(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 049 740 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
27.08.2014 Bulletin 2014/35

(21) Application number: **07787759.5**

(22) Date of filing: **20.07.2007**

(51) Int Cl.:
E03C 1/042 *(2006.01)*

(86) International application number:
PCT/EP2007/057504

(87) International publication number:
WO 2008/017578 (14.02.2008 Gazette 2008/07)

(54) **PERFECTED UNIT FOR DISPENSING MIXED WATER**

VERBESSERTE EINHEIT ZUR ABGABE VON MISCHWASSER

UNITÉ AMÉLIORÉE DE DISTRIBUTION D'EAU MÉLANGÉE

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(30) Priority: **09.08.2006 IT VI20060251**

(43) Date of publication of application:
22.04.2009 Bulletin 2009/17

(73) Proprietor: **Malasorti, Natalino**
36061 Bassano Del Grappa (VI) (IT)

(72) Inventor: **Malasorti, Natalino**
36061 Bassano Del Grappa (VI) (IT)

(74) Representative: **Bonini, Ercole**
Studio Bonini Srl
Corso Fogazzaro, 8
36100 Vicenza (IT)

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EP 2 049 740 B1

Description

[0001] The invention concerns a perfected unit for dispensing mixed water, particularly suited to be used in sanitary water dispensing systems.

[0002] It is known that the units for dispensing mixed water substantially comprise a mixer provided with ways for the inlet of hot and cold water coming from the water mains, with an outlet for the outflow of the mixed water connected to a dispenser and with one or more pins, each one of which is connected to a manoeuvring handle that allows the user to control the dispensed water flow. When dispensing units are to be built into walls, first of all a compartment with suitable dimensions is created into the wall and then the mixer is fitted into it. The ways of the mixer are then connected to the ends of the pipes of the hot and cold water distribution network and to the end of the dispenser supply pipe.

[0003] If this is positioned at a certain distance from the mixer, like for example in the case of a shower head, this is connected to the mixer via a rigid or flexible pipe, depending on the case.

[0004] After carrying out the above mentioned connections, the compartment created in the wall is sealed with mortar, taking care that the pin or pins for application of the handle or handles project/s from the wall.

[0005] At this point the work can be terminated by applying plaster or another type of covering.

[0006] Once the installation has been completed, therefore, the ends of the pin or pins with the corresponding handles project from the wall.

[0007] All the known dispensing systems available on the market require the operations described above to be carried out, even if they differ from one another as to execution and appearance.

[0008] They therefore pose the drawback that to replace the dispensing unit it is necessary to demolish the wall in the point where the mixer has been installed, disconnect the ends of the pipes from the ways of the mixer to be replaced, fit the new mixer in the compartment created in the wall, connect its ways to the ends of the pipes and finally close the compartment again with mortar and complete the work.

[0009] It is clear that this forces the user to bear costs that are often high, considering the time required for carrying out these operations and the high costs of the specialized technicians who work in this sector.

[0010] Furthermore, the user also has to suffer the nuisance deriving from the execution of demolition work inside his/her house/flat.

[0011] These operations are so complex and expensive that they are carried out only in case of failure and when the replacement of the mixer is absolutely necessary.

[0012] In the attempt to overcome the drawbacks mentioned above, the holder of this patent application has registered in his own name a patent concerning a unit for dispensing mixed water in which the mixer is associated with a support flange from which the manoeuvring handle projects and which is arranged so as to close a box-shaped body.

[0013] This houses the mixer and the ends for connection to the pipes and in turn is housed in a compartment created in the wall.

[0014] This embodiment avoids the need to carry out demolition work when the mixer must be replaced, but still poses some acknowledged drawbacks.

[0015] In fact, in case of replacement of the mixer it is always necessary to disconnect and reconnect the ends and these operations must be carried out by specialized technicians.

[0016] Furthermore, the support flange that closes the box-shaped body is constructed in such a way as to be able to house a specific type of mixer that, therefore, cannot be replaced with any other type of mixer chosen by the user, even if produced by the same manufacturer.

[0017] *The documents* DE 18 11 936 A1 *and* DE 38 26 064 A1 *disclose arrangements for dispensing mixed water wherein the connection between a manifold unit for the distribution of cold and hot water and the dispensing unit is realized in telescopic form to adapt the arrangement to different depths of the wall where the arrangement has to be installed.*

[0018] *The document* DE 1 809 022 *describes a dispensing unit for mixed water according to the preamble of claim 1, provided with a telescopic connection between manifold unit and dispensing unit. The manifold unit is realized by two elbow connectors which are only fixed in a determined position after the connection to the dispensing unit has been taken place. This renders the system independent from the position of the feed lines in the wall. The connection is effected by coupling nuts with squeeze-type gaskets. Supplemental security is given by an additional screw.*

[0019] The present invention aims to overcome the drawbacks listed above and to simplify the connection of the ends.

[0020] In particular, it is a first object of the invention to construct a unit for dispensing mixed water in which the mixer can be removed and replaced with no need for intervention on the building work.

[0021] It is a further object of the invention to allow for replacement of the mixer with no need for tools for disconnecting and reconnecting the pipe ends.

[0022] The objects described above have been achieved through the construction of a unit for dispensing mixed water according to the contents of the main claim, to which the reader should refer for the sake of brevity.

[0023] Other details of the dispensing unit are described in the dependent claims.

[0024] To advantage, since the dispensing unit that is the subject of the invention allows for replacement of the mixer with no need for demolition work, it makes it possible to reduce maintenance times and costs.

[0025] Still to advantage, the simplicity and low cost of this operation facilitate the user if he/she wishes to re-

place the mixer even only for aesthetical reasons. The objects and advantages described above will be highlighted in greater detail in the description of preferred embodiments of the invention that are supplied as indicative, non-limiting examples with reference to the enclosed drawings, wherein:

- Figure 1 shows a schematic axonometric view of the dispensing unit that is the subject of the invention;
- Figure 1 a shows an application of the dispensing unit schematically shown in Figure 1;
- Figure 1b shows an exploded axonometric view of the unit of Figure 1;
- Figure 2 shows a schematic axonometric view of a construction variant of the dispensing unit that is the subject of the invention;
- Figure 2a shows an application of the construction variant of the dispensing unit schematically shown in Figure 2;
- Figure 2b shows an exploded axonometric view of the unit of Figure 2;
- Figure 3 shows a schematic cross-section of the dispensing unit of the invention according to the embodiment shown in Figure 1;
- Figure 4 shows an exploded view of Figure 3;
- Figures 5 and 6 show two different views of a detail of the dispensing unit of the invention according to the embodiment shown in Figure 1;
- Figures 7 and 8 show two different views of a detail of the dispensing unit of the invention according to the construction variant shown in Figure 2;
- Figure 9 shows an axonometric view of the dispensing unit schematically shown in Figure 1;
- Figure 10 shows an axonometric view of the construction variant of the dispensing unit schematically shown in Figure 2;
- Figure 11 shows an exploded view of the dispensing unit of Figure 9;
- Figure 12 shows an exploded view of the construction variant of the dispensing unit of Figure 10;
- Figures 13 and 14 show two different assembly positions of the dispensing unit that is the subject of the invention, with reference to the construction variant shown in Figure 10.

[0026] The dispensing unit for mixed water that is the subject of the invention is represented in a schematic axonometric view in Figure 1 and in an exploded axonometric view in Figure 1b, where it is indicated as a whole by **1.**

[0027] It can be observed that it comprises a mixer unit **2** provided with a pair of manoeuvring handles **3** at the disposal of the user, in which there are a first inlet way **4** for hot water, a second inlet way **5** for cold water and an outlet way **6** for the mixed water to be conveyed towards a dispenser **7.**

[0028] For the sake of clarity, the casing **2a** that covers the handles **3** has been partially removed from the mixer.

[0029] Each handle **3** manoeuvres a tap **4a, 5a** to modulate the flows that converge in the outlet way **6** through the inlet ways **4, 5.**

[0030] According to the invention, the dispensing unit **1** also comprises a manifold unit **8** provided with a plurality of mouths **12,** separate from the mixer unit **2** and interposed between a water supply network **9** and the mixer unit **2,** to which it is connected mechanically through adjustable positioning and fixing means **10** and hydraulically through tubular units **11** that connect at least each one of the inlet ways **4, 5** of the mixer unit **2** to a corresponding mouth **12** of the manifold unit **8.**

[0031] According to the embodiment to which the construction configurations of Figures 1 and 1b and the system configuration of Figure 1 a refer, Figures from 3 to 8 show that the dispenser **7** is directly connected to the outlet way **6** of the mixer unit **2,** while the manifold unit **8** comprises a prismatic body **8a** in which the mouths **12** comprise:

- a first inlet mouth **13** connected to a hot water supply pipe **9a** of the water supply network **9;**
- a first channel **14** that places the first inlet mouth **13** in communication with a first outlet mouth **15;**
- a second inlet mouth **16** connected to a cold water supply pipe **9b** of the water supply network **9;**
- a second channel **17** that places the second inlet mouth **16** in communication with a second outlet mouth **18.**

[0032] The connection between the manifold unit **8** and the mixer **2** takes place through the above mentioned tubular units **11** that comprise:

- a first tubular unit **19** that connects the first outlet mouth **15** of the manifold unit **8** to the first inlet way **4** of the mixer unit **2;**
- a second tubular unit **20** that connects the second outlet mouth **18** of the manifold unit **8** to the second inlet way **5** of the mixer unit **2.**

[0033] The dispensing unit **1** just described is suited to be used for applications of the type represented in Figure 1a where, for example, there is a bathtub **V** or a basin (not represented).

[0034] The paths of the hot, cold and mixed water are represented in Figure 1 by the arrows **C, F** and **M,** respectively.

[0035] From the system point of view, the dispensing unit **1** shown in Figure 1 a is visible in the cross sections of Figures 3 and 4, in which it can be observed that the manifold unit **8** is inserted in a compartment **A** created in the wall **B** where it is stable owing to the connection to the cold and hot water pipes **9b** and **9a** respectively, which make up the water distribution network **9,** and due to the fact that it is fixed with mortar.

[0036] The mixer unit **2,** instead, is arranged against the wall **B,** being connected to the manifold unit **8** hy-

draulically through the above mentioned tubular units **11** and mechanically through the adjustable positioning and fixing means **10.**

[0037] In particular, the mixer unit **2** is of the type known per se and can be provided with two manoeuvring handles **3** as shown in the drawings or with a single manoeuvring handle.

[0038] As regards the tubular units **19** and **20,** indicated as a whole by **11,** it can be observed, in particular in Figure 1b, that:

- the first tubular unit **19** comprises a first tubular element **19a** associated through first union elements **21** with the first outlet mouth **15** of the manifold **8** and a first tubular body **19b** associated through first union means **22** with the first inlet way **4** of the mixer **2;**
- the second tubular unit **20** comprises a second tubular element **20a** associated through second union elements **23** with the second outlet mouth **18** of the manifold **8** and a second tubular body **20b** associated through second union means **24** to the second inlet way 5 of the mixer **2.**

[0039] Each tubular element **19a, 20a** is telescopically fitted inside a corresponding tubular body **19b, 20b** as shown in Figure 3 and they achieve mutual water tightness through the interposition of one or more annular gaskets **19c, 20c** with radial seal.

