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(54) **Flushing device having a full or partial flushing capability**

Spüleinrichtung mit Ganz- oder Teilmengenentleerungskapazität

Dispositif de chasse d'eau avec capacité de vidange totale ou partielle

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**EP-A- 0 722 020 EP-A- 1 016 763**  
**EP-A- 1 111 140 EP-A- 1 245 744**  
**AU-B2- 559 249 AU-B2- 580 783**

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## Description

**[0001]** The invention relates to a device for flushing a water closet, comprising a valve for closing an outflow opening of a cistern of the water closet, at least one float connected to the valve, means to be selectively connected to the valve for weighting thereof, said weighting means comprising at least one weighting body and means for operating the valve, said operating means being adapted to optionally lift only the valve or the valve in combination with the weighting means and comprising a first part acting directly on the valve and a second part acting on the weighting means, wherein the at least one weighting body is movable under the influence of the second part of the operating means between a rest position leaving the valve clear and a weighting position in which it loads the valve and wherein the at least one weighting body takes the form of a vessel open at the top. Such a flushing device is known, for instance from EP 0 722 020, which discloses the features of the preamble of claim 1.

**[0002]** There is a growing realization worldwide that clean water is becoming scarce. It is therefore being used in more conscious manner in recent years, and waste is being reduced as much as possible in many fields. A significant part of domestic water use is the result of flushing water closets. Possibilities for limiting the quantity of water per flush are therefore being sought. Two methods have herein come into use.

**[0003]** A first method is the flush interruption. The flushing device is herein provided with a control which acts in two directions. When operated in a first direction a flushing is started by lifting a valve from a seat on an outflow opening in the bottom of the cistern. Operation in a second, opposite direction results in the valve being urged back onto its seat and the outflow opening being closed, so that the flushing is ended before the cistern is entirely emptied. This manner of limiting the quantity of water per flush has the drawback that an extra operation is required of the user. There is furthermore the risk here of the flushing being interrupted prematurely and insufficient water being delivered to flush the toilet bowl clean and discharge the contents hereof through the sewage system.

**[0004]** Another method, which is preferred at the moment, consists of the user being offered the choice between two predetermined flushes, a full and a partial flush. Use is made here of a flushing device with dual control, wherein a part of the control is responsible for starting a full flushing and the other part for starting the partial flushing. For both flushes it is the case that they are ended when the outflow valve, which is lifted from its seat at the beginning of the flush, drops back of itself onto its seat. The difference between the flushes is determined by the difference in the time which elapses before the valve begins to drop back. This difference in the moment of dropping back is in turn caused by a variable buoyancy of the valve in the water of the cistern. In the case of a partial flushing the valve is urged back to the

seat in accelerated manner by loading it with an extra weight.

**[0005]** A flushing device of this type is described in the above stated document EP 0 722 020. The flushing device is provided with a weighting member in the form of a vessel which is open at the top and which is arranged slidably around a tube carrying the valve. On the underside of the weighting member is mounted a lever or switch which has a widened foot. This foot protrudes into an opening in the upper side of a housing which encloses the tube and supports the weighting member in the rest position. In order to carry out a partial flush the weighting member is lifted by means of a pull rod, wherein this latter comes into engagement with an edge of the tube, which is co-displaced upward. During this movement the lever is pulled up through the opening in the housing, wherein an edge of the opening engages on the widened foot, and thus forces the lever toward the tube. In this position the foot of the lever comes to rest on an edge of the tube when the weighting member drops back down again after releasing the pull rod. The tube and thereby the valve are thus loaded by the weight of the weighting member, and will drop back in accelerated manner to the position in which the valve closes the outflow opening.

**[0006]** This known flushing device has the drawback that it has a relatively large number of components, some of which are moreover quite small. The assembly of the flushing device hereby requires a large number of operations to be carried out accurately. In addition, there is the risk that the operation of the relatively small lever will be adversely affected during the lifespan of the flushing device by the growth of organisms present in the water, whereby malfunction can occur.

**[0007]** A similar flushing device is disclosed in EP 1 245 744. In this prior art document a weighting tube is arranged around the flushing tube. When only a partial flush is desired, this weighting tube can be connected to the flushing tube by means of a rocking body that is hinged to a support carried by the weighting tube. This reducing member has a float on one end and a hook on the opposite end. The hook engages a seat on the weighting tube to connect the weighting tube to the flushing tube and thereby accelerate closure of the valve.

**[0008]** A flushing device with full and partial flushing is further known from EP 0 448 092, wherein the valve is loaded in its rest position by a weighting member which is suspended therefrom by means of hooking arms. In the case of a partial flushing the valve is pulled up together with the weighting member, while for a full flushing the hooking arms are operated and the weighting member is uncoupled from the valve. This flushing device also has the drawback of having a relatively large number of small components. These components are here moreover often situated at the boundary surface of water and air, whereby, in addition to growth developing, limescale can also affect operation.

**[0009]** The invention has for its object to provide a flushing device of the above described type which has a

simpler construction, is more robust and thus more reliable than the known devices. According to the invention this is achieved in such a flushing device in that the at least one weighting body is pivotable about a shaft situated at a distance from its centre of gravity. By giving the weighting body itself a movable form and connecting it directly or indirectly to the valve, the weighting body itself in fact functions as coupling or lever, and all manner of vulnerable and structurally complicated moving transmissions can be omitted. Moreover, a pivoting movement is easy to realize, while the open top vessel is easily operated by the displacement through the water in the cistern.

**[0010]** The first operating part preferably comprises a tube which carries the valve and is movable along the weighting means, and the at least one weighting body has at least one element engaging on the tube in the weighting position. By making use of the overflow tube present in many flushing devices a simple and robust connection is achieved between the weighting body and the valve. In addition, this construction is rotation symmetrical, whereby the installation and assembly thereof are simplified. The second part of the operating means can herein advantageously comprise a ring slidably receiving the tube and bearing the pivot shaft of the at least one weighting body.

