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(54) **Title**: A TAP GROUP FOR DISPENSING A FILTERED LIQUID AND A NON- FILTERED LIQUID

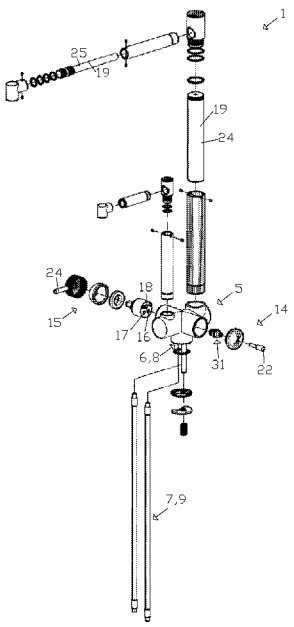

FIG. 01

(57) **Abstract**: A tap group (1) is disclosed, for dispensing a filtered liquid and a non-filtered liquid, which comprises; a first dispensing nozzle (2) comprising an internal channel (3) for passage of a liquid; a second dispensing nozzle (4) for passage of a liquid; a main body (5) comprising: a first inlet (6), connectable to a first external tube (7) for liquid; a second Inlet (8) connectable to a second external tube (9) for liquid; a first internal conduit (10) communicating with the relative first inlet (6); a second internal conduit (1 1) communicating with the relative second inlet (8); a third internal conduit (12) communicating with an inlet section (13) of the second dispensing nozzle (4); a valve member (14); a mixer (15) comprising a first inlet (16), a second Inlet (17) and an outlet (18), the mixer (15) being engageabie with the main body (5) such that: the first inlet (16) is connected to the first internal conduit (10) such as to be in fluid communication with the first inlet (6) of the main body (5); the second inlet (17) is connected to the second internal conduit (1 1) such as to be in fluid communication with the second inlet (8) of the main body (5); the outlet (18) is connected to the third internal conduit (12) such as to be In fluid communication with the inlet section (13) of the second dispensing nozzle (4); at least a filter element (19) for filtering water. The main body (5) further comprises a fourth internal conduit (20) which sets the first inlet (6) in fluid communication with the inlet section (21) of the first dispensing nozzle (2), The valve member (14) is engageabie with the main body (5) such as to control the liquid flow circulating In the fourth internal conduit (20) and which is directed towards the inlet section (21) of the first dispensing nozzle (2), The filter element (19) and the first dispensing nozzle (2) are reciprocally dimensioned such that the filter element (19) is insertable in the Internal channel (3) of the first dispensing nozzle (2) such as to filter the liquid that is dispensable through the first dispensing nozzle (2).

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A TAP GROUP FOR DISPENSING A FILTERED LIQUID AND A NON-FILTERED LIQUID.

FIELD OF THE INVENTION

The present invention relates to a tap group for dispensing a filtered liquid and a non-filtered liquid. In particular, the invention relates to tap groups installable in domestic environments, for example a wash-basin, for dispensing filtered water and non-filtered water via two dispensing nozzles.

DESCRIPTION OF THE PRIOR ART

A conventional tap that is widely available comprises: a main body fixed to a surface, for example a surface of a kitchen wash basin; a dispenser nozzle for dispensing water, fixed on the main body; a water mixer which engages internally of the main body, having a first inlet for cold water, a second inlet for hot water and an outlet for mixed water which is connected to the inlet section of the dispenser nozzle.

The main body comprises: a first inlet for cold water; a second inlet for hot water; a first internal conduit that sets the first inlet in communication with the first inlet of the mixer; and a second internal conduit which sets the relative second inlet in communication with the second inlet of the mixer. The mixer further comprises a lever that is external of the main body, activatable by a user, for mixing the water and for regulating the desired volume of water in outlet from the dispenser nozzle. The main body is connected to the hot water and cold water pipes during installation thereof; the pipes are arranged below the kitchen wash-basin.

These conventional taps are not however predisposed for filtering of the water and for supply the filtered drinking water.

Various types of tap groups are known which dispense filtered and non-filtered water.

The known-type tap group is described in document US 6,219,860 and comprises: a base fixed to a surface, for example to the surface of a wash-basin; a main body mounted on the base; a mixer mounted on the main body; a first dispenser nozzle fixed to the main body; a second dispenser nozzle fixed to the main body; a branch pipe that is connected at an end to the cold water pipe; a filter arranged below the fixing base, having an inlet thereof connected to the remaining end of the branch tube; a valve member mounted on the base, predisposed to regulate the flow of water circulating along the branch pipe; and an additional pipe connected to the filter outlet, at an end, and to the inlet of the main body, at the other end.

The water mixer has a first inlet for cold water, a second inlet for hot water and a mixed water outlet.

The main body comprises: a first cold water inlet which is connected to the cold water pipe; a second hot water inlet that is connected to the hot water pipe; a third inlet for filtered water which is connected to the additional pipe; a first internal conduit which sets the relative first inlet in communication with the first inlet of the mixer; a second internal conduit which sets the relative second inlet in communication with the second mixer inlet; a third internal conduit which sets the outlet of the mixer in communication with the inlet section of the second dispenser nozzle; a fourth internal conduit that sets the relative third inlet in communication with the inlet section of the first dispenser nozzle.

To obtain filtered water in outlet from the first dispenser nozzle it is sufficient to act on the valve member; differently, to obtain non-filtered water in outlet from the second dispenser nozzle it is necessary to act on the mixer lever, as with the taps widely available on the market. Therefore filtered drinking water and non-filtered water, suitable for other domestic uses, can be obtained, even at the same time.

Furthermore, the filter is supplied via a branch made on the cold water pipe, such that the water flowing internally thereof can never reach temperatures

that are such as to cause deterioration of the granular means and the filter membrane.

The present invention therefore has various characteristics that make it preferable to other tap groups of know type which are only provided with a dispenser nozzle; on the negative side, the above-described group has certain dimensions with respect to the widely-available taps that only dispense non-filtered water.

SUMMARY OF THE INVENTION

The aim of the present invention therefore consists in providing a tap group which is more compact than the one disclosed in US 6,219,860.