[0040] As regards the union elements **21, 23,** it can be observed that each one of them comprises a spherical head **21a, 23a** created at one end of the respective tubular element **19a, 20a,** which is housed in a spherical seat **21 b, 23b** made in the corresponding mouth **15, 18** of the manifold unit **8** and a threaded nipple **25, 26** arranged so as to pass through the corresponding tubular element **19a, 20a** for connection.

[0041] A gasket **27, 28** is interposed between each spherical seat **21b, 23b** and the spherical head **21a, 23a** to ensure water tightness.

[0042] As regards the union means **22, 24,** each of them comprises a threaded tubular area with lowered diameter **22a, 24a** created at one end of each tubular body **19b, 20b** which is coupled with a nut screw present in the respective way **4, 5,** with the interposition of a gasket **29, 30.**

[0043] Outside each tubular body **19b, 20b** there is a prismatic profile **32a, 32b** for coupling a manoeuvring fork wrench.

[0044] As regards, on the other hand, the adjustable positioning and fixing means **10,** it can be observed that they comprise two screws **31** each of which is associated with the manifold **8** via first connection means **33** and to the mixer **2** via second connection means **35.**

[0045] As regards the first connection means **33,** each of them comprises a spherical head **33a** created at one end of each screw **31** that is housed in a housing with spherical profile **33b** made in the manifold body **8** and a threaded nipple **37** that connects the spherical head **33a** in the spherical housing **33b,** similarly to the already described connection of each tubular element **19a, 20a** to the manifold body **8.**

[0046] As regards, on the other hand, the second connection means **35,** each of them comprises a nut **35a** arranged in a through hole **35b** made in the mixer **2,** which is coupled at the end **33c** of the screw **31** arranged on the opposite side of the spherical head **33a** and inserted in the through hole **35b.**

[0047] With reference to Figures 3 and 4, it is clear that the combination of the tubular units **11** with the adjustable positioning and fixing means **10** makes it possible to install the dispensing unit **1** of the invention in a wall, according to a configuration that, if needed or desired by the user, allows the mixer **2** to be replaced with no need for intervention on the building work.

[0048] In fact, it can be observed that to install the dispensing unit **1,** after inserting the manifold unit **8** in the compartment **A** created in the wall **B** and connecting it to the pipes **9a, 9b** of the water network **9,** each tubular element **19a, 20a** and each screw **31** are connected to it.

[0049] The manifold unit **8** is then fixed with mortar according to the known technique. At this point the mixer unit **2** is assembled, by fitting each tubular element **19a, 20a** in the corresponding tubular body **19b, 20b** and at the same time inserting the ends **33c** of the screws **31** in the holes **35b** of the mixer **2.** When the mixer unit **2** rests against the wall **B** as shown in Figure 3, the nuts **35a** are locked from the outside, using a suitable manual tool and thus obtaining the stability of the mixer unit **2** with respect to the manifold unit **8** and against the wall **B.**

[0050] The dispensing unit of the invention, in a construction variant, is represented in Figures 2 and 2b, while an application of the same is shown in Figure 2a, where it is indicated as a whole by **100.**

[0051] Analogously to the embodiment described above, it still comprises a mixer unit **102** and a manifold unit **108,** but differs from it due to the fact that the tubular units **110** that connect the manifold unit **108** and the mixer unit **102** also comprise a third tubular unit **200,** exactly the same as any one of the tubular units **19** and **20** indicated as a whole by **11.**

[0052] Therefore, the manifold unit **108** also comprises:

- a third inlet mouth **160** connected to the outlet way **60** of the mixed water coming from the mixer **102** through the above mentioned third tubular unit **200;**
- a third channel **170** that places the above mentioned third inlet mouth **160** in communication with a third outlet mouth **180** of the mixed water.

[0053] This is connected to the dispenser **70** via a pipe **190,** the dispenser being in this case arranged in a remote position, as can be observed for instance in the case of a shower system **T** as shown in Figure 2a.

[0054] Both embodiments of the dispensing unit described herein are shown in axonometric views in the

Figures from 9 to 14.

[0055] In this way the embodiment of the dispensing unit 1 of the invention according to the exemplification of Figure 1 can be observed in Figure 9 and in Figure 11, where the mixer unit **2** comprises two handles **3** each of which, as previously explained, is coupled to a pin **3a** to manoeuvre a corresponding tap **4a, 5a** that modulates the flows that from the inlet ways **4, 5** converge in the outlet way **6.** It is possible to observe the tubular units **19, 20** and the adjustable positioning and fixing screws **31** that connect the mixer unit **2** to the manifold unit **8,** the latter being in turn connected to the distribution network **9.**

[0056] Analogously, Figures 10 and 12 show an embodiment of the dispensing unit indicated by **100.**

[0057] With particular reference to Figures 11 and 12, it can be observed that the tubular units **19, 20** and **200,** being telescopic, allow the mixer unit **2** and **102** to be easily connected and disconnected after installing the corresponding manifold unit **8** and **108** and that their mutual fastening takes place in a simple way, by locking the nuts **35a** at the ends of the screws **31** as previously described.

[0058] In particular, in the embodiment shown in Figure 1, the dispensing unit **1** is suited for application to a wall as shown in Figure 1 a and in general for all the applications where the dispenser **7** is associated with the mixer unit **2.**

[0059] In the embodiment shown in Figure 12, the dispensing unit **100** is suitable for applications where the dispenser **70** is in a remote position, for example in a shower system T as shown in Figure 2a.

[0060] In both the embodiments described above, the particular configuration with spherical head of the tubular units **11** and **110** and of the adjustable positioning and fixing means **10** ensures the articulation of the mixer unit **2; 102** with respect to the manifold unit **8; 108** during the assembly stage, in such a way as to recover any lack of parallelism.

[0061] In this way it is possible to install the mixer **2; 102** always in level position against the corresponding support wall **B,** even if it is not parallel to the manifold unit **8; 108** installed in the compartment **A**.

[0062] In Figures 13 and 14, which indicatively show only the dispensing unit **100** in the configuration with three tubular units **110,** it can be observed that the above mentioned articulation ensures the inclination of the mixer unit **2; 102** with respect to the manifold unit **8; 108,** and vice versa, in such a way as to arrange the mixer unit **2; 102** always level with the outer surface of the wall B and resting against it.

[0063] On the basis of what has been described, it is clear that the dispensing unit of the invention, in both the embodiments described, achieves all the set objects. In fact, the presence of the tubular units and of the adjustable positioning and fixing means with spherical head allows any misalignment between the manifold unit and the mixer unit to be corrected with no need for the installer to worry about their alignment during installation.

[0064] Furthermore, in case of failure the mixer unit can be replaced with no need for building work.

[0065] Finally, the mixer can be easily replaced with another one whose shape is more appealing for the user.

[0066] In the construction phase, further changes and modifications can be made to the dispensing unit of the invention, which are neither represented nor described herein, but which must all be considered protected by the present patent if they fall within the scope of the following claims.

[0067] Where technical features mentioned in any claim are followed by reference signs, those reference sings 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. Unit (1; 100) for dispensing mixed water, comprising a mixer unit (2; 102) provided with at least one manoeuvring handle (3) at the disposal of the user and having a first inlet way (4) for hot water, a second inlet way (5) for cold water and an outlet way (6; 60) for conveying mixed water towards a dispenser (7; 70); further comprising a manifold unit (8; 108) provided with a plurality of mouths (12), separate from said mixer unit (2; 102) and interposed between a water supply network (9) and said mixer unit (2; 102) to which it is connected mechanically through adjustable positioning and fixing means (10) and hydraulically through tubular units (11, 19, 20; 110; 200) that connect at least each one of said inlet ways (4; 5) of said mixer unit (2; 102) to a corresponding one of said mouths (12) of said manifold unit (8; 108) wherein each one of said tubular units (11, 19, 20; 110, 200) comprises a tubular element (19a; 20a) engaged through union elements (21; 23) in a corresponding mouth (15; 18; 160) of said manifold unit (8; 108) and a tubular body (19b; 20b) engaged through union means (22; 24) in a corresponding way (4; 5; 60) of said mixer (2; 102), each one of said tubular elements (19a; 20a) being telescopically fitted in a corresponding tubular body (19b; 20b), **characterized in that** each one of said first union elements (21; 23) comprises:

- one spherical head (21 a; 23a) created at one end of the corresponding tubular element (19a; 20a);
- one spherical seat (21b; 23b) made in the corresponding mouth (15; 18) of said manifold unit (8; 108) that houses said spherical head (21 a; 23a);
- a threaded nipple (25; 26) for fitting said spher-

ical head (21 a; 23a) in said spherical seat (21b; 23b),

and in that said adjustable positioning and fixing means (10) comprise two or more screws (31) each of which is associated with said manifold (8; 108) via first connection means (33) and to said mixer (2; 102) via second connection means (35), wherein each of said first connection means (33) comprises:

- one spherical head (33a) created at one end of said screw (31);
- one spherical housing (33b) created in said manifold (8; 108);
- one threaded nipple (37) for fitting said spherical head (33a) in said spherical housing (33b),

and wherein each one of said second connection means (35) comprises a nut (35a) arranged in a through hole (35b) made in said mixer (8; 108) and screwed at one end (33c) of said screw (31) inserted in said through hole (35b).

2. Dispensing unit (1) according to claim 1), **characterized in that** said manifold unit (8) comprises:

- a first inlet mouth (13) connected to a hot water supply pipe (9a) belonging to said water supply network (9);
- a first channel (14) that places said first inlet mouth (13) in communication with a first outlet mouth (15);
- a second inlet mouth (16) connected to a cold water supply pipe (9b) belonging to said water supply network (9);
- a second channel (17) that places said second inlet mouth (16) in communication with a second outlet mouth (18);

and wherein said tubular units (11) comprise:

- a first tubular unit (19) that connects said first outlet mouth (15) of said manifold unit (8) to said first inlet way (4) of said mixer unit (2);
- a second tubular unit (20) that connects said second outlet mouth (18) of said manifold unit (8) to said second inlet way (5) of said mixer unit (2);

said dispenser (7) being directly connected to said outlet way (6) for said mixed water coming from said mixer (2).

