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(54) **Water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, with improved manoeuvrability**

(57) A water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, with improved manoeuvrability. The device comprises:

- a device body (2) that can be associated, by one of its ends, with a hygienic-sanitary fixture such as a sink or the like and in which at least one duct for the passage of water (3) is defined;

- a dispensing spigot (5), which is connected, by one of its ends, to the device body (2); in the dispensing spigot (5) a corresponding duct for the passage of water (6) being defined which leads out through a dispensing outlet (7) and is connected to the water passage duct (3) that is defined in the device body (2);

- an arm (8), which is associated, by one of its ends, with the dispensing spigot (5) and terminates in a dispensing spray head (9); in the arm (8) a corresponding water passage duct (10) being defined which can be connected to the water passage duct (3) that is defined in the device body (2).

The arm (8) is articulated to a region of the dispensing spigot (5) which is spaced apart from the end of the dispensing spigot (5) that is connected to the device body (2).

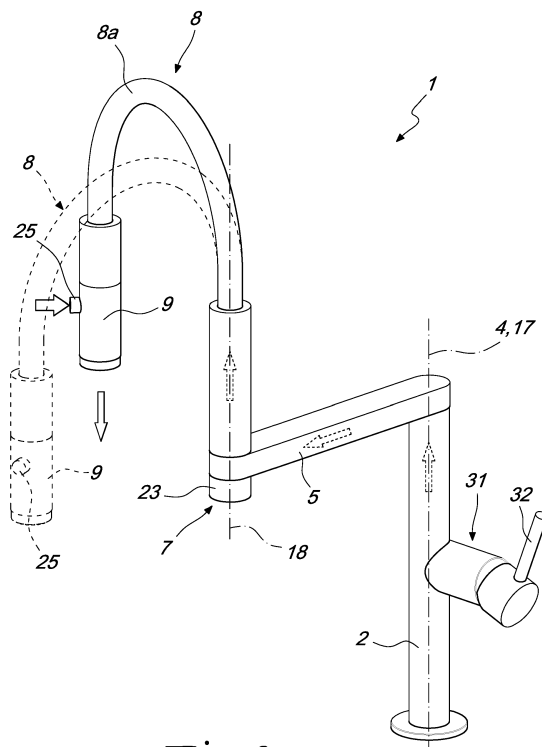


Fig. 2

Description

[0001] The present invention relates to a water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, with improved manoeuvrability.

[0002] Water dispensing devices with spray head for sinks or similar hygienic-sanitary fixtures are known. Such devices, generally, incorporate a flow control element with a mixing cartridge, which can be manoeuvred by way of a control lever or knob associated with the device body.

[0003] Among the various devices currently present on the market, a device is known which is provided with a longitudinally extending body that is intended to be fixed to the hygienic-sanitary fixture with one of its ends so as to rise substantially vertically from the apparatus. A rigid arm is connected to the upper end of the device body and extends substantially at right angles to the device body and is provided with an area for coupling a flexible arm that is also connected to the upper end of the device body. Inside the device body, and also inside the flexible arm, there is a water passage duct that constantly connects them, and the flexible arm has, at the end opposite to the end connected to the device body, a spray head that offers, generally, by way of a manual control, the possibility of dispensing a compact water jet or a water jet spread out in a shower.

[0004] In another type of device, the spray head offers only the possibility of dispensing a water jet spread out in a shower, and a dispensing spigot extends from the device body, below its upper end, substantially at right angles to the device body, and inside this dispensing spigot there is a corresponding water passage duct that leads to the outside through a dispensing outlet.

[0005] In this type of device, between the water passage duct of the dispensing outlet and the water passage duct of the device body there is a valve element with which it is possible to selectively actuate the connection of the water passage duct of the device body with the water passage duct of the flexible arm or with the water passage duct of the dispensing spigot, so as to obtain the dispensing of a water jet in a shower, through the spray head, or in a compact water jet, through the dispensing outlet.

[0006] In these two types of devices, the flexible arm is pivoted to the upper end of the device body about the axis of the device body itself.

[0007] In both of these types of devices, the flexible arm can move from an inactive position, in which it is coupled, by an area thereof that is proximate to the spray head, to the end of the rigid arm opposite to the device body, to multiple positions for use, in which it is decoupled from the rigid arm and can be manoeuvred, taking advantage of its flexibility and its pivoting to the device body, in order to vary the inclination of the water jet and/or in order to bring the spray head closer to the area to be struck with the water jet.

[0008] These devices exhibit the drawback of allowing a limited manoeuvrability of the spray head, since moving the spray head arranged at the end of the flexible arm away from the device body can make use of only the deformability of the flexible arm which, among other things, inevitably modifies the inclination of the water jet emitted by the spray head.

[0009] For this reason, with these devices, it is difficult to reach regions of the hygienic-sanitary fixture which are a certain distance from the area to which the device body is fixed.

[0010] The aim of the present invention is to solve the above-mentioned drawback, by providing a water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, which offers increased manoeuvrability with respect to conventional devices.

[0011] Within this aim, an object of the invention is to provide a water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, which makes it possible to appreciably increase the range in which the spray head can be moved in order to easily reach the various regions of the hygienic-sanitary fixture with its water jet.

[0012] Another object of the invention is to provide a water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, in which it is possible to move the spray head away from the device body without necessarily varying the inclination of the water jet emitted by the spray head.

[0013] Another object of the invention is to provide a reliable device that can be produced at low cost.

[0014] This aim and these and other objects which will become more apparent hereinafter are achieved by a water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, which comprises:

- a device body that can be associated, by one of its ends, with a hygienic-sanitary fixture such as a sink or the like and in which at least one duct for the passage of water is defined;
- a dispensing spigot, which is connected, by one of its ends, to said device body; in said dispensing spigot a corresponding duct for the passage of water being defined which leads out through a dispensing outlet and is connected to said water passage duct that is defined in said device body;
- an arm, which is associated, by one of its ends, with said dispensing spigot and terminates in a dispensing spray head; in said arm a corresponding water passage duct being defined which can be connected to said water passage duct that is defined in said device body;

characterized in that said arm is articulated to a region of said dispensing spigot which is spaced from the end of said dispensing spigot which is connected to said device body.

