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(54) **FEEDING/FLUSHING ASSEMBLY OF A FLUSH TANK**

(57) A feeding/flushing assembly of a flush tank for sanitary appliances comprises a feeding device (2) and a flushing valve (3); the feeding device (2) comprises a support body (4) substantially extending along one axis (A); a feeding valve (6) supported by the support body (4); and a main float (7) mechanically connected to the feeding valve (6) and movable for selectively opening/closing the feeding valve (6); the flushing valve (3) comprises a valve body (41) which is movable inside a support structure (37) and operated by an operating mechanism (44); a control cable (54), operated by an unlocking float (55), extends between a first end (56), connected to the operating mechanism (44) of the flushing valve (3), and a free second end (57), shaped for selectively engaging and releasing the main float (7).

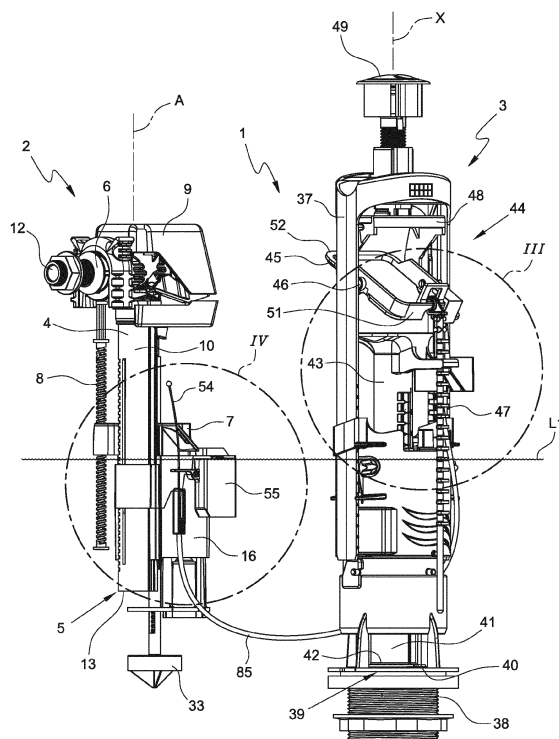


FIG. 1

Description

PRIORITY CLAIM

[0001] This application claims priority from Italian Patent Application No. 102017000018269 filed on 17/02/2017.

[0002] The present invention relates to a feeding/flushing assembly of a flush tank.

[0003] As is known, flush tanks for toilets and other sanitary appliances are normally provided with a flushing valve for discharging a predetermined amount of water from the tank, and a feeding device for refilling the tank with water from the water mains after each flush.

[0004] In general, a feeding device for a flush tank has an inlet, which in use is connected to a water mains connection to bring water to the feeding device, an outlet through which the water is poured into the tank, and a feeding valve, operated by a float and arranged between the inlet and the outlet; the float is mechanically connected to the feeding valve for selectively opening/closing the feeding valve depending on the position of the float, i.e. the water level in the tank.

[0005] Some feeding devices are equipped with a delayed filling system, which allows the opening of the feeding valve to be delayed from the time when the water in the tank falls below the level at which the float is placed. This prevents the feeding device from starting to fill the tank when the flushing valve is still open, thus avoiding unnecessary water consumption.

[0006] In general, when the tank empties out due to a water leak or a malfunction of the flushing valve, the water level in the flush tank drops more or less rapidly depending on the extent of the leak; in any case, the point is reached where the water no longer supports the float of the feeding device, therefore the feeding valve opens; the water enters the tank, but as the tank continues to leak, water continues to be wasted.

[0007] For this reason, some feeding devices are equipped with systems, which intervene to close the feeding valve when a leakage occurs through the flushing valve.

[0008] For example, patent application EP-A-2942441 describes a device for feeding a flush tank for sanitary appliances, which saves water thereby avoiding waste, not only by delaying the opening of the feeding valve in the normal operation of the flush tank, but also by preventing the opening of the feeding valve in case of water leaks of any type from the tank, for example, leaks through the flushing valve, leaks due to breakage of the tank, etc. In particular, the feeding device in EP-A-2942441 closes the feeding valve and keeps it closed when leaks occur.