3. Dispensing unit (100) according to claim 1), **characterized in that** said manifold unit (108) comprises:

- a first inlet mouth (13) connected to a hot water supply pipe (9a) belonging to said water supply network (9);
- a first channel (14) that places said first inlet mouth (13) in communication with a first outlet mouth (15);
- a second inlet mouth (16) connected to a cold water supply pipe (9b) belonging to said water supply network (9);
- a second channel (17) that places said second inlet mouth (16) in communication with a second outlet mouth (18);
- a third inlet mouth (160) connected to said outlet way (60) of said mixed water coming from said mixer unit (102);
- a third channel (170) that places said third inlet mouth (160) in communication with a third outlet mouth (180) of said mixed water, and wherein said tubular units (110) comprise:
- a first tubular unit (19) that connects said first outlet mouth (15) of said manifold unit (108) to said first inlet way (4) of said mixer unit (102);
- a second tubular unit (20) that connects said second outlet mouth (18) of said manifold unit (108) to said second inlet way (5) of said mixer unit (102);
- a third tubular unit (200) that connects said third inlet mouth (160) of said manifold unit (108) to said outlet way (60) of said mixed water coming from said mixer (102);

wherein a pipe (190) connects said third outlet mouth (180) of said manifold unit (108) to said dispenser (70).

4. Dispensing unit (1; 100) according to claim 1), **characterized in that** at least one annular gasket (19c; 20c) with radial seal is interposed between each one of said tubular elements (19a; 20a) and said corresponding tubular body (19b; 20b).

5. Dispensing unit (1; 100) according to claim 1), **characterized in that** it comprises at least one gasket (27; 28) interposed between said spherical head (21 a; 23a) and said spherical seat (21b; 23b).

6. Dispensing unit (1; 100) according to claim 1), **characterized in that** said nipple (25; 26) is arranged so as to pass through said tubular element (19a; 20a).

7. Dispensing unit (1; 100) according to claim 1), **characterized in that** each one of said union means (22; 24) comprises a threaded tubular area with lowered diameter (22a; 24a) created at one end of each tubular body (19b; 20b) that fits in a corresponding nut screw present in the corresponding way (4; 5).

8. Dispensing unit (1; 100) according to claim 7), **characterized in that** it comprises at least one gasket (29; 30) interposed between said threaded tubular area with lowered diameter (22a; 24a) of each tubular element (19a; 20a) and said corresponding nut

screw.

Patentansprüche

1. Einheit (1; 100) zur Ausgabe von vermischtem Wasser, eine Mischeinheit (2; 102) mit wenigstens einem Bedienhebel (3) für den Benutzer umfassend sowie eine ersten Zuleitung (4) für Heißwasser, eine zweite Zuleitung (5) für Kaltwasser und eine Abflussleitung (6; 60), die das vermischte Wasser zu einem Spender (7; 70) leitet, des Weiteren einen Verteilerblock (8; 108) mit einer Vielzahl Öffnungen (12) umfassend, der von der besagten Mischeinheit (2; 102) getrennt und zwischen einem Wasserversorgungsnetz (9) und der besagten Mischeinheit (2; 102) positioniert ist, mit welcher er mechanisch über verstellbare Positionier- und Befestigungsmittel (10) und hydraulisch über röhrenförmige Einheiten (11, 19, 20; 110; 200) verbunden ist, die wenigstens jede der besagten Zuleitungen (4; 5) der besagten Mischeinheit (2; 102) mit je einer entsprechenden Öffnung (12) des besagten Verteilerblocks (8; 108) verbinden, wobei jede der besagten röhrenförmigen Einheiten (11, 19, 20; 110, 200) ein röhrenförmiges Element (19a; 20a) umfasst, das durch Verbindungselemente (21; 23) in eine entsprechende Öffnung (15; 18; 160) des besagten Verteilerblocks (8; 108) eingreift, sowie einen röhrenförmigen Körper (19b; 20b), der durch Verbindungselemente (22; 24) in eine entsprechende Leitung (4; 5; 60) des besagten Mischers (2; 102) eingreift, wobei jedes der röhrenförmigen Elemente (19a; 20a) ausziehbar in einen entsprechenden röhrenförmigen Körper (19b; 20b) eingepasst ist, **dadurch gekennzeichnet, dass** jedes der besagten, ersten Verbindungselemente (21; 23) Folgendes umfasst:

- einen kugelförmigen Kopf (21 a; 23a), ausgeführt an einem Ende des entsprechenden, röhrenförmigen Elements (19a; 20a);
- einen kugelförmigen Sitz (21b; 23b), ausgeführt in der entsprechenden Öffnung (15; 18) des besagten Verteilerblocks (8; 108) zur Aufnahme des besagten, kugelförmigen Kopfs (21 a; 23a);
- einen Gewindenippel (25; 26) zum Einpassen des besagten, kugelförmigen Kopfs (21 a; 23a) in den besagten, kugelförmigen Sitz (21b; 23b),

und dadurch, dass die besagten, verstellbaren Positionier- und Befestigungsmittel (10) zwei oder mehrere Schrauben (31) umfassen, von denen jede über erste Verbindungsmittel (33) dem besagten Verteilerblock (8; 108) zugeordnet ist und über zweite Verbindungsmittel (35) dem besagten Mischer (2; 102), wobei jedes der besagten, ersten Verbindungsmittel (33) Folgendes umfasst:

- einen kugelförmigen Kopf (33a), gefertigt an einem Ende der besagten Schraube (31);
- eine kugelförmige Aufnahme (33b) in dem besagten Verteilerblock (8; 108);
- einen Gewindenippel (37) zum Einpassen des besagten, kugelförmigen Kopfs (33a) in der besagten, kugelförmigen Aufnahme (33b),

und wobei jedes der besagten zweiten Verbindungsmittel (35) eine Mutter (35a) umfasst, die in einer Durchgangsbohrung (35b) in dem besagten Mischer (8; 108) positioniert ist und an einem Ende (33c) der besagten, in die besagte Durchgangsbohrung (35b) eingefügten Schraube (31) angeschraubt ist.

2. Ausgabeeinheit (1) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** der besagte Verteilerblock (8) Folgendes umfasst:

- eine erste Einlassöffnung (13), die mit einem zu dem besagten Wasserversorgungsnetz (9) gehörigen Heißwasser-Versorgungsrohr (9a) verbunden ist;
- einen ersten Kanal (14), der die besagte erste Einlassöffnung (13) mit einer ersten Auslassöffnung (15) in Kommunikation versetzt;
- eine zweite Einlassöffnung (16), die mit einem zu dem besagten Wasserversorgungsnetz (9) gehörigen Kaltwasser-Versorgungsrohr (9b) verbunden ist;
- einen zweiten Kanal (17), der die besagte zweite Einlassöffnung (16) mit einer zweiten Auslassöffnung (18) in Kommunikation versetzt,

und wobei die besagten, röhrenförmigen Einheiten (11) Folgendes umfassen:

- eine erste röhrenförmige Einheit (19), die die besagte erste Auslassöffnung (15) des besagten Verteilerblocks (8) mit der besagten ersten Zuleitung (4) der besagten Mischeinheit (2) verbindet;
- eine zweite röhrenförmige Einheit (20), die die besagte zweite Auslassöffnung (18) des besagten Verteilerblocks (8) mit der besagten zweiten Zuleitung (5) der besagten Mischeinheit (2) verbindet;

wobei der besagte Spender (7) direkt mit der besagten Abflussleitung (6) für das besagte, aus dem besagten Mischer (2) auslaufende vermischte Wasser verbunden ist.

3. Ausgabeeinheit (100) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** der besagte Verteilerblock (108) Folgendes umfasst:

- eine erste Einlassöffnung (13), die mit einem zu dem besagten Wasserversorgungsnetz (9) gehörigen Heißwasser-Versorgungsrohr (9a) verbunden ist;

- einen ersten Kanal (14), der die besagte erste Einlassöffnung (13) mit einer ersten Auslassöffnung (15) in Kommunikation versetzt;
- eine zweite Einlassöffnung (16), die mit einem zu dem besagten Wasserversorgungsnetz (9) gehörigen Kaltwasser-Versorgungsrohr (9b) verbunden ist;
- einen zweiten Kanal (17), der die besagte zweite Einlassöffnung (16) mit einer zweiten Auslassöffnung (18) in Kommunikation versetzt;
- eine dritte Einlassöffnung (160), die mit der besagten Abflussleitung (60) für das besagte, aus der besagten Mischeinheit (102) auslaufende vermischte Wasser verbunden ist;
- einen dritten Kanal (170), der die besagte dritte Einlassöffnung (160) mit einer dritten Auslassöffnung (180) für das besagte vermischte Wasser in Kommunikation versetzt,

und wobei die besagten röhrenförmigen Einheiten (110) Folgendes umfassen:

- eine erste röhrenförmige Einheit (19), die die besagte erste Auslassöffnung (15) des besagten Verteilerblocks (108) mit der besagten ersten Zuleitung (4) der besagten Mischeinheit (102) verbindet;
- eine zweite röhrenförmige Einheit (20), die die besagte zweite Auslassöffnung (18) des besagten Verteilerblocks (108) mit der besagten zweiten Zuleitung (5) der besagten Mischeinheit (102) verbindet;
- eine dritte röhrenförmige Einheit (200), die die besagte dritte Auslassöffnung (160) des besagten Verteilerblocks (108) mit der besagten Abflussleitung (60) für das besagte, aus dem besagten Mischer (102) auslaufende, vermischte Wasser in Kommunikation versetzt,
wobei ein Rohr (190) die besagte dritte Auslassöffnung (180) des besagten Verteilerblocks (108) mit dem besagten Spender (70) verbindet.

4. Ausgabeeinheit (1; 100) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** zwischen jedem der besagten röhrenförmigen Elemente (19a; 20a) und dem besagten, entsprechenden röhrenförmigen Körper (19b; 20b) wenigstens eine Ringdichtung (19c; 20c) mit radialer Abdichtung eingefügt ist.

5. Ausgabeeinheit (1; 100) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** sie wenigstens eine Dichtung (27; 28) umfasst, die zwischen dem besagten kugelförmigen Kopf (21 a; 23a) und dem besagten kugelförmigen Sitz (21b; 23b) eingefügt ist.

6. Ausgabeeinheit (1; 100) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** der besagte Nippel (25; 26) so angeordnet ist, dass er das besagte röhrenförmige Element (19a; 20a) passiert.

7. Ausgabeeinheit (1; 100) gemäß Patentanspruch 1), **dadurch gekennzeichnet, dass** jedes der besagten Verbindungsmittel (22; 24) einen mit Gewinde versehenen, röhrenförmigen Bereich mit reduziertem Durchmesser (22a; 24a) aufweist, der an einem Ende jedes röhrenförmigen Körpers (19b; 20b) ausgeführt ist und in eine an der entsprechenden Leitung (4; 5) vorhandene, entsprechende Mutterschraube passt.

8. Ausgabeeinheit (1; 100) gemäß Patentanspruch 7), **dadurch gekennzeichnet, dass** sie wenigstens eine Dichtung (29; 30) umfasst, die zwischen dem besagten, mit Gewinde versehenen röhrenförmigen Bereich mit reduziertem Durchmesser (22a; 24a) jedes röhrenförmigen Elements (19a; 20a) und der besagten, entsprechenden Mutterschraube eingefügt ist.

