured that when the waste closure is in a closed position and hence fluid can be collected in the sink or bath, the overflow will be open thereby allowing the overflow to be available to operate as required. However, when the closure of the waste is open and hence fluid can evacuate the sink or bath through the waste aperture, there is no need for the overflow to be open and hence the actuating means connected to the member can be in a position substantially closing the overflow aperture and so this assembly can be used safely and, at the same time, provide a more efficient and effective means by which the user can move the waste closure to an open position without having to directly contact the closure.

**[0010]** Typically, the waste closure member and overflow member are connected via a mechanical assembly which, in one embodiment, includes a flexible cable, the movement of which along its longitudinal axis, causes relative movement of the waste closure member and the overflow member.

**[0011]** Typically, the member and actuating means at the overflow are located with respect to a housing which fits into the overflow aperture, said housing incorporating one or more apertures therein which allow fluid which passes through the overflow to pass through said apertures and into a reservoir and/or other means by which the said fluid can leave for drainage.

**[0012]** In one embodiment, the assembly is provided to be retrofitted to existing sinks or baths.

**[0013]** In one embodiment, the closure for the waste, is provided with an elongate member which extends to the underside of the sink or bath, said member pivotably movable under the influence of the movement mechanism connected to the overflow so as to cause movement of the elongate member and hence closure with respect to the waste aperture.

**[0014]** Typically the said member is flexible in as much

that it can be shaped to pass between the closure and actuating means but is sufficiently rigid along its longitudinal axis so as to allow movement to be transferred between the closure and actuating means.

**[0015]** In one embodiment when the closure is in a closed position the external face of the actuating means protrudes from the side wall in which the overflow is formed and when the closure is in an open position the external face of the actuating means lies substantially flush with the external face of a housing fitted in the overflow.

**[0016]** In a further aspect of the invention there is provided a closure assembly, said assembly including a closure movable between open and closed positions with regard to a fluid waste aperture, and wherein said closure is mechanically connected to a member mounted to be movable in connection with an actuating means mounted with respect to a fluid overflow aperture.

**[0017]** Specific embodiments of the invention are now described with reference to the accompanying drawings wherein;

Figure 1 illustrates a sink in accordance with one embodiment of the invention;

Figure 2 illustrates in detail, the sink of figure 1 in section along line A-A in accordance with one embodiment of the invention; showing the closure assembly in a first condition of use; and

Figure 3 illustrates the sink of figure 2 with the closure assembly in a second condition of use; and

Figure 4 illustrates an embodiment of the invention and illustrating the components thereof.

**[0018]** Referring firstly to figure 1, there is illustrated a sink 2 in accordance with one embodiment of the invention, the sink comprises a base 4, opposing side walls 6, 8 and end walls 10,12. In the base, there is provided a waste aperture 14 and in one of the side walls there is provided an overflow aperture 16.

**[0019]** The waste aperture 14 is the aperture which is normally used to allow drainage of fluid which is collected in the sink. The drainage of the fluid can occur when a closure 20 provided in conjunction with the waste aperture, is in an open position, thereby allowing the fluid to exit through the aperture. In order to collect the fluid in the sink, the closure is moved to a closed position in which the same forms a seal with the aperture 14 to prevent fluid from passing therethrough.

**[0020]** The overflow aperture 16 is typically provided to be available to be used in the event of the level of fluid in the sink reaching a potentially hazardous level such that it may overflow from the sink and cause flooding. For this reason, the overflow aperture is typically provided towards the top edge of the side wall. Conventionally, this aperture is open which can be unsightly and difficult

to clean. In accordance with the invention, in this embodiment there is provided an actuating means 22 which in this embodiment, substantially covers over the aperture and passes through the aperture and which is provided to be movable between first and second positions in a manner which will be subsequently described.

**[0021]** Figure 2 illustrates the movement assembly of the apparatus in more detail and clearly shows the closure 20 for the waste aperture 14 and the actuating means 22 in position with respect to the overflow aperture 16 and connected to member 44 which is typically a cable. The closure 20 is movable with respect to the waste aperture as indicated by arrows 24, 26 and the actuating means 22 is movable with respect to the overflow aperture as indicated by arrows 28, 30. The actuating means 22 is located within a housing 32 which in turn is located in the overflow aperture 16 of the sink. The housing is provided with a series of apertures 38 which allow fluid to flow therethrough and into a collection reservoir or drainage means 40 provided in the sink to thereby allow fluid to overflow from the sink and thereby ensure that the risk of flooding is still minimised.