[0015] Further characteristics and advantages of the invention will become more apparent from the description of a preferred, but not exclusive, embodiment of the device according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of the device according to the invention, in an active condition;
 Figure 2 is a perspective view of the device according to the invention, in another active condition;
 Figure 3 is a lateral view of the device according to the invention, in the active condition shown in Figure 1;
 Figure 4 is a rear view of the device according to the invention, in the active condition shown in Figure 1;
 Figure 5 is a cross-section of Figure 4 along the axis V-V;
 Figure 6 is an enlarged detail of Figure 5;
 Figure 7 is another enlarged detail of Figure 5;
 Figure 8 is a plan view from above of the device according to the invention, in the active condition shown in Figure 1;
 Figure 9 is a plan view from below of the device according to the invention, in the active condition shown in Figure 1.

[0016] With reference to the figures, the device according to the invention, generally designated by the reference numeral 1, comprises a device body 2 that can be associated, by one of its ends, with a hygienic-sanitary fixture such as a sink or the like and in which at least one duct for the passage of water 3 is defined.

[0017] Preferably, the device body 2 has an elongated shape and is intended to be associated with the hygienic-sanitary fixture, not shown for the sake of simplicity, with its axis 4 substantially vertical.

[0018] The device in question further comprises a dispensing spigot 5 that is connected, by one of its ends, to the device body 2.

[0019] Preferably, the dispensing spigot 5 is connected to the upper end, which is opposite to the end to be connected to the hygienic-sanitary fixture, of the device body 2 and, on the inside, a corresponding water passage duct 6 is defined which leads out through a dispensing outlet 7 that is arranged in proximity to the end of the dispensing spigot 5 that is opposite to the end connected to the device body 2. This water passage duct 6, which is defined inside the dispensing spigot 5, is connected to the water passage duct 3 defined inside the device body 2.

[0020] The device in question also comprises an arm 8 which is associated, by one of its ends, with the dispensing spigot 5 and which terminates, at the opposite end, in a dispensing spray head 9. A corresponding water passage duct 10 is also defined in the arm 8 which can be connected to the water passage duct 3 that is defined in the device body 2.

[0021] According to the invention, the arm 8 is articu-

lated to a region of the dispensing spigot 5 which is spaced apart from the end of said dispensing spigot 5 that is connected to the device body 2.

[0022] Conveniently, the device in question is provided with means for removable retention 11 of the end of the arm 8 that is provided with the dispensing spray head 9, which are proximate to the end of the dispensing spigot 5 that is connected to the device body 2.

[0023] Preferably, the dispensing spigot 5 is connected, by a first end thereof, to the device body 2, and its dispensing outlet 7 is arranged at its opposite end or second end. The arm 8 is articulated to the dispensing spigot 5 at this second end of the dispensing spigot 5.

[0024] More specifically, the dispensing spigot 5 is screwed to a collar 12 that is inserted in the upper end of the device body 2. The collar 12, which acts as a connection between the water passage duct 3 of the device body 2 and the water passage duct 6 of the dispensing spigot 5, is provided, on its lateral surface, with a pair of annular seats 13 inside which corresponding gaskets 14 are arranged, for example of the O-ring type, which ensure the outward seal of the water that flows through the device body 2 and through the dispensing spigot 5. The collar 12 is retained inside the device body 2 by means of a threaded grub screw 15 that engages an anti-friction ring 33 that is inserted in an annular groove 16 defined in the lateral surface of said collar 12. In this manner, although the collar 12 is axially locked inside the device body 2, it can rotate in relation to said device body 2 about an axis 17 that, preferably, coincides with the axis 4 of the device body 2. Due to this, the dispensing spigot 5, which extends preferably at right angles to the axis of the collar 12 and thus at right angles to the axis 4 of the device body 2, is pivoted to the device body 2 and can be rotated in relation to the device body 2 about the axis 17 of the collar 12 which constitutes its pivoting axis.

[0025] The arm 8 is preferably pivoted to the dispensing spigot 5 about a pivoting axis 18 that is substantially parallel to the pivoting axis 17 of the dispensing spigot 5 to the device body 2. Such arm 8 can move from an inactive position, in which it extends in an arc-like shape from the second end of the dispensing spigot 5 to the first end of the dispensing spigot 5 and is retained with the dispensing spray head 9 in proximity to the first end of the dispensing spigot 5 by the aforementioned removable retention means 11, to multiple positions for use, in which it is disengaged with its end provided with the dispensing spray head 9 from the first end of the dispensing spigot 5.

[0026] More specifically, the end of the arm 8 which is opposite to the end that is provided with the dispensing spray head 9, is screwed around an axially-perforated connecting element 19 that is inserted, with a portion thereof, in the dispensing spigot 5. The connecting element 19 passes through a hole 20, which is defined in the second end of the dispensing spigot 5 and aligned with the dispensing outlet 7. The connecting element 19, which can be inserted into the dispensing spigot 5

through the dispensing outlet 7, has, on the portion thereof that is designed to remain inside the dispensing spigot 5, a flanging 21 that has a diameter larger than the hole 20 so that the extraction of the connecting element 19 through said hole 20 from the end opposite to the dispensing outlet 7 is prevented. Conveniently arranged between the flanging 21 and the edge of this hole 20 is a gasket 22 that prevents leaks of water between the arm 8 and the dispensing spigot 5. This gasket 22 is clamped by screwing the arm 8 around the connecting element 19, which constitutes the assembly of the arm 8 onto the dispensing spigot 5.

[0027] The connecting element 19 also acts as a connection between the water passage duct 6 of the dispensing spigot 5 and the water passage duct 10 of the arm 8.

[0028] Preferably, on the dispensing outlet 7 a conventional aerator 23 is arranged which is not described in detail for simplicity.

[0029] Conveniently, the water passage duct 10 of the arm 8 is connected to the water passage duct 6 of the dispensing spigot 5 through a valve element 24 that is adapted to selectively connect the water passage duct 6 of the dispensing spigot 5 to the dispensing outlet 7 or to the water passage duct 10 of the arm 8.

[0030] More specifically, the valve element 24 is constituted by a conventional valve element that operates as a result of a difference in pressure upstream and downstream of the duct portion along which it is arranged. Such valve element 24 is arranged between the dispensing outlet 7 and the connecting element 19 and its position is switched following the opening/closing of the dispensing spray head 9, as illustrated in particular in Figure 6.

[0031] The dispensing spray head 9, connected to the end of the arm 8 opposite to the end thereof that is connected to the dispensing spigot 5, can be constituted by a conventional spray head provided with a button 25 that controls the opening/closing thereof. The dispensing spray head 9 is constructed in such a way that it is closed if the button 25 is not pressed.

[0032] Advantageously, the means of removable retention 11 of the end of the arm 8 that is provided with the dispensing spray head 9, at the first end of the dispensing spigot 5, are of the magnetic type.

