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(54) **VERTICAL TAP FASTENING DEVICE**

(57) The invention relates to a vertical tap fastening device, located in one end of a column (6) that houses water pipes (13, 13'), with a main body (1) that houses water conduits (11, 11'), the conduits (11, 11') being intended to connect the water pipes (13, 13') to the corresponding water systems of the general installation, the device comprising attachments (2) that incorporate a levelling element (4) and an opening (3) for fastening to the floor, a watertight container (5) for the installation of the tap (22) in the device, a first adjusting part (7) with a mouth intended for coupling the column (6), and a second adjusting part (8) with a pair of ducts intended to house joints (14) located in the ends of the water pipes (13, 13') of the column (6).

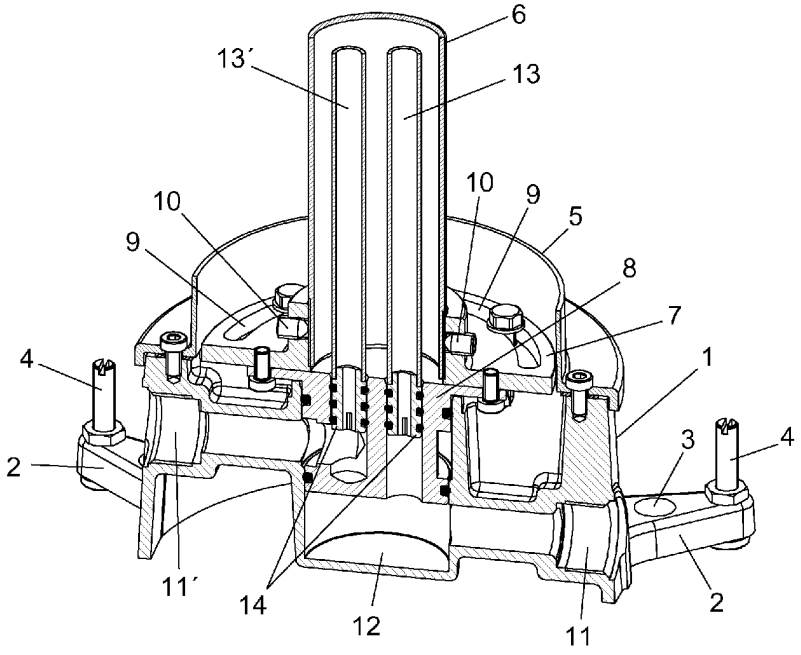

FIG. 3

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a device for fastening a vertical tubular structure to the floor which forms the body of a tap for supplying sanitary water.

[0002] It is especially applicable to the industry of sanitary components.

TECHNICAL PROBLEM TO BE SOLVED AND BACKGROUND OF THE INVENTION

[0003] In the current state of the art, bath tubs are preferably located attached to the corner of a wall and even, if possible, attached to two corners, occupying the entire front part of the room where it is located.

[0004] However, there are situations where it is necessary that the bath tub be separated from the wall, or where, even when attached to the wall, the water pipes cannot be accessed through the wall, but instead they run along the floor.

[0005] In these cases, the tendency is to use taps located in a vertical structure that is installed in the floor where the bath tub rests. This type of installation should have a truly resistant fastening to the floor at the same time that it should allow for easy and effective connection of the water conduits.

[0006] However, the tap is sometimes used as a support element of the bath tub, despite being a low-resistance fastening that can cause accidents or even water leaks when the connection is mishandled.

[0007] The present invention solves these problems that are not resolved in the present state of the art, having a mechanism for firmly fastening a body or column of the vertical structure of a tap to the floor, at the same time providing a solution to the problem of the connection to the water conduit, such that the problems of leaks and moisture that could be transferred to the floor are minimised.

DESCRIPTION OF THE INVENTION

[0008] With the aim of reaching the objectives and preventing the drawbacks mentioned above, the present invention describes a device for fastening a vertical tap located in one end of a column through which pipes for transporting hot and cold water circulate. The device comprises a main body which has conduits for connecting the water pipes of the column to the water systems of the general installation where the vertical tap is going to be installed.

[0009] The device incorporates a plurality of attachments that protrude from the main body. Each attachment incorporates a levelling device and an opening for fastening to the floor where the vertical tap is going to be installed. This fastening to the floor is carried out by means of chemical anchors that provide a higher resistance to fastening.