Revendications

1. Groupe de distribution (1; 100) d'eau mélangée comprenant un groupe mélangeur (2; 102) doté d'au moins une poignée de manoeuvre (3) à la disposition de l'utilisateur et ayant une première voie d'entrée (4) pour l'eau chaude, une deuxième voie d'entrée (5) pour l'eau froide et une voie de sortie (6; 60) pour transporter l'eau mélangée vers un distributeur (7; 70); comprenant également un groupe collecteur (8; 108) doté d'une pluralité de bouches (12), séparé dudit groupe mélangeur (2; 102) et interposé entre un réseau hydrique d'alimentation (9) et ledit groupe mélangeur (2; 102) auquel il est relié mécaniquement par des moyens réglables de positionnement et de fixation (10) et hydrauliquement par des groupes tubulaires (11, 19, 20; 110; 200) qui relient au moins chacune desdites voies d'entrée (4; 5) dudit groupe mélangeur (2; 102) à une bouche correspondante desdites bouches (12) dudit groupe collecteur (8; 108) où chacun desdits groupes tubulaires (11, 19, 20; 110, 200) comprend un élément tubulaire (19a; 20a) engagé par des éléments d'union (21; 23) dans une bouche correspondante (15; 18; 160) dudit groupe collecteur (8; 108) et un corps tubulaire (19b; 20b) engagé par des moyens d'union (22; 24) dans une voie correspondante (4; 5; 60) dudit mélangeur (2; 102), chacun desdits éléments tubulaires (19a; 20a) étant accouplé de manière télescopique dans un corps tubulaire correspondant (19b; 20b),
caractérisé en ce que chacun desdits premiers éléments d'union (21; 23), comprend:

- une tête sphérique (21 a; 23a) créée sur une extrémité de l'élément tubulaire correspondant (19a; 20a);

- un siège sphérique (21b; 23b) réalisé dans la bouche correspondante (15; 18) dudit groupe collecteur (8; 108) qui loge ladite tête sphérique (21 a; 23a);
- un raccord fileté (25; 26) pour l'accouplement de ladite tête sphérique (21 a; 23a) dans ledit siège sphérique (21b; 23b),

et en ce que lesdits moyens réglables de fixation et de positionnement (10) comprennent deux ou plusieurs vis (31) chacune de celles-ci est associée avec ledit collecteur (8; 108) par de premiers moyens de connexion (33) et avec ledit mélangeur (2; 102) par de deuxièmes moyens de connexion (35),
où chacun desdits premiers moyens de connexion (33) comprend:

- une tête sphérique (33a) créée sur une extrémité de ladite vis (31);
- un logement sphérique (33b) créé dans ledit collecteur (8; 108);
- un raccord fileté (37) pour l'accouplement de ladite tête sphérique (33a) dans ledit logement sphérique (33b),

et où chacun desdits deuxièmes moyens de connexion (35) comprend un écrou (35a) disposé dans un trou passant (35b) réalisé dans ledit mélangeur (8; 108) et visé sur une extrémité (33c) de ladite vis (31) insérée dans ledit trou passant (35b).

2. Groupe de débit (1) selon la revendication 1), **caractérisé en ce que** ledit groupe collecteur (8) comprend:

- une première bouche d'entrée (13) reliée à un tuyau d'alimentation d'eau chaude (9a) appartenant audit réseau hydrique d'alimentation (9);
- un premier canal (14) qui met en communication ladite première bouche d'entrée (13) avec une première bouche de sortie (15);
- une deuxième bouche d'entrée (16) reliée à un tuyau d'alimentation d'eau froide (9b) appartenant audit réseau hydrique d'alimentation (9);
- un deuxième canal (17) qui met en communication ladite deuxième bouche d'entrée (16) avec une deuxième bouche de sortie (18);

et où lesdits groupes tubulaires (11) comprennent:

- un premier groupe tubulaire (19) qui relie ladite première bouche de sortie (15) dudit groupe collecteur (8) à ladite première voie d'entrée (4) dudit groupe mélangeur (2);
- un deuxième groupe tubulaire (20) qui relie ladite deuxième bouche de sortie (18) dudit groupe collecteur (8) à ladite deuxième voie d'entrée (5) dudit groupe mélangeur (2);

ledit distributeur (7) étant relié directement à ladite voie de sortie (6) pour ladite eau mélangée provenant dudit mélangeur (2).

3. Groupe de débit (100) selon la revendication 1), **caractérisé en ce que** ledit groupe collecteur (108) comprend:

- une première bouche d'entrée (13) reliée à un tuyau d'alimentation d'eau chaude (9a) appartenant audit réseau hydrique d'alimentation (9);
- un premier canal (14) qui met en communication ladite première bouche d'entrée (13) avec une première bouche de sortie (15);
- une deuxième bouche d'entrée (16) reliée à un tuyau d'alimentation d'eau froide (9b) appartenant audit réseau hydrique d'alimentation (9);
- un deuxième canal (17) qui met en communication ladite deuxième bouche d'entrée (16) avec une deuxième bouche de sortie (18);
- une troisième bouche d'entrée (160) reliée à ladite voie de sortie (60) de ladite eau mélangée provenant dudit groupe mélangeur (102);
- un troisième canal (170) qui met en communication ladite troisième bouche d'entrée (160) avec une troisième bouche de sortie (180) de ladite eau mélangée,

et où lesdits groupes tubulaires (110) comprennent:

- un premier groupe tubulaire (19) qui relie ladite première bouche de sortie (15) dudit groupe collecteur (108) à ladite première voie d'entrée (4) dudit groupe mélangeur (102);
- un deuxième groupe tubulaire (20) qui relie ladite deuxième bouche de sortie (18) dudit groupe collecteur (108) à ladite deuxième voie d'entrée (5) dudit groupe mélangeur (102);
- un troisième groupe tubulaire (200) qui relie ladite troisième bouche d'entrée (160) dudit groupe collecteur (108) à ladite voie de sortie (60) de ladite eau mélangée provenant dudit mélangeur (102);

où un tuyau (190) relie ladite troisième bouche de sortie (180) dudit groupe collecteur (108) audit distributeur (70).

4. Groupe de débit (1; 100) selon la revendication 1), **caractérisé en ce qu**'entre chacun desdits éléments tubulaires (19a; 20a) et ledit corps tubulaire correspondant (19b; 20b) au moins un joint d'étanchéité annulaire (19c; 20c) radial est interposé.

5. Groupe de débit (1 ; 100) selon la revendication 1), **caractérisé en ce qu**'il comprend au moins un joint (27; 28) interposé entre ladite tête sphérique (21 a; 23a) et ledit siège sphérique (21b; 23b).

6. Groupe de débit (1 ; 100) selon la revendication 1), **caractérisé en ce que** ledit raccord (25; 26) est disposé de manière passante dans ledit élément tubulaire (19a; 20a).

7. Groupe de débit (1 ; 100) selon la revendication 1), **caractérisé en ce que** chacun desdits moyens d'union (22; 24) comprend une zone tubulaire filetée avec diamètre abaissé (22a; 24a) réalisée dans une extrémité de chaque corps tubulaire (19b; 20b) qui s'accouple dans une vis-mère correspondante présente dans la voie correspondante (4; 5).

8. Groupe de débit (1 ; 100) selon la revendication 7), **caractérisé en ce qu**'il comprend au moins un joint (29; 30) interposé entre ladite zone tubulaire filetée avec diamètre abaissé (22a; 24a) de chaque élément tubulaire (19a; 20a) et ladite vis-mère correspondante.

