



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
21.12.2022 Bulletin 2022/51

(51) International Patent Classification (IPC):
E03C 1/04 (2006.01)

(21) Application number: **22163876.0**

(52) Cooperative Patent Classification (CPC):
E03C 1/0403; E03C 1/0401; E03C 2201/30

(22) Date of filing: **23.03.2022**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(30) Priority: **17.06.2021 GB 202108688**

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(54) **PLUMBING FITTING**

(57) A plumbing fitting mountable on a surface, the plumbing fitting comprising:
a body housing at least partially at least one fluid handling component having an inlet for receiving an inlet water flow;
an inlet waterway for conveying the inlet water flow to

the inlet of the fluid handling component, the inlet waterway being connectable to a water supply pipe; and
an isolation valve disposed within the inlet waterway at a location downstream of the water supply pipe and upstream of the inlet for receiving the inlet water flow.

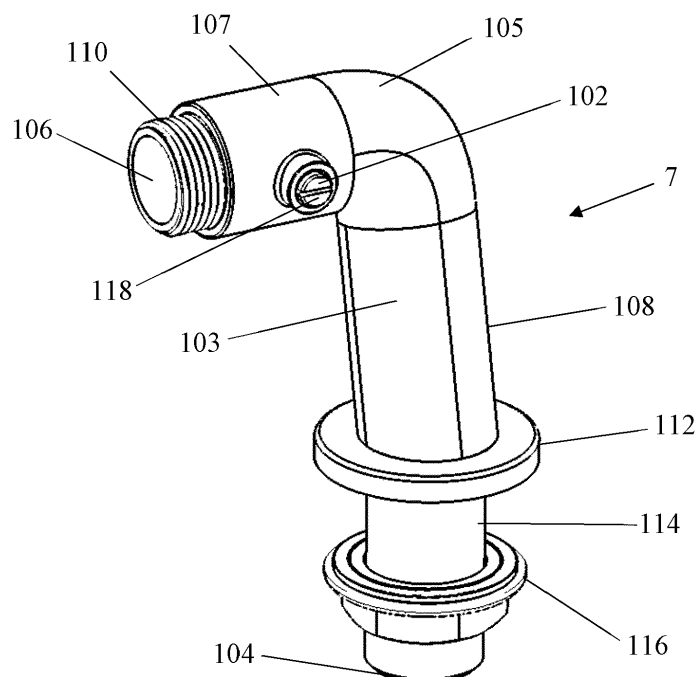


Figure 2

Description

[0001] This disclosure relates to a plumbing fitting, e.g. an ablutionary fitting. More particularly, the disclosure relates to a plumbing fitting mountable on a surface near a bath tub or a sink.

[0002] It is known to mount a tap or a faucet on a surface, e.g. a deck, near a bath tub or a sink. The tap is arranged to deliver fluid into the bath tub or the sink. The tap is adapted to be fitted to one or more fluid supply pipes located at least in part behind the surface. A user can operate the tap to control fluid flow rate and/or temperature into the bath tub or the sink. Such a tap may be termed a deck-mounted tap or a deck-mounted faucet.

[0003] An isolation valve is typically present in the fluid supply pipe(s) to which the deck-mounted tap is connected. The isolation valve is required to allow fluid flow to be cut off, e.g. during maintenance or replacement of the tap. However, the isolation valve is typically not easily accessible, since it may be located behind the surface, e.g. beneath the deck. Accessing the isolation valve may involve, for example, removing a bath panel.

[0004] A first aspect provides a plumbing fitting mountable on a surface, the plumbing fitting comprising:

a body housing at least partially at least one fluid handling component having an inlet for receiving an inlet water flow;

an inlet waterway for conveying the inlet water flow to the inlet of the fluid handling component, the inlet waterway being connectable to a water supply pipe; and

an isolation valve disposed within the inlet waterway at a location downstream of the water supply pipe and upstream of the inlet for receiving the inlet water flow.

[0005] When the plumbing fitting is mounted on the surface, the isolation valve is located in front of the surface meaning that the isolation valve can be readily accessed, e.g. for maintenance, servicing or repair.

[0006] The isolation valve is operable to allow or prevent fluid flow along the inlet waterway. The isolation valve may be manually operable. The isolation valve may comprise a ball valve.

[0007] The surface may be a deck, e.g. adjacent a bath tub or a sink.

[0008] The plumbing fitting may comprise a tap or a faucet.

[0009] The fluid handling component may comprise a valve and/or a diverter.

[0010] In an example implementation, the fluid handling component may comprise a valve.

[0011] The valve may comprise:

a valve chamber having a valve chamber inlet for receiving the inlet water flow and a valve chamber outlet for an outlet water flow to pass through; and

a valve member operable to control fluid flow through the valve chamber.

[0012] The valve may be a mixer valve, e.g. a thermostatic mixer valve.

[0013] The inlet waterway may be disposed at least partially within a tubular member. A first end of the tubular member may be adapted to be connected to the water supply pipe. A second end of the tubular member may be adapted to be connected to the body. For instance, the second end of the tubular member may be threadably connectable to the body.

[0014] The tubular member may be permanently attached to the body. The tubular member may be integrally formed with the body.

[0015] The inlet waterway may include a bend. The inlet waterway may comprise a first straight section upstream of the bend and a second straight section downstream of the bend. The tubular body may be an elbow component.

[0016] The isolation valve may be disposed upstream of the bend, at the bend or downstream of the bend.