[0010] It also incorporates a watertight container with a perimeter flange by means of which it is fastened to the main body, configured to carry out the installation of the tap in the device when it is sectioned. In other words, the device is provided with the closed watertight container and, once fixed to the floor, with the location filled with mortar and tiles placed around it, the watertight container is sectioned, only leaving a small height that is subsequently covered with an adornment. Thus, the access of the column of the tap to the device is enabled and it can be fastened by means of the adjusting parts.

[0011] The device further comprises a sealing stopper that is used prior to the installation of the column, to check leaks during the installation to the water supply network, and it is uninstalled once the watertight container is sectioned for the installation of the column to the device.

[0012] The fastening of the column of the tap to the device is carried out by means of two adjusting parts.

[0013] A first adjusting part has a mouth in which the free end of the column is housed for the coupling thereof.

[0014] A second adjusting part has a pair of ducts in which the ends of the water pipes are housed by means of joints that are incorporated.

[0015] Once the column is coupled to the two adjusting parts, the fastening of the first adjusting part to the column is carried out by means of grub screws, being rigidly connected.

[0016] The fastening of the first adjusting part to the main body is carried out by means of fastening elements that pass through arched grooves. By loosening the grip of the fastening elements, they can slide along the arched grooves, such that the column has the capacity to rotate with respect to the main body in order to be able to adjust the direction of the water pipe of the tap.

[0017] In the bend that forms the cold water conduit to be connected to the duct that connects to the cold water pipe there is a sediment deposit such that particles that may be in the cold water system of the general installation could be retained.

BRIEF DESCRIPTION OF THE FIGURES

[0018] To complement the description of the invention and for the purpose of aiding to better understand the characteristics thereof according to a preferred practical exemplary embodiment thereof, a set of figures is attached in which the following figures has been depicted with an illustrative and non-limiting character:

- Figure 1 shows a perspective view of the fastening device of the invention with an assembled vertical tap and an enlargement showing a way of connecting the tap to the column.
- Figure 2 shows a perspective view of the device of the invention as it is provided in order to be used.
- Figure 3 shows a cross-section perspective view of the device of the invention including part of the col-

umn of the vertical tap also as a cross-section.

- Figure 4 shows a cross-section view of the fastening device in a position of use and anchored to the floor.
- Figure 5 shows a cross-section view of the device of the invention incorporating the watertight container without being sectioned and the sealing stopper.

[0019] A list of the references used in the figures is provided below:

1. Main body,
2. Fastening attachment.
3. Openings.
4. Levelling element.
5. Watertight container.
6. Column.
7. First adjustment part.
8. Second adjustment part.
9. Arched grooves.
10. Grub screws.
11. Cold water conduit.
11'. Hot water conduit.
12. Sediment deposit.
13. Cold water pipe.
13'. Hot water pipe.
14. Joints.
15. Mortar.
16. Waterproofing seal.
17. Tiles.
18. O-rings.
19. Chemical anchor.
20. Floor.
21. Cut.
22. Tap.
23. Sealing stopper.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0020] Figure 1 shows the vertical column (6) with the incorporated tap (22), installed in the fastening device of the invention, but shows neither the water conduits to which it is connected nor the floor (20) where the device is installed.

[0021] As shown in Figure 1, the device is made up of a main body (1) having at least three fastening attachments (2). Each fastening attachment (2) comprises a levelling element (4) which enables the tap to be levelled with absolute precision in terms of verticality even when the surface of the floor (20) in which it is installed has significant irregularities. Furthermore, it also incorporates an opening (3) for the fastening to the floor (20) by means of chemical anchors (19). It should be taken into account that a slight deviation in the seat where the free end of the column (6) is fastened leads to a very steep incline in the upper part that incorporates the tap.

[0022] Figure 1 also shows a cut (21) that represents the connection of the end of the column (6) to the free end of the tap (22).

[0023] Although this connection can be mechanically resolved in different ways, a threaded connection of both ends will be preferably used, which ensures good resistance without externally affecting the design of the assembly.

[0024] As shown in Figure 2, the device includes a watertight container (5), the edge of which extends forming a peripheral flange for mechanical fastening to the main body (1). The watertight container (5) covers and protects the main body (1) during the installation process of the device.