The above-cited aim is attained by a tap group is disclosed, for dispensing a filtered liquid and a non-filtered liquid, which comprises: a first dispensing nozzle comprising an internal channel for passage of a liquid; a second dispensing nozzle for passage of a liquid; a main body comprising: a first inlet, connectable to a first external tube for liquid; a second inlet connectable to a second external tube for liquid; a first internal conduit communicating with the relative first inlet; a second internal conduit communicating with the relative second inlet; a third internal conduit communicating with an inlet section of the second dispensing nozzle; a valve member; a mixer comprising a first inlet, a second inlet and an outlet, the mixer being engageable with the main body such that: the first inlet is connected to the first internal conduit such as to be in fluid communication with the first inlet of the main body; the second inlet is connected to the second internal conduit such as to be in fluid communication with the second inlet of the main body; the outlet is connected to the third internal conduit such as to be in fluid communication with the inlet section of the second dispensing nozzle; at least a filter element for filtering water. The main body further comprises a fourth internal conduit which sets the first inlet in fluid communication with the inlet section of the first dispensing nozzle. The valve member is engageable with the main body such as to control the liquid

flow circulating in the fourth internal conduit and which is directed towards the inlet section of the first dispensing nozzle. The filter element and the first dispensing nozzle are reciprocally dimensioned such that the filter element is insertable in the internal channel of the first dispensing nozzle such as to filter the liquid that is dispensable through the first dispensing nozzle.

The main body advantageously has only two inlets: the first inlet can be connected to the cold water pipe (first external piping) and the second inlet can be connected to the hot water pipe (second external piping). A conventional tap for dispensing of non-filtered water, of the type described herein above, also has only two inlets; this means that it is possible easily to replace a conventional tap for dispensing non-filtered water with a tap group according to the present invention, without its being necessary to perform some adaptation or branching. The replacement operation is thus simple and rapid and requires no particular experience on the part of the person performing the task.

In the prior art, on the other hand, to replace a conventional tap for dispensing non-filtered water with a tap group of the described type, for example in US 6,219,860, it was necessary to include a branching of the cold water pipe, to install a filter below the wash-basing and fit a valve member on the relative fixing base. This required a greater available space for installing the tap group, expert technicians and a certain amount of time, which results in higher costs.

With the invention, however, it is sufficient to connect the cold water pipe and the hot water pipe to the main body and fix the main body to a rest surface, for example to the surface of a wash basin.

It follows that: the installation times are drastically reduced; it is not necessary to have particular experience to install the tap group, so that the final user can also replace the conventional tap with the tap group of the invention.

Further, the tap group of the invention is much more compact, as the filter element is integrated internally of the first dispenser nozzle and the valve member is engageable with the main body.

In an embodiment, the valve member is actuable by means of a first command, and the mixer is actuable by means of a second command: to minimise the dimensions and give greater aesthetic appeal to the tap group of the invention, the first command and the second command are accessible on opposite sides with respect to the main body.

BRIEF DESCRIPTION OF THE DRAWINGS

Specific embodiments of the invention will be described in the following of the present description, according to what is set out in the claims and with the aid of the appended tables of drawings, in which:

- figure 1 is an exploded perspective view of the tap group according to the present invention;
- figure 2 is a perspective view of the tap group installed on a wash-basin;
- figure 3 is a perspective view like the one of figure 2, giving an exploded view of only the convention components for fixing the tap group (illustrated in assembled form) to the wash-basin;
- figure 4 is a cross-section view of the tap group according to the invention, when the water flows to both relative dispenser nozzles;
- figure 5 is a view like the one in figure 4, wherein the water flows only through the first dispenser nozzle;
- figure 6 is the view of section VI-VI of figure 5;
- figure 7 is a view like the one of figure 4, wherein the water flows only through the second dispenser nozzle;

- figure 8 is the view of section VIII-VIII of figure 7.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the appended tables of drawings, 1 denotes in its entirety a tap group 1 for dispensing a filtered liquid and a non-filtered liquid, which comprises: a first dispensing nozzle 2 comprising an internal channel 3 for passage of a liquid; a second dispensing nozzle 4 for passage of a liquid; a main body 5 comprising: a first inlet 6, connectable to a first external tube 7 for liquid; a second inlet 8 connectable to a second external tube 9 for liquid; a first internal conduit 10 communicating with the relative first inlet 6; a second internal conduit 11 communicating with the relative second inlet 8; a third internal conduit 12 communicating with an inlet section 13 of the second dispensing nozzle 4; a valve member 14; a mixer 15 comprising a first inlet 16, a second inlet 17 and an outlet 18, the mixer 15 being engageable with the main body 5 such that: the first inlet 16 is connected to the first internal conduit 10 such as to be in fluid communication with the first inlet 6 of the main body 5; the second inlet 17 is connected to the second internal conduit 11 such as to be in fluid communication with the second inlet 8 of the main body 5; the outlet 18 is connected to the third internal conduit 12 such as to be in fluid communication with the inlet section 13 of the second dispensing nozzle 4; at least a filter element 19 for filtering water.

The main body 5 further comprises a fourth internal conduit 20 which sets the first inlet 6 in fluid communication with the inlet section 21 of the first dispensing nozzle 2.

The valve member 14 is engageable with the main body 5 such as to control the liquid flow circulating in the fourth internal conduit 20 and which is directed towards the inlet section 21 of the first dispensing nozzle 2.

The filter element 19 and the first dispensing nozzle 2 are reciprocally dimensioned such that the filter element 19 is insertable in the internal

channel 3 of the first dispensing nozzle 2 such as to filter the liquid that is dispensable through the first dispensing nozzle 2.

Il liquido è preferibilmente acqua.

The valve member 14 is preferably activatable by means of a first command 22 and wherein the mixer 15 is activatable by means of a second command 23, the first command 22 and the second command 23 being accessible on opposite sides with respect to the main body 5. The first command 22 and the second command 23 can be respectively a first lever and a second lever (as illustrated in the figures) activatable by the user; by activating the first lever the user can regulate the flow of water dispensable via the first nozzle; by activating the second lever, i.e. the mixer lever 15, the user can regulate the flow of water dispensable via the second nozzle, as well as mixing the water such as to obtain water at the desired temperature.

The valve member 14 can comprise a valve 31 acting on the fourth internal conduit 20 of the main body 5. In particular, the valve member 14 can be a headwork.