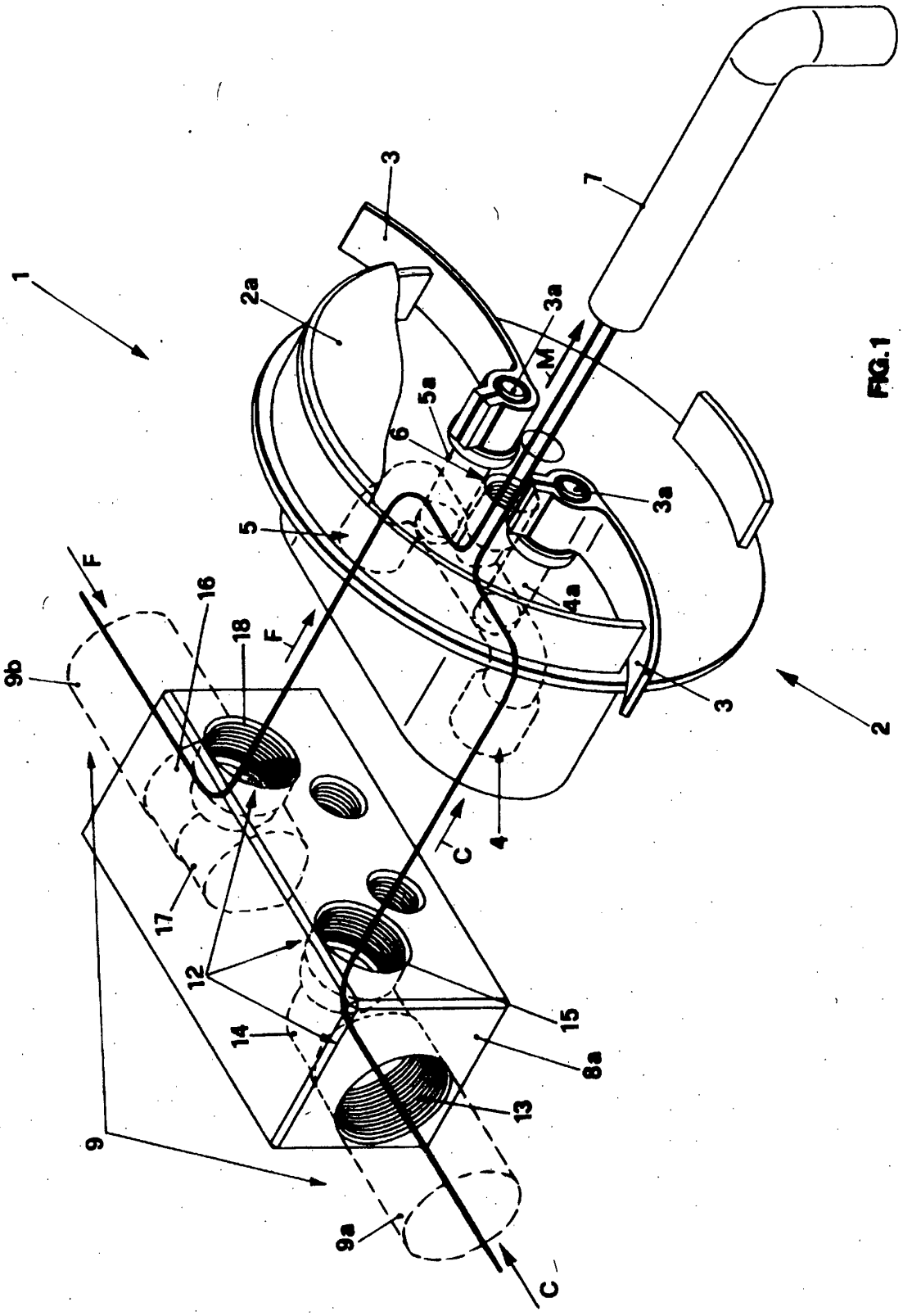

FIG.1

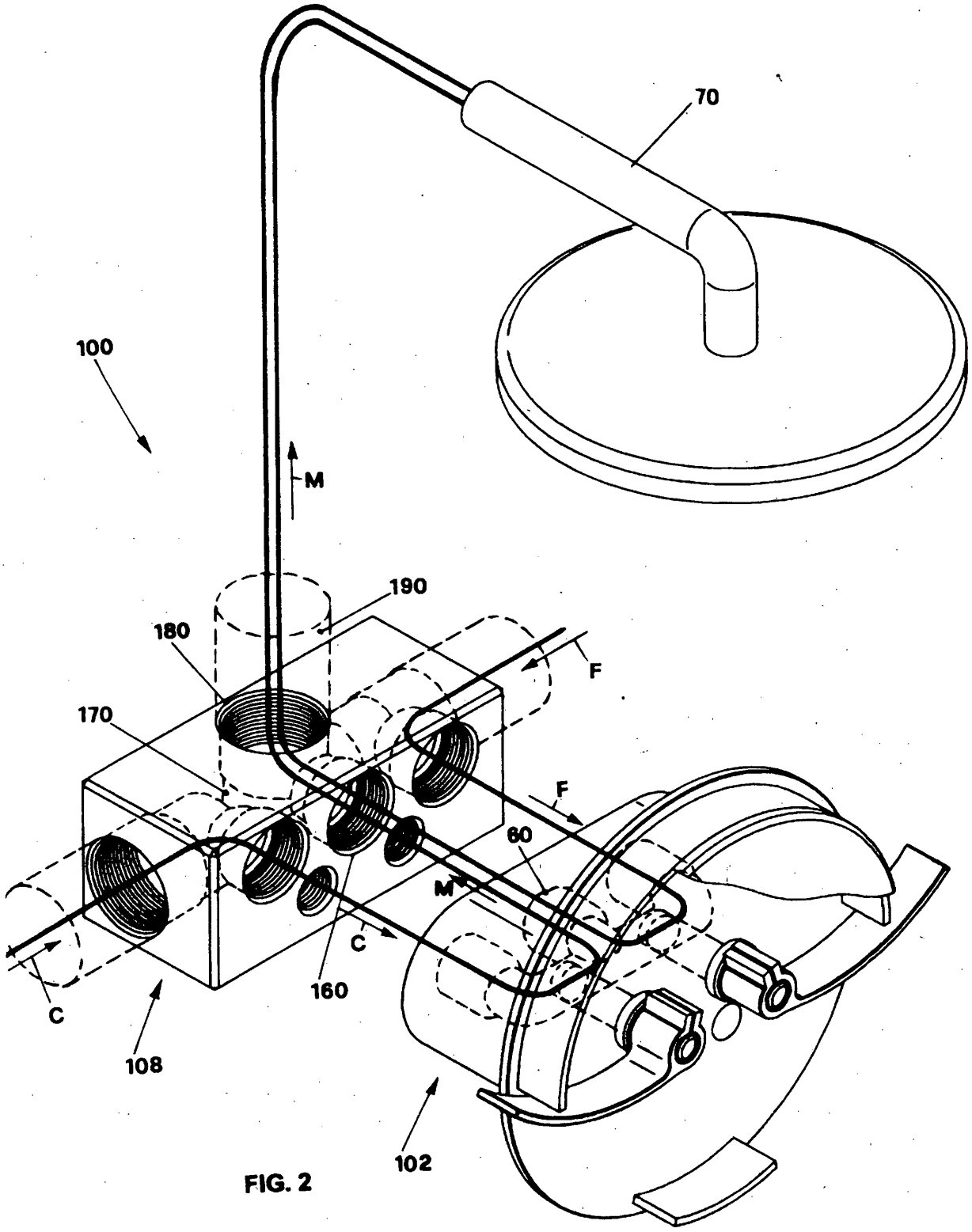

FIG. 2

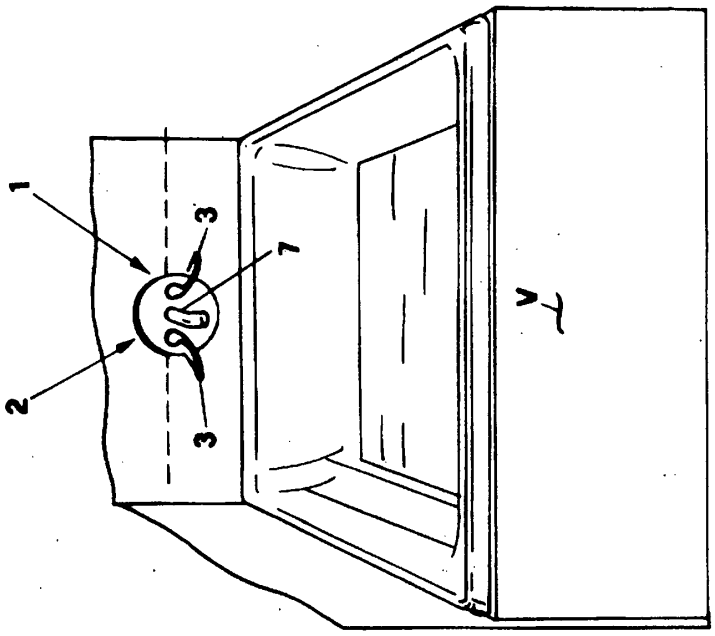

FIG.1a

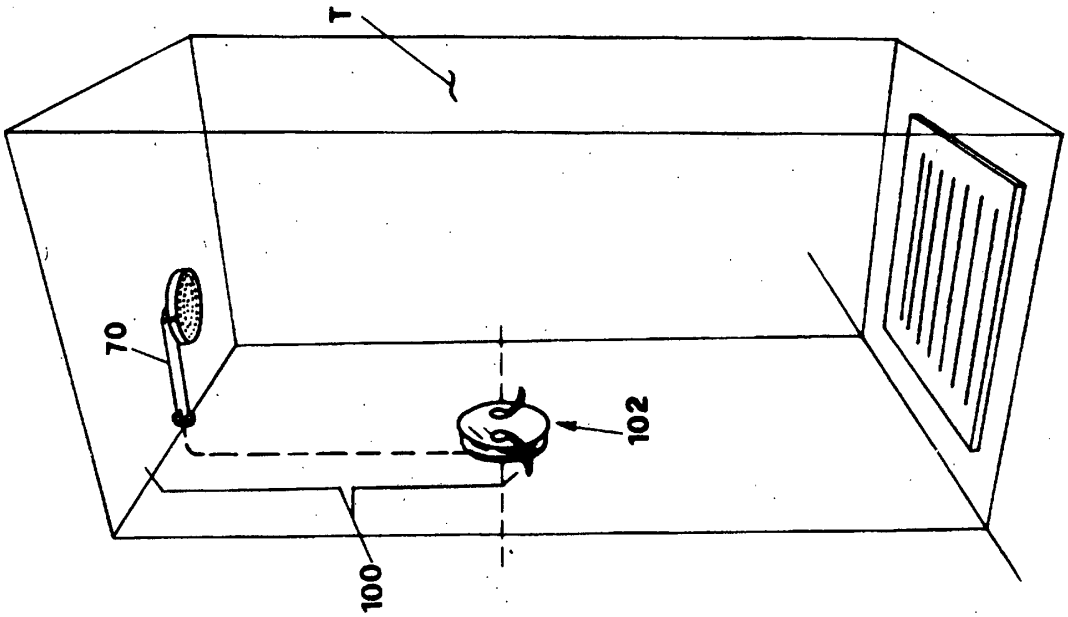

FIG. 2a

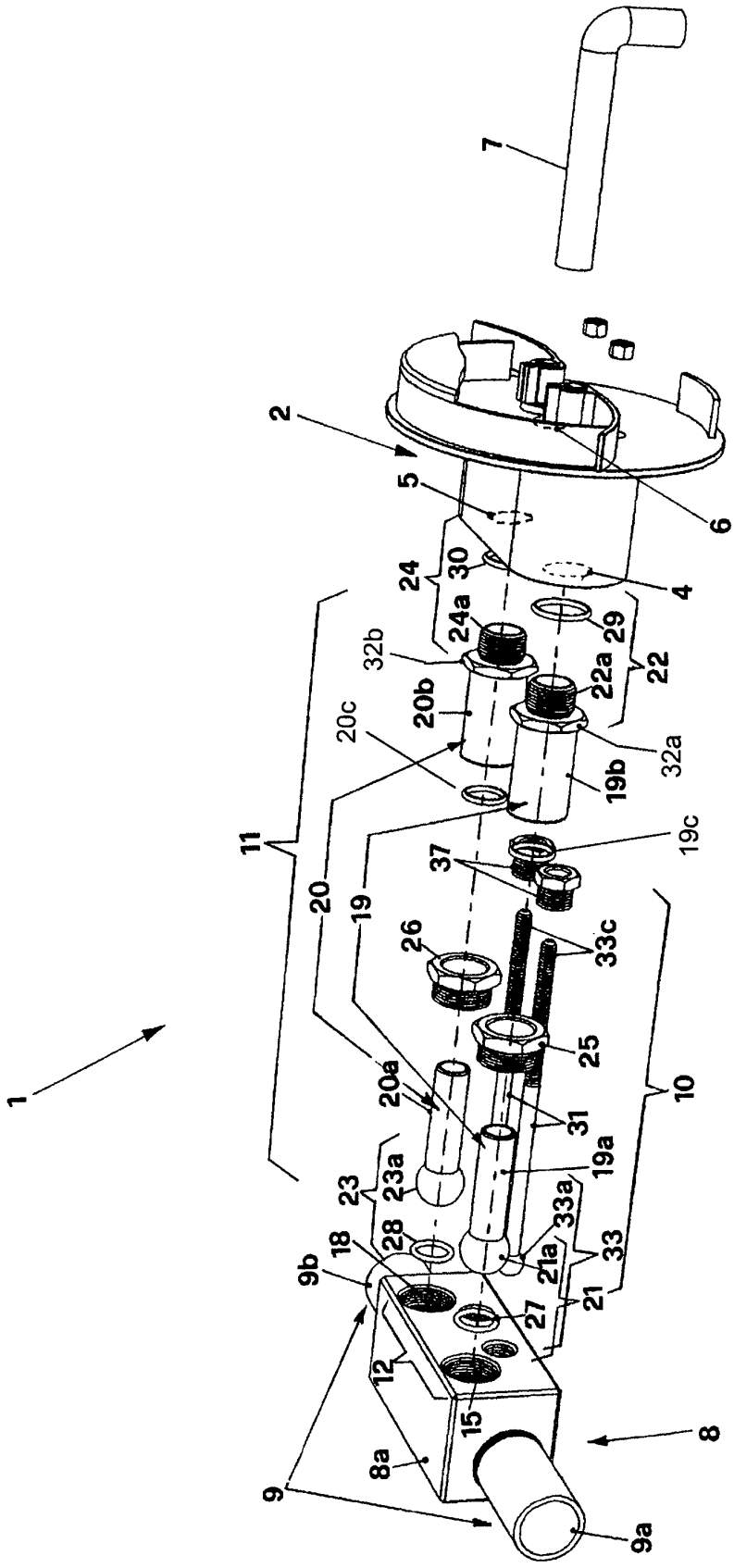
1
2
4
5
6
7
8
8a
9
9a
9b
10
11
12
15
18
19
19a
19b
19c
20
20a
20b
20c
21
21a
22
22a
23
23a
24
24a
25
26
27
28
29
30
31
32a
32b
33
33a
33c
37

