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(54) **A draining device for sanitary fittings such as sinks**

(57) A draining device (1), for sanitary fittings such as a sink (7), comprises a drain element (2) mounted in an underdrain element (3); said drain element (2) having a top flange (5) abutting against a top surface (6) of the sink bottom; said underdrain element (3) having a bottom flange (8) abutting against a bottom surface (9) of the sink bottom; a screw member (11) coupling the drain element (2) to the underdrain element (3) and engaging therewithin a stem (12) of a closure plug (13); said underdrain element being coupled to an overflowing system (24, 25) operating based on a communicating-vessel principle.

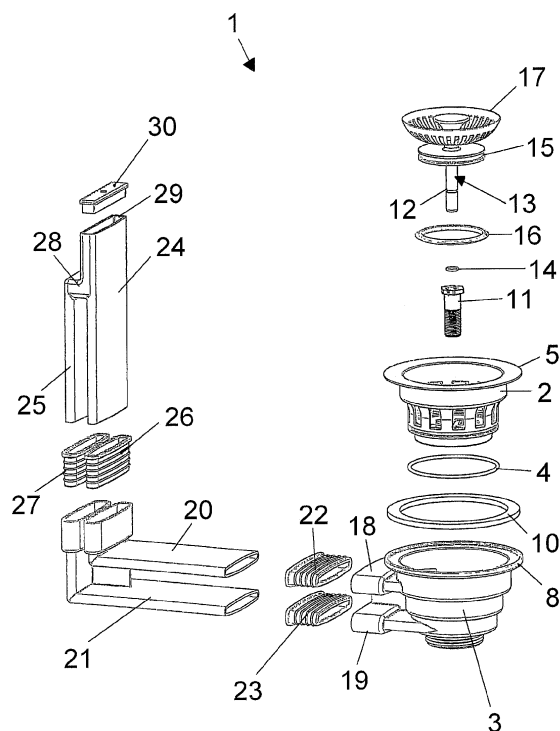


FIG. 1

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a draining device for sanitary fittings, such as sinks and the like.

[0002] As is known, sinks are conventionally provided with a draining system comprising a drain element mounted in a hole on the bottom of the sink, and an overflow arrangement.

SUMMARY OF THE INVENTION

[0003] The aim of the present invention is to provide an adjustable draining device to be applied to sinks of any desired size.

[0004] Within the scope of the above mentioned aim, a main object of the invention is to provide such an adjustable draining device for different thickness and different horizontal and height sinks.

[0005] Another object of the present invention is to provide such a draining device including a built-in overflowing system.

[0006] Yet another object of the present invention is to provide such a draining device which, owing to its specifically designed features, is very reliable and safe in operation.

[0007] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a draining device for sanitary fittings as a sink, **characterized in that** said draining device comprises a drain element mounted in an underdrain element.

[0008] Said drain element comprises a top flange abutting against a top surface of the sink bottom.

[0009] Said underdrain element comprises a bottom flange abutting against a bottom surface of the sink bottom.

[0010] A screw member connects the drain element to the underdrain element and engaging therewithin a stem of a closure plug.

[0011] Said underdrain element is coupled to an overflowing system operating based on a communicating-vessel principle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention, which is illustrated, by way of an indicative, but not limitative, example, in the accompanying drawings, where:

Figure 1 is an exploded perspective view showing the main components of the draining device according to the present invention;

Figure 2 is a side elevation view, as cross-sectioned, showing the subject device in an open-plug condition thereof;

Figure 3 is a view similar to Figure 2, showing the subject device in a closed-plug condition thereof;

Figure 4 is a view similar to Figure 3, showing the device in its closed-plug condition, as the sink is filled-in by water; and

Figure 5 is a view similar to Figure 4, showing the water outflow through the overflowing system.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] With reference to the number references of the above mentioned figures, the draining device for sanitary fittings such as sinks and the like, according to the present invention, generally indicated by the reference number 1, comprises a drain element 2 mounted in an underdrain element 3 through an interposition of a sealing O-ring 4.