**[0011]** So as to create a considerable distance between the centre of gravity of the weighting body and the point of rotation thereof, and thus a rapid movement of the weighting body, it is recommended that the pivot shaft is situated on one side of the tube and the at least one weighting body at least partially encloses the tube. For the same reason the pivot shaft can be formed close to the top side of the at least one weighting body and the at least one engaging element can be formed close to the underside thereof.

**[0012]** In order to bring about a precisely determined rest position and a readily reproducible operation, the flushing device is preferably provided with means for supporting the at least one weighting body in its rest position.

**[0013]** When the support means herein comprise a cylindrical housing enclosing the tube and the at least one weighting body, a rotation symmetrical and therefore easily installed mechanism is once again obtained.

**[0014]** The invention further relates to a water closet with a cistern in which the flushing device as described above is applied.

**[0015]** The invention is now elucidated on the basis of a number of examples, wherein reference is made to the accompanying drawing, in which:

Fig. 1 is a schematic perspective view of a flushing device according to a first embodiment of the invention in the rest position,

Fig. 2 is a view corresponding with fig. 1, but cross-sectional, in which a part of a cistern is also shown,

Fig. 3 is a view corresponding with fig. 2, but without cistern, of the flushing device when performing a full

flushing,

Fig. 4 is a cross-sectional perspective view from a different angle, which shows the flushing device during a partial flushing, and

Fig. 5 and 6 are schematic side views of alternative embodiments of the flushing device.

**[0016]** A device 1 for flushing a water closet comprises a valve 2 for closing an outflow opening 3 in the bottom 4 of a cistern (fig. 2). This valve 2 here takes the form of an annular element of rubber or an elastomer, which rests in the closing position on a valve seat 5 around outflow opening 3. The annular valve element 2 is clamped between two flanges 6 on the underside of an overflow tube 7.

**[0017]** Overflow tube 7 forms a first part, acting directly on valve 2, of means 8 for operating the valve 2. In conventional manner these operating means 8 can further comprise a linkage or lever mechanism (not shown here) engaging on the top side of overflow tube 7, whereby a movement of a pushing or pulling element to be operated by a user is converted into an upward directed movement of overflow tube 7 and the valve 2 fixed thereon.

**[0018]** A float 9 is further connected to valve 2. In the shown embodiment the float 9 is a ring of a light material, for instance a closed-cell foam, which is clamped around overflow tube 7 by means of protrusions 10. This float 9 ensures that overflow tube 7 and valve 2 remain floating on or suspended in the water in the cistern once they have been moved upward. Valve 2 thus drops back onto seat 5 only gradually with emptying of the cistern, thereby achieving that sufficient water can indeed flow out of the cistern to ensure a proper flushing.

**[0019]** In addition, means 11 can be connected to valve 2 which weight the valve 2 and thus ensure that it drops back onto seat 5 in accelerated manner. By connecting these weighting means 11 to valve 2, the time for which outflow opening 3 remains opened after valve 2 is lifted is thus shortened, and the quantity of water flowing out of the cistern is thereby reduced. A partial flushing is thus achieved.

**[0020]** The choice between a partial and a full flushing is made by the user. Operating means 8 are herein adapted to lift valve 2 only or valve 2 in combination with weighting means 11 subject to the choice of the user. In addition to the first operating part, here in the form of overflow tube 7, which engages directly on valve 2, operating means 8 comprise for this purpose a second operating part 12 which acts on weighting means 11. Weighting means 11 are hereby displaceable between a rest position, in which they leave valve 2 free during flushing (fig. 3), and a weighting position in which during flushing (fig. 4) they load valve 2 and thus urge it back to its seat 5 in accelerated manner.

**[0021]** In the shown embodiment the weighting means 11 comprise a weighting body 13, here in the form of a partly annular vessel which is open at the top. This weighting body 13 is pivotable about a shaft 14, which is

situated at a distance from its centre of gravity. This pivot shaft 14 is here mounted in an open ring 15 which partly encloses a narrowed part of overflow tube 7 bound by edges 16, 17. Further fixed to this ring 15 is a pull rod 19 which is connected at the top to the linkage or lever mechanism (not shown here) of operating means 8. Ring 15 and pull rod 19 thus together form the second operating part 12. The first operating part, in the form of overflow tube 7, and second operating part 12, in the form of ring 15 and pull rod 19, are thus slidable relative to each other over the length of the narrowed tube part 18.

**[0022]** As stated, valve 2 is loaded in the weighting position by weighting means 11. For this purpose the vessel 13 is provided close to its underside with two engaging elements 20, here in the form of protrusions projecting obliquely downward from the edge between its base 21 and its partly annular inner wall 22. In the weighting position (fig. 4) these engaging elements 20 come to rest on either side of overflow tube 7 on the lower edge 17 of the narrowed part 18 thereof. This edge 17 can also take an oblique form so that engaging elements 20 can be held in reliable manner between edge 17 and the periphery of overflow tube 7.

**[0023]** In the shown embodiment a cylindrical housing 23 is arranged around the assembly of overflow tube 7, valve 2, float 9 and weighting means 11, which housing is accommodated in fixed position in the cistern in that it rests with two legs 32 on bottom part 4. This housing 23 has a bottom part 24 with an opening 25 therein, through which protrudes the overflow tube 7. This bottom part 24 functions as a stop bounding the upward movement of valve 2.

**[0024]** Housing 23 further serves to support the weighting means 11 in the rest position. For this purpose the cylinder wall 26 of housing 23 is provided with a bent upper edge 27 on which engages a protruding part 28 of vessel 13. Protrusion 28 here forms an integral part of outer wall 29 of vessel 13.

**[0025]** The operation of flushing device 1 is now as follows. When a user wishes to flush the water closet, he opts for a full or a partial flushing by operating an associated knob or handle.