FIG.1b

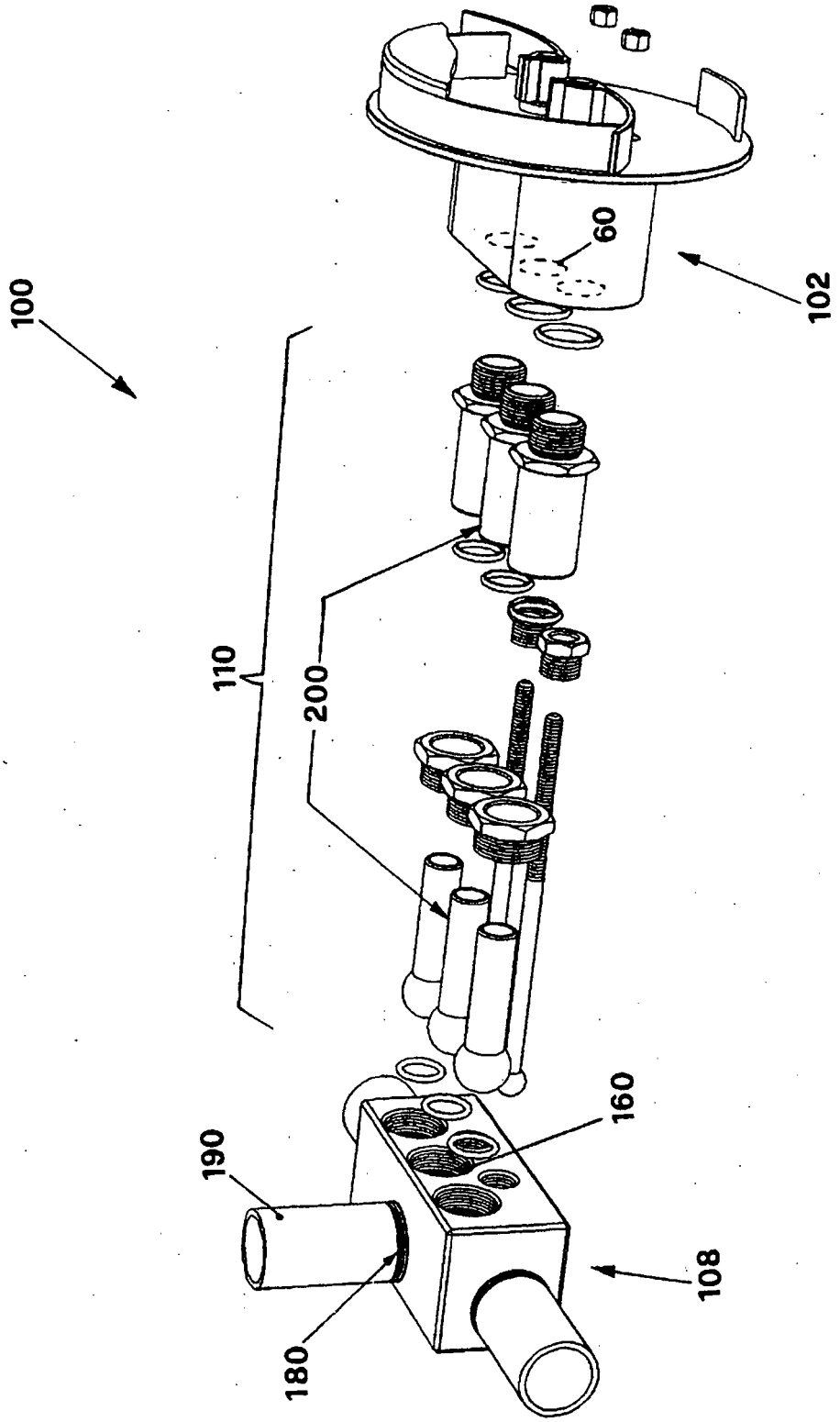

FIG. 2b

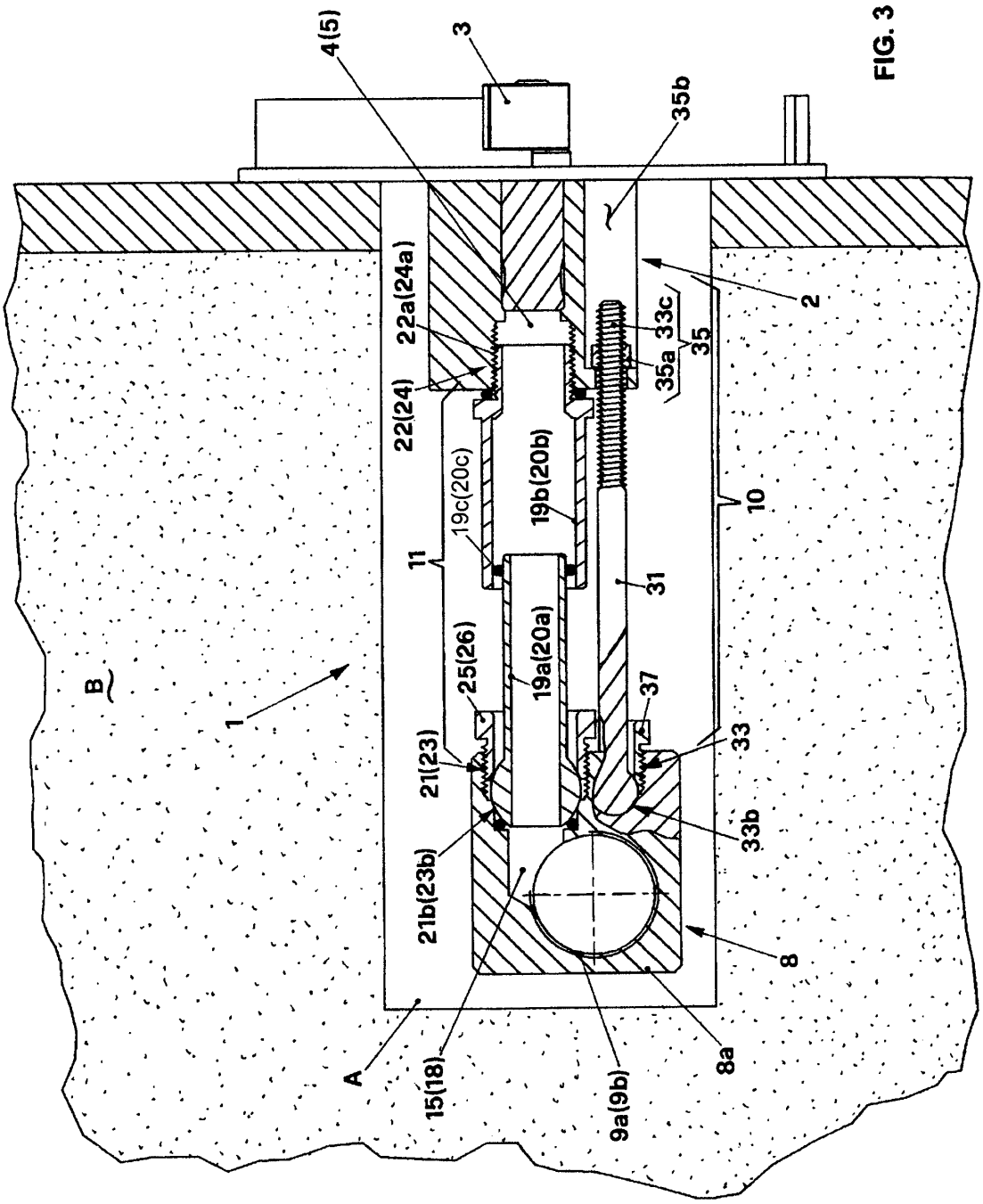
4(5)
3
35b
2
22a(24a)
33c
35
35a
22(24)
19b(20b)
19c(20c)
10
11
31
25(26)
19a(20a)
37
B
1
21(23)
33
33b
21b(23b)
8
A
15(18)
9a(9b)
8a

FIG. 3

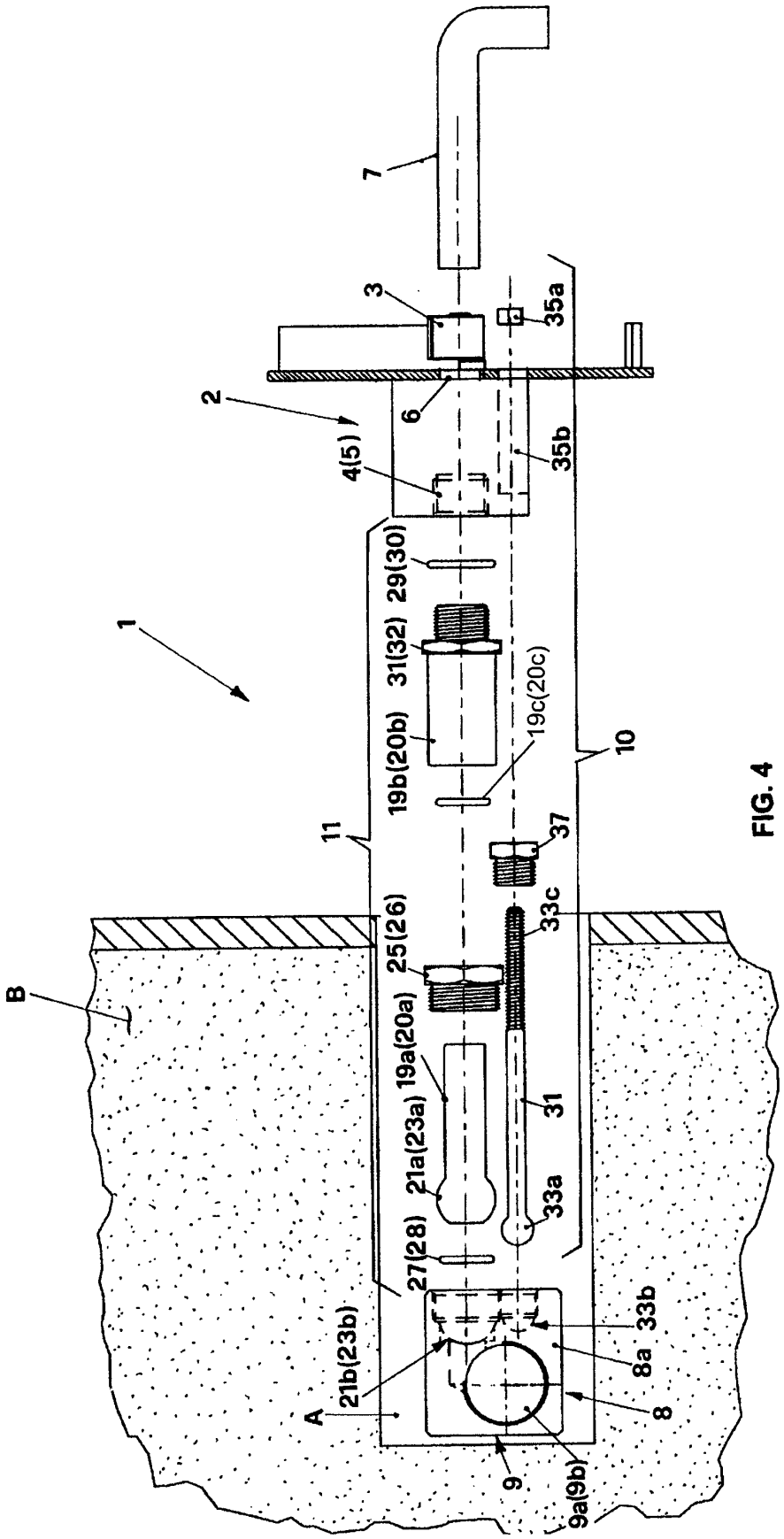
7
3
35a
2
6
4(5)
35b
29(30)
31(32)
19b(20b)
19c(20c)
1
10
11
37
33c
25(26)
B
19a(20a)
21a(23a)
31
33a
27(28)
21b(23b)
33b
8a
A
8
9
9a(9b)