[0009] However, in certain cases it may be desirable that even in case of a malfunction (leaks or jams) the feeding valve can still be operated on to allow the filling of the tank with water.

[0010] Similar drawbacks occur with other known feed-

ing devices, which may remain stuck/jammed thus preventing the inflow of water into the tank, whereas it would be desirable to still be able to operate the filling with water (and hence possibly a subsequent flushing) even in case of malfunction of the feeding device.

[0011] In fact, the float controlling the feeding valve could also get stuck for other reasons, thus preventing the opening of the feeding valve and hence the inflow of water into the tank.

[0012] Therefore, the present invention relates to a feeding/flushing assembly of a flush tank for sanitary appliances, as defined essentially in the appended claim 1 and, in its additional features, in the dependent claims.

[0013] The feeding/flushing assembly of the invention allows, in case of need, the tank to be filled even when the feeding valve remains open, i.e. when the float controlling the feeding valve remains in a position such as to keep the feeding valve open, for example because of a jam or malfunction of the float or following a leakage of water from the tank.

[0014] Optionally, the feeding/flushing assembly of the invention can integrate the features described in the aforementioned patent application EP-A-2942441: in this way, the feeding/flushing assembly of the invention, besides allowing water saving both in the normal operation of the flush tank (by delaying the inflow of water into the flush tank after discharge), and in the case of water leaks of any kind from the tank (for example through the flushing valve or due to other causes), ensures the possibility of controlling the inflow of water into the tank even in case of leaks.

[0015] It is however to be understood that the feeding/flushing assembly of the invention can also be applied in different configurations and not necessarily in the presence of the system described in EP-A-2942441.

[0016] Further features and advantages of the present invention will be apparent from the following description of a non-limiting embodiment thereof, with reference to the figures of the accompanying drawings, wherein:

- Figure 1 is a perspective view of a feeding/flushing assembly for a flush tank according to the invention;
- Figure 2 is a front view, with parts in longitudinal section, of a feeding device forming part of the feeding/flushing assembly of Figure 1;
- Figures 3 and 4 are enlarged views of the details III and IV pointed out in Figure 1;
- Figure 5 is a perspective view of a further detail of Figure 1;
- Figure 6 shows the feeding/flushing assembly of Figure 1 in a different operating configuration;
- Figure 7 is an enlarged view of the detail VII pointed out in Figure 6.

[0017] The numeral 1 in Figure 1 shows, as a whole, a feeding/flushing assembly of a flush tank (not shown) comprising a feeding device 2 and a flushing valve 3.

[0018] The feeding device 2 comprises a support body

4, which extends substantially along an axis A (which is, in use, substantially vertical) and is provided on the inside with a channel 5; a feeding valve 6, which is supported by the body 4 and arranged along the channel 5; and a main float 7 mechanically connected, for example by means of a linkage 8, to a shutter (not shown) of the feeding valve 6 and movable for selectively opening/closing the feeding valve 6.

[0019] In the example shown, the body 4 comprises an upper head 9 and a pipe 10, which extends from the head 9 downwards along the axis A and is provided with a guide parallel to the axis A on which the float 7 is slidably mounted so that the float 7 can slide along the axis A (or parallel to the axis A).

[0020] The channel 5 has an inlet 12, which can be connected to an external pipe of a water mains via a fitting, and a main outlet 13, which, in use, flows into the flush tank.

[0021] The movement of the float 7 along the axis A (or parallel to the axis A) actuates the shutter of the feeding valve 6 to selectively open/close the channel 5.

[0022] The float 7 is housed inside a cup-shaped container 16 open at the top, which extends along the axis A and is integrally fixed to the body 4 and in particular to the pipe 10.

[0023] Also with reference to Figure 2, the container 16 is provided with a bottom discharge hole 17, for example, formed in a bottom wall 18 of the container 16.

[0024] Preferably, but not necessarily, the feeding device 2 includes the features described in EP-A-2942441 to prevent the opening of the feeding valve 6 in case of leakage of water from the tank.