[0017] In an example implementation, the isolation valve may be disposed in the second straight section of the tubular body, e.g. the elbow component.

[0018] The plumbing fitting may comprise one or more further inlet waterways for conveying an inlet water flow to an inlet of the fluid handling component, each further inlet waterway being connectable to a water supply pipe.

[0019] In one implementation, the plumbing fitting may comprise: a valve chamber having a first valve chamber inlet for receiving a first inlet water flow and a second valve chamber inlet for receiving a second inlet water flow and a valve chamber outlet for an outlet water flow to pass through; and a valve member operable to control fluid flow through the valve chamber. Hence, the outlet water flow may constitute a mixed flow having a desired temperature and flow rate.

[0020] A second aspect provides a plumbing system comprising:

a plumbing fitting according to the first aspect, the plumbing fitting being mounted on a surface and connected to one or more water supply pipes.

[0021] The plumbing fitting has an isolation valve disposed within the inlet waterway at a location accessible from in front of the surface. Hence, the isolation valve can be readily accessed, e.g. for maintenance, servicing or repair.

[0022] The plumbing fitting or one or more fluid delivery devices downstream thereof may be arranged to dispense water into a bath tub or a sink.

[0023] The plumbing fitting may be connected to a first water supply pipe arranged to convey cold water and a second water supply pipe arranged to convey hot water.

[0024] The plumbing system may be an ablutionary system.

[0025] One or more of the water supply pipes may be located at least in part behind the surface. One of more

of the water supply pipes may protrude from the surface.

[0026] The skilled person will appreciate that except where mutually exclusive, a feature or parameter described in relation to any one of the above aspects may be applied to any other aspect. Furthermore, except where mutually exclusive, any feature or parameter described herein may be applied to any aspect and/or combined with any other feature or parameter described herein.

[0027] Embodiments will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a mixer tap adapted to be mounted on a surface;

Figure 2 shows a perspective view of an elbow of the mixer tap of Figure 1 with an isolation valve disposed therein;

Figure 3 shows a cut-section of the elbow of Figure 2 with the isolation valve in an open configuration;

Figure 4 shows a cut-section of the elbow of Figure 2 with the isolation valve in a closed configuration;

Figure 5 shows an exploded view of the elbow of Figure 2;

Figure 6 shows a top section view of the elbow of Figure 2 with the isolation valve in an open configuration;

Figure 7 shows a top section view of the elbow of Figure 2 with the isolation valve in a closed configuration;

Figure 8 shows a plumbing system comprising a plumbing fitting according to the present disclosure; and

Figure 9 shows another plumbing system comprising a plumbing fitting according to the present disclosure.

[0028] Figure 1 shows a mixer tap or faucet 1 adapted to be mounted on a surface (not shown). Typically, the surface may be a substantially horizontal surface adjacent a bath tub or a sink. Such a surface may be termed a deck. The deck may extend at least partially around a perimeter of the bath tub or the sink.

[0029] The mixer tap 1 comprises a mixer valve body 2 in the form of a bar valve. A thermostatic mixer valve (not shown) is disposed within the mixer valve body 2. The thermostatic mixer valve (not shown) comprises a valve chamber having a first valve chamber inlet for receiving a first inlet water flow and a second valve chamber inlet for receiving a second inlet water flow and a valve chamber outlet for an outlet water flow to pass through. A valve member is operable to control fluid flow through the valve chamber. The outlet water flow constitutes a mixed flow having a desired temperature and flow rate.

[0030] The mixer valve body 2 has a first control knob 3 at a first end and a second control knob 4 at a second end. The first control knob 3 may be configured to enable user control of the temperature of the outlet water flow

and the second control knob 4 may be configured to enable user control of the flow rate of the outlet water flow or vice versa.

[0031] A spout 5 protrudes forward from a central portion of the mixer valve body 2 and provides fluid communication from the valve chamber outlet to a spout outlet. When the mixer tap 1 is mounted on a surface such as a deck, the spout outlet may be arranged to emit water into a bath tub or a sink.

[0032] A first elbow component 6 is adapted at a first end to be connected to a first water supply pipe (not shown). At a second end, the first elbow component 6 is connected to the mixer valve body 2. The second end of the first elbow component 6 may be threadably connected to the mixer valve body 2. The first elbow component 6 provides at least in part a first inlet waterway providing fluid communication from the first water supply pipe to the first valve chamber inlet. The first elbow component 6 has a bend at an intermediate point along its length. A first straight section is disposed upstream of the bend and a second straight section is disposed downstream of the bend. As will be described in more detail below, an isolation valve is disposed in the second straight section of the first elbow component 6. The isolation valve is operable to prevent or permit fluid flow along the first inlet waterway.

[0033] A second elbow component 7 is adapted at a first end to be connected to a second water supply pipe (not shown). At a second end, the second elbow component 7 is connected to the mixer valve body 2. The second end of the second elbow component 7 may be threadably connected to the mixer valve body 2. The second elbow component 7 provides at least in part a second inlet waterway providing fluid communication from the second water supply pipe to the second valve chamber inlet. The second elbow component 7 has a bend at an intermediate point along its length. A first straight section is disposed upstream of the bend and a second straight section is disposed downstream of the bend. As will be described in more detail below, an isolation valve is disposed in the second straight section of the second elbow component 7. The isolation valve is operable to prevent or permit fluid flow along the second inlet waterway.