[0033] More specifically, there is a permanent magnet 26 inside the dispensing spigot 5, at its first end, and the end of the dispensing spray head 9 which can face the dispensing spigot 5 is made of ferromagnetic material, or there is a ring of ferromagnetic material around this end of the dispensing spray head 9.

[0034] The permanent magnet 26, as illustrated, can be provided as a block arranged within a basket 27 that is accommodated inside the collar 12. Between the basket 27 and the collar 12 there are passages 28 for the water so as to ensure the connection between the water passage duct 3 of the device body 2 and the water passage duct 6 of the dispensing spigot 5, despite the presence of the permanent magnet 26, as illustrated in par-

ticular in Figure 7.

[0035] Advantageously, at least one portion 8a of the arm 8, preferably an intermediate portion of the extension thereof, is flexible.

5 [0036] Conveniently, in the device body 2 there is at least one intake 29, 30 that can be connected to a water supply duct of a plumbing system, and a flow control element 31 is interposed between this intake 29, 30 and the water passage duct 3 of the device body 2.

10 [0037] Preferably, in the device body 2 two intakes 29, 30 are defined which can be connected respectively to a cold water supply duct and to a hot water supply duct. Interposed between these intakes 29, 30 and the water passage duct 3 of the device body 2 there is a flow control element 31, which can be actuated by way of a knob or lever 32 and comprises a mixing cartridge, which is conventional and not shown in detail for the sake of simplicity.

15 [0038] The operation of the device according to the invention is as follows.

20 [0039] Upon opening of the flow control element 31, without pressing the button 25 arranged on the dispensing spray head 9, the water flows through the water passage duct 3 of the device body 2 and through the water passage duct 6 of the dispensing spigot 5 and exits through the dispensing outlet 7, as shown in Figures 1 and 6.

25 [0040] When the user wants to use the dispensing spray head 9 instead of the dispensing outlet 7, he or she grips the dispensing spray head 9 and, overcoming the magnetic attraction exerted by the permanent magnet 26 on the dispensing spray head 9, proceeds to orient it according to requirements, using the rotation of the arm 8 about the pivoting axis 18 relative to the dispensing spigot 5 and optionally using the rotation of the dispensing spigot 5 relative to the device body 2 about the pivoting axis 17, as well as the flexibility of the arm 8 itself.

30 [0041] Once the desired position for the dispensing spray head 9 has been reached, the user actuates the delivery of water through this dispensing spray head 9 by pressing the button 25. Opening the dispensing spray head 9 automatically results in the switching of the position of the valve element 24 which cuts the connection between the water passage duct 6 of the dispensing spigot 5 and the dispensing outlet 7 and opens the connection between said water passage duct 6 of the dispensing spigot 5 and the water passage duct of the arm 8.

35 [0042] In this manner, the water is delivered through the dispensing spray head 9, as illustrated in Figure 2.

40 [0043] When the user releases the button 25 of the dispensing spray head 9, the latter is closed and the position of the valve element 24 is switched again, and once again results in the delivery of water through the dispensing outlet 7.

45 [0044] In practice it has been found that the device according to the invention fully achieves the set aim since, thanks to the fact that the arm with the spray head is articulated to the dispensing spigot in a region thereof which is spaced apart from the device body, it makes it

possible to move the spray head away from the device body to a larger extent than is permitted by conventional devices while offering, furthermore, the possibility of executing this operation without deforming the arm itself and thus maintain a direction of the water jet that is parallel to itself.

[0045] The device, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims; thus, for example, the flow control element may not be integrated in the device but instead be associated with another part of the body of the sanitary fixture and can be of a type different from that described. In this case, the water passage duct that is defined in the device body is connected by way of a tube to the outflow duct of the flow control element which is in a position remote from the device according to the invention.

[0046] In practice the materials employed, and the dimensions, may be any according to requirements and to the state of the art.

[0047] The disclosures in Italian Patent Application No. MI2014A000072 from which this application claims priority are incorporated herein by reference.

[0048] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A water dispensing device with spray head, particularly for sinks or similar hygienic-sanitary fixtures, which comprises:

- a device body (2) that can be associated, by one of its ends, with a hygienic-sanitary fixture such as a sink or the like and in which at least one duct for the passage of water (3) is defined;
- a dispensing spigot (5), which is connected, by one of its ends, to said device body (2); in said dispensing spigot (5) a corresponding duct for the passage of water (6) being defined which leads out through a dispensing outlet (7) and is connected to said water passage duct (3) that is defined in said device body (2);
- an arm (8), which is associated, by one of its ends, with said dispensing spigot (5) and terminates in a dispensing spray head (9); in said arm (8) a corresponding water passage duct (10) being defined which can be connected to said water passage duct (3) that is defined in said device body (2);

characterized in that said arm (8) is articulated to

a region of said dispensing spigot (5) which is spaced from the end of said dispensing spigot (5) which is connected to said device body (2).

2. The device according to claim 1, **characterized in that** it comprises means (11) for the removable retention of the end of said arm (8), which is provided with said dispensing spray head (9), in proximity to the end of said dispensing spigot (5) that is connected to said device body (2).
3. The device according to claim 1, **characterized in that** said dispensing spigot (5) is connected, with a first end thereof, to said device body (2) and **in that** its dispensing outlet (7) is located at its opposite end or second end, said arm (8) being articulated to said dispensing outlet (5) at said second end of the dispensing spigot (5).
4. The device according to one or more of the preceding claims, **characterized in that** said water passage duct (10) of said arm (8) is connected to said water passage duct (6) of said dispensing spigot (5) through a valve element (24) that is adapted to selectively connect said water passage duct (6) of the dispensing spigot (5) to said dispensing outlet (7) or to said water passage duct (10) of the arm (8).
5. The device according to one or more of the preceding claims, **characterized in that** said device body (2) extends around a corresponding axis (4), said dispensing spigot (5) extending substantially at right angles to said axis (4) of the device body (2) and said arm (8) being pivoted to said dispensing spigot (5) about a pivoting axis (18) that is substantially parallel to said axis (4) of the device body (2).
6. The device according to one or more of the preceding claims, **characterized in that** said arm (8) can move from an inactive position, in which it extends in an arc-like shape from said second end of the dispensing spigot (5) to said first end of the dispensing spigot (5) and is retained with said dispensing spray head (9) in proximity to said first end of the dispensing spigot (5) by said removable retention means (11), to multiple positions for use, in which it is disengaged with its end that is provided with said dispensing spray head (9) from said first end of the dispensing spigot (5).
7. The device according to one or more of the preceding claims, **characterized in that** said dispensing spigot (5) is pivoted, with said first end, to said device body (2) about a corresponding pivoting axis (17) that is parallel to the pivoting axis (18) of said arm (8) to said dispensing spigot (5).
8. The device according to one or more of the preceding

claims, **characterized in that** said removable retention means (11) are of the magnetic type.