**[0022]** The actuating means 22 is connected to the closure 20 of the waste aperture 14 via a member 44 which, typically, is flexible so as to allow the same to be positioned between the closure and member on the underside of the sink. Said member 44 is provided with a core which is movable along its longitudinal axis 46 by movement of either of the actuating means 22 at the overflow or the closure 20 at the waste aperture 14 by the user. Thus, the member 44 is located at one end with respect to the actuating means 22 and the other end is contacted with a rod or elongate member 15 which is pivotably movable about pivot location 52 as indicated by arrows 51, 53, under the influence of the movement of the core of the member 44. The elongate member 15 is in turn connected to the underside 21 of the closure 20 so as to exert a moving force on the same in the direction of at least arrow 24, but typically in both directions. Figure 2 illustrates the assembly with the waste aperture sealed by the closure 20 in the closed position and the actuating means 22 in the open position with regard to the overflow.

**[0023]** Thus, in this position, fluid can be collected in the sink and the overflow is open to ensure that if the fluid level reaches the overflow it can still drain from the sink.

**[0024]** In order to move the closure 20 of the waste from the closed, sealed, position to the open position, then in accordance with the invention, the user can press the actuating means 22 of the overflow inwardly towards the wall of the sink in the direction of arrow 30 and this pressing action, causes the actuating means 22 to move inwardly and in turn move the core of the member 44 along longitudinal axis 46 so as to exert a movement force on the elongate member 15 and in turn move the closure 20 upwardly in direction of arrow 24 to an open position as shown in figure 3 and thereby allow the fluid to drain from the sink through the waste. As the closure

20 is open at the waste then there is no need for the overflow to be open at that time and thus, the movement of the actuating means 22 may be to a closed position with respect to the overflow but need not be to a fully closed position, as it is the movement force which is important not the final resting position of the actuating means 22.

**[0025]** To reverse the position of the closure 20 to the closed position, the user can either grip the actuating means 22 and pull the same outwardly in direction of arrow 28, or alternatively, as the sink will typically be empty at this stage, the user can press downwardly in direction of arrow 26 on the closure 20. In either case, the member 44 is moved in the reversed direction to exert the movement force to move the actuating means 22 to an open position and the closure 20 is in a closed position of figure 2 as required.

**[0026]** Figure 4 illustrates the components of an assembly in accordance with the invention.

**[0027]** There is shown the waste drain assembly with a closure 20. The drain assembly has a connector 60 which receives therein a connector 62 and within which are provided elongate member 15 and sealing members 64, 66. In this case the elongate member 15 is a standard rod for actuating the closure but it is gripped via collar 68 which is tightened thereon by screw 70. Also provided is a restraining collar 72 which has a location formation 74 into which the end of member 44 is inserted and retained. The end 78 of the member is attached to the collar 68. The opposing end 80 of the member 44 passes to the assembly located in the overflow. The assembly includes a series of seals and tightening means 82 which engage a housing 32 and in turn serve to attach and seal the assembly to the sink or bath at the overflow. Passing through the housing 32 is provided a connector 86 which includes sealing o-rings 88 thereon. At one end 90 the connector 86 receives the ball 92 of the member end 80 and at the other end 94, is connected to be part of the actuating means 22 which is located to protrude from the overflow and allow actuation of the same by a person pressing on the plate 96 attached to the end 98 of the actuating means.

**[0028]** It should also be appreciated that although reference is made to providing the said assembly in association with the overflow it is possible, in another embodiment that the member is provided at another location, and separate to the overflow aperture. In this case the operation of the movement mechanism will remain the same and it is intended that this arrangement also falls within the scope of this application.

## Claims

1. A bath or sink or other fluid collecting apparatus having a waste aperture, a closure movable between an open position in which fluid can drain through the waste aperture and a closed position in which fluid

is prevented from passing through the waste aperture and wherein said apparatus further includes a member, said member connected to the closure for the waste aperture to operate the same and when said member is in a first position the closure is in the open position and when the member is in a second position the closure is in the closed position and wherein an end of said member is connected to a user actuating means mounted to be movable with respect to an overflow aperture of the bath, sink or other fluid collecting means.