**[0026]** When the user selects a full flushing, the first operating part, including overflow tube 7, is activated. Tube 7 is moved upward (arrow F) from the rest position drawn in fig. 1 and 2, whereby valve 2 is lifted from seat 5 and outflow opening 3 is left clear. During this movement of overflow tube 7 the narrowed part 18 slides through ring 15 (fig. 3). This ring 15 forms part of the second operating part 12, which is not active during a full flushing and thus remains in place. Weighting body 13 herein also remains resting with its protrusion 28 on upper edge 27 of housing 23, so that inner wall 22 and engaging elements 20 remain clear of lower edge 17 of the narrowed tube part 18. Valve 2 is thus not loaded by weighting body 13 and, due to the buoyancy of float 9, will only drop back slowly onto valve seat 5. This dropping-back is slowed still further because the water level in housing

23 drops more slowly than in the surrounding cistern. The water can after all only flow out of housing 23 through the narrow gap between opening 25 and overflow tube 7. Outflow opening 3 thus remains open long enough to allow the greater part of the contents of the cistern to flow away, so that a full flushing is achieved.

**[0027]** When on the other hand the user opts for a partial flushing, the second operating part 12 formed, among other parts, by pull rod 19 and ring 15 is activated. Pull rod 19 and ring 15 are moved upward (arrow P), wherein overflow tube 7 is co-displaced on the upper edge 16 of its narrowed part 18, so that valve 2 is also lifted from seat 5 again and outflow opening 3 is left clear. Weighting body 13 is also moved upward by the movement of ring 15 and the pivot shaft 14 mounted therein. Protrusion 28 herein detaches from upper edge 27 of housing 23.

**[0028]** Because weighting body 13 takes the form of an open vessel, it will as it were "scoop" water out of the cistern during the upward movement, whereby a resistant force is exerted on vessel 13. Because vessel 13 extends only partially around overflow tube 7, the imaginary point of engagement of this resistant force, in fact the centre of gravity of weighting body 13, lies outside this tube 7, while pivot shaft 14 is mounted on the opposite side of tube 7. The resistant force on vessel 13 hereby results in a moment round pivot shaft 14 which urges the base 21 of vessel 13 and the engaging elements 20 connected hereto in the direction of overflow tube 7 (arrow R). Engaging elements 20 herein come to rest on the lower edge 17 of narrowed tube part 18, so that overflow tube 7, and therefore also valve 2, are loaded by the weight of weighting body 13 once the water level in the cistern has dropped below weighting body 13. The relatively great distance between pivot shaft 14 and engaging elements 20 ensures that these elements are pressed firmly onto lower edge 17. The extra weight on overflow tube 7 results in valve 2 dropping back onto seat 5 in accelerated manner, and only part of the water in the cistern is thus delivered, so that only a partial flushing is carried out.

**[0029]** Because weighting body 13 can be manufactured from a plastic having practically the same density as water, there is a risk that it will continue to swing upward at the end of an abrupt pulling movement. Weighting body 13 could also be pivoted upward by a swirling flow in the cistern, so that the engagement on overflow tube 7 does not come about. In order to prevent all this, provisions (not shown here) can be present for preventing such an upward pivoting movement of weighting body 13. These provisions can consist of a stop, for instance mounted on housing 23, which comes into engagement with the upper edge of weighting body 13, thus preventing the upward pivoting movement. It is however also possible to make the open vessel clearly heavier than the surrounding water, for instance by adding a ballast weight.

**[0030]** Instead of engaging elements 20 on the underside of vessel 13 it is of course also possible to form an

engaging element 120 on the top side of vessel 113 (fig. 5). This engaging element 120 must here then be placed on the same side of overflow tube 107 as pivot shaft 114 in order to come into engagement with tube 107 during rotation of vessel 113. In this embodiment the engaging element 120 is otherwise arranged on an arm 130 in order to create a considerable distance from pivot shaft 114. Engaging element 120 is herein embodied as a hook which can grip round a protrusion 131 on overflow tube 107.

**[0031]** In yet another embodiment, wherein engaging element 220 lies on the same side of overflow tube 207 as pivot shaft 214 (fig. 6), this pivot shaft 214 is placed close to the bottom 221 of vessel 213 in order to maximize the distance from engaging element 220. In this embodiment the engaging element 220 takes the form of a single, central hook which engages on a peripheral rib 231 on overflow tube 207. This variant, like that of fig. 1 to 4, is hereby substantially rotation-symmetrical, from which ensues that the different components can be mounted in a random position. The installation of the flushing device is thus simplified considerably.

**[0032]** The invention thus makes it possible to form a reliably operating flushing device using simple means and a minimum of components, the device offering the choice between a full and a partial flushing.

**[0033]** Although the invention is elucidated above with reference to a number of embodiments, it will be apparent that it is not limited thereto. The scope of the invention is defined solely by the following claims.

## Claims

1. Device (1; 101; 201) for flushing a water closet, comprising:

- a valve (2) for closing an outflow opening (3) of a cistern of the water closet,
- at least one float (9) connected to the valve (2),
- means (11; 111; 211) to be selectively connected to the valve (2) for weighting thereof, said weighting means (11; 111; 211) comprising at least one weighting body (13; 113; 213), and
- means (8) for operating the valve (2), said operating means (8) being adapted to optionally lift only the valve (2) or the valve (2) in combination with the weighting means (11; 111; 211) and comprising a first part acting directly on the valve (2) and a second part (12) acting on the weighting means (11; 111; 211),

wherein the at least one weighting body (13; 113; 213) is movable under the influence of the second part (12) of the operating means between a rest position leaving the valve (2) clear and a weighting position in which it loads the valve (2), and wherein the at least one weighting body (13; 113; 213) takes the

form of a vessel open at the top,

**characterized in that** the at least one weighting body (13; 113; 213) is pivotable about a shaft (14; 114; 214) situated at a distance from its centre of gravity.