[0034] The first elbow component 6 and the second elbow component 7 are substantially identical. For conciseness, only the second elbow component 7 will be described in detail. It will be appreciated, however, that the disclosure relating to the second elbow component 7 applies equally to the first elbow component 6.

[0035] Referring to Figures 2 to 7, the second elbow component 7 constitutes a tubular member 108 having a first end 104 and a second end 106. A second inlet waterway 120 extends through the tubular member 108 from the first end 104 to the second end 106.

[0036] The first end 104 is adapted to be connected to a water supply pipe (not shown). The second end 106 has a threaded portion for connecting the second elbow component 7 to the mixer valve body 2.

[0037] The second elbow component 7 comprises a bend 105. The bend 105 is located between a first straight section 103 located upstream of the bend 105 and a second straight section 107 located downstream of the bend 105.

[0038] An isolation valve in the form of a ball valve 101 is arranged in the second straight section 107 and is operable to prevent or allow flow along the second inlet waterway 120.

[0039] The ball valve 101 includes a ball 121 with an aperture 122 therethrough. The ball 121 is sealed within the second inlet waterway 120 by two o-ring seals 124, 126. A spigot 102 extends from the ball 121 through a wall of the second elbow component 7 so that an end of the spigot 102 is accessible by a user. The end of the spigot 102 is provided with a groove 118 for receiving a tip of a screwdriver or the like. The spigot 102 is operably connected to the ball 121 by a spigot tip 136 received in a slot 138 in the ball 121.

[0040] In use, a screwdriver can be used to turn the spigot 102 and hence rotate the ball 121 within the second inlet waterway 120. The ball 121 can be rotated between an open configuration (shown in Figures 3 and 6), which allows fluid flow along the second inlet waterway 120 and a closed configuration (shown in Figures 4 and 7), which prevents fluid flow along the second inlet waterway 120.

[0041] In the open configuration, the aperture 122 through the ball 121 is aligned with the second inlet waterway 120. Hence, fluid can flow along the second inlet waterway 120.

[0042] In the closed configuration, no part of the aperture 122 through the ball 121 is aligned with the second inlet waterway 120. Consequently, fluid is prevented from flowing along the second inlet waterway 120.

[0043] A pair of o-ring seals 132, 134 are disposed around the spigot to provide a fluid-tight seal within the second elbow component 7. A clip 130 is arranged to hold the spigot in place.

[0044] The second elbow component 7 is configured to be mounted on a surface such as a deck in any suitable manner. When mounted on the surface, the surface may be disposed between a first flange 112 and a second flange 116. The first flange 112 and the second flange 116 are located towards the first end 104 of the second elbow component 7.

[0045] Figure 8 shows a plumbing system 800 comprising a tap 801 according to the present disclosure, e.g. the tap 1, arranged to dispense water into a bath tub 802. The tap 801 is mounted on a deck 803 adjacent the bath tub 802. The tap 801 is connected to one or more water supply pipes (not shown). The tap 801 has one or more isolation valves disposed within one or more inlet waterways at a location accessible from in front of, i.e. above, the deck 803.

[0046] Figure 9 shows another plumbing system 900. The plumbing system 900 comprises a plumbing fitting 901 comprising a tap, e.g. a mixer tap, and a diverter.

The plumbing fitting 901 is arranged to dispense water into a bath tub 902 either via a tap spout 907 or via an overhead shower 904 in fluid communication with the plumbing fitting 901.

[0047] Fluid communication from the plumbing fitting 901 to the overhead shower 904 is provided by a riser tube 905 and an arm 906. The diverter is operable to allow user selection of the mode of dispensing the water, i.e. via the tap spout 907 or the overhead shower 904.

The plumbing fitting 901 is mounted on a deck 903 adjacent the bath tub 902. The plumbing fitting 901 is connected to one or more water supply pipes (not shown). The plumbing fitting 901 has one or more isolation valves disposed within one or more inlet waterways at a location accessible from in front of, i.e. above, the deck 903.

[0048] It will be appreciated that the isolation valve is disposed within the plumbing fitting and is therefore easily accessible, since the isolation valve will be in front of the surface, e.g. deck, on to which the plumbing fitting is mounted. Hence, maintenance, servicing and replacement activities may be less disruptive.

[0049] In one example, the plumbing fitting may be mounted on to a deck adjacent a bath tub. By having the isolation valve disposed within the plumbing fitting as disclosed herein, any and all servicing, maintenance and/or replacement activity may be performed above the bath tub, without having to remove and/or damage bath panels to access the underside of the bath tub where isolation valves are normally found.

[0050] While the invention has been described with reference to certain specific embodiments, various modifications will be apparent to the person skilled in the art without departing from the scope of the application.

[0051] It will be understood that the invention is not limited to the embodiments above-described and various modifications and improvements can be made without departing from the concepts described herein. Except where mutually exclusive, any of the features may be employed separately or in combination with any other features and the disclosure extends to and includes all combinations and sub-combinations of one or more features described herein.