[0025] Figure 3 shows the placement of Figure 1 but with an enlarged cross section that enables the inside of the device and part of the column (6) of the vertical tap (22) to be seen.

[0026] In this Figure 3, the watertight container (5) is already cut to the appropriate measure and fastened by the peripheral flange, leaving the elements for connecting the column (6) to the device uncovered. Furthermore, the column (6) incorporates an adornment adapted to it, such that once the column (6) is installed, the adornment is lowered until it is adjusted on the floor covering the entire fastening device.

[0027] The fact that the watertight container (5) is cut at a certain remaining height is convenient in that it protects the floor in the case that a water leak occurs in the installation, which would end up leaving through the grub screws (10), the watertight container (5) acting as the receptacle until the water overflows, such that the user can visually detect the leak and thus avoid the transfer of moisture to the floor (20).

[0028] The device has a first adjustment part (7) with a mouth where the column (6) of the tap (22) is inserted to be coupled.

[0029] The device also has a second adjusting part (8) that incorporates a pair of ducts that are hydraulically connected to conduits (11, 11') that are fastened to the cold and hot water systems of the general installation. These conduits are intended to receive joints (14) in which the corresponding cold water pipes (13) and hot water pipes (13') housed inside the column (6) end, such that the cold water and hot water connection is taken into account.

[0030] All connections incorporate the corresponding O-rings (18) to prevent hydraulic leaks.

[0031] Once the joints (14) are inserted in the conduits of the second adjusting part (8) to the conduits (11, 11') and the column (6) of the tap (22) is inserted in the mouth of the first adjusting part (7) to be coupled the column (6) is fastened to the first adjusting part (7) by means of threading, locking the assembly with grub screws (10) that, upon tightening, exert pressure on the column (6) and fasten the two parts firmly, preventing the relative movement between both parts.

[0032] Moreover, the first adjusting part (7) incorporates arched grooves (9) to be mechanically fastened to the main body (1) through a fastening element, such as

a screw.

[0033] Thus, once the column (6) is fastened to the first adjusting part (7), in the case of needing to position the tap (22) at an angle to modify the orientation of the water pipe, the first adjusting part (7) can be rotated enabling the fastening elements to slide along the arched grooves (9) until, having found the desired position, they definitively tighten the fastening elements in order to lock the movement with respect to the main body (1).

[0034] Furthermore, in the bend that causes the connection of the cold water conduit (11) to the cold water pipe (13) of the column (6) a cavity is formed that serves as a sediment deposit (12) that prevents particles dragged by the water from being able to block delicate parts of the tap (22).

[0035] This sediment deposit has a special function during the process prior to installation wherein the device in question has a sealing stopper (23) and it is subjected, after connecting the water inlets of the general installation, to different sealing tests to verify that there are no leaks. Subsequently, said stopper (23) is removed, the watertight container (5) is sectioned and the column (6) is then installed with the help of the adjusting parts (7, 8).

[0036] During the normal use of the device, the deposit (12) is not essential, since the water comes properly filtered, although it is indeed useful in the phase prior to installation in order to collect the sediment, both for the cold water and hot water, as indicated above.

[0037] To complete the description of the present invention, how the fastening of the device in the floor (20) is carried out is described below, as represented in Figure 4 in detail. As such, once the device is positioned and aligned horizontally by means of the levelling elements (4), for which a level that is found in the base of the watertight container (5) should be used, holes are made in the floor (20) on which the openings (3) of the fastening attachments (2) are positioned and chemical anchors (19) are inserted in the floor through the openings (3). The space around the device is then filled with mortar (15), flooding it and only leaving the watertight container (5) open to the air. Subsequently, a waterproofing seal (16) and the corresponding tiles (17) around the watertight container (5) are installed. Then the base of the watertight container (5) is cut at a height that protrudes approximately 10 millimetres from the tiles in order to prevent water from being able to enter from the outside and in turn being able to easily detect a possible leak that overflows from the container (5). Subsequently, the sealing stopper (23) is disassembled and the vertical tap (22) is then installed as described above, inserting the column (6) and the joints (14) of the water pipes (13, 13') in the adjusting parts (7, 8). Lastly, the adornment is positioned placed on the column (6) to completely cover the device.