[0025] These features are not detailed here, as they are described in EP-A-2942441, the contents of which are incorporated herein by reference.

[0026] According to what is described in EP-A-2942441, the container 16 comprises a main tank 19, in which the float 7 is housed, and a siphon system 20 connecting the tank 19 to the discharge hole 17.

[0027] The siphon system 20 (only schematically and partially shown in Figure 2) is equipped with an upper service hole 21 and a service valve 22 cooperating with the service hole 21 to selectively open/close the service hole 21; the service valve 22 is actuated by a service float 23 connected to the service valve 22 by a stem 24 inserted with radial clearance in the discharge hole 17. The float 23 is located outside the container 16 and below the container 16, therefore at a lower level than that of the main float 7.

[0028] The feeding device 2 also comprises an additional tank 29, which is arranged below the head 9 of the body 4 and integrally fixed to the body 4 and receives water (when the feeding valve 6 is open) from the channel 5 through an auxiliary outlet formed in the body 4 downstream of the feeding valve 6.

[0029] The tank 29 is provided with a bottom outlet hole 30 and a discharge hole 31, which is positioned (along the axis A) at a higher level than that of the outlet hole 30.

[0030] The outlet hole 30 is associated with an auxiliary valve 32 cooperating with the outlet hole 30 to selectively open/close the outlet hole 30. The auxiliary valve 32 is actuated by an auxiliary float 33 connected to the auxiliary valve 32 by a stem 34 and placed beyond the outlet hole 30 outside the tank 29 and outside the container 16, in particular under the container 16, i.e. at a level (along the axis A) lower than the float 7 and the float 23.

[0031] The discharge hole 31 is placed above the container 16 and axially aligned with the main tank 19, so that the water flowing out of the additional tank 29 through the discharge hole 31 falls into the container 16 and precisely into the tank 19, which is open at the top.

[0032] With reference again to Figure 1, the flushing valve 3 substantially extends along an axis X (vertical in use and parallel to the axis A of the feeding device 2) and comprises a support structure 37, which can be fixed to a bottom wall of the tank (for example by means of a threaded sleeve 38) and is provided with a discharge hole 39 delimited by a sealing seat 40, and a valve body 41 slidably housed along the axis X in the support structure 37 and provided at the bottom with a shutter 42 cooperating with the sealing seat 40 to close the discharge hole 39; advantageously, the valve body 41 comprises a pipe 43 which also serves as an overflow pipe.

[0033] The valve body 41 is raised by an operating mechanism 44.

[0034] In the illustrated example, although not necessarily, the operating mechanism 44 comprises a pivoting lever 45 hinged to the support structure 37 in a fulcrum 46, and a connecting rod 47 connecting the lever 45 to the valve body 41; the lever 45 cooperates with at least one slider 48 operated by a push-button 49 operable by a user.

[0035] The rod 47 and the slider 48 engage the lever 45 on opposite sides of the fulcrum 46. In particular, the rod 47 is connected to a first end 51 of the lever 45, and the slider 48 acts on a second end 52 of the lever 45.

[0036] The slider 48 is supported by the support structure 37 and can slide with respect to the support structure 37 parallel to the axis X. When the slider 48, when operated by the user by means of the push-button 49, slides downwards parallel to the axis X, the slider 48 pushes the end 52 of the lever 45 downwards; the lever 45 rotates on the fulcrum 46, and the end 51 connected to the rod 47 rises, thereby also lifting the valve body 41.

[0037] It is however to be understood that the operating mechanism 44 may be of any other known type (also of the pneumatic, electro-mechanical, electronic type, etc.).

[0038] In general, the operating mechanism 44 comprises a lever 45 or other equivalent element which, when the operating mechanism 44 is operated by the user, performs a translational movement with a prefixed stroke parallel to the axis X, in particular upwards.

[0039] In accordance with the invention, the feeding device 2 comprises a control cable 54 and an unlocking float 55 acting on the cable 54.