[0014] The draining element 2 comprises a top flange 5, abutting against a top surface 6 of the bottom of the sink 7.

[0015] The underdrain element 3 comprises, in turn, a bottom flange 8 abutting against a undersurface 9 of the bottom of the sink 7, through an interposition of a sealing gasket 10.

[0016] A screw member 11 connects of clamps the drain element 2 to the underdrain element 3 and engages therein the stem 12 of a closure plug 13, through an interposition of a further sealing O-ring 14.

[0017] The plug element 13 comprises a plug disc 15, including a respective O-ring 16, sealing said drain element 2, and a top bowl 17 including radially extending openings.

[0018] The underdrain element 3 comprises two radially extending outlets, a top outlet 18 and a bottom outlet 19.

[0019] Said top outlet 18 is coupled to a top elbow 20, and said bottom outlet 19 is coupled to a bottom elbow 21, through respective sealing gaskets 22 and 23.

[0020] Said top elbow 20 is coupled to an overflow tube 24, whereas said bottom elbow 21 is coupled to an outflow tube 25, through respective coupling sealing gaskets 26 and 27.

[0021] Said overflow tube 24 is further coupled to said outflow tube 25 by a top fitting 28, said overflow tube 24 comprising, above said top fitting 28, an opening 29 closed by a casing 30.

[0022] The thus made overflow system operates based on the communicating-vessel principle as it will be disclosed in a more detailed manner hereinafter.

[0023] According to the present invention, said underdrain element 3 has an adjustable height and may be used with different thickness sinks, thereby always providing a sealing tightness between the drain and underdrain elements.

[0024] The adjustment of the draining device, based on the width and height of the sink, is carried out by properly designing to a set size the elbows 20, 21 and related tubes 24, 25 respectively.

[0025] Advantageously, the above components, as well as the underdrain element, are made of a plastics material.

[0026] Thus, independently from the adjustment of the drain with respect to its underdrain, that is for any desired thickness of the sink, from a minimum to a maximum one, the configuration of the drain will always allow, with the plug being opened, to fully empty the tube 20, as is shown in Figure 2.

[0027] Figure 3 shows the plug in a closed position, in which the disc 15 shuts off the water flow thereby preventing water from arriving at the underdrain bottom 31.

[0028] With the plug being in a closed condition, the radially extending opening of the top bowl 17 allows water to flow into the top elbow 20 of the overflowing system, as is shown in Figure 4.

[0029] As the sink is filled-in by water, said water is continuously raised through the overflowing system 24, thereby the sink water level will exceed the top fitting 28 level.

[0030] At this time, water will overflow from the overflowing tube 24, through the top fitting 28 into the outflow tube 25 and the bottom elbow 21 to be drained into the underdrain bottom 31 and outlet tube, as is shown in Figure 5.

[0031] It has been found that the invention fully achieves the intended aim and objects.

[0032] In fact, the invention has provided a draining device with a built-in overflowing system which may be easily applied to sinks of different size.

[0033] The drain side elongated holes or slots are always arranged under the overflowing tube thereby providing an optimum overflowing tube draining.

[0034] In practicing the invention, the used materials, as well as the contingent size and shapes may be any, depending on requirements.

Claims

1. A draining device, for sanitary fittings such as a sink, **characterized in that** said draining device comprises a drain element mounted in an underdrain element; said drain element having a top flange abutting against a top surface of a sink bottom; said underdrain element having a bottom flange abutting against a bottom surface of the sink bottom; a screw member coupling the drain element to the underdrain element and engaging therewithin a stem of a closure plug; said underdrain element being coupled to an overflowing system operating based on a communicating-vessel principle.

2. A draining device, according to claim 1, **character-**

ized in that said closure plug comprises a plug disc including an O-ring sealing said drain element, and a top bowl including radially extending openings.