9. The device according to one or more of the preceding claims, **characterized in that** said arm (8) has at least one flexible portion. 5
10. The device according to one or more of the preceding claims, **characterized in that** the position of said valve element (24) can be switched by the opening or closing of said dispensing spray head (9). 10
11. The device according to one or more of the preceding claims, **characterized in that** an aerator (23) is arranged on said dispensing outlet (7). 15
12. The device according to one or more of the preceding claims, **characterized in that** in said device body (2) there is at least one intake (29, 30) that can be connected to a water supply duct, a flow control element (31) being interposed between said at least one intake (29, 30) and said water passage duct (3) of the device body (2). 20
13. The device according to one or more of the preceding claims, **characterized in that** in said device body (2) there are two intakes (29, 30) that can be connected respectively to a cold water supply duct and to a hot water supply duct, a controllable flow control element (31) being interposed between said intakes (29, 30) and said water passage duct (3) of the device body (2) and comprising a mixing cartridge. 25 30

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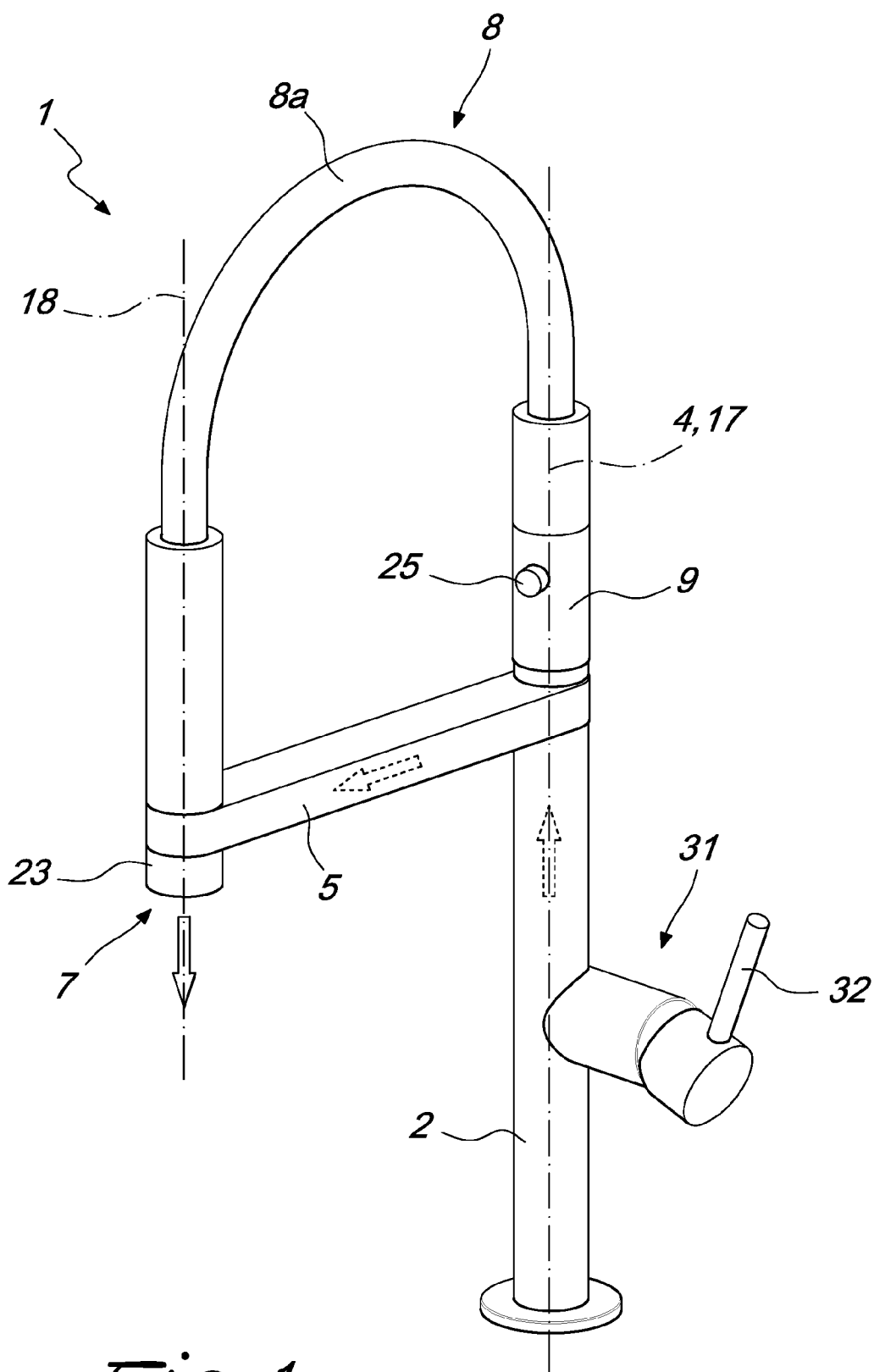