FIG. 4

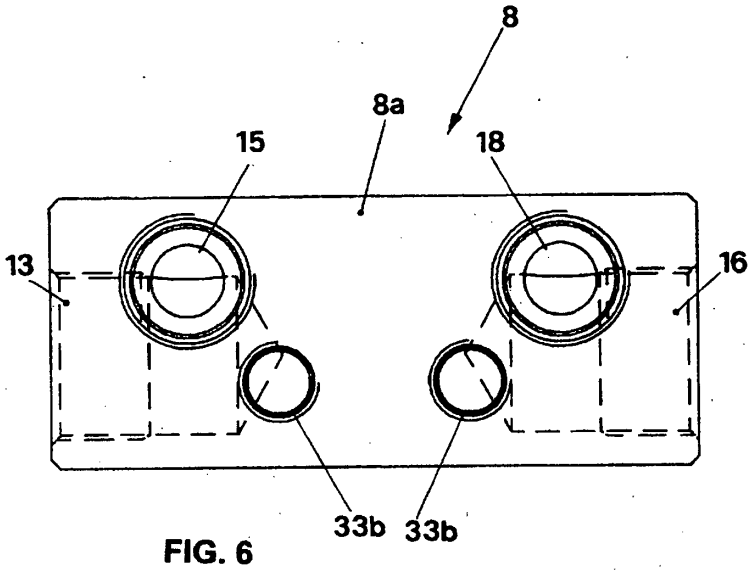

FIG. 6

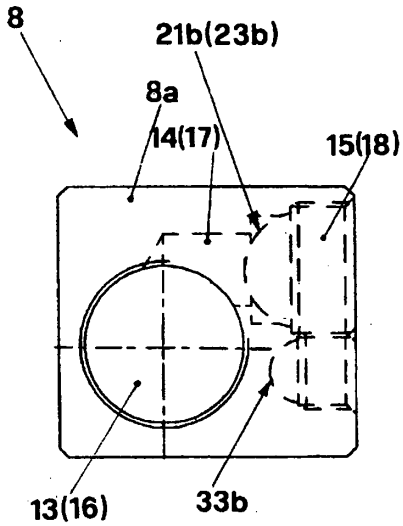

FIG. 5

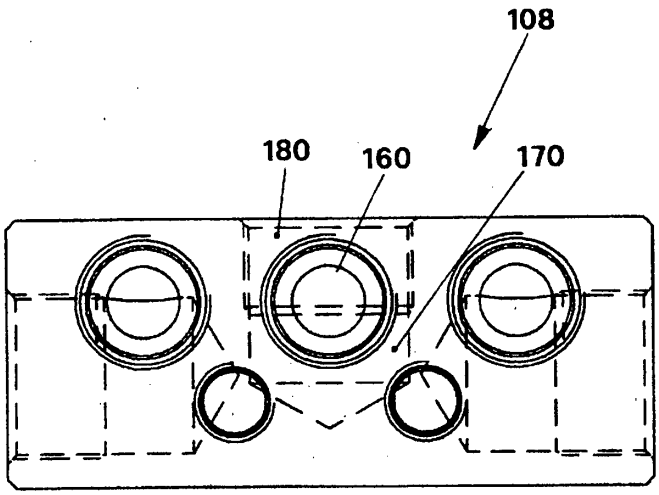

FIG. 7

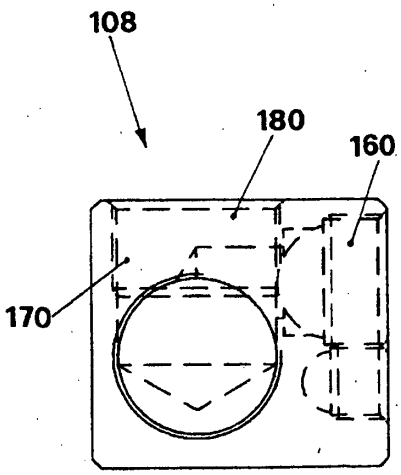

FIG.8

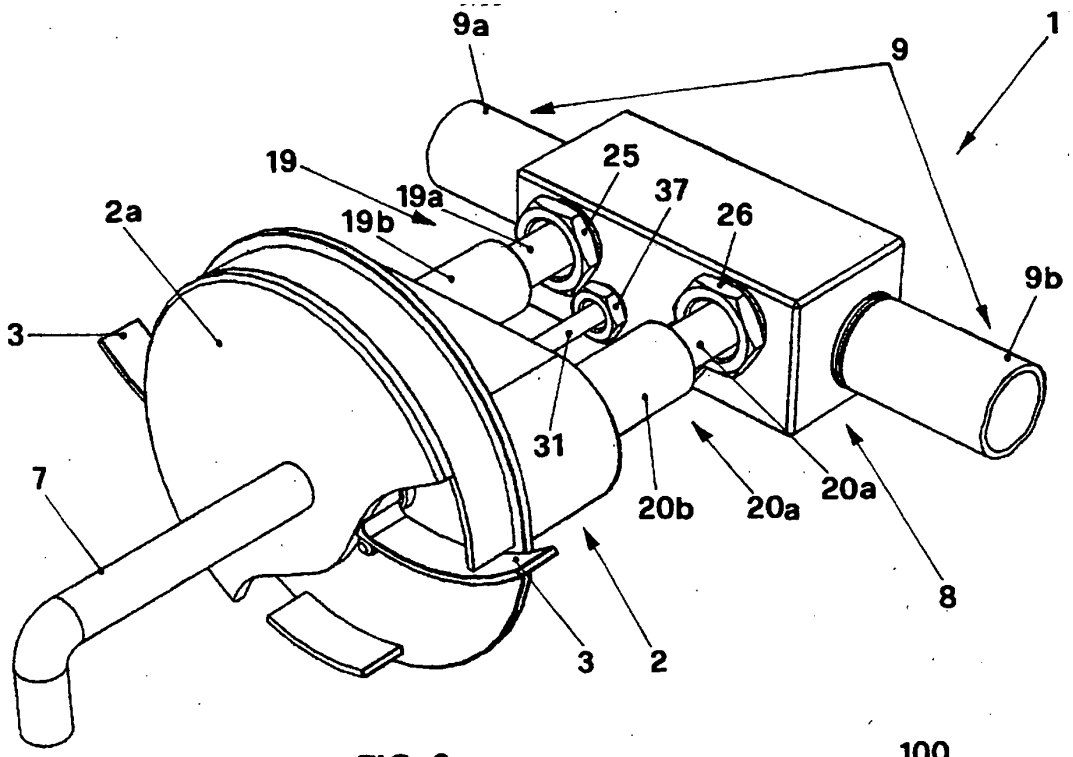
9a
9
1
19
25
37
26
19a
19b
2a
9b
3
31
7
20b
20a
20a
8
3
2