Claims

1. A plumbing fitting mountable on a surface, the plumbing fitting comprising:

- a body housing at least partially at least one fluid handling component having an inlet for receiving an inlet water flow;
- an inlet waterway for conveying the inlet water flow to the inlet of the fluid handling component, the inlet waterway being connectable to a water supply pipe; and
- an isolation valve disposed within the inlet waterway at a location downstream of the water

- supply pipe and upstream of the inlet for receiving the inlet water flow.
2. A plumbing fitting according to claim 1, wherein the isolation valve comprises a ball valve. 5
 3. A plumbing fitting according to claim 1 or claim 2, wherein the plumbing fitting comprises a tap or a faucet.
 4. A plumbing fitting according to claim 1, claim 2 or claim 3, wherein the fluid handling component comprises a valve. 10
 5. A plumbing fitting according to any one of the preceding claims, wherein the fluid handling component comprises a diverter. 15
 6. A plumbing fitting according to claim 4, or claim 5 when dependent on claim 4, wherein the valve comprises: 20
 - a valve chamber having a valve chamber inlet for receiving the inlet water flow and a valve chamber outlet for an outlet water flow to pass through; and 25
 - a valve member operable to control fluid flow through the valve chamber.
 7. A plumbing fitting according claim 4, claim 5 when dependent on claim 4, or claim 6, wherein the valve comprises a mixer valve, e.g. a thermostatic mixer valve. 30
 8. A plumbing fitting according to any one of the preceding claims, wherein the inlet waterway is disposed at least partially within a tubular member. 35
 9. A plumbing fitting according to claim 9, wherein a first end of the tubular member is adapted to be connected to the water supply pipe and a second end of the tubular member is adapted to be connected to the body. 40
 10. A plumbing fitting according to any one of the preceding claims, wherein the inlet waterway includes a bend. 45
 11. A plumbing fitting according to claim 10, wherein the isolation valve is disposed upstream of the bend, at the bend or downstream of the bend. 50
 12. A plumbing fitting according to any one of the preceding claims comprising one or more further inlet waterways for conveying an inlet water flow to an inlet of the fluid handling component, each further inlet waterway being connectable to a water supply pipe. 55
 13. A plumbing fitting according to claim 12, wherein the fluid handling component comprises a valve comprising: a valve chamber having a first valve chamber inlet for receiving a first inlet water flow and a second valve chamber inlet for receiving a second inlet water flow and a valve chamber outlet for an outlet water flow to pass through; and a valve member operable to control fluid flow through the valve chamber.
 14. A plumbing system comprising: 10
 - a plumbing fitting according to any one of claims 1 to 13, the plumbing fitting being mounted on a surface and connected to one or more water supply pipes.
 15. A plumbing system according to claim 14, wherein: the plumbing fitting or one or more fluid delivery devices downstream thereof is/are arranged to dispense water into a bath tub or a sink; and/or the plumbing fitting is connected to a first water supply pipe arranged to convey cold water and a second water supply pipe arranged to convey hot water.