In the example of the figures: the first internal conduit 10 originates from the first inlet 6 of the main body 5; the fourth internal conduit 20 originates from the inlet section 21 of the first dispenser nozzle 2 and is connected to the first internal conduit 10 such as to form a single duct system; the valve 31 is arranged along the fourth internal conduit 20; the main body 5 further comprises also a fifth internal conduit 32 which originates from the first inlet 16 of the mixer 15 and which is connected to the first internal conduit 10 and the fourth internal conduit 20 at a branch point 33; thus, the valve 31 is arranged, with respect to the flow of liquid that enters the main body 5 via the relative first inlet 6, downstream with respect to the above-cited branch 33.

The first external tube 7 is preferably the cold water tube, i.e. the tube which takes water that is not usually heated by domestic plants such as heaters,

boilers etc.

The second external tube 9 is preferably the hot water tube, i.e. the tube carrying the water that can be heated by domestic plants such as heaters, boilers etc.

The filter element 19 can comprise an active filter part (not visible in the figures), for filtering the water, and a net (not illustrated) which contains the active part. The net is advantageously of very small dimensions with respect to other types of container (for example rigid metal containers), which enables maximising the dimensions of the active filtering part, given a same size of the internal channel 3 of the first dispenser nozzle 2.

The net is flexible in itself, and thanks to it the filter element 19 can easily be inserted in its entirety in the internal channel 3 of the first dispenser nozzle 2.

Once more thanks to the net which covers the active filter part, the filter part can be regenerated without having to remove the net. When the active filter part wears out, therefore, it is not necessary to replace the filter element 19 with a new one, but the active part of the filter element 19 can be regenerated.

The net can have meshes of such dimensions as also to perform a water filtering function. For this purpose, each mesh can be dimensioned such that a circumference can be described having a diameter comprised between fifty micrometres and one hundred micrometres.

The tap group 1 can further comprise a plurality of filter elements, see figures 4, 5, 7. For example a first filter element 24 and a second filter element 25 can be provided, arranged in cascade to one another, the first filter element 24 being arranged upstream of the second filter element 25.

The first filter element 24 can contain a first active filtering part and a second active filtering part (not visible in the figures), the first filtering part being arranged upstream of the second active filtering part.

The first active filtering part can contain activated charcoal such as to reduce the chlorine present in the water, while the second active filtering part can contain resins such as to limit the hardness of the water; the active filtering part of the second filter element 25 can instead be occupied with ultrafiltration of the water.

The first dispenser nozzle 2 can be formed by several parts in order to facilitate the replacement of the first filter element 24 and the second filter element 25.

Figure 4 illustrates the tap group 1 fixed to a wash basin 26; figure 4 illustrates the flow of the water when the user requires both filtered water, for drinking for example, from the first dispenser nozzle 2 and non-filtered water, for example for washing dishes, to be contemporaneously dispensed. To obtain this, the user has to activate the first lever 22 and the second lever 23 in an open position, in order to allow passage of water respectively through the valve 31 and the mixer 15.

Figures 5, 6 show the flow of water when only the first lever 22 is in the open position; in this case the first dispenser nozzle 2 will dispense filtered water.

Figures 6, 7 show the flow of water when only the second lever 23 is in the open position; in this case the second dispenser nozzle 4 will dispense non-filtered water.

The above has been described by way of non-limiting example, and any eventual constructional variants are understood to fall within the ambit of protection of the present technical solution, as claimed in the following.

CLAIMS

1. A tap group (1) for dispensing a filtered liquid and a non-filtered liquid, comprising:

a first dispensing nozzle (2) comprising an internal channel (3) for passage of a liquid;

a second dispensing nozzle (4) for passage of a liquid;

a main body (5) comprising: a first inlet (6), connectable to a first external tube (7) for liquid; a second inlet (8) connectable to a second external tube (9) for liquid; a first internal conduit (10) communicating with the relative first inlet (6); a second internal conduit (11) communicating with the relative second inlet (8); a third internal conduit (12) communicating with an inlet section (13) of the second dispensing nozzle (4);

a valve member (14);

a mixer (15) comprising a first inlet (16), a second inlet (17) and an outlet (18), the mixer (15) being engageable with the main body (5) such that: the first inlet (16) is connected to the first internal conduit (10) such as to be in fluid communication with the first inlet (6) of the main body (5); the second inlet (17) is connected to the second internal conduit (11) such as to be in fluid communication with the second inlet (8) of the main body (5); the outlet (18) is connected to the third internal conduit (12) such as to be in fluid communication with the inlet section (13) of the second dispensing nozzle (4);

at least a filter element (19)for filtering water;

characterised in that:

the main body (5) further comprises a fourth internal conduit (20) which sets the first inlet (6) in fluid communication with the inlet section (21) of the first dispensing nozzle (2);

the valve member (14) is engageable with the main body (5) such as to control the liquid flow circulating in the fourth internal conduit (20) and which is directed towards the inlet section (21) of the first dispensing nozzle (2);

the filter element (19) and the first dispensing nozzle (2) are reciprocally dimensioned such that the filter element (19) is insertable in the internal channel (3) of the first dispensing nozzle (2) such as to filter the liquid that is dispensable through the first dispensing nozzle (2).

2. The tap group (1) of the preceding claim, wherein the valve member (14) is activatable by means of a first command (22) and wherein the mixer (15) is activatable by means of a second command (23), the first command (22) and the second command (23) being accessible on opposite sides with respect to the main body (5).

3. The tap group (1) of any one of the preceding claims, wherein the valve member (14) comprises a valve (31) acting on the fourth internal conduit (20) of the main body (5).

4. The tap group (1) of the preceding claim, wherein the valve member (14) is a cartridge.

5. The tap group (1) of any one of the preceding claims, wherein the first external tube (7) is a cold water tube.

6. The tap group (1) of any one of the preceding claims, wherein the second external tube (9) is a hot water tube.

7. The tap group (1) of any one of the preceding claims, wherein the liquid is water.

8. The tap group (1) of claim 1, wherein the filter element (19) comprises an active part and a net containing the filter element (19).

9. The tap group (1) of the preceding claim, wherein the net has mesh

dimensions that are such as also to perform a water filtering function.