3. A draining device, according to claim 1, **characterized in that** said underdrain comprises two radially extending outlets, a top outlet and a bottom outlet, said top outlet being coupled to a top elbow and said bottom outlet being coupled to a bottom elbow, said top elbow being coupled to an overflow tube, and said bottom elbow being coupled to an outflow tube, said overflow tube being coupled to said outflow tube by a top fitting, said overflow tube comprises, above said top fitting, an opening closed by a casing.

4. A draining device, according to claim 1, **characterized in that** said draining device comprises a drain 2 mounted in an underdrain (3), an O-ring (4) being arranged between said drain (2) and underdrain (3), said drain (2) having a top flange (5) abutting against a top surface (6) of the bottom of the sink (7).

5. A draining device, according to claim 1, **characterized in that** said underdrain element (3) comprises a bottom flange (8) abutting against the bottom surface (9) of the sink bottom, a gasket (10) being arranged therebetween; a screw member (11) clamping said drain (2) to said underdrain (3), said screw member housing therein a stem (12) of a closing plug (13), an O-ring (14) being arranged therebetween, said plug (13) having a disc element (15) including a sealing O-ring (16) providing a closing or sealing relationship on the drain (2) and top bowl (17) having a radial opening.

6. A draining device, according to claim 1, **characterized in that** said underdrain element (3) comprises two radially extending outlets, a top outlet (18) and a bottom outlet (19); said top outlet (18) being coupled to a top elbow (20), and said bottom outlet (19) being coupled to a bottom elbow (21) through respective sealing gaskets (22 and 23).

7. A draining device, according to claim 1, **characterized in that** said top elbow (20) is coupled to an overflow tube (24), and said bottom elbow (21) is coupled to a flow tube (25), through respective sealing gaskets (26 and 27); said overflow tube (24) being coupled to the flow tube (26) through a top fitting (28), thereabove said overflow tube (24) comprises an opening (29) closed by a casing (30).

8. A draining device, according to claim 1, **characterized in that** the overflow system operates based on the communicating vessel principle, said overflow system including a drain which is adjustable in height and can be fitted to different thickness sinks, while always providing a tightness relationship between

said drain and underdrain, said device being adapted to be adjusted on the width and height of the sink, said adjustment being performed by cutting to a target length said elbows (20 and 21) and tubes (24 and 25) respectively.

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9. A draining device, according to claim 1, **characterized in that**, independently from the adjustment of the drain with respect to the underdrain, that is independently from the sink thickness changing from a minimum to a maximum thickness, said drain is so formed as to allow, with the being in an open condition, the tube (20) to be fully emptied whereas, with the plug being in a closed condition, the disc (15) prevents a water flow from arriving at the underdrain bottom (31).

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10. A draining device, according to claim 1, **characterized in that**, with said plug in said closed condition, said radial opening of the top bowl (17) allows water to flow into the top elbow (20) of the overflow system, and as the sink is fully filled-in, water continuing to raise through the overflow tube (24) as far as the sink water level exceeds the position of the top fitting (28), and then water in the overflow tube (24) flowing through the top fitting (28) into the outlet tube (25) and from said tube (25) into the bottom elbow (21) to be discharged into the bottom (31) of the underdrain element and into an outlet tube.