2. Apparatus according to claim 1 wherein the said actuating means is provided at the location of an overflow aperture provided on the sink, bath or other fluid collecting apparatus.
3. Apparatus according to claim 1 wherein the movement of the member to the first position is to a position which causes the actuating means to close or at least partially restricts the flow of fluid through the overflow aperture and causes the closure of the waste aperture to move to an open position and movement of the member to the second position moves the actuating means to a position to open the overflow to greater fluid flow therethrough and causes movement of the closure to the closed position.
4. Apparatus according to claim 1 wherein movement of the closure by the user from one position to the other causes movement of the member.
5. Apparatus according to claim 1 wherein the actuating means is moved to the first position by the user to move the closure to the open position.
6. Apparatus according to claim 1 wherein the closure of the waste aperture is moved by the user to a closed position at which the actuating means of the overflow is moved to the second position.
7. Apparatus according to claim 1 wherein the said actuating means may be moved to the second position by the user to move the closure to the closed position.
8. Apparatus according to claim 1 wherein when the waste closure is in a closed position fluid can be collected in a sink or bath and the overflow is open thereby allowing the overflow to be available to operate as required.
9. Apparatus according to claim 1 wherein when the closure of the waste is opened fluid can evacuate the sink or bath through the waste aperture and the actuating means is in a position substantially closing the overflow aperture.
10. Apparatus according to claim 1 wherein the waste

closure member and overflow member are connected via a mechanical assembly.

11. Apparatus according to claim 10 wherein the mechanical assembly includes the member, the movement of which along its longitudinal axis causes movement of the waste closure member and the actuating means by transferring the user movement of one to the other. 5  
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12. Apparatus according to claim 1 wherein the actuating means is located with respect to a housing which fits into the overflow aperture.
13. Apparatus according to claim 12 wherein the housing incorporates one or more apertures therein to allow fluid which passes through the overflow to pass through said apertures and into a reservoir and/or other means by which the said fluid can leave for drainage. 15  
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14. Apparatus according to claim 1 wherein the assembly is retrofitted to existing sinks or baths.
15. Apparatus according to claim 1 wherein the closure for the waste is provided with an elongate member which extends on the underside of the sink or bath, said elongate member pivotally moveable under the influence of the movement mechanism connected to the actuating means at the overflow so as to cause movement of the closure with respect to the waste aperture. 25  
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16. A closure assembly, said closure assembly including a closure movable between open and closed positions with regard to a fluid waste aperture and wherein said closure is mechanically connected to a member mounted to be movable in connection with an actuating means mounted with respect to a fluid overflow aperture. 35  
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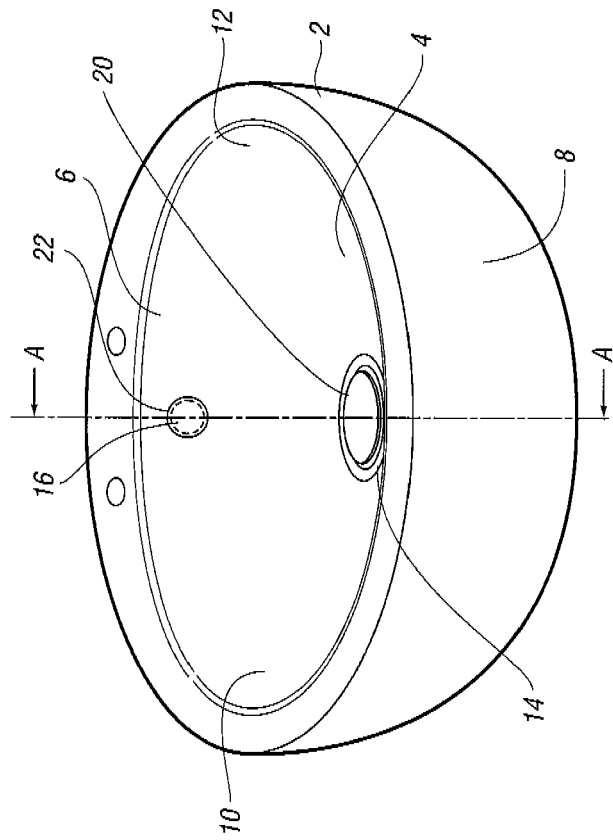
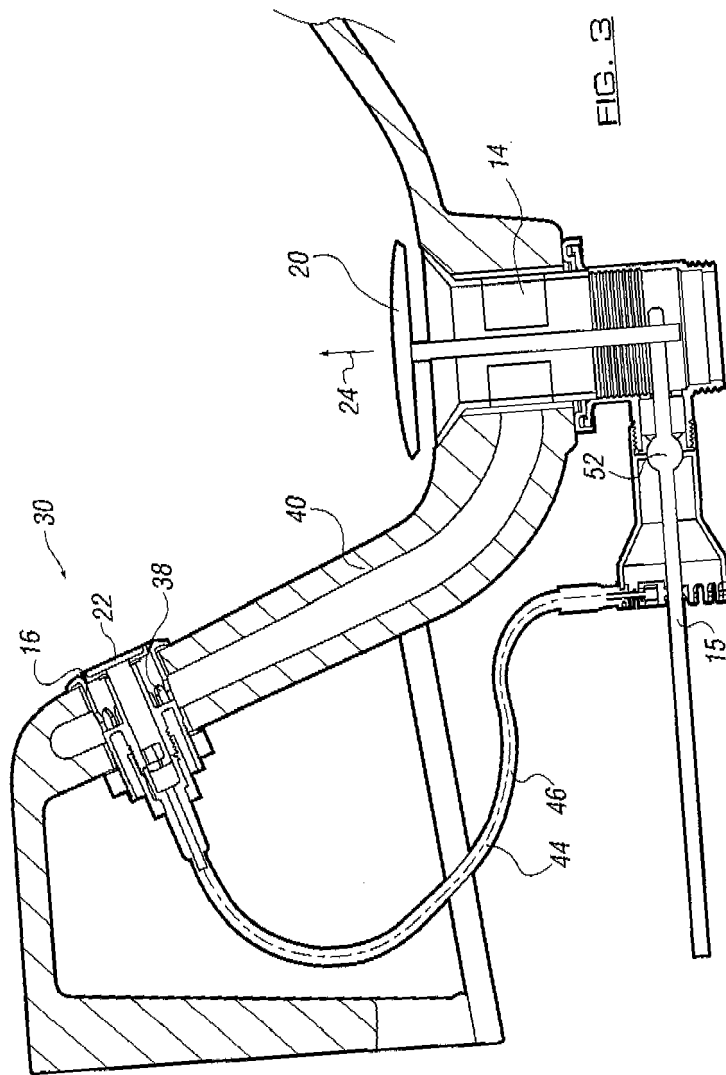