2. Flushing device (1; 101; 201) as claimed in claim 1, **characterized in that** the first part of the operating means comprises a tube (7; 107; 207) which carries the valve (2) and is movable along the at least one weighting body (13; 113; 213), and the at least one weighting body (13; 113; 213) has at least one element (20; 120; 220) engaging on the tube (7; 107; 207) in the weighting position.

3. Flushing device (1; 101; 201) as claimed in claim 2, **characterized in that** the second part (12) of the operating means comprises a ring (15; 115; 215) slidably receiving the tube (7; 107; 207) and bearing the pivot shaft (14; 114; 214) of the at least one weighting body (13; 113; 213).

4. Flushing device (1; 101; 201) as claimed in claim 3, **characterized in that** the pivot shaft (14; 114; 214) is situated on one side of the tube (7; 107; 207) and the at least one weighting body (13; 113; 213) at least partially encloses the tube (7; 107; 207).

5. Flushing device (1) as claimed in claim 4, **characterized in that** the pivot shaft (14) is formed close to the top side of the at least one weighting body (13) and the at least one engaging element (20) is formed close to the underside thereof.

6. Flushing device (1) as claimed in any of the foregoing claims, **characterized by** means for supporting the at least one weighting body (13) in its rest position.

7. Flushing device (1) as claimed in any of the claims 3-5 and 6, **characterized in that** the support means comprise a cylindrical housing (23) enclosing the tube (7) and the at least one weighting body (13).

8. Water closet, comprising a bowl and a cistern connected thereto via a flush pipe, and incorporating a flushing device (1; 101; 201) as claimed in any of the foregoing claims.

## Patentansprüche

1. Vorrichtung (1, 101; 201) zum Spülen einer Wasser-toilette, die aufweist:

- ein Ventil (2) zum Schließen einer Ausströmöffnung (3) eines Wasserbehälters der Wasser-toilette,
- wenigstens einen Schwimmer (9), der mit dem

- Ventil (2) verbunden ist,  
 - Mittel (11; 111; 211), die selektiv mit dem Ventil zum Beschweren desselben verbunden werden können, welche Beschwerungsmittel (11; 111; 211) wenigstens einen beschwerenden Körper (13; 113; 213) aufweisen, und  
 - Mittel (8) zum Betätigen des Ventils (2), welche Betätigungsmittel (8) dazu ausgebildet sind, wahlweise nur das Ventil (2) oder das Ventil (2) in Kombination mit den beschwerenden Mitteln (11; 111; 211) anzuheben und einen ersten Teil, der direkt auf das Ventil (2) wirkt, und einen zweiten Teil (12) aufweisen, der auf die beschwerenden Mittel (11; 111; 211) wirkt, wobei der wenigstens eine beschwerende Körper (13; 113; 213) unter Einfluss des zweiten Teils (12) der Betätigungsmittel zwischen einer Ruheposition, die das Ventil (2) freilässt, und einer beschwerenden Position bewegbar ist, in der er das Ventil (2) belastet, und wobei der wenigstens eine beschwerende Körper (13; 113; 213) die Form eines oben offenen Gefäßes annimmt,  
**dadurch gekennzeichnet, dass** der wenigstens eine beschwerende Körper (13; 113; 213) um eine Achse (14; 114; 214) schwenkbar ist, die in einem Abstand von seinem Schwerpunkt zugeordnet ist.
2. Spülvorrichtung (1; 101; 102) nach Anspruch 1, **dadurch gekennzeichnet, dass** der erste Teil der Betätigungsmittel eine Röhre (7; 107; 207) aufweist, die das Ventil (2) trägt und entlang dem wenigstens einen beschwerenden Körper (13; 113; 213) bewegbar ist, und der wenigstens eine beschwerenden Körper (13; 113; 213) wenigstens ein Element (20; 120; 220) aufweist, das an der Röhre (7; 107; 207) in der beschwerenden Stellung angreift.
  3. Spülvorrichtung (1; 101; 201) nach Anspruch 2, **dadurch gekennzeichnet, dass** der zweite Teil (12) der Betätigungsmittel einen Ring (15; 115; 215) aufweist, der gleitend die Röhre (7; 107; 207) aufnimmt und die Schwenkachse (14; 114; 214) des wenigstens einen beschwerenden Körpers (13; 113; 213) trägt.
  4. Spülvorrichtung (1; 101; 201) nach Anspruch 3, **dadurch gekennzeichnet, dass** die Schwenkachse (14; 114; 214) an einer Seite der Röhre (7; 107; 207) angeordnet ist und der wenigstens eine beschwerende Körper (13; 113; 213) wenigstens teilweise die Röhre (7; 107; 207) umschließt.
  5. Spülvorrichtung (1) nach Anspruch 4, **dadurch gekennzeichnet, dass** die Schwenkachse (14) nahe der Oberseite des wenigstens einen beschwerenden Körpers (13) ausgebildet ist und das wenigstens eine Angriffselement (20) nahe der Unterseite des-

selben ausgebildet ist.

6. Spülvorrichtung (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** Mittel zum Abstützen des wenigstens einen beschwerenden Körpers (13) in seiner Ruheposition.
7. Spülvorrichtung 1 nach einem der Ansprüche 3 bis 5 und 6, **dadurch gekennzeichnet, dass** die Stützmittel ein zylindrisches Gehäuse (23) aufweisen, das die Röhre (7) und den wenigstens einen beschwerenden Körper (13) umschließt.
8. Wassertoilette, die eine Schüssel und einen damit über ein Spülrohr verbundenen Wasserbehälter aufweist und eine Spülvorrichtung (1; 101; 102) einschließt, wie sie in einem der vorstehenden Ansprüche beansprucht ist.