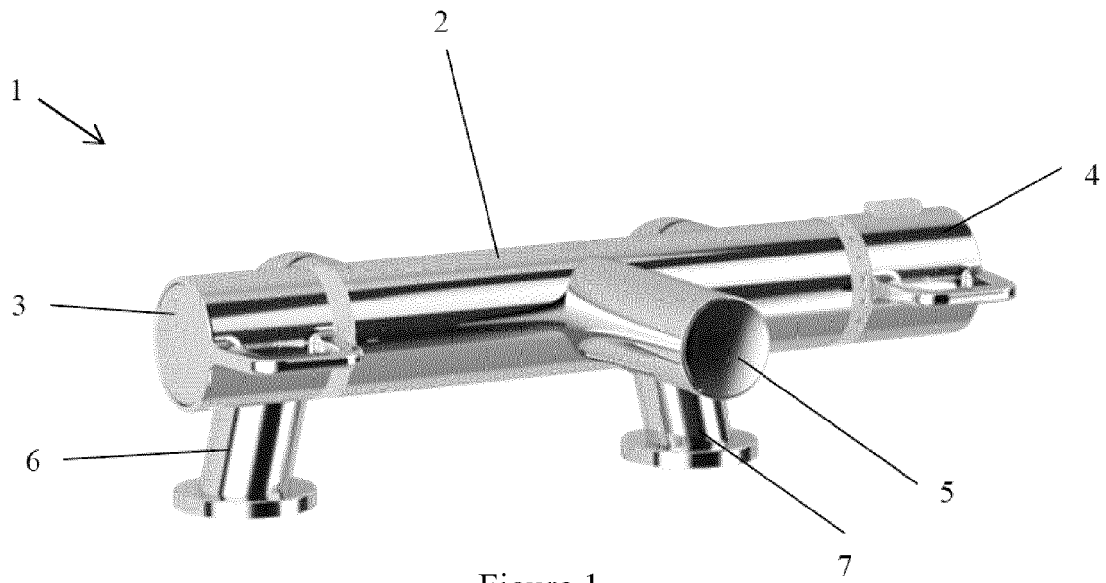


Figure 1

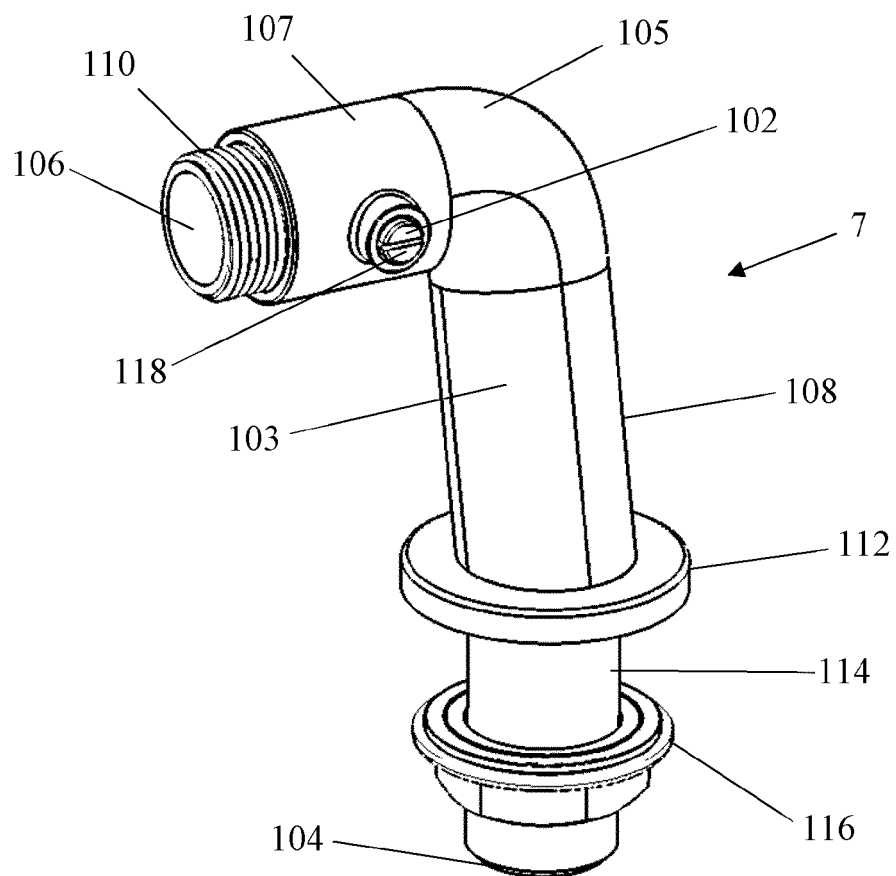


Figure 2

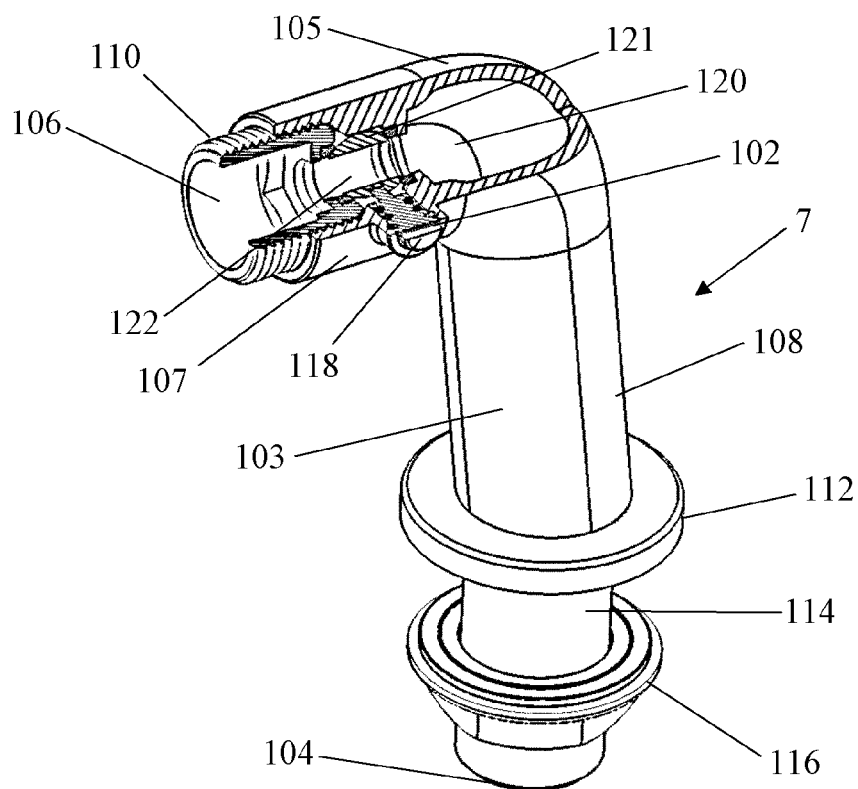


Figure 3

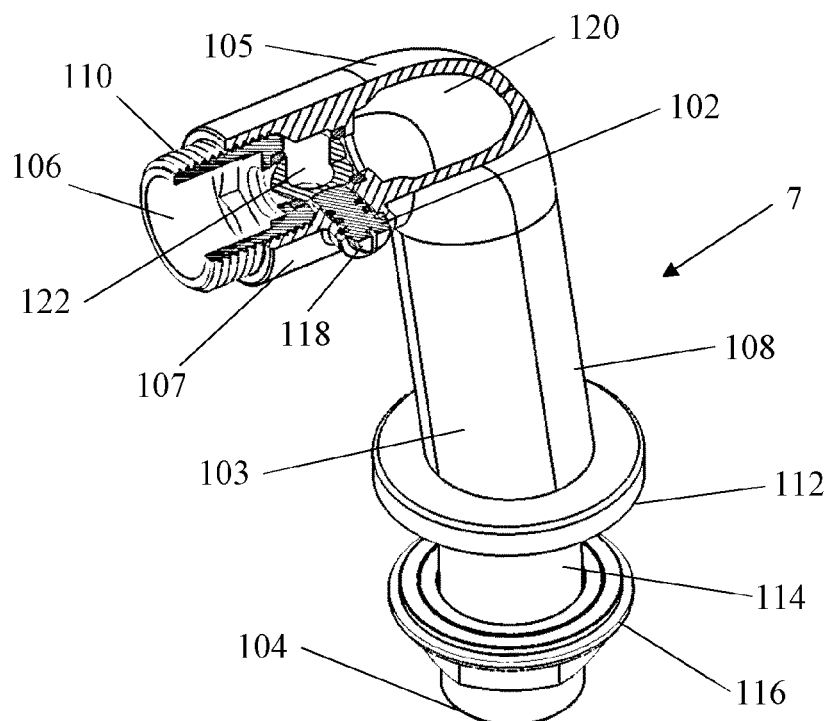