[0038] It must be understood that the present invention should not be taken to be limited to the embodiment herein described. Other arrangements may be carried out by those skilled in the art based on the present description. Accordingly, the scope of the invention is defined by the following claims.

Claims

1. A vertical tap fastening device located in one end of a column (6) that houses a pipe for transporting cold water (13) and another pipe for hot water (13'), comprising a main body (1) in which a cold water conduit (11) and a hot water conduit (11') are housed, the conduits (11, 11') being intended to connect on one end the corresponding water pipes (13, 13') and, on the other end, the corresponding water systems of the general installation where the vertical tap (22) is going to be installed, such that the device is **characterised in that** it comprises:

   - a plurality of attachments (2) that protrude from the main body (1), where each attachment (2) incorporates a levelling element (4) and an opening (3) for fastening to the floor intended to receive the vertical tap (22),
   - a watertight container (5) that incorporates a perimeter flange for fastening to the main body (1), configured to carry out the installation of the tap (22) in the device when it is sectioned,
   - a first adjustment part (7) with a mouth intended to house the free end of the column (6) for the coupling thereof, and
   - a second adjustment part (8) that incorporates a pair of ducts intended to house joints (14) located in the ends of the water pipes (13, 13') of the column (6),

   such that:

   - the fastening of the column (6) to the device is carried out by means of threading and it is locked by means of grub screws (10) that pass through the first adjustment part (7),
   - the fastening of the first adjustment part (7) to the main body (1) is carried out by means of fastening elements that pass through arched grooves (9) that enable radial adjustment of the water pipe of the tap (22) with respect to the main body (1), and
   - the connection of the cold water conduit (11) to the duct of the second adjustment part (8) has a bulge for the sediment deposit (12).

2. The vertical tap fastening device, according to claim 1, **characterised in that** the fastening to the floor (20) through the openings (3) is carried out by means of chemical anchors (19), providing a higher resistance to fastening.

3. The vertical tap fastening device, according to claim 1, **characterised in that** it comprises a sealing stop-

per (23) for checking leaks once the water conduits (11, 11') are connected to the water supply network and prior to sectioning the watertight container to proceed to install the column (6).