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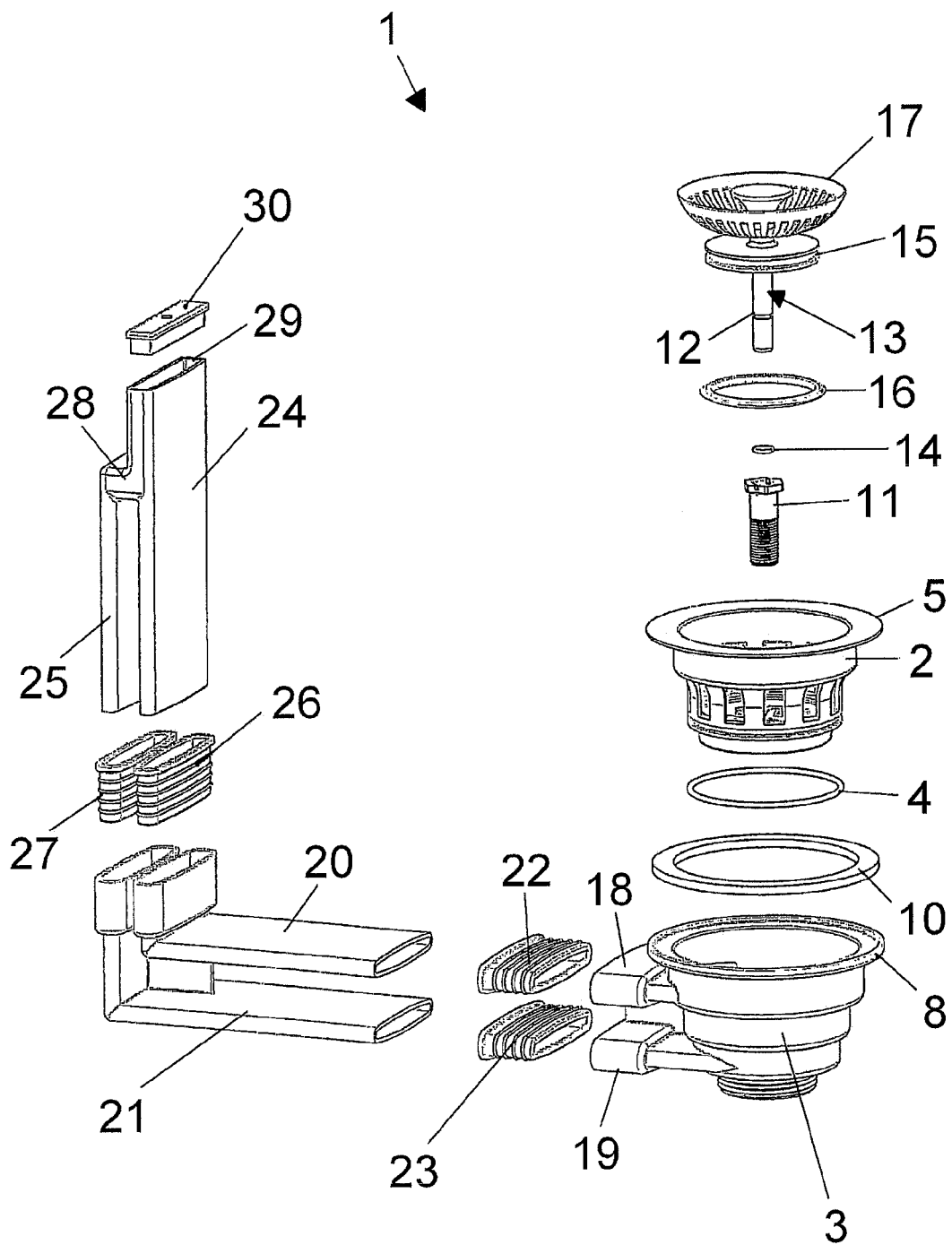