#### Revendications

1. Dispositif (1 ; 101 ; 201) pour tirer la chasse d'eau d'un WC, comprenant :  
 une vanne (2) pour fermer une ouverture d'écoulement sortant (3) d'un réservoir d'eau du WC, au moins un flotteur (9) raccordé à la vanne (2), des moyens (11 ; 111 ; 211) à raccorder sélectivement à la vanne (2) pour son lestage, lesdits moyens de lestage (11 ; 111 ; 211) comprenant au moins un corps de lestage (13 ; 113 ; 213), et des moyens (8) pour actionner la vanne (2), lesdits moyens d'actionnement (8) étant adaptés pour facultativement ne soulever que la vanne (2) ou la vanne (2) en combinaison avec les moyens de lestage (11 ; 111 ; 211) et comprenant une première partie agissant directement sur la vanne (2) et une seconde partie (12) agissant sur les moyens de lestage (11 ; 111 ; 211), dans lequel le au moins un corps de lestage (13 ; 113 ; 213) est mobile sous l'influence de la seconde partie (12) des moyens d'actionnement entre une position de repos laissant la vanne (2) dégagée et une position de lestage dans laquelle il charge la vanne (2) et dans lequel le au moins un corps de lestage (13 ; 113 ; 213) prend la forme d'un récipient ouvert sur le dessus, **caractérisé en ce que** le au moins un corps de lestage (13 ; 113 ; 213) peut pivoter autour d'un arbre (14 ; 114 ; 214) situé à une certaine distance de son centre de gravité.
2. Dispositif de chasse d'eau (1 ; 101 ; 201) selon la revendication 1, **caractérisé en ce que** la première partie des moyens d'actionnement comprend un tube (7 ; 107 ; 207) qui supporte la vanne (2) et est mobile le long du au moins un corps de lestage (13 ;

113 ; 213), et le au moins un corps de lestage (13 ; 113 ; 123) a au moins un élément (20 ; 120 ; 220) se mettant en prise sur le tube (7 ; 107 ; 207) dans la position de lestage.

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3. Dispositif de chasse d'eau (1 ; 101 ; 201) selon la revendication 2, **caractérisé en ce que** la seconde partie (12) des moyens d'actionnement comprend une bague (15 ; 115 ; 215) recevant de manière coulissante le tube (7 ; 107 ; 207) et supportant l'arbre de pivot (14 ; 114 ; 214) du au moins un corps de lestage (13 ; 113 ; 213).
4. Dispositif de chasse d'eau (1 ; 101 ; 201) selon la revendication 3, **caractérisé en ce que** l'arbre de pivot (14 ; 114 ; 214) est situé sur un côté du tube (7 ; 107 ; 207) et le au moins un corps de lestage (13 ; 113 ; 213) enferme au moins partiellement le tube (7 ; 107 ; 207).
5. Dispositif de chasse d'eau (1) selon la revendication 4, **caractérisé en ce que** l'arbre de pivot (14) est formé à proximité du côté supérieur du au moins un corps de lestage (13) et le au moins un élément de mise en prise (20) est formé à proximité de sa face inférieure.
6. Dispositif de chasse d'eau (1) selon l'une quelconque des revendications précédentes, **caractérisé par** des moyens pour supporter le au moins un corps de lestage (13) dans sa position de repos.
7. Dispositif de chasse d'eau (1) selon l'une quelconque des revendications 3 à 5 et 6, **caractérisé en ce que** les moyens de support comprennent un boîtier cylindrique (23) enfermant le tube (7) et le au moins un corps de lestage (13).
8. WC, comprenant une cuvette et un réservoir d'eau raccordé à celle-ci par un tuyau de vidange et comprenant un dispositif de chasse d'eau (1 ; 101 ; 201) selon l'une quelconque des revendications précédentes.