10. The tap group (1) of the preceding claim, wherein each mesh is dimensioned such that a circumference thereof can be described having a diameter that is between fifty micrometres and one hundred micrometres.

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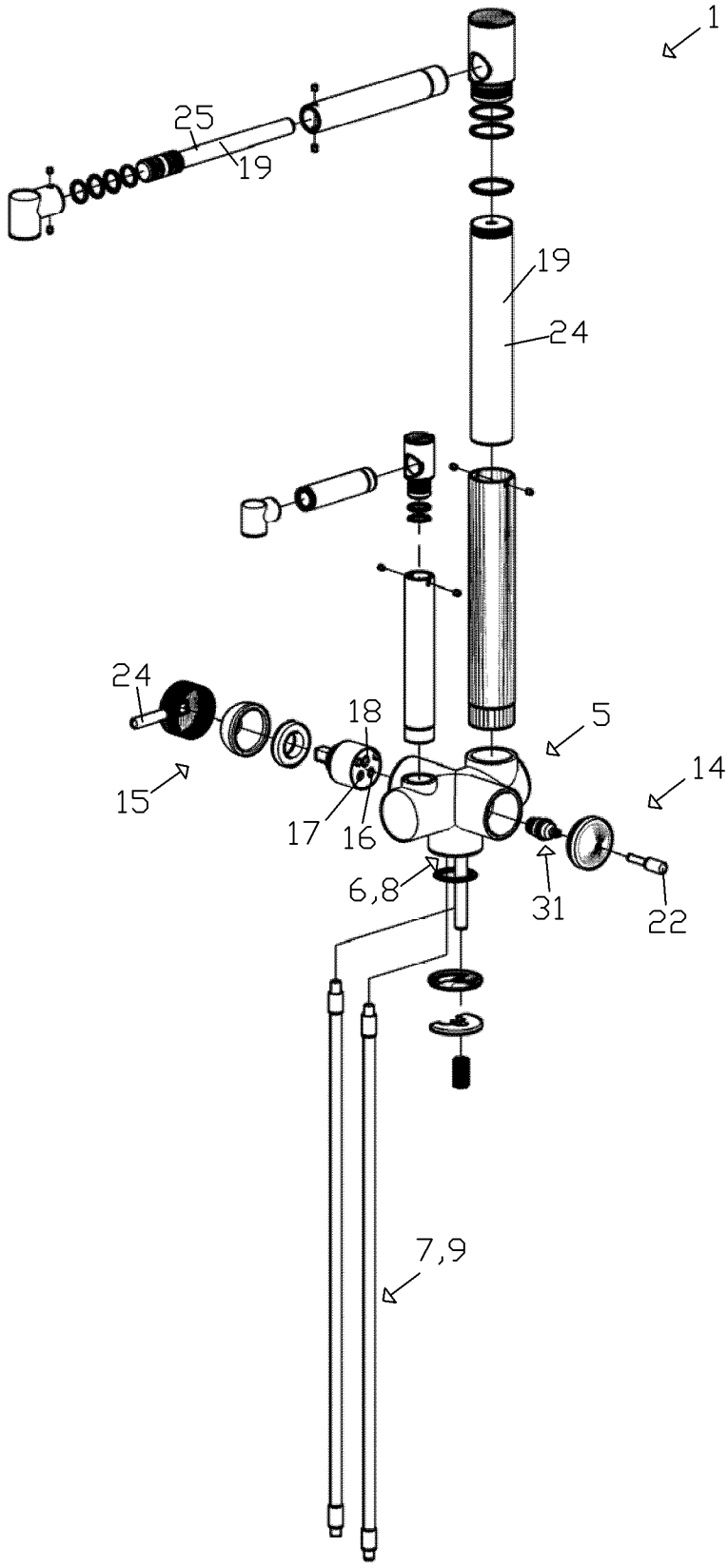