Figure 4

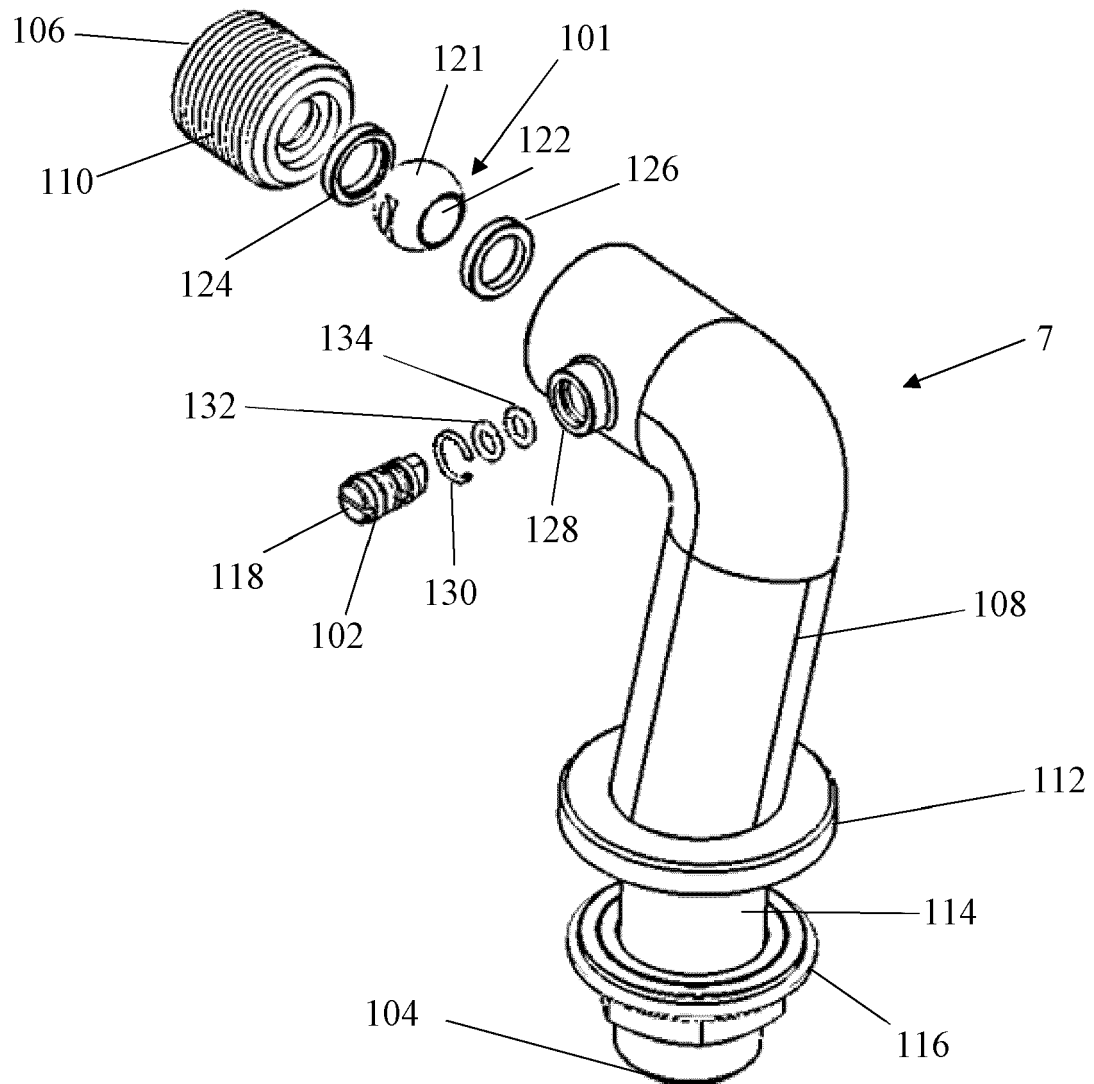


Figure 5

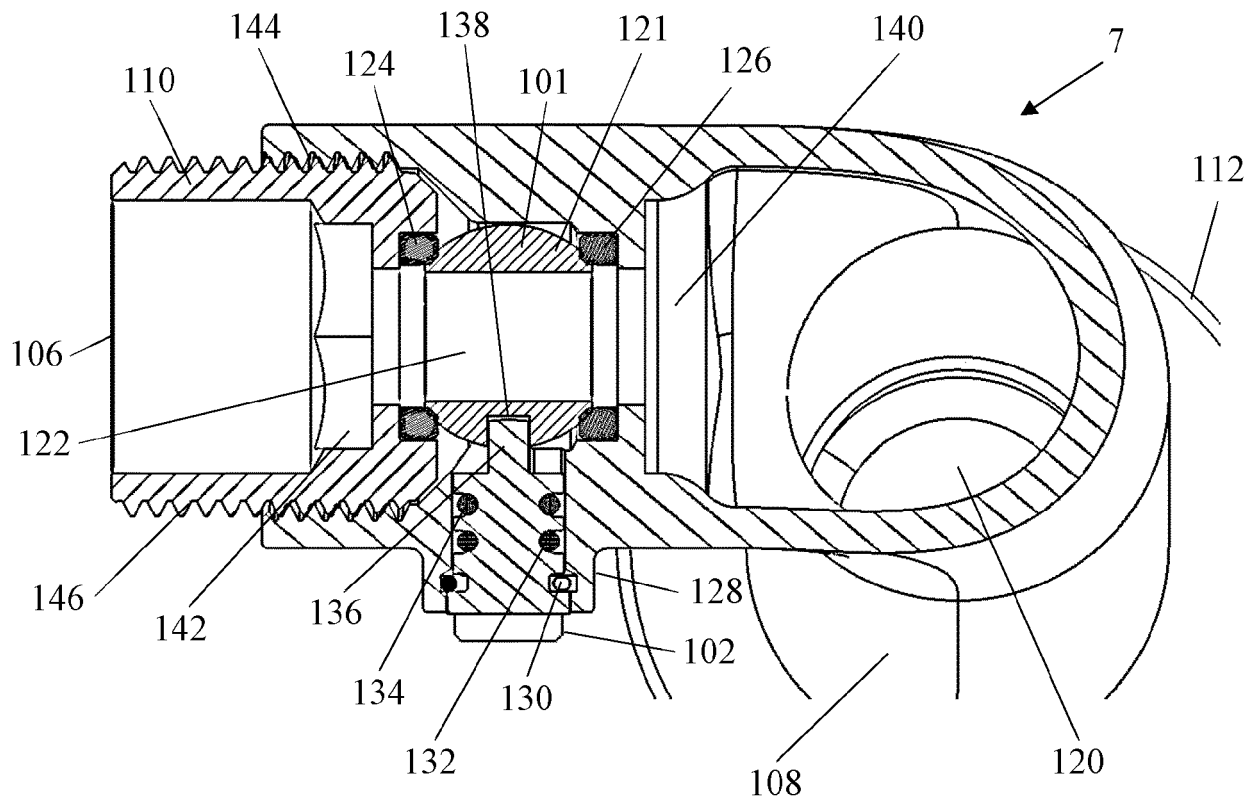


Figure 6

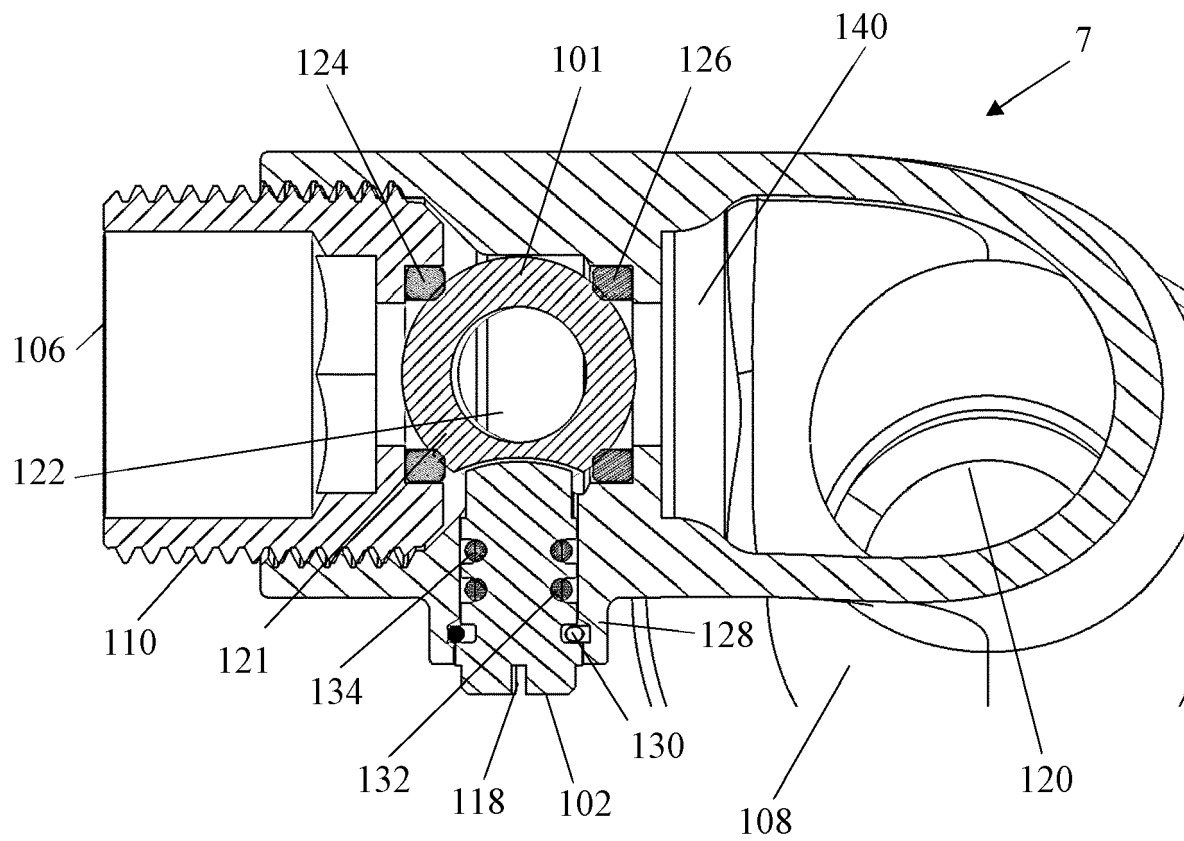


Figure 7

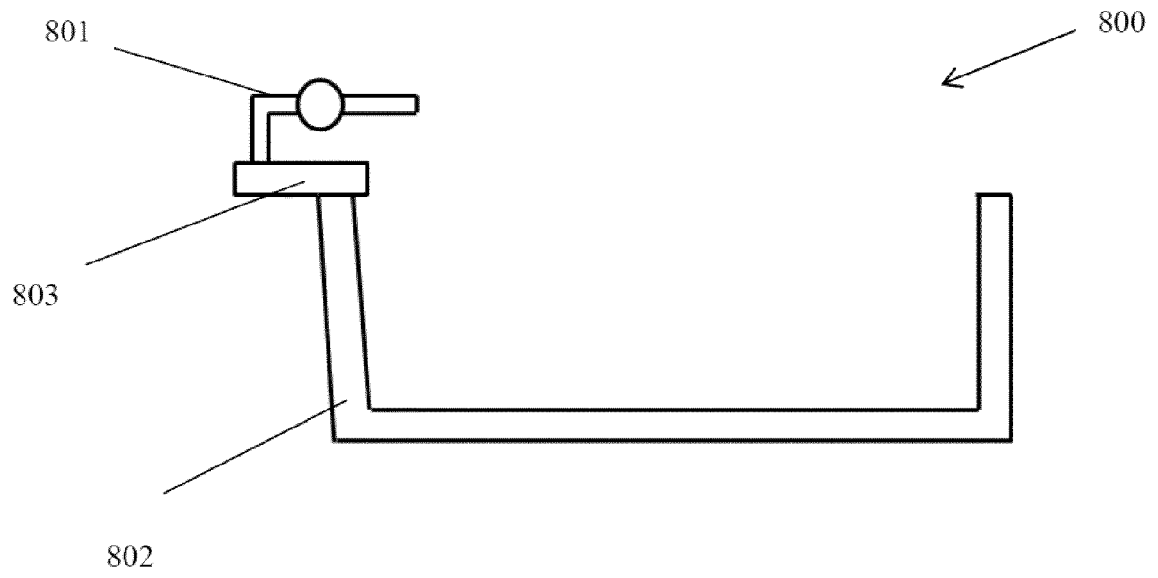