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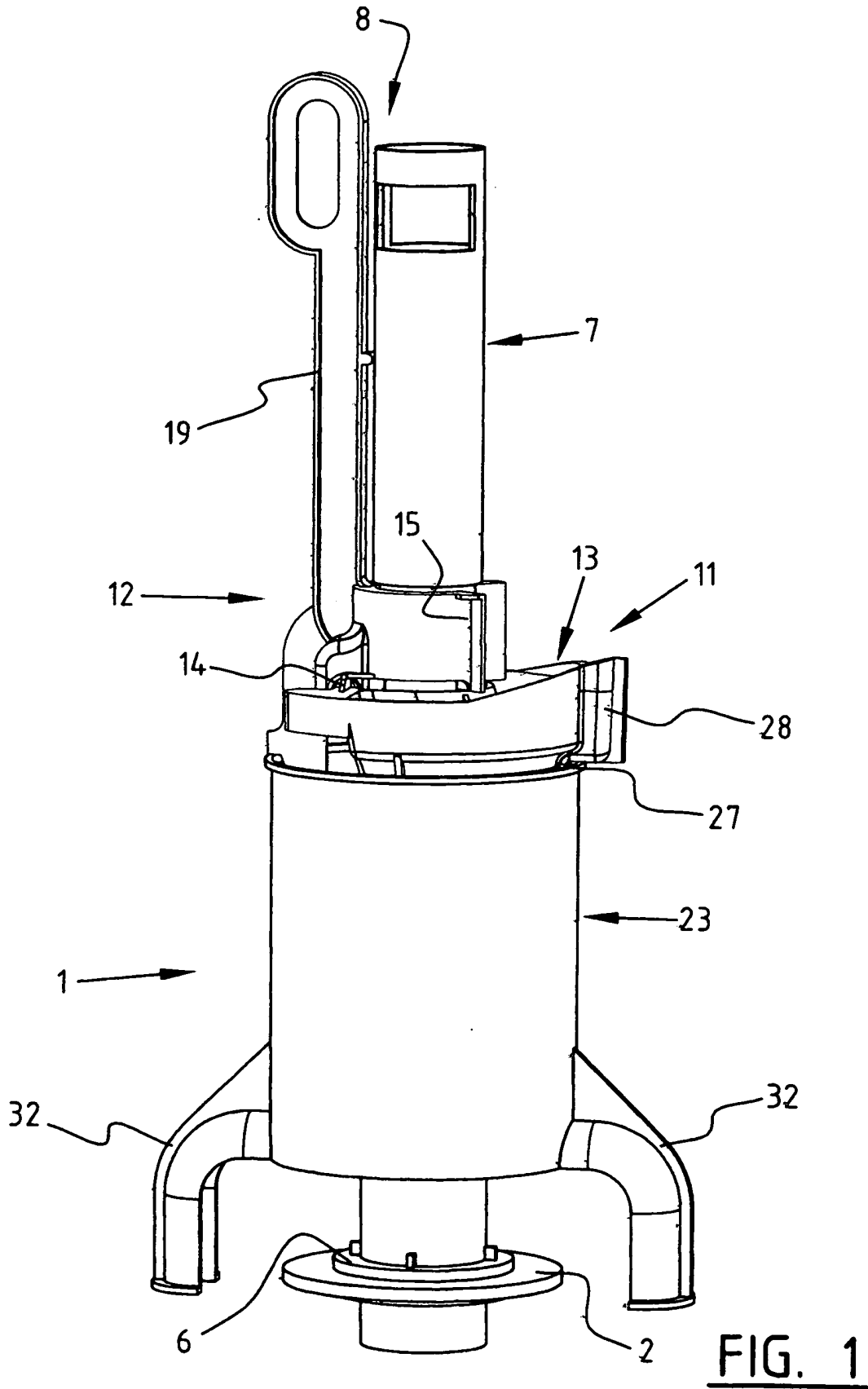
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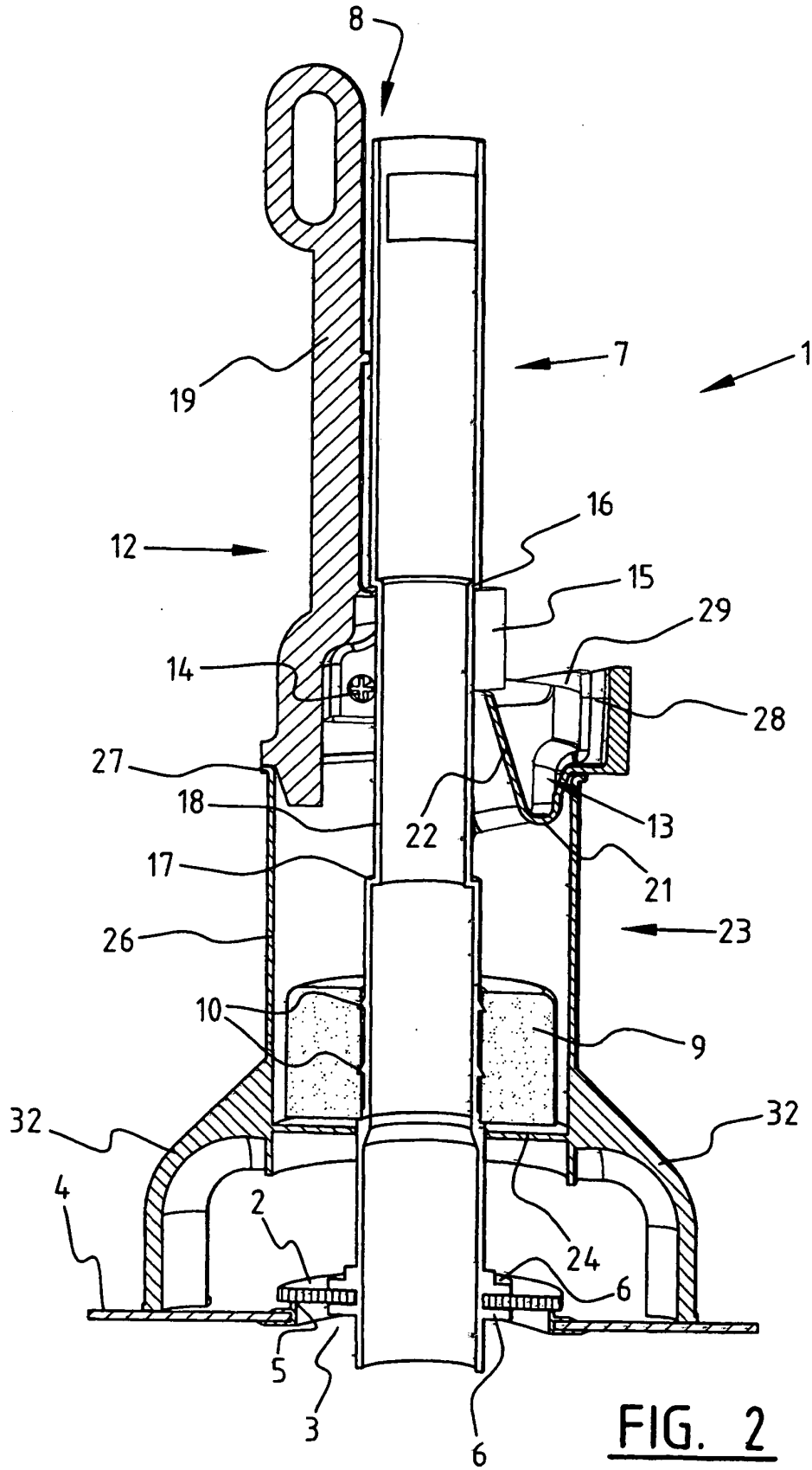