Fig. 1

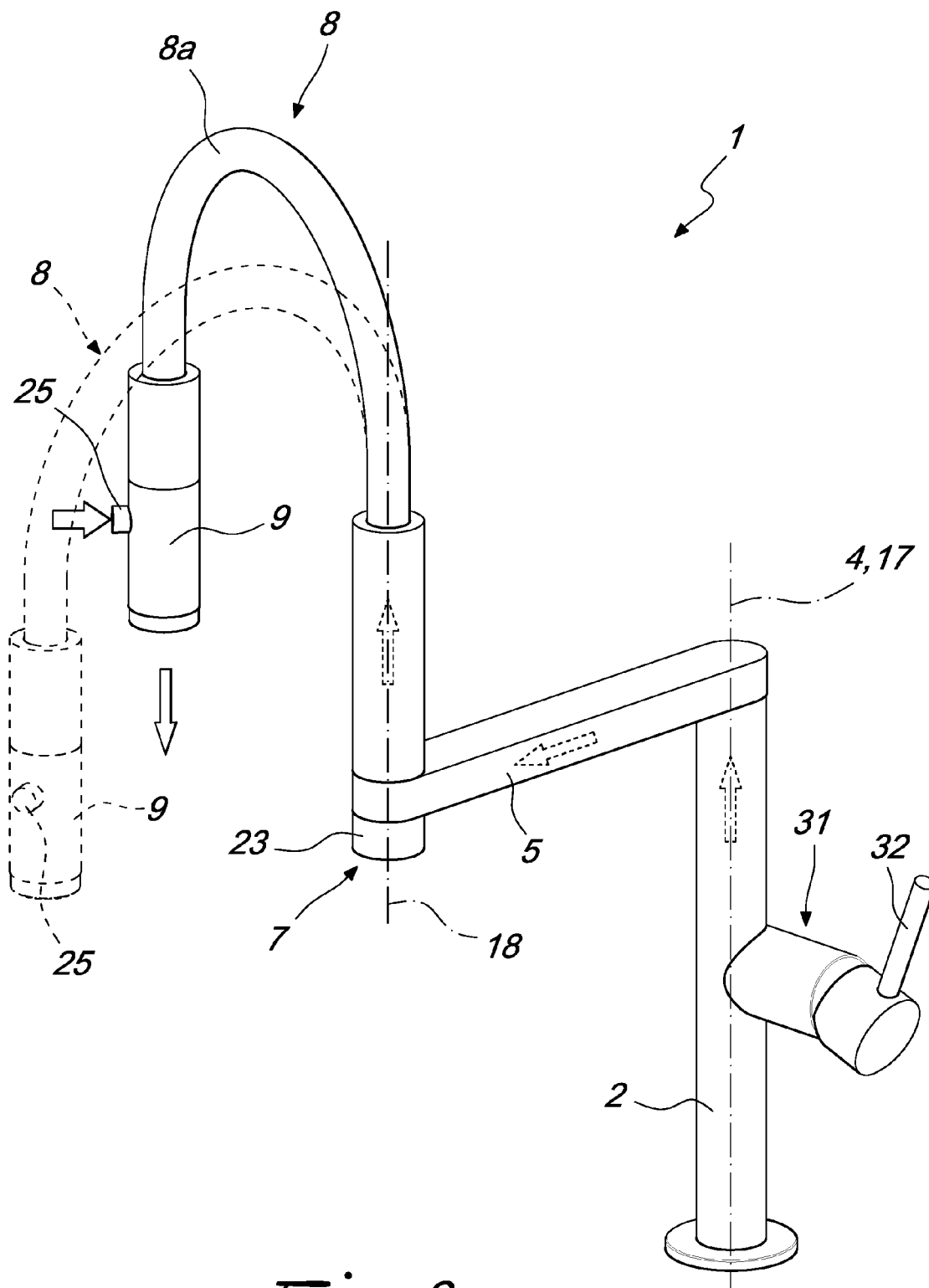


Fig. 2

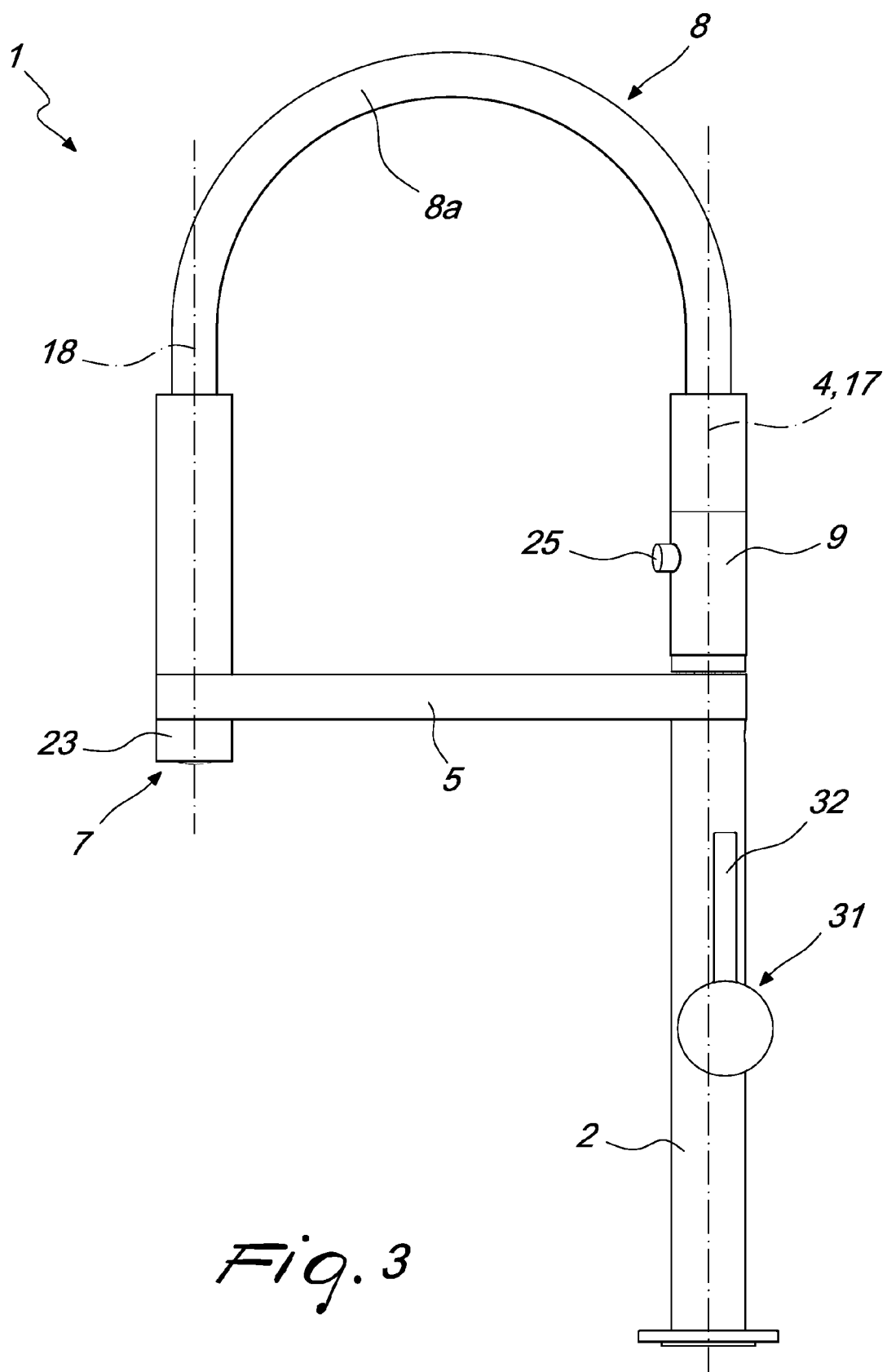