Figure 8

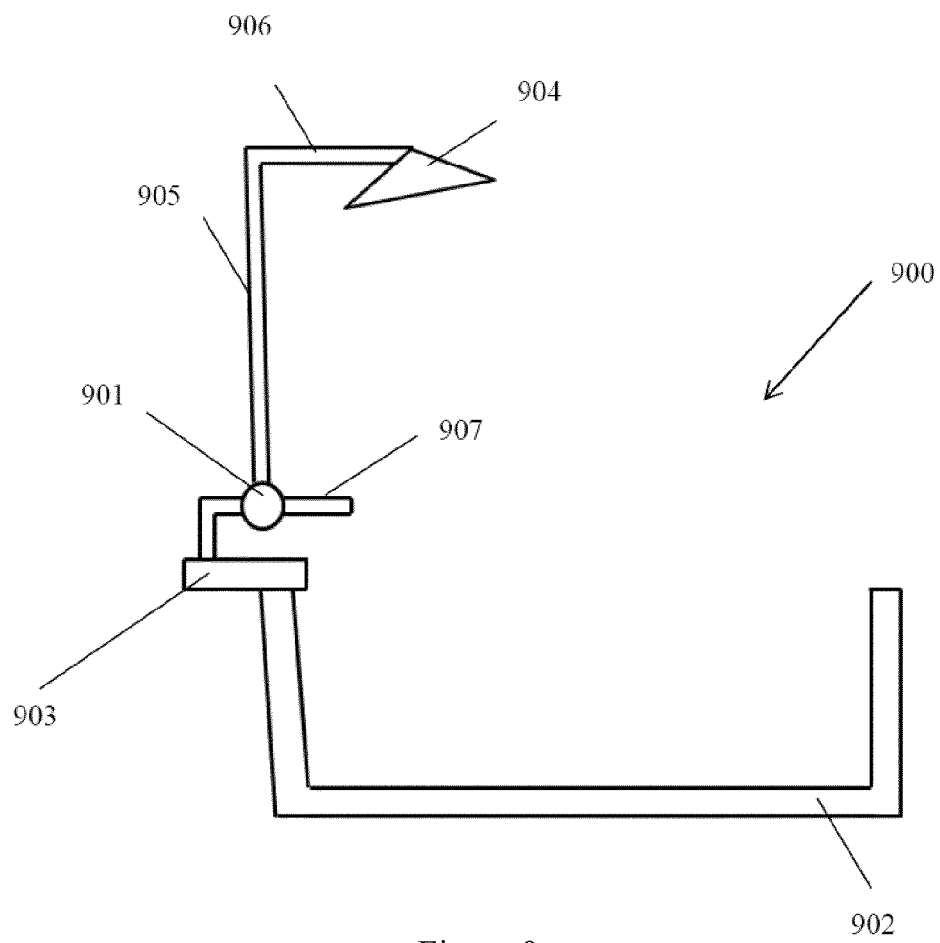


Figure 9



EUROPEAN SEARCH REPORT

Application Number

EP 22 16 3876

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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			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		8 September 2022	Posavec, Daniel
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