FIG. 01

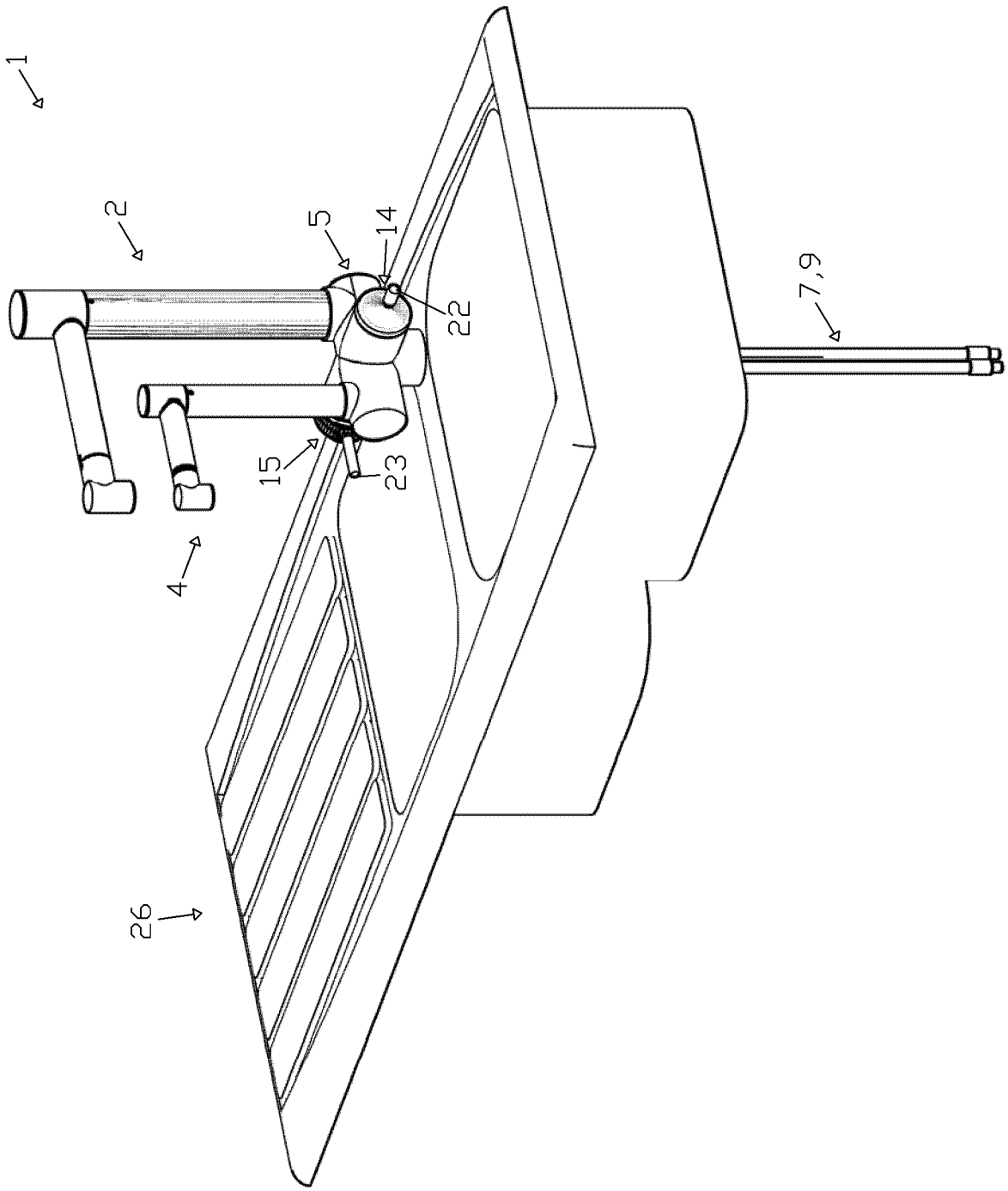

FIG.02

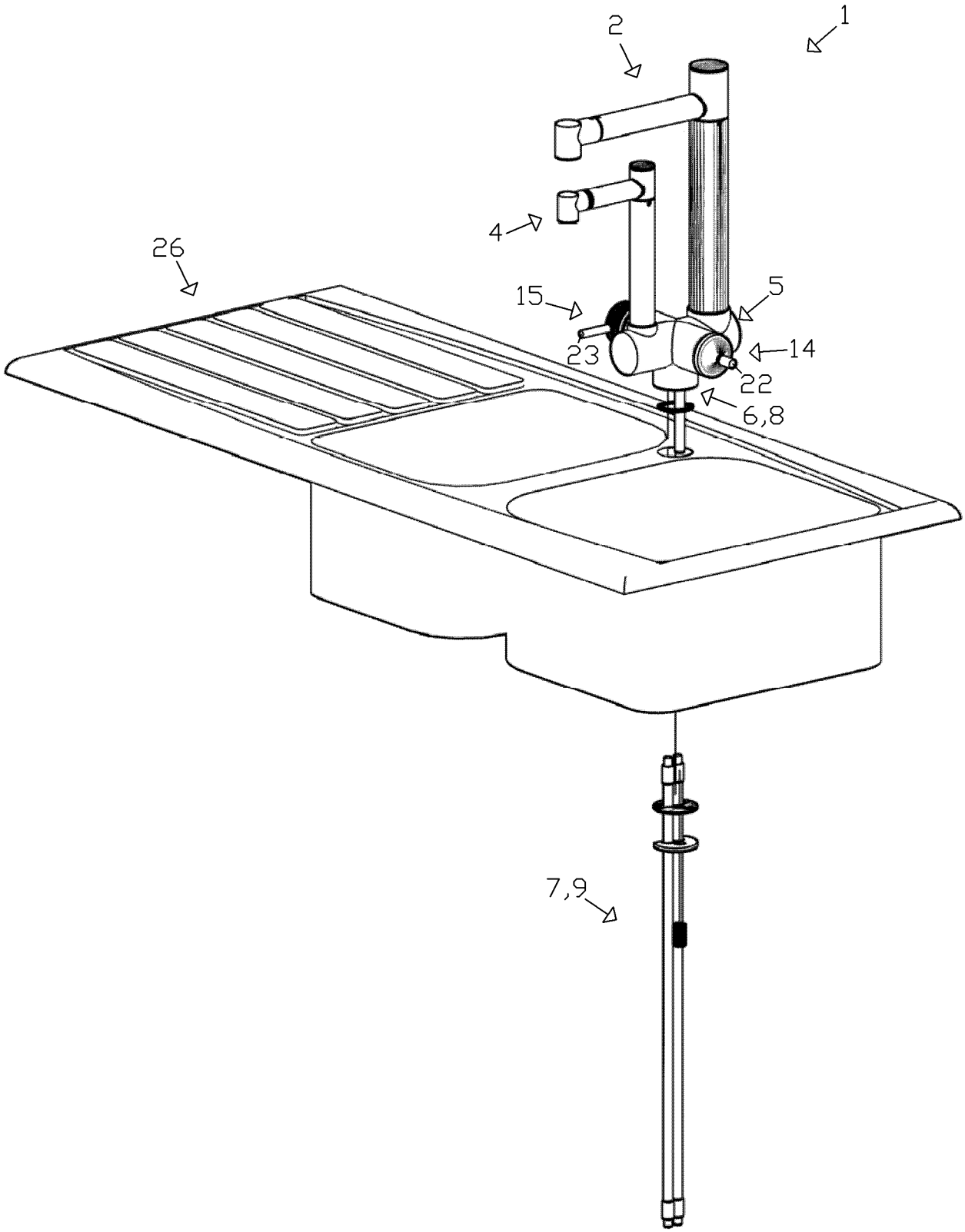