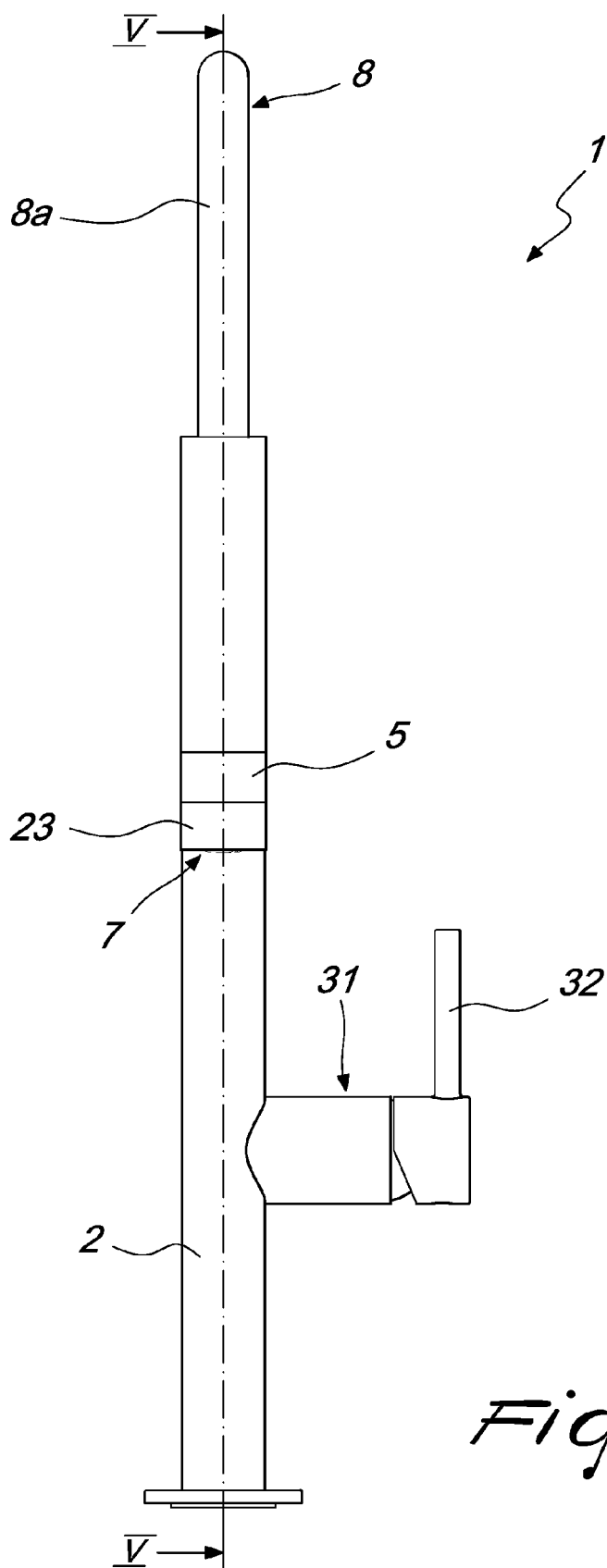
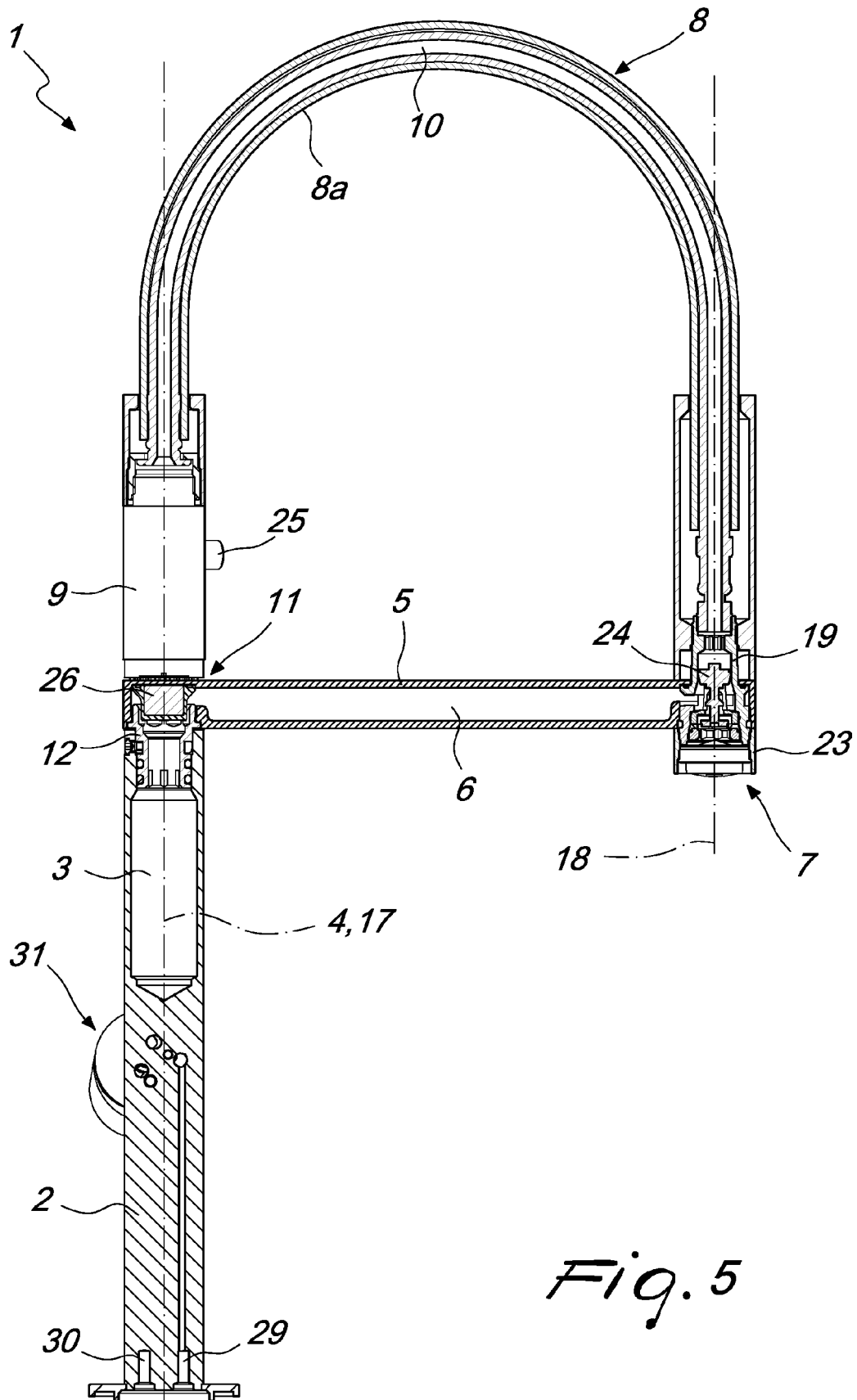