[0040] Also with reference to Figures 3-5, the cable 54

extends between a first end 56, which is fixed to the lever 45 and precisely to the end 51 of the lever 45, and a free second end 57, which is shaped for selectively engaging and releasing the main float 7 of the feeding device 2.

[0041] For example, the ends 56, 57 of the cable 54 are provided with respective transverse heads 58, 59, projecting radially from the cable 54 and, for example, (but not necessarily) substantially shaped like a spherical cap.

[0042] The head 58 located at the end 56 engages a fastening seat 61 formed on a fastening body 62 integrally carried by the lever 45 at the end 51.

[0043] For example, as shown in Figure 5, the fastening body 62 has a cavity 63 which accommodates the head 58 and has a narrowing 64 through which the cable 54 is arranged and that locks the head 58 in the cavity 63; optionally, the cavity 63 communicates through the narrowing 64 with a groove 65 which houses an end portion 66 of the cable 54.

[0044] The fastening body 62 is integrally fixed to the end 51 of the lever 45, so as to be movable integrally with the lever 45.

[0045] Advantageously, the body 62 is formed by a piece which is distinct and separate from the lever 45 and is provided with an optionally releasable coupling 67 so as to fasten the body 62 to the lever 45. In the example shown, the body 62 is snap fitted onto the lever 45.

[0046] It is understood that the body 62 can be fastened in any way to the lever 45, or also form a piece or portion of the lever 45 itself, forming a monolithic piece therewith.

[0047] Preferably, the cable 54 is inserted in a guide 68 fixed to the support structure 37 of the flushing valve 3 and extending substantially parallel to the axis X of the flushing valve 3 below the body 62.

[0048] For example, the guide 68 projects laterally from an upright 69 of the support structure 37 towards the valve body 41, i.e. towards the pipe 43.

[0049] The guide 68 has a longitudinal groove 70, for example, substantially rectilinear and parallel to the axis X, through which the cable 54 is inserted.

[0050] The guide 68 and in particular the groove 70 are aligned with the groove 65 of the body 62.

[0051] On the side of the end 57 (Figure 4), the cable 54 is inserted in a guide 72 fixed to the support body 4 of the feeding device 2.

[0052] In particular, the guide 72 is located on an outer lateral surface 73 of the support body 4 and has a longitudinal groove 74, for example, substantially rectilinear and parallel to the axis A, through which the cable 54 is inserted.

[0053] The cable 54 has an end portion 75 projecting from the guide 72 and ending with the end 57 and cooperating with the unlocking float 55.

[0054] The unlocking float 55 is supported by the body 4: in particular, the float 55 is hinged to the surface 73 by a pin 76 defining a rotation axis R orthogonal to the axis A.

[0055] The float 55 comprises a floating case 77 and

a lever 78 positioned on opposite sides of the pin 76.

[0056] The lever 78 protrudes from the case 77 and has a free end provided with a through hole 79, substantially orthogonal to the axis A.

[0057] The end portion 75 is inserted through the hole 79.

[0058] The end 57 is located at a height (measured parallel to the axis A) that is higher than that of the float 55 and also of a coupling seat 80 of the main float 7.

[0059] The coupling seat 80 is formed on a projection 81 of the float 7 and extends substantially parallel to the axis A.

[0060] In particular, the projection 81 extends from the float 7 to the outside of the container 16 and is flanked by the end portion 75 of the cable 54. The projection 81 is movable integrally with the float 7 and parallel to the axis A.

[0061] The coupling seat 80 is open laterally towards the cable 54, having a lateral opening 82 facing the cable 54; and has a top edge 83 transverse to the axis A and cooperating with the head 58.

[0062] The cable 54 is insertable in the coupling seat 80 through the lateral opening 82.

[0063] The edge 83 is shaped so as to axially engage the head 58.

[0064] The cable 54 is preferably housed in an outer tubular sheath 85, for example made of a polymer material (plastic), which covers the cable 54 and from which the end portions 66, 75 of the cable 54 protrude.

[0065] The sheath 85 has two opposite ends housed inside the guides 68, 72, respectively, and fixed thereto, for example by interlocking i.e. by mechanical interference.