FIG.03

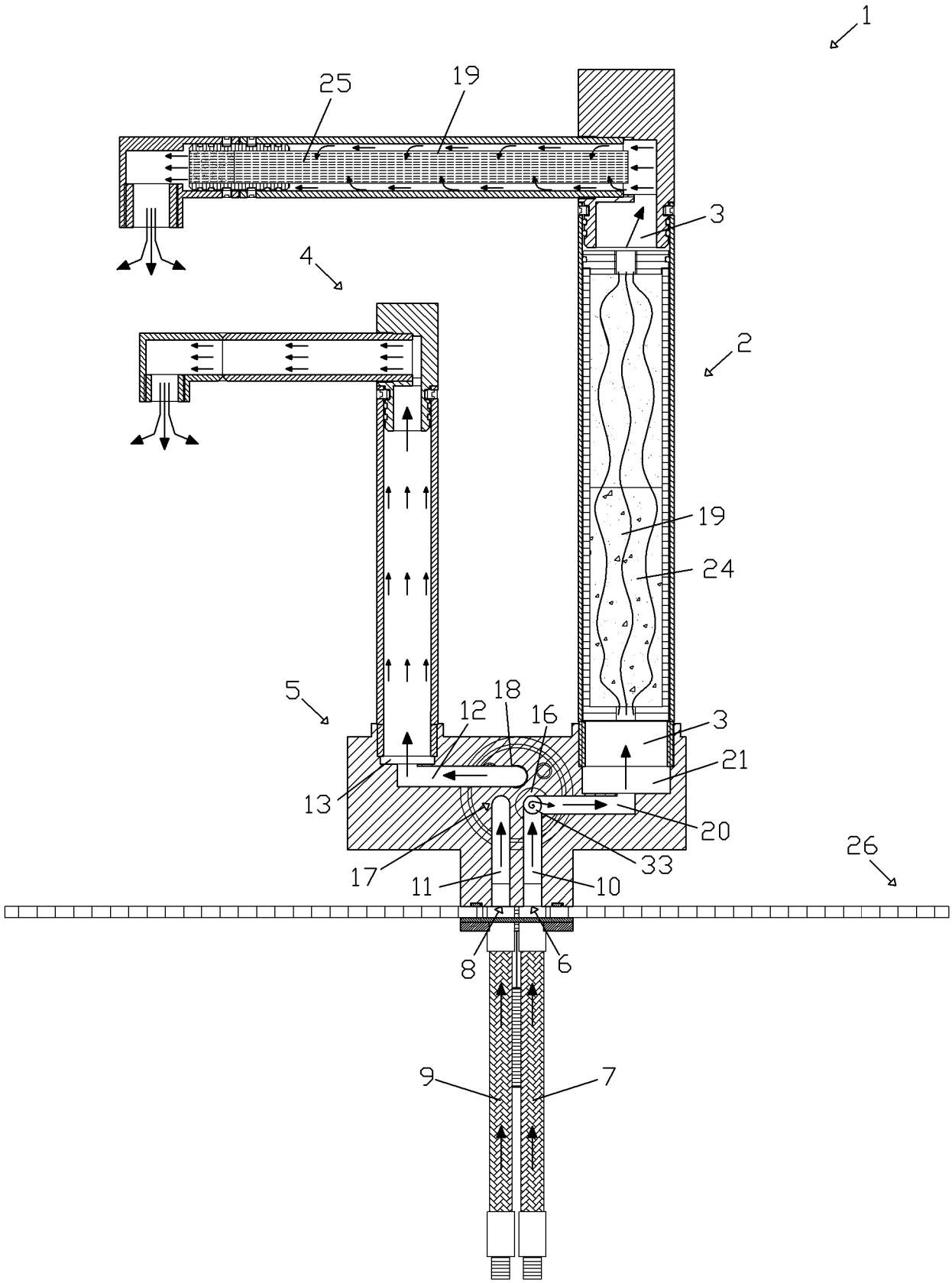

FIG. 04

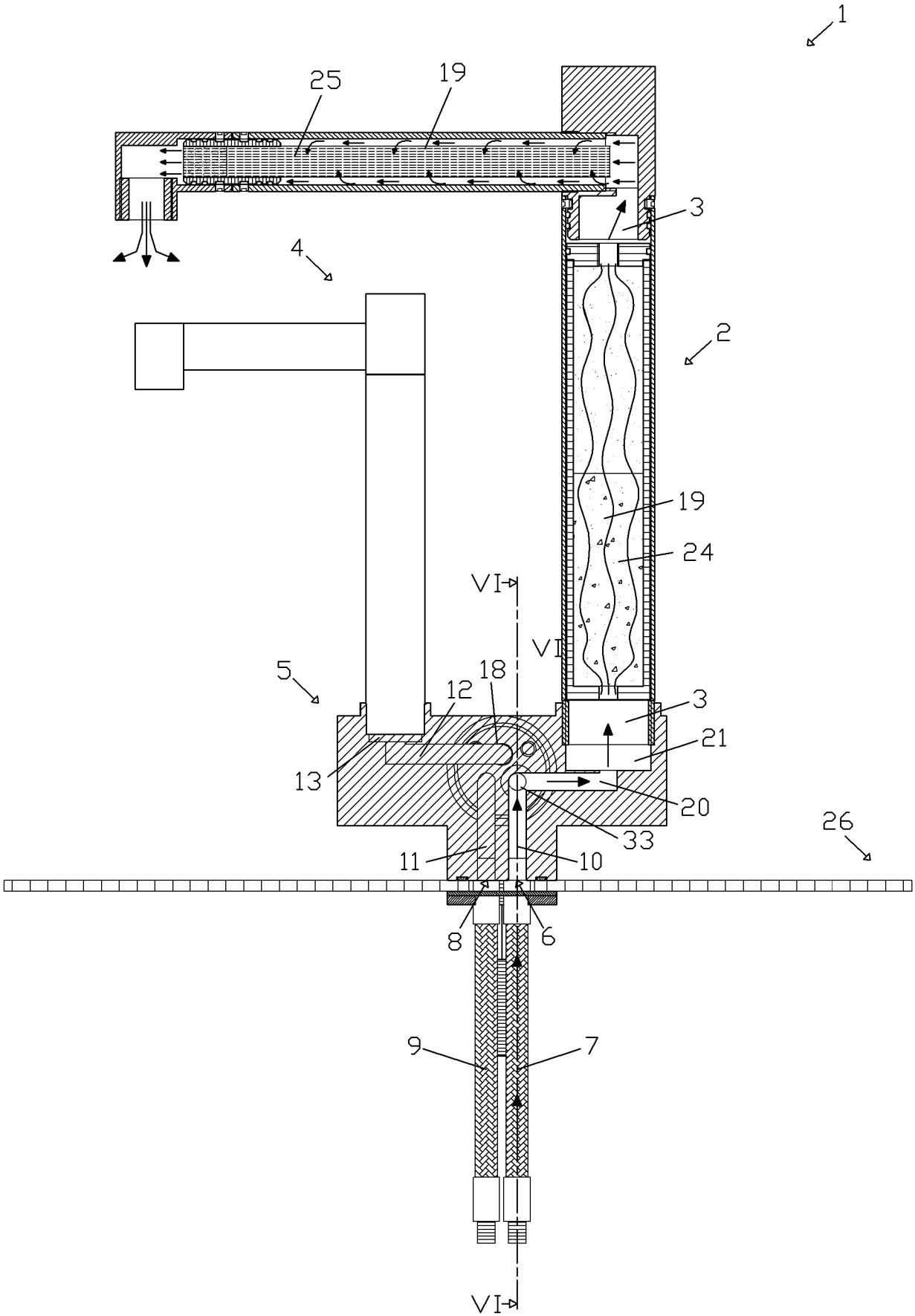