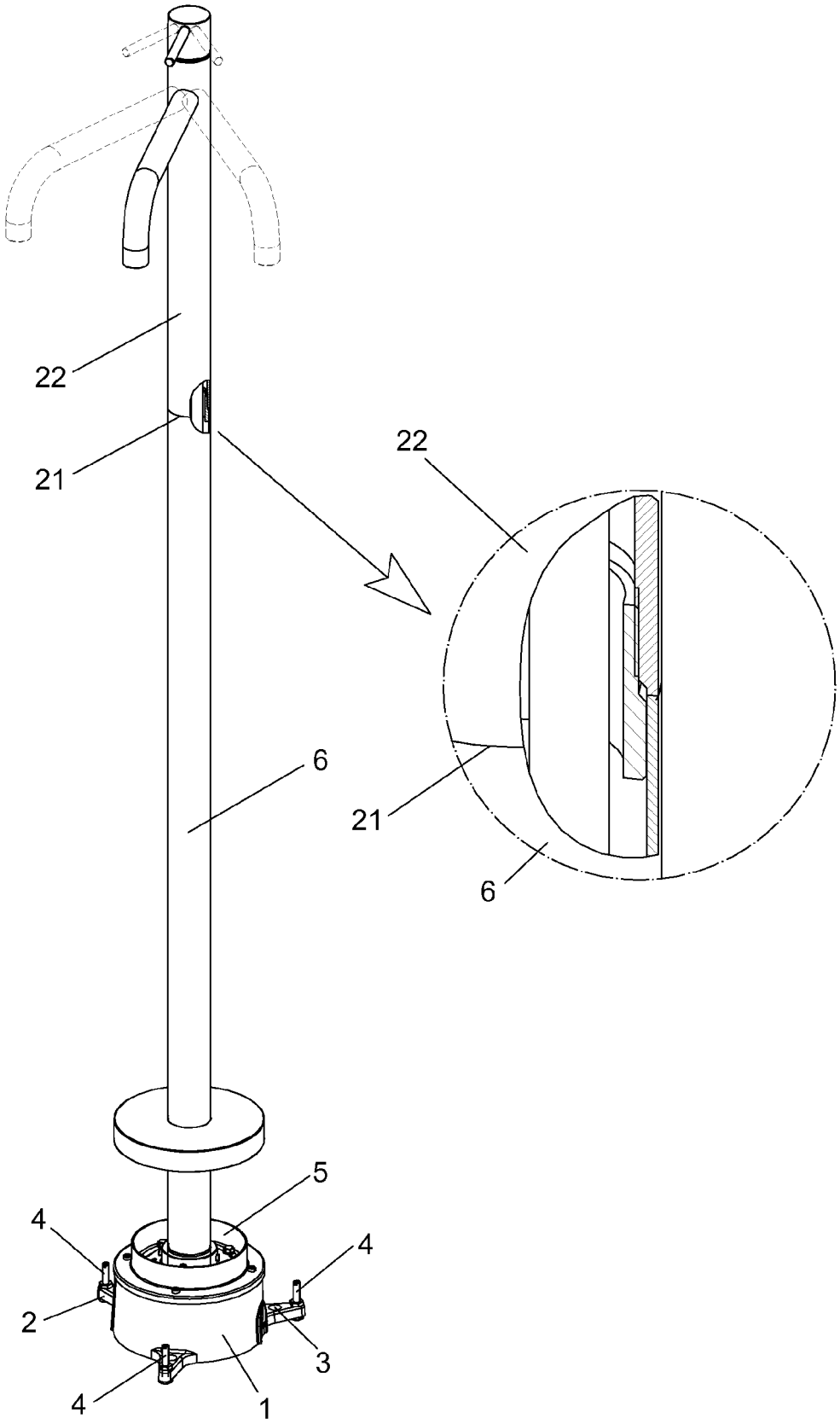

FIG. 1

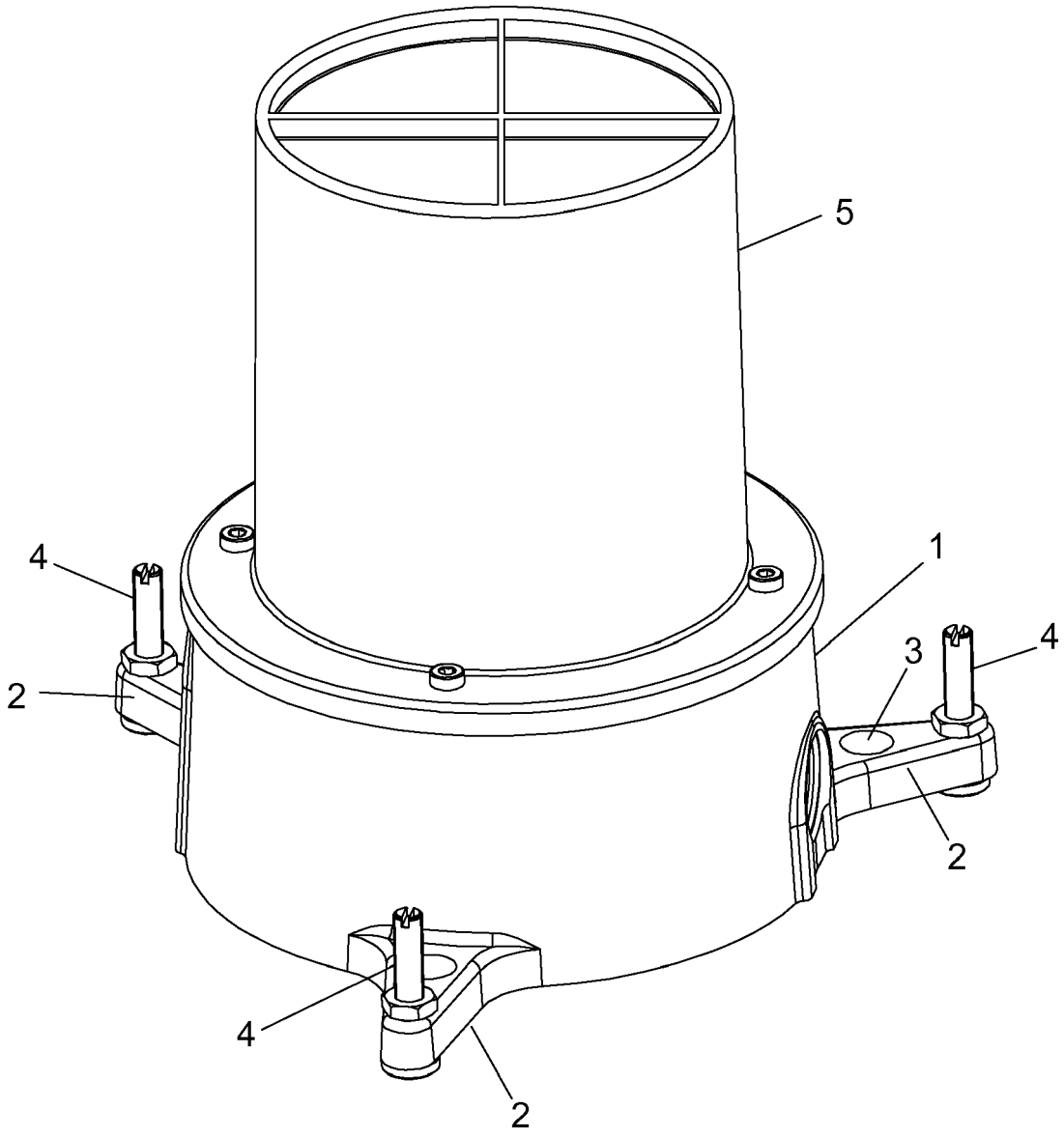

FIG. 2

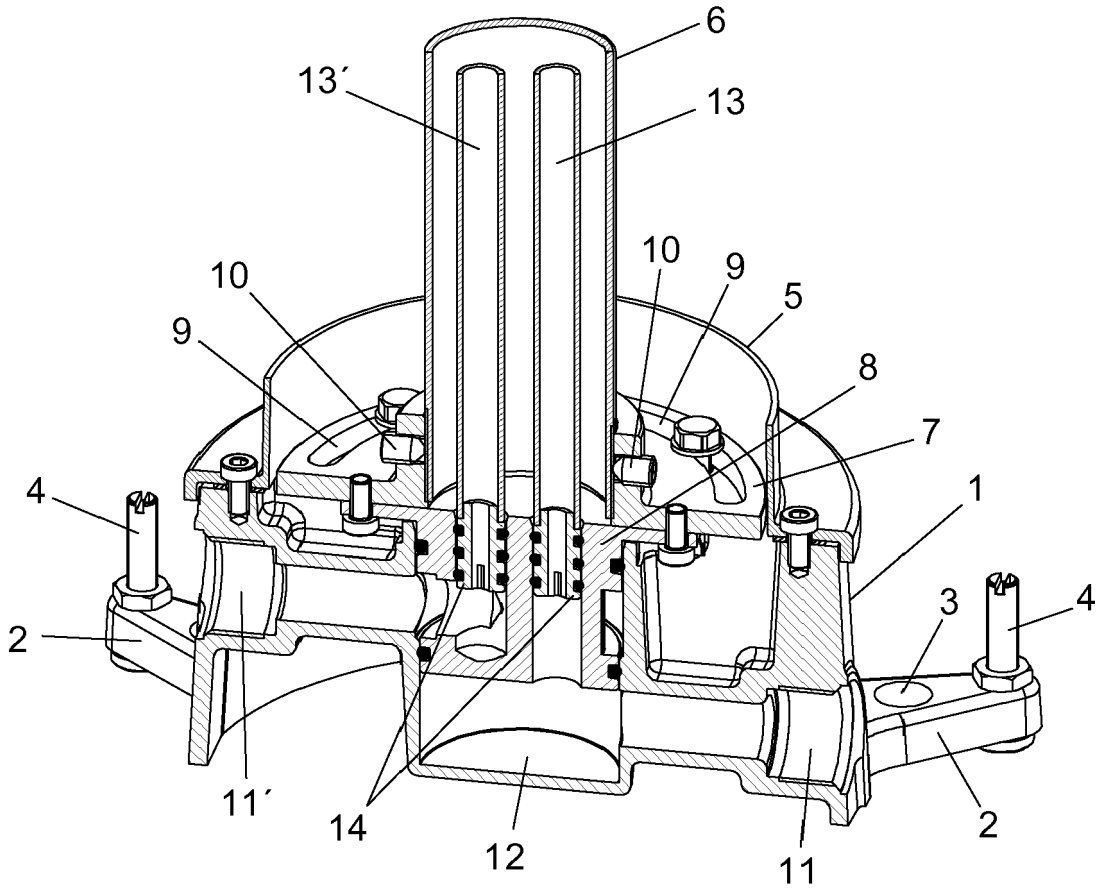

FIG. 3

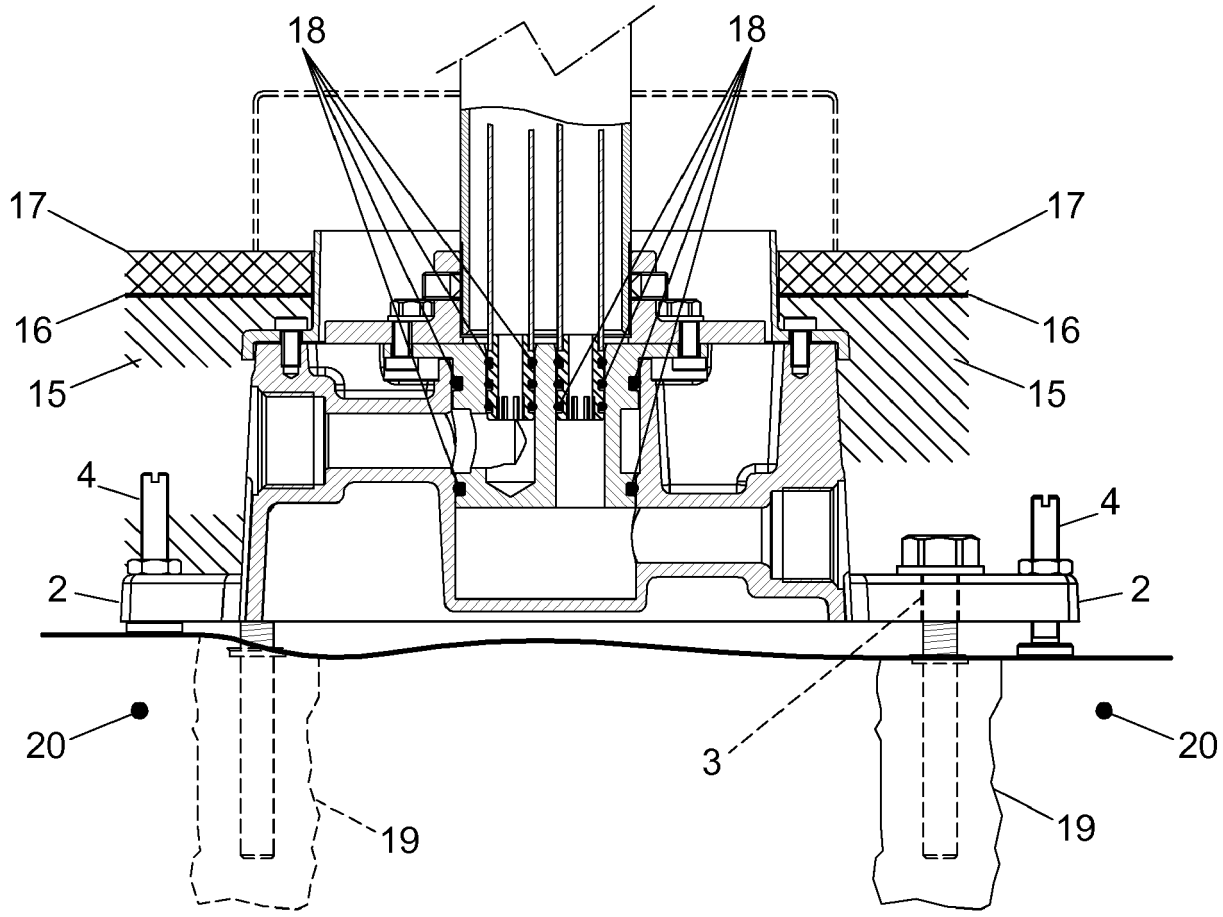

FIG. 4

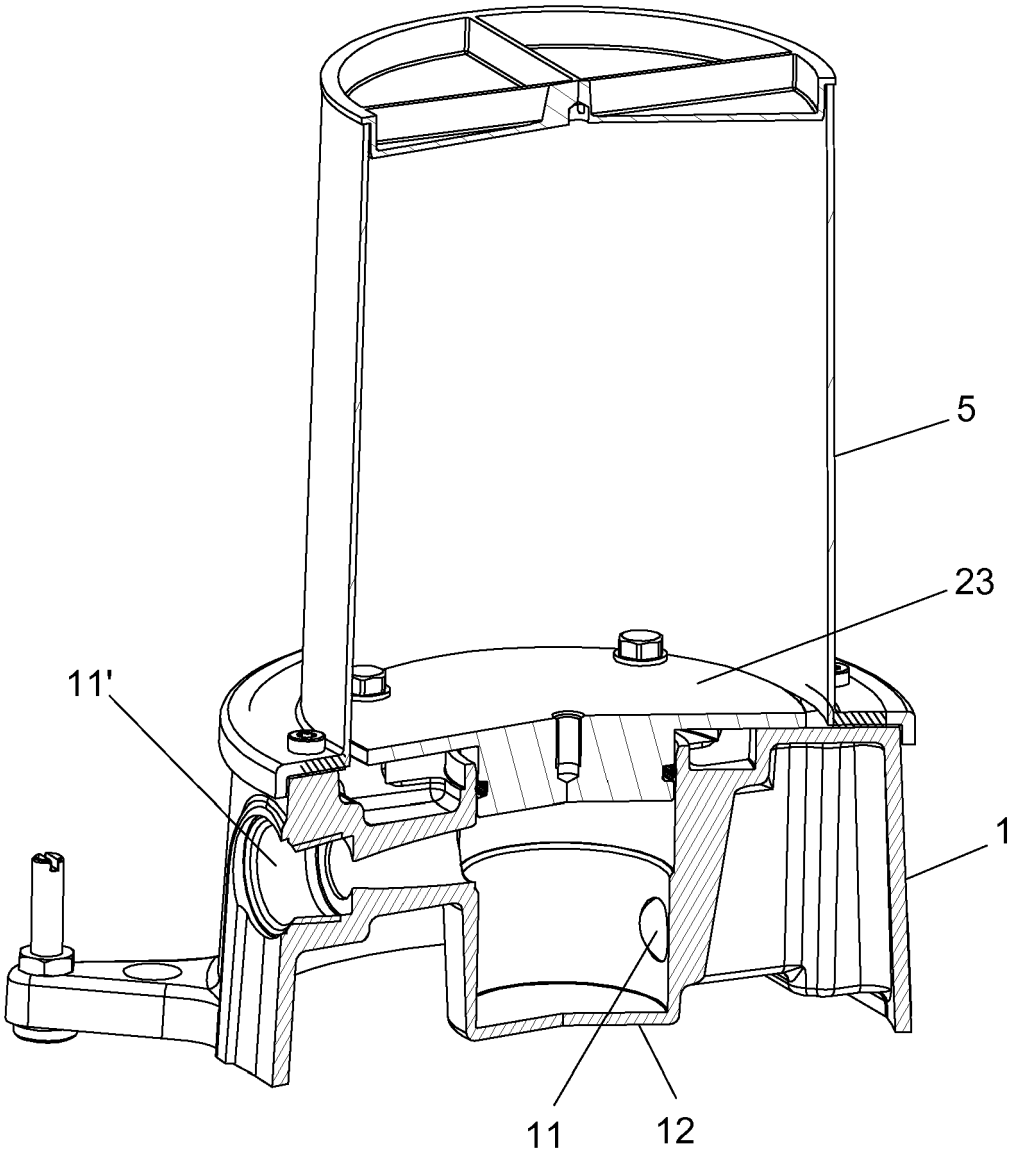

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 18 18 8440

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	DE 10 2009 040191 A1 (GROHE AG [DE]) 17 March 2011 (2011-03-17) * paragraphs [0001] - [0021]; figures 1-4 *	1-3	INV. E03B9/20 E03C1/02 E03C1/04
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A	DE 10 2007 054145 A1 (GROHE AG [DE]) 20 May 2009 (2009-05-20) * paragraph [0021]; figures 1, 2 *	1-3	

TECHNICAL FIELDS SEARCHED (IPC)
E03B
E03C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 February 2019	Posavec, Daniel

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 18 18 8440

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