[0066] The cable 54 is inserted with radial clearance in the sheath 85 and slidable inside the sheath 85.

[0067] The cable 54 is preferably a metal cable. In any case, the cable 54 is flexible but has a predetermined rigidity, such as to keep the cable 54, or at least its end portion 75 projecting from the guide 72, in a predetermined configuration with no further bending due to gravity. In other words, the end portion 75 of the cable 54, projecting from the guide 72 and ending with the end 57, assumes a stable predetermined configuration in the absence of external forces and remains in this configuration without bending only by gravity.

[0068] The float 55 is movable (in particular, rotatable about the axis R with respect to the support body 4 of the feeding device 2) so as to move the cable 54 with respect to the main float 7 from a releasing position, in which the cable 54 does not engage the float 7, to an engaging position, in which the cable 54 engages the float 7, in particular through the end 57.

[0069] In greater detail, the float 55 is movable (rotatable about the axis R) with respect to the support body 4 for selectively assuming a first and a second operating position, which the float 55 assumes following a variation (fall) of the water level in the tank and precisely when the float 55 is sustained and not sustained, respectively, by

the water contained in the tank.

[0070] In the first operating position, which the float 55 assumes when the water contained in the tank reaches the float 55, the lever 78 and the hole 79 are substantially horizontal, i.e. perpendicular to the axis A, and the cable 54 passes through the hole 79 in a substantially vertical direction (parallel to the axis (A)); and in the second operating position, which the float 55 assumes when the water contained in the tank does not reach the float 55, the lever 78 and the hole 79 are inclined with respect to the axis A and therefore the cable 54 also passes through the hole 79 in an oblique direction with respect to the axis A.

[0071] The float 55, by passing from the first to the second operating position, moves the cable 54 (specifically the end portion 75 of the cable 54) respectively from:

- a releasing position, in which the end portion 75 is laterally spaced apart from the coupling seat 80 and outside the coupling seat 80; and in which the cable 54 is freely slidable with respect to the coupling seat 80 without axially engaging the coupling seat 80 and thus the float 55;
- an engaging position, in which the end portion 75 axially engages the coupling seat 80 and thus the float.

[0072] The operation of the feeding/flushing assembly 1, in normal operating conditions, is similar to that of other similar devices, as described for example in EP-A-2942441.

[0073] In summary, when the tank is filled with water (between one flush and the next), the water reaches (Figures 1, 2, 4) an initial level L1 that is above the container 16 and the container 16 is filled with water.

[0074] The main float 7 floats in the container 16 filled with water and keeps the feeding valve 6 closed.

[0075] The floats 23, 33 are kept lifted by the water contained in the tank, and the service hole 21 and the outlet hole 30 are open.

[0076] When the water contained in the tank is discharged through the discharge valve 3, the water level in the tank drops and the feeding device 2 intervenes with a delayed filling mode: the main float 7, as it is housed in the container 16 filled with water (namely, the tank 19), does not drop directly with the decrease of the water level in the tank, but remains raised as long as there is water in the tank 19 of the container 16.

[0077] Until the water in the tank does not reach a level L2 (also schematically shown in Figure 2), the float 23 keeps the service valve 22 and the service hole 21 open; the siphon system 20 does not act as a siphon (because air enters through the service hole 21).

[0078] When the water reaches the level L2, the float 23 drops and closes the service valve 22 and the service hole 21, thus activating the siphon system 20. Since air cannot enter through the service hole 21, the water flows out of the discharge hole 17, thus emptying the tank 19.

When the tank 19 empties, the main float 7 drops, thereby opening the feeding valve 6; the water enters the channel 5 and through the pipe 10 fills the tank.

[0079] The feeding device 2 also intervenes in case of leakage of the tank, for example when a malfunction occurs in the flushing valve 3, in order to keep the feeding valve 6 closed despite the emptying of the tank, and thus avoid waste of water.

[0080] When a small leakage occurs from the tank, the water contained in the tank is discharged slowly: as the water level in the tank drops, the water level in the container 16 also lowers, whereas the float 23 keeps the service valve 22 open, thus allowing air to enter through the service hole 21.