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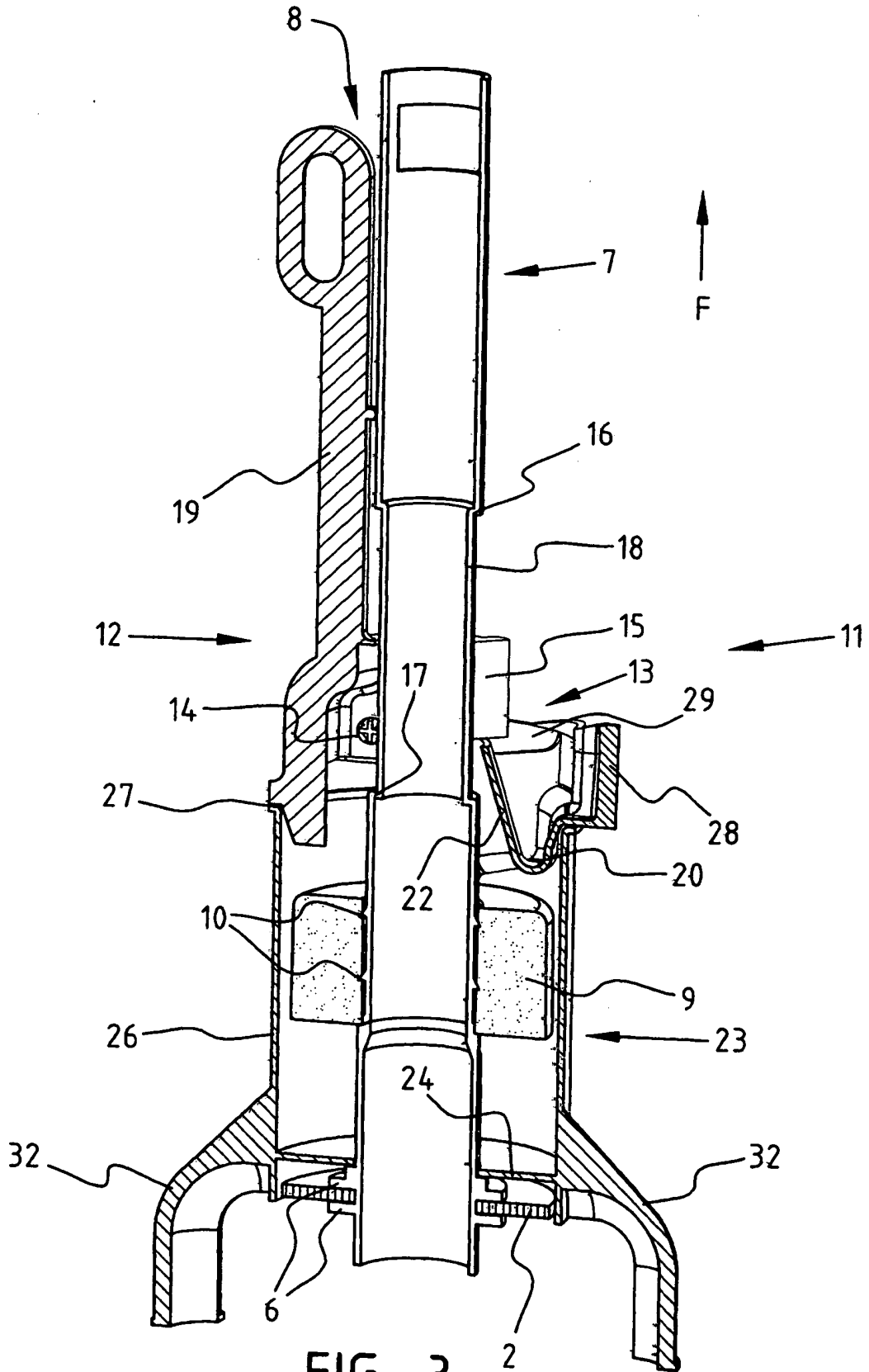
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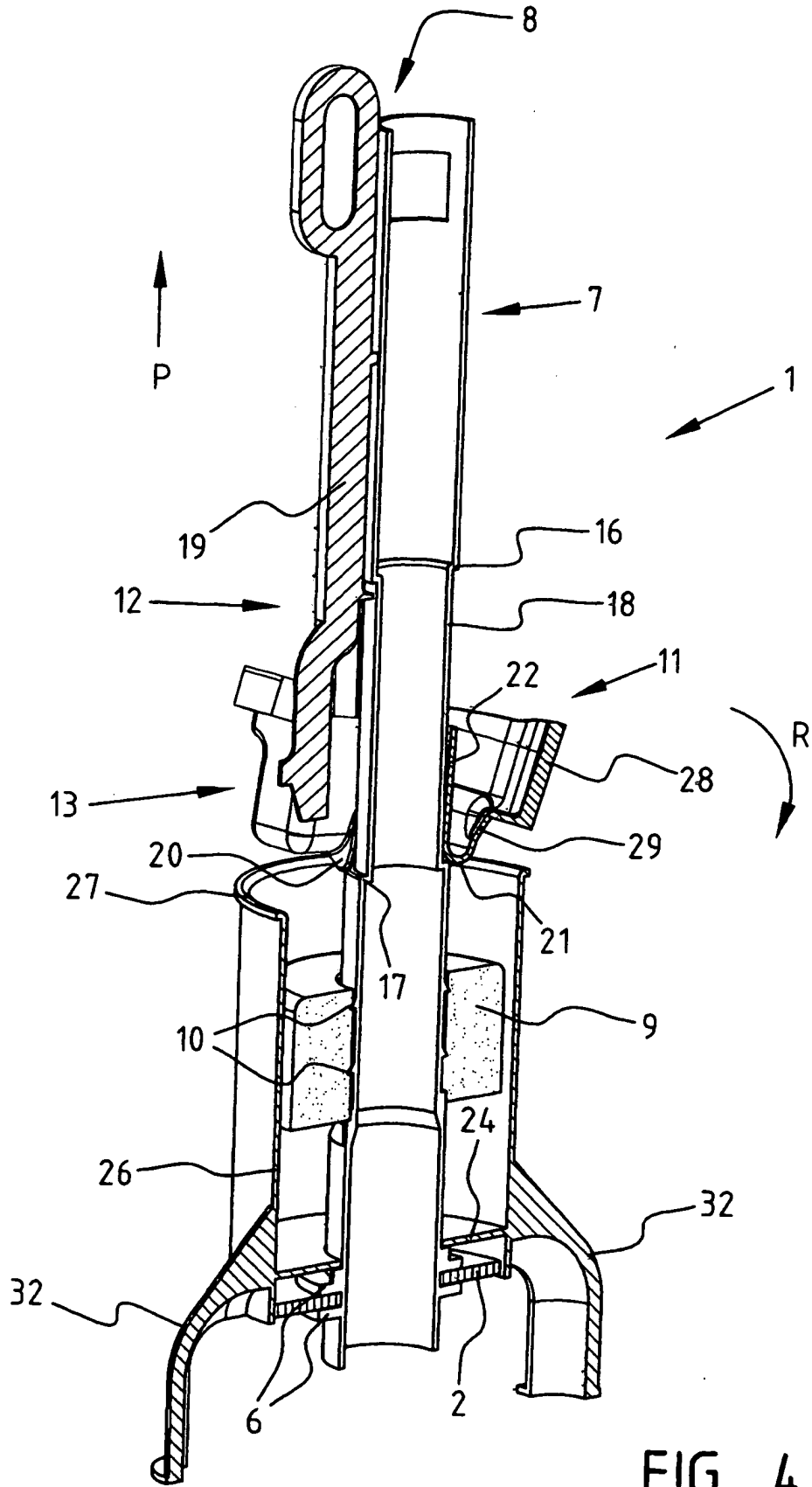