FIG. 1





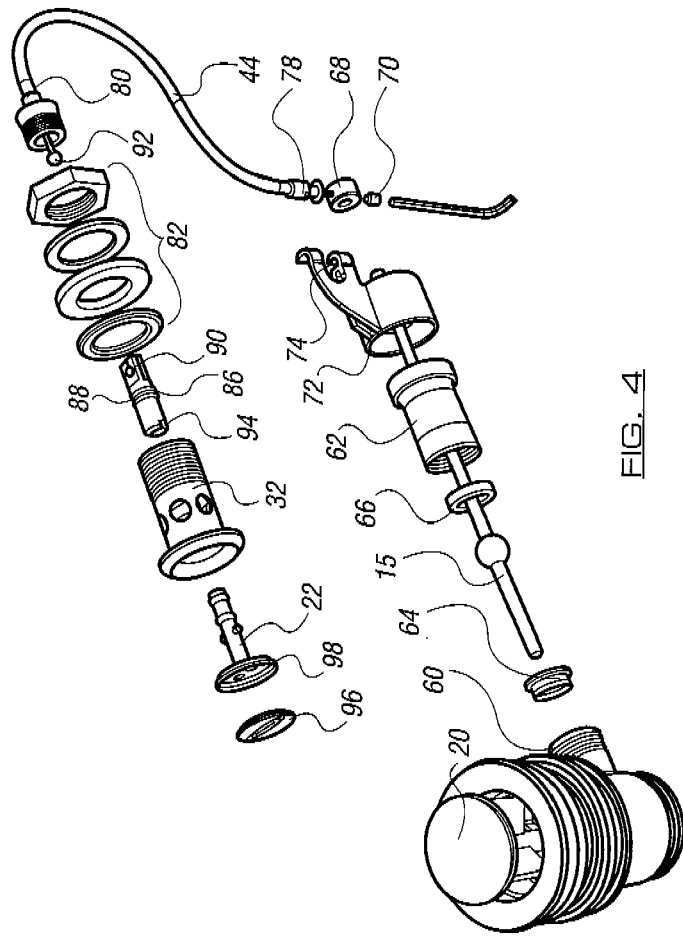


FIG. 4



EUROPEAN SEARCH REPORT

Application Number  
EP 10 25 0377

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 703 027 A1 (GEBERIT TECHNIK AG [CH]) 20 September 2006 (2006-09-20) * paragraphs [0001], [0002], [0006], [0015], [0016]; figures 1,2,4,5 *	1-16	INV. E03C1/232
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A	* figures 3,4 *	3,9	
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
Place of search		Date of completion of the search	Examiner
Munich		2 July 2010	Isailovski, Marko
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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02-07-2010

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82