[0081] The siphon system 20 does not act as a siphon, since the service hole 21 is open and therefore allows air to enter the siphon system 20; consequently, the tank 19 housing the main float 7 remains full, keeping the float 7 lifted and therefore keeping the feeding valve 6 closed.

[0082] Even when the tank is completely empty, the main float 7 remains raised in the container 16.

[0083] Instead, in the case of a large leakage through the flushing valve 3, the water contained in the tank is rapidly discharged, such as when the flush is operated.

[0084] As a result, although with a delay, the main float 7 opens the feeding valve 6, in particular after the water in the tank reaches the level L2 to which the float 23 drops, and closes the service valve 22 and the service hole 21, thereby activating the siphon system 20 which empties the tank 19.

[0085] Water then enters the tank through the feeding valve 6. Part of the water entering through the feeding valve 6 flows into the additional tank 29, whose outlet hole 30 is however open since the float 33, which is located in the proximity of the bottom of the tank and in any case below the float 23, is still raised and maintains the auxiliary valve 32 and the outlet hole 30 open. Therefore, the water does not fill the tank 29, but flows out of the outlet hole 30.

[0086] Only when the water in the tank drops further below the float 33 the latter loses its buoyancy and drops, closing the outlet hole 30.

[0087] At this point, the water fills the tank 29 and overflows from the discharge hole 31, falling into the container 16 (the tank 19).

[0088] The water fills the container 16 and therefore also the tank 19; the main float 7 rises and closes the feeding valve 6, stopping the water from entering the tank.

[0089] If necessary, a forced filling of the tank can be activated even when the feeding valve 6 remains closed, for example as a result of leaks in the tank, by further operating the flushing valve 3, in particular by pressing the push-button 49 acting on the slider 48.

[0090] In this manner (Figures 6-7), the lever 45, and therefore also the fastening body 62 together with the end 56 of the cable 54, rise via the operating mechanism 44.

[0091] The cable 54 slides inside the sheath 85 and in the guides 68, 72; the end 57 of the cable 54 is dragged downwards.

[0092] The float 55 is in the second operating position, as it is not supported by the water contained in the tank, and therefore the cable 54 is in the engaging position: the end portion 75 of the cable 54 axially engages the coupling seat 80 and hence the float 55.

[0093] Accordingly, when the end 57 of the cable 54 descends downwards, it also drags downwards the projection 81 and the main float 7.

[0094] The movement of the float 7 expels water from the tank 19 of the container 16 and opens the feeding valve 6.

[0095] In normal operation, instead, the float 55 is in the first operating position (Figures 1 and 4) and the float 55 is in the releasing position, so when the flushing valve 3 is operated, the cable 54 does not engage the coupling seat 80, and hence the float 55.

[0096] Lastly, it is understood that the feeding device and the feeding/flushing assembly as described and illustrated herein can be subject to further modifications and variations that do not depart from the scope of the accompanying claims.