FIG. 05

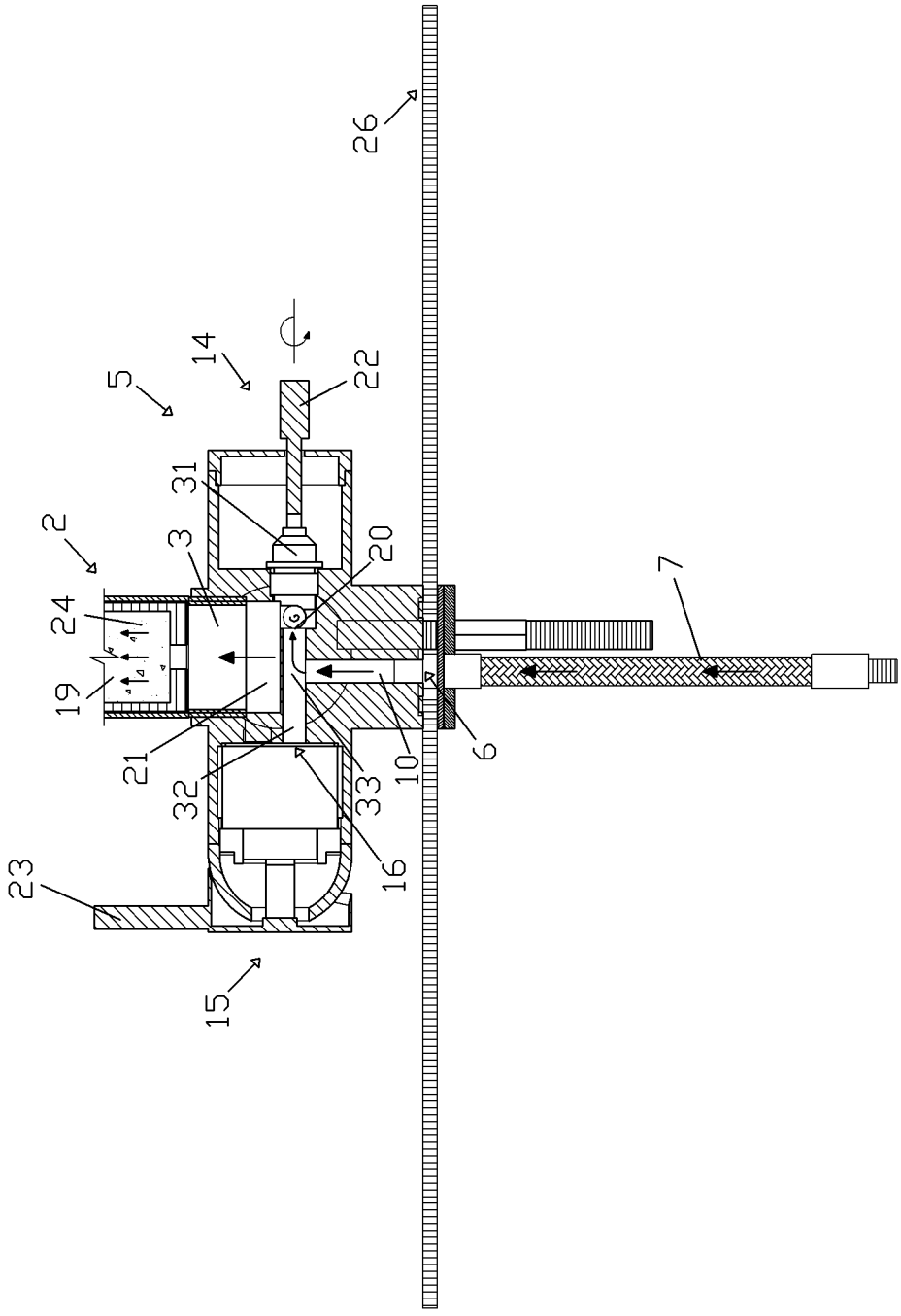

FIG. 06