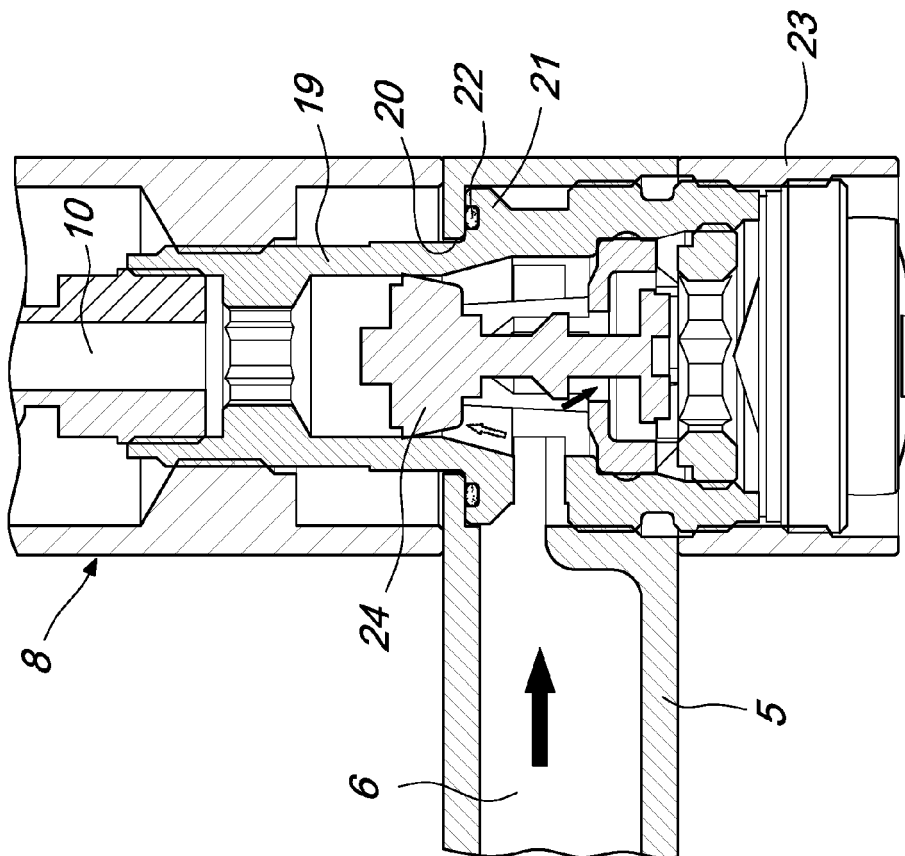
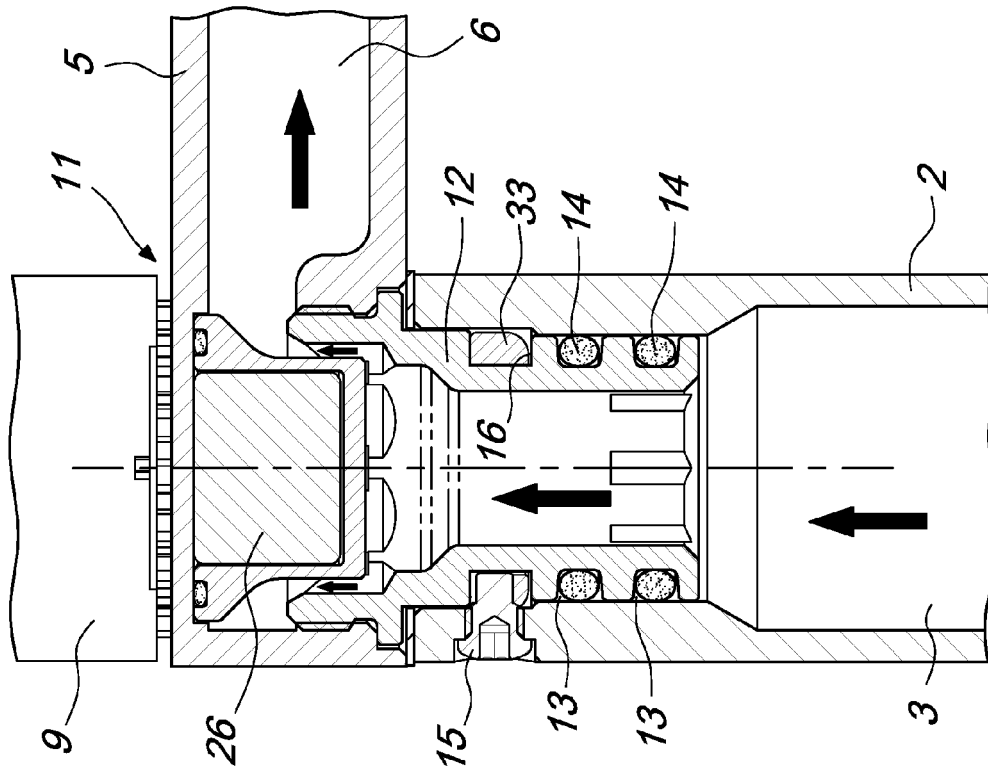