FIG. 4

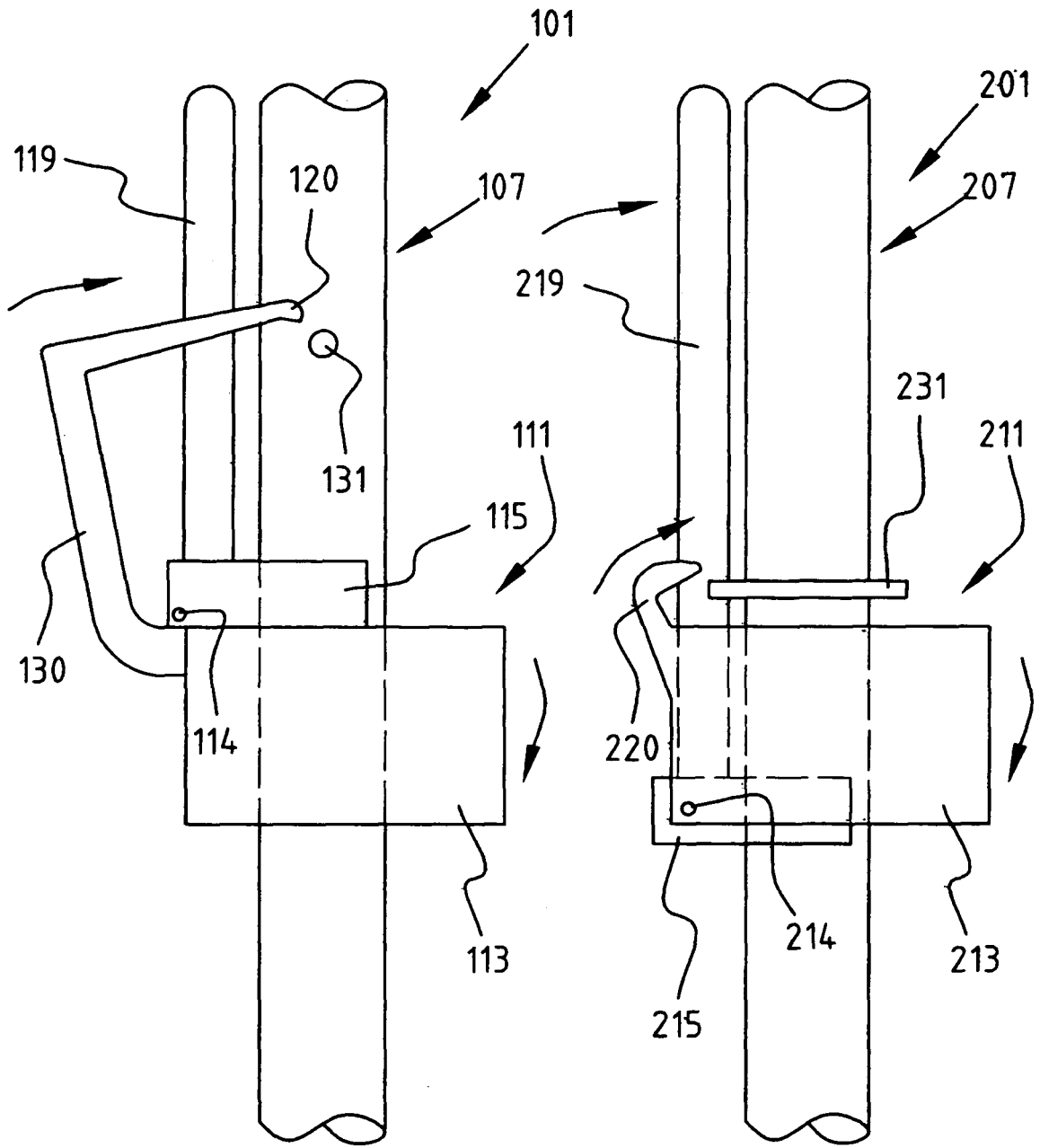


FIG. 5

FIG. 6

**REFERENCES CITED IN THE DESCRIPTION**

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