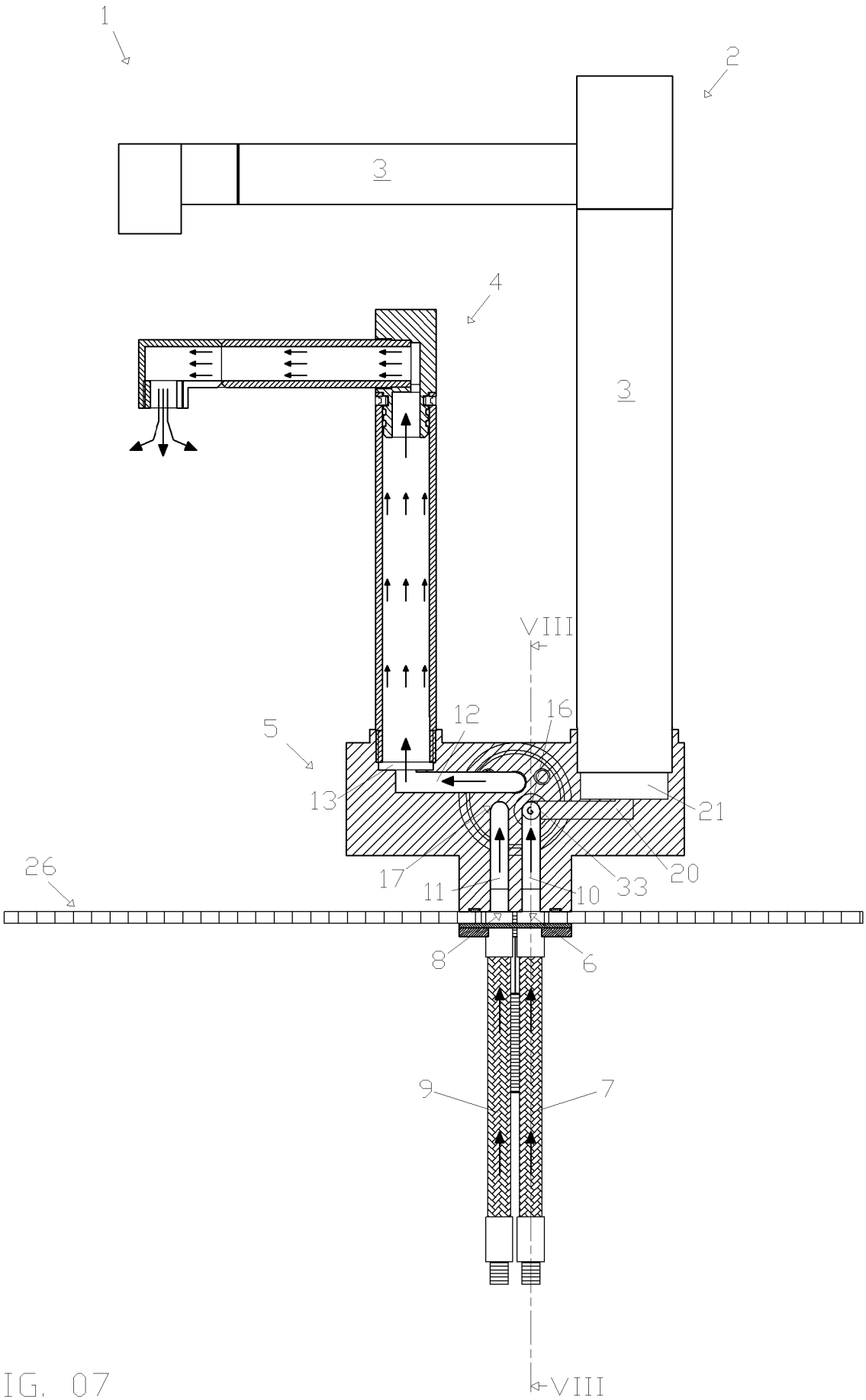

FIG. 07

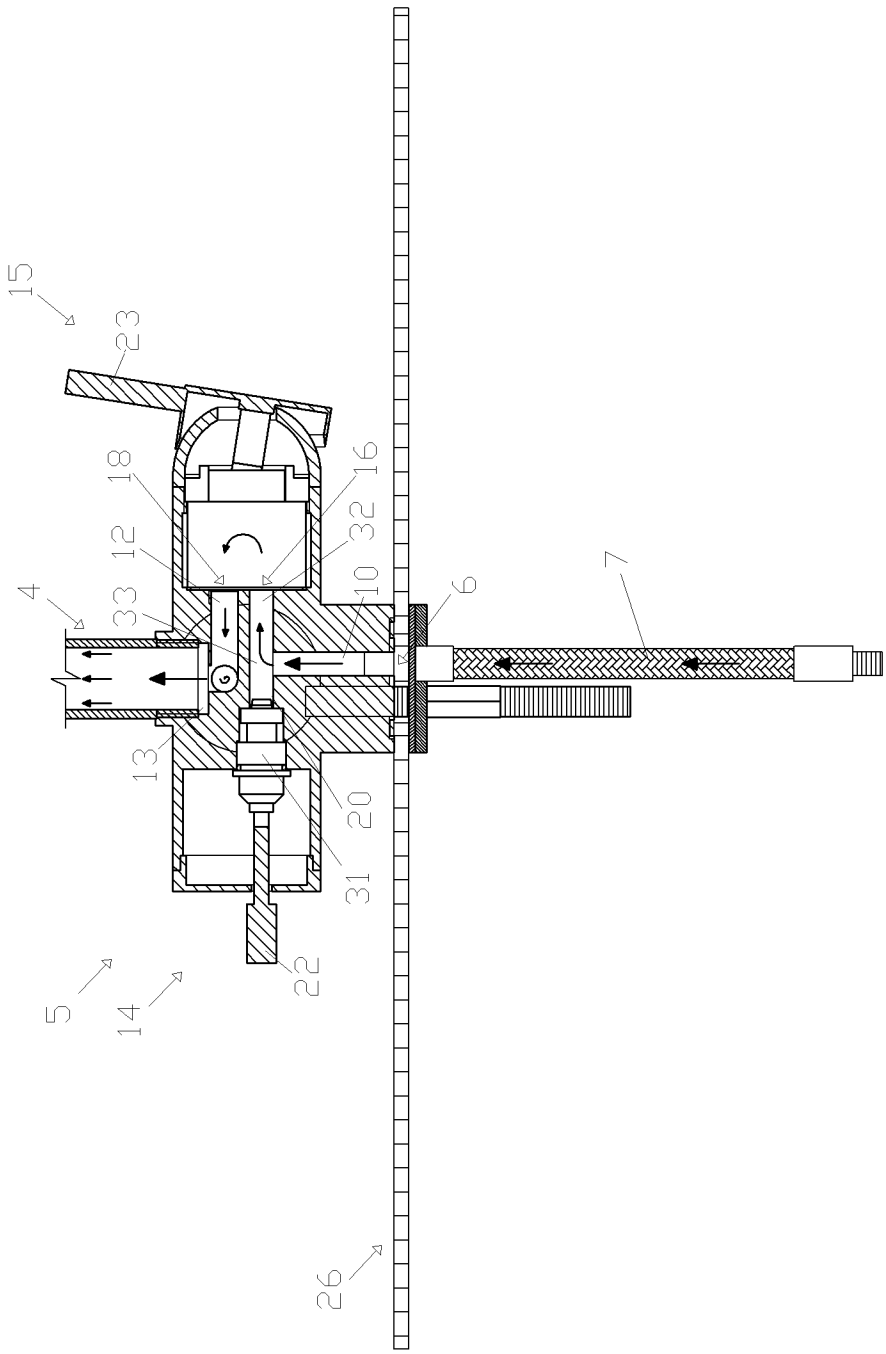

FIG. 08