Fig. 3







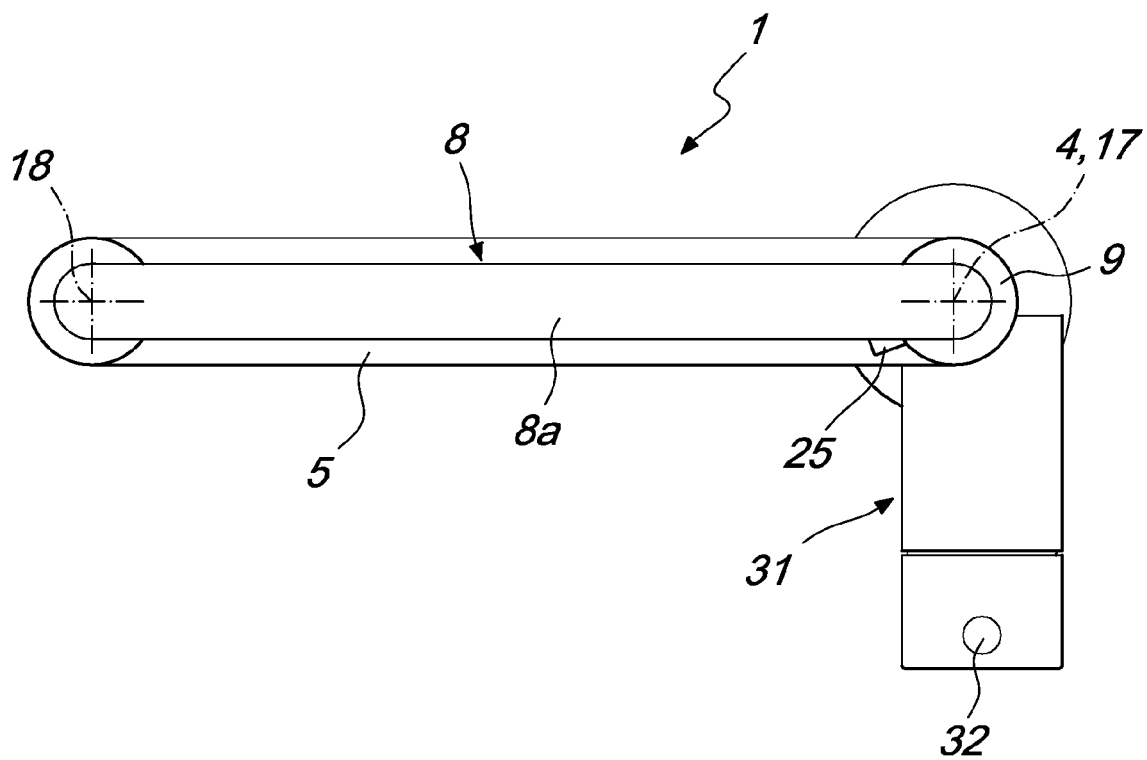


Fig. 8

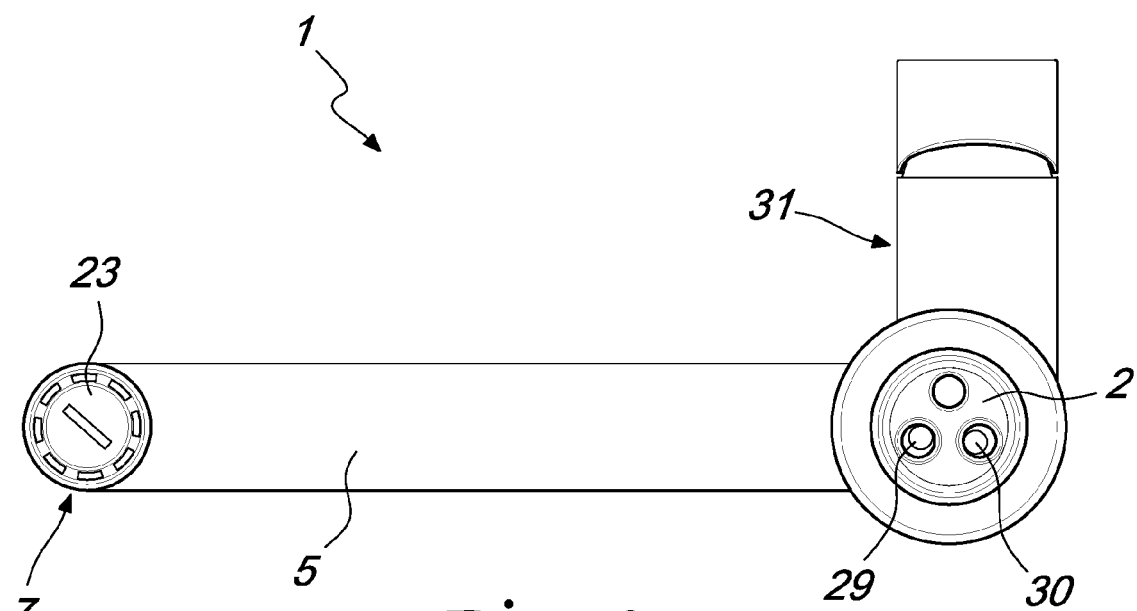


Fig. 9



EUROPEAN SEARCH REPORT

Application Number
EP 15 15 1826

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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	US 1 530 050 A (C.E.JOHNSON) 17 March 1925 (1925-03-17)	1-3,6,7, 12,13	INV. E03C1/04 F16L27/00 F16K31/00
Y	* the whole document *	2	
A		5	

X	WO 2008/136959 A1 (KOHLER CO [US]; MUELLER JEFFREY L [US]; SEMCHUCK MARIO E [US]) 13 November 2008 (2008-11-13)	1,5,7, 11-13	
A	* page 3, paragraph 18 - page 9, paragraph 36; figures *	3,4	

X	US 2007/023094 A1 (YOUNG WU C [TW]) 1 February 2007 (2007-02-01)	1,3-5, 11,12	
Y	* page 1, paragraph 10 - paragraph 12; figures 3, 4 *	2	
A		6,13	

X	US 2006/180222 A1 (KANG HAK K [KR]) 17 August 2006 (2006-08-17)	1,3,9, 12,13	
A	* page 2, paragraph 23 - page 3, paragraph 51; figures 2-4 *	5,6	

A	US 2013/019974 A1 (LAERA VITO [US]) 24 January 2013 (2013-01-24)	1,3,7, 12,13	TECHNICAL FIELDS SEARCHED (IPC)
	* page 1, paragraph 17 - page 3, paragraph 30; figures *		E03C F16L F16K

The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 27 May 2015	Examiner Fajárnés Jessen, A
CATEGORY OF CITED DOCUMENTS		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 03.82 (P04C01)

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ON EUROPEAN PATENT APPLICATION NO.**

EP 15 15 1826

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27-05-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 1530050 A	17-03-1925	NONE	
WO 2008136959 A1	13-11-2008	BR PI0811449 A2 CA 2686583 A1 CN 101688386 A EP 2145052 A1 US 2008277927 A1 WO 2008136959 A1	29-10-2014 13-11-2008 31-03-2010 20-01-2010 13-11-2008 13-11-2008
US 2007023094 A1	01-02-2007	NONE	
US 2006180222 A1	17-08-2006	CN 1818444 A JP 4319193 B2 JP 2006219976 A US 2006180222 A1	16-08-2006 26-08-2009 24-08-2006 17-08-2006
US 2013019974 A1	24-01-2013	US 2013019974 A1 WO 2013012510 A2	24-01-2013 24-01-2013

EPO FORM P0459

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- IT MI20140072 A [0047]