FIG. 1

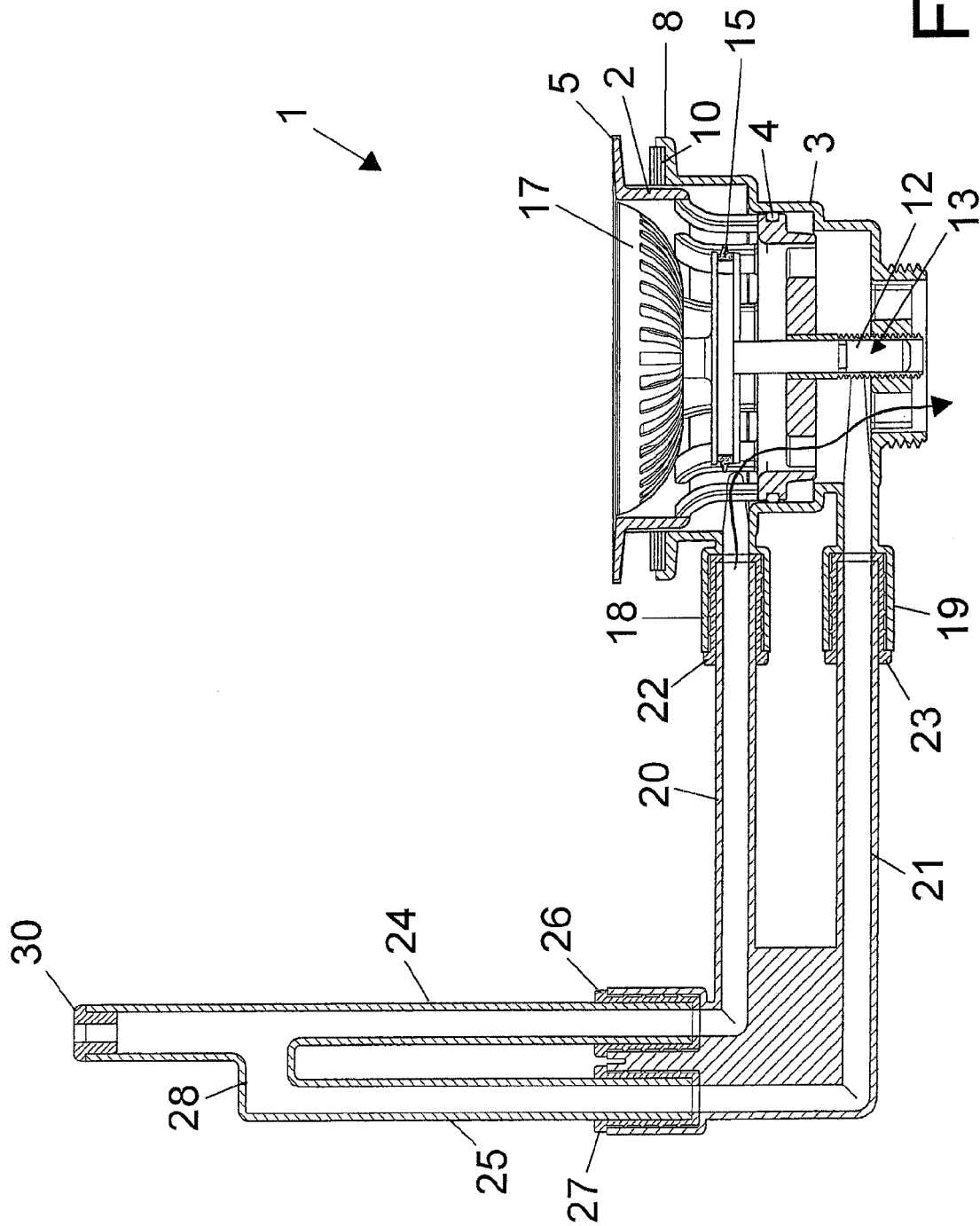
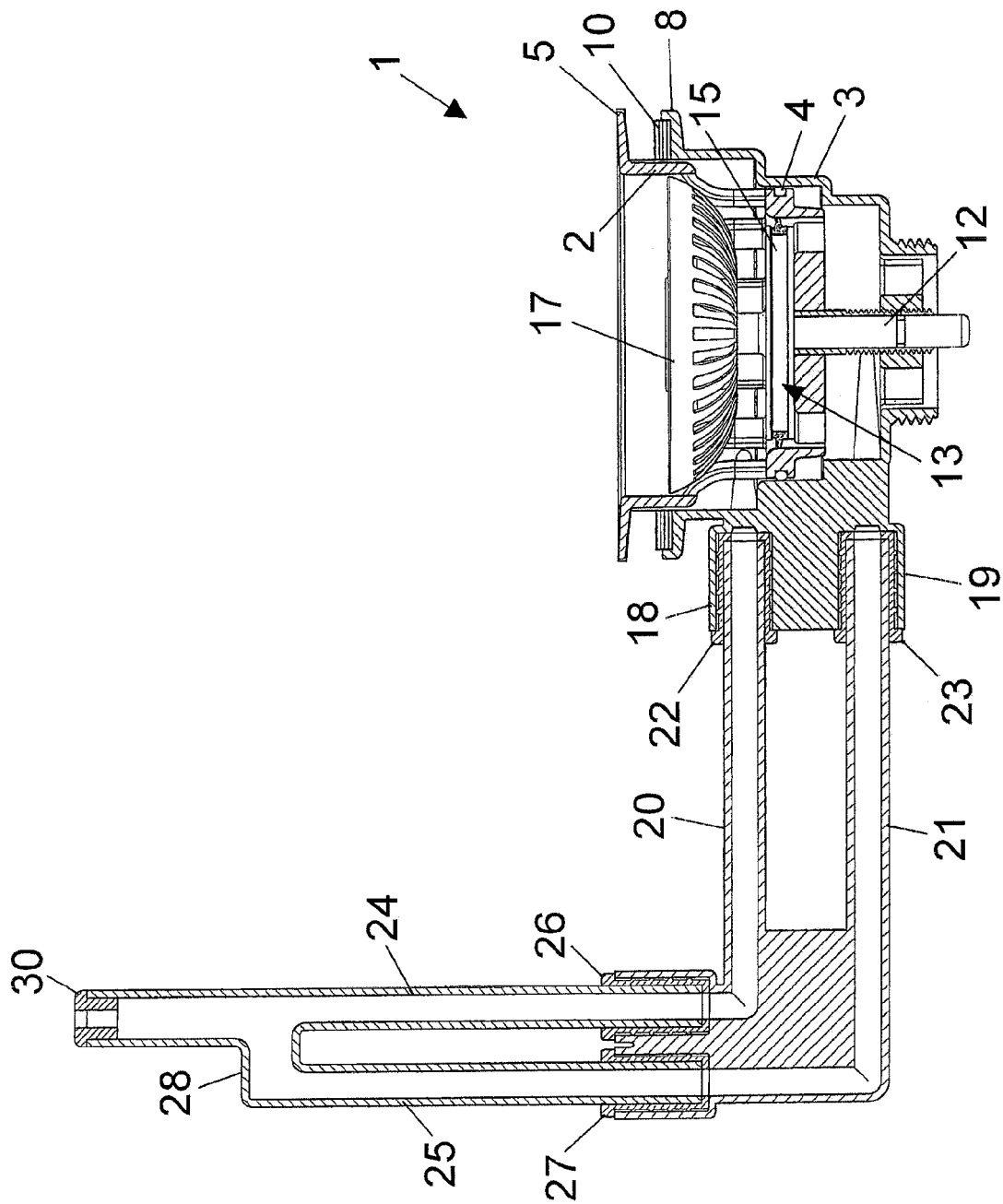
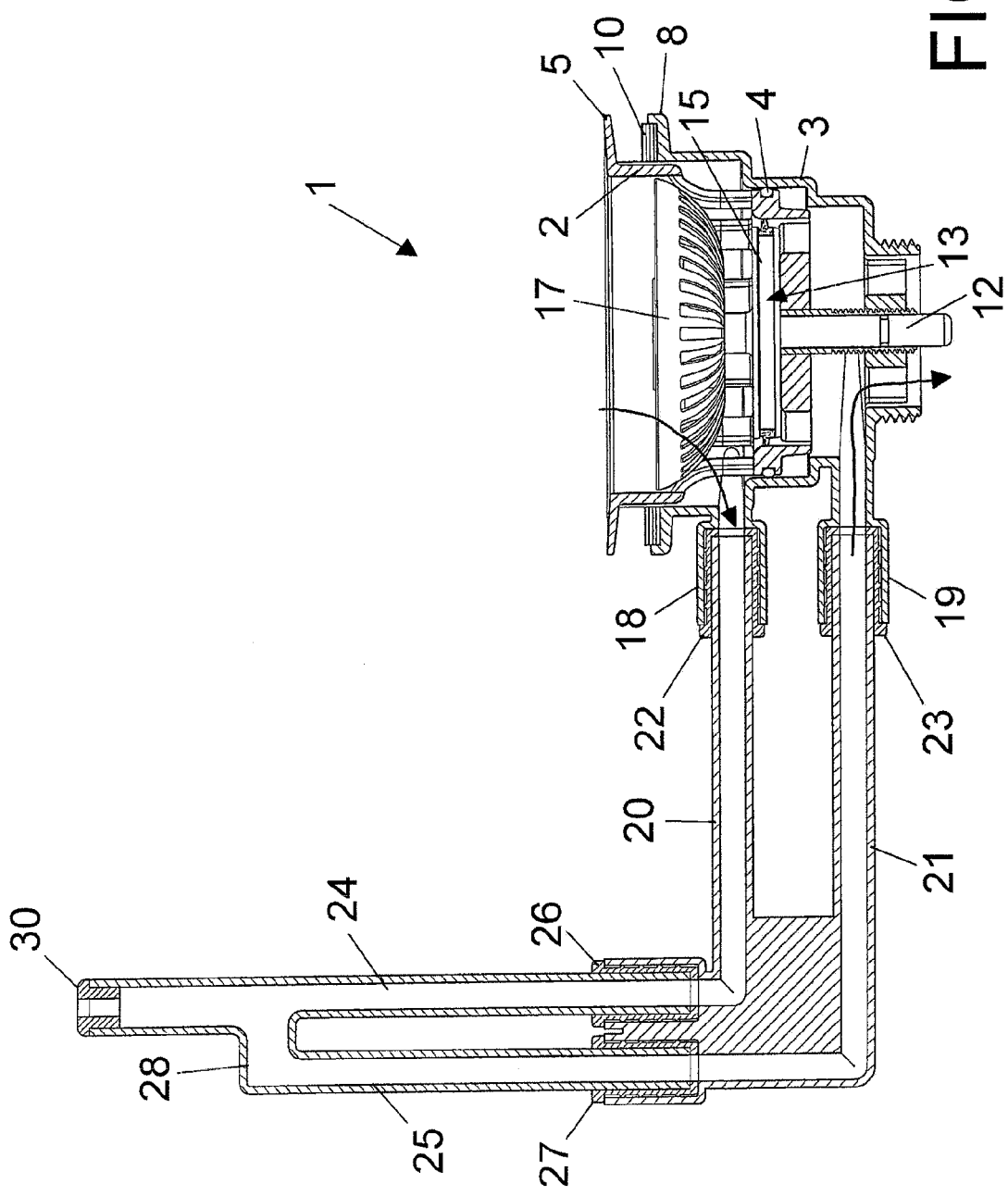
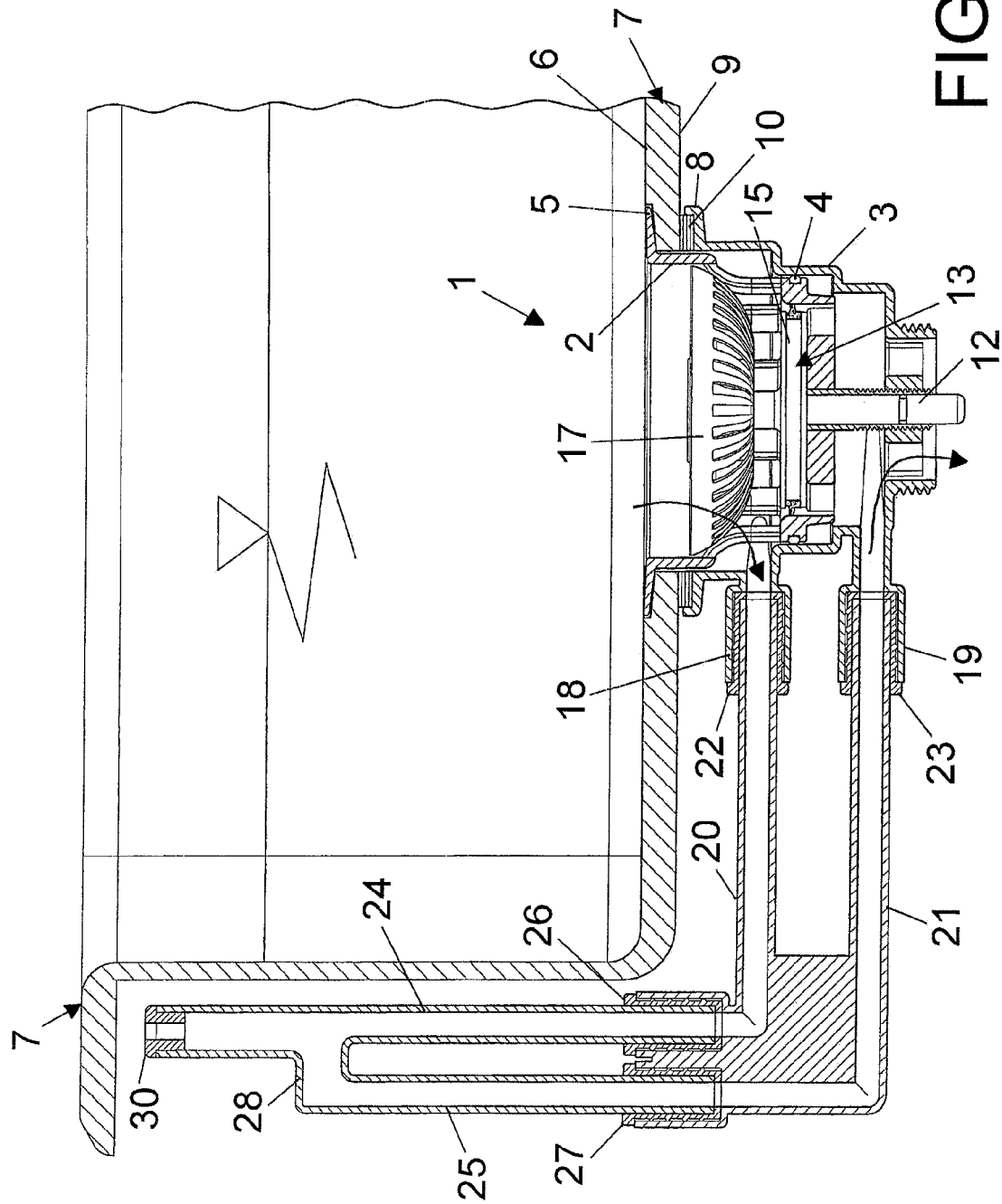


FIG. 2









EUROPEAN SEARCH REPORT

Application Number
EP 13 16 1270

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	EP 2 045 403 A1 (GEBERIT TECHNIK AG [CH] GEBERIT INT AG [CH]) 8 April 2009 (2009-04-08) * the whole document *	1-10	
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Y	EP 0 615 025 A1 (LIRA SPA [IT]) 14 September 1994 (1994-09-14) * figure 1 *	2	
Y	WO 2004/100742 A1 (MCALPINE & CO LTD [GB]; MCALPINE JAMES KENNETH [GB]) 25 November 2004 (2004-11-25) * figure 2 *	2	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 July 2013	Examiner Horst, Werner
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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EPO FORM 1503 03/02 (P04001)

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

EP 13 16 1270

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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