FIG. 9

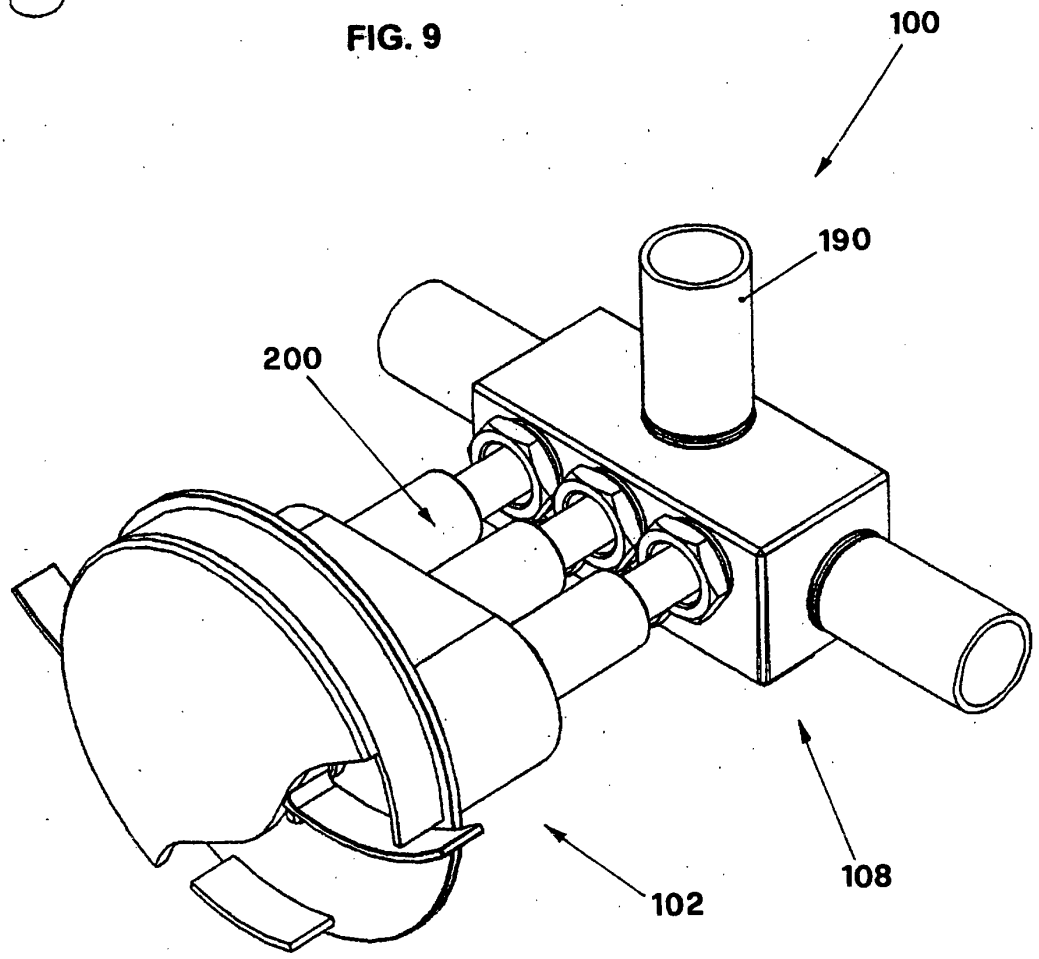
100
190
200
108
102

FIG.10

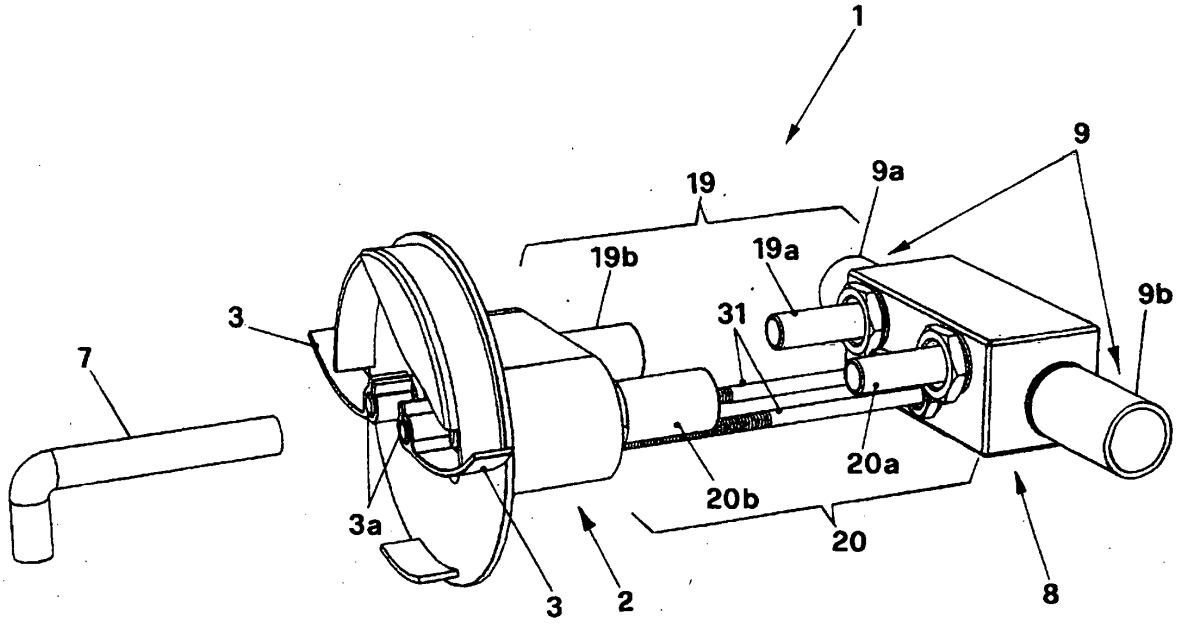

FIG.11

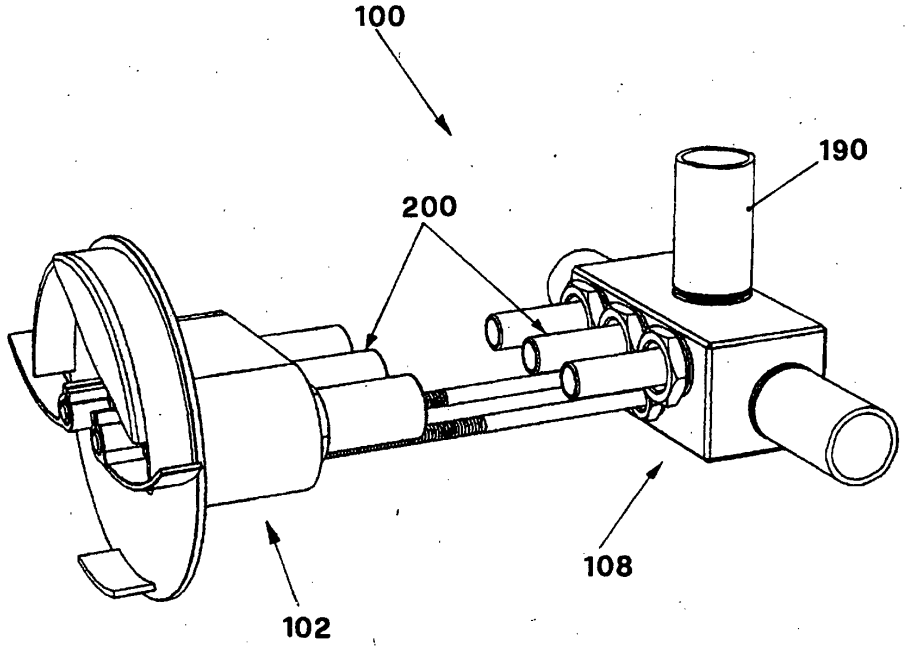

FIG.12

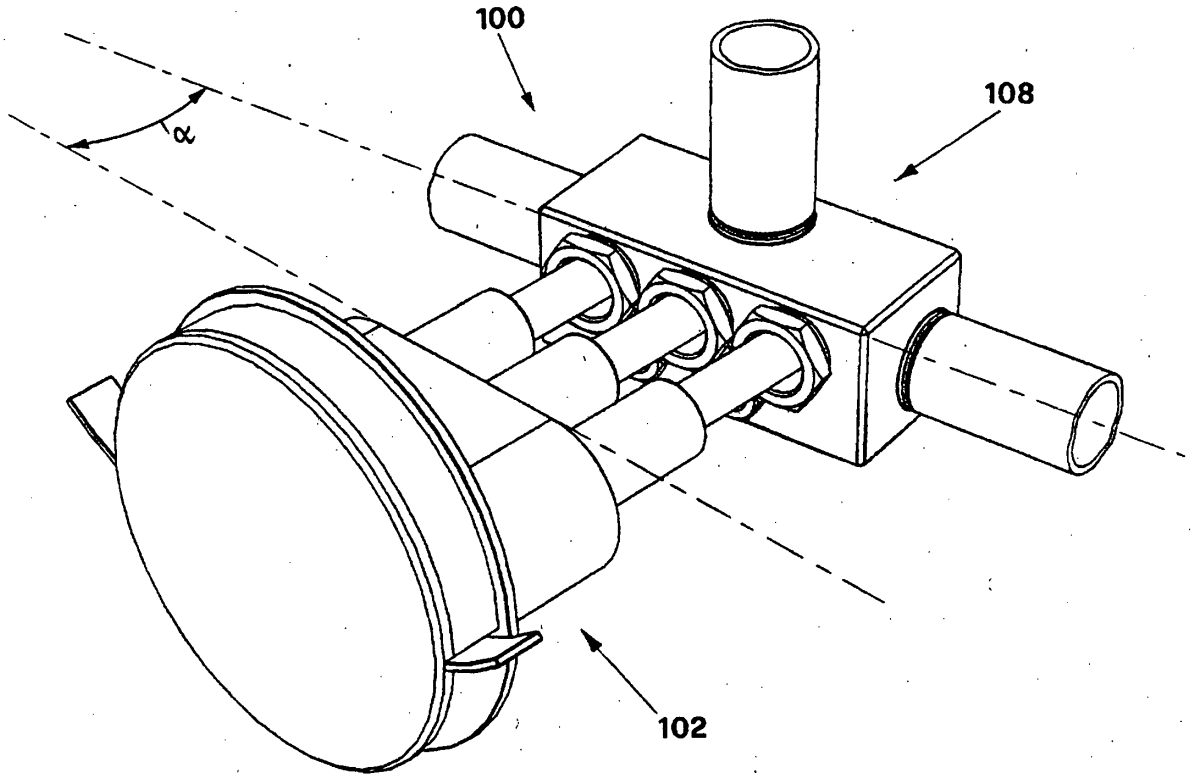

FIG.13

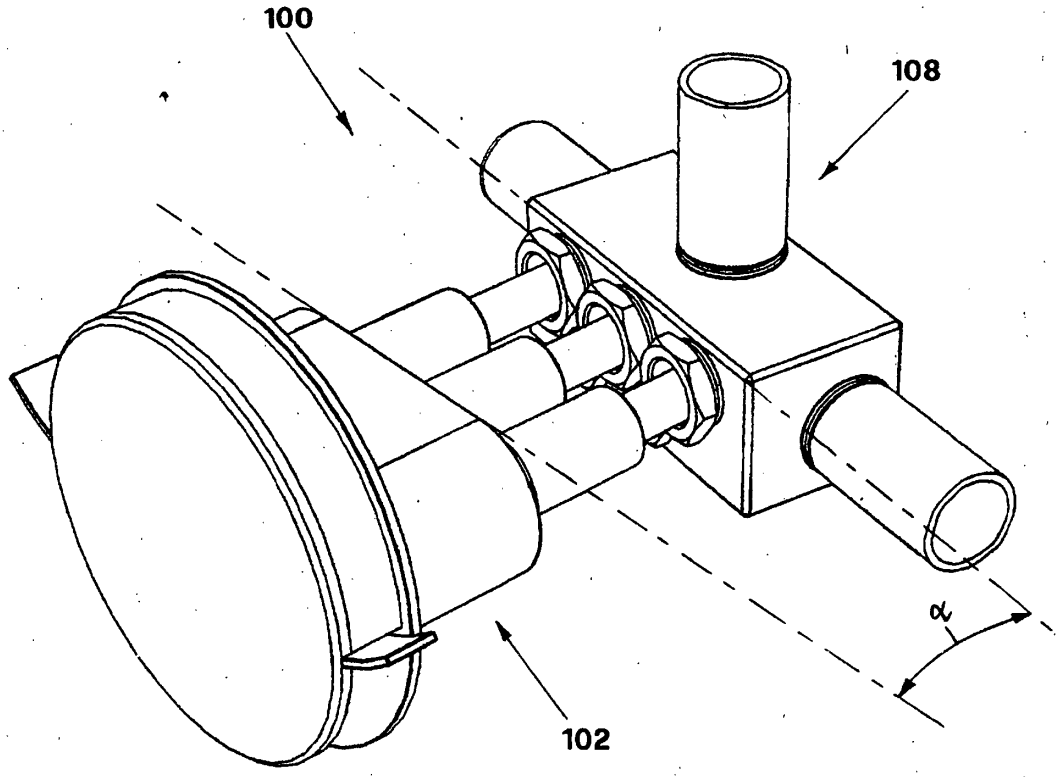

FIG.14

REFERENCES CITED IN THE DESCRIPTION

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- DE 1809022 **[0018]**