Claims

1. A feeding/flushing assembly (1) for a flush tank of sanitary appliances, comprising a feeding device (2) and a flushing valve (3); the feeding device (2) comprising a support body (4) extending substantially along an axis (A); a feeding valve (6) supported by the support body (4); and a main float (7) mechanically connected to the feeding valve (6) and movable for selectively opening/closing the feeding valve (6); the flushing valve (3) comprising a valve body (41) movable inside a support structure (37) and operated by an operating mechanism (44); **characterised by** comprising a control cable (54) and an unlocking float (55) acting on the cable (54); the cable (54) extending between a first end (56), connected to the operating mechanism (44) of the flushing valve (3), and a free second end (57), shaped for selectively engaging and releasing the main float (7).
2. The feeding/flushing assembly according to claim 1, wherein the unlocking float (55) is movable with respect to the support body (4) of the feeding device (2) so as to move the cable (54) with respect to the main float (7) from a releasing position, in which the cable (54) does not engage the main float (7), to an engaging position, in which the cable (54) engages the main float (7).
3. The feeding/flushing assembly according to claim 1 or 2, wherein the unlocking float (55) is rotatable about a rotation axis (R) with respect to the support body (4) of the feeding device (2).
4. The feeding/flushing assembly according to one of the preceding claims, wherein the main float (7) is provided with a coupling seat (80) integrally movable with the main float (7) and shaped so as to receive an end portion (75) of the cable (54).
5. The feeding/flushing assembly according to claim 4, wherein the unlocking float (55) is movable with respect to the support body (4) for selectively assuming a first and a second operating position, which the unlocking float (55) assumes following a variation of the water level in the tank and precisely when the unlocking float (55) is sustained and not sustained, respectively, by the water contained in the tank; and wherein the unlocking float (55), by passing from the first to the second operating position, moves the end portion (75) of the cable (54) respectively from: a releasing position, in which the end portion (75) is laterally spaced apart from the coupling seat (80) and outside the coupling seat (80) and the cable (54) is freely slidable with respect to the coupling seat (80) without axially engaging the coupling seat (80) and thus the unlocking float (55); to an engaging position, in which the end portion (75) axially engages the coupling seat (80) and thus the unlocking float (55).
6. The feeding/flushing assembly according to claim 4 or 5, wherein the coupling seat (80) is formed on a projection (81) of the main float (7) and alongside the end portion (75) of the cable (54).
7. The feeding/flushing assembly according to one of claims 4 to 6, wherein the coupling seat (80) is laterally open towards the cable (54), having a lateral opening (82) facing the cable (54) and through which the cable (54) is insertable in the coupling seat (80); and has a top edge (83) crosswise to the axis (A) and cooperating with a head (58) of the end portion (75) of the cable (54) and shaped so as to axially engage said head (58).
8. The feeding/flushing assembly according to one of the preceding claims, wherein the unlocking float (55) is supported by the support body (4) of the feeding device (2).
9. The feeding/flushing assembly according to claim 8, wherein the unlocking float (55) is hinged to the support body (4) of the feeding device (2) by a pin (76), defining a rotation axis (R) perpendicular to the axis (A), and comprises a floating case (77) and a lever (78) positioned on opposite sides of the pin (76); the lever (78) having a free end provided with a through hole (79) through which the cable (54) is inserted.

10. The feeding/flushing assembly according to one of the preceding claims, wherein the cable (54) is a metal cable.

11. The feeding/flushing assembly according to one of the preceding claims, wherein the cable (54) has a first and a second end portion (66, 75), provided with the first and the second end (56, 57), respectively, and housed in a sliding manner in respective guides (68, 72) fixed to the support structure (37) of the flushing valve (3) and the support body (4) of the feeding device (2), respectively. 5
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12. The feeding/flushing assembly according to claim 11, wherein the guides (68, 72) have respective longitudinal grooves (65, 74), for example substantially rectilinear and parallel to the axis (A), open at respective longitudinal ends and through which the cable (54) is longitudinally inserted. 15
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13. The feeding/flushing assembly according to claim 11 or 12, wherein the cable (54) is housed in an outer tubular sheath (85), for example made of polymer material i.e. plastic, which covers the cable (54) and from which respective end portions (66, 75) of the cable (54) protrude; the cable (54) being inserted with radial clearance in the sheath (85) and sliding inside the sheath (85) . 25

14. The feeding/flushing assembly according to claim 13, wherein the sheath (85) has two opposite ends housed inside respective guides (68, 72) and fixed thereto, for example by interlocking i.e. by mechanical interference. 30
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15. The feeding/flushing assembly according to one of the preceding claims, wherein the first and the second end (56, 57) of the cable (54) are provided with a first and a second transverse head (58, 59), respectively, projecting radially from the cable (54). 40

16. The feeding/flushing assembly according to one of the preceding claims, comprising a fastening body (62), provided with a fastening seat (61) which houses the first end (56) of the cable (54). 45

17. The feeding/flushing assembly according to claim 16, wherein the fastening body (62) is provided with a coupling (67) for fastening the fastening body (62) to the operating mechanism (44) of the flushing valve (3). 50

18. The feeding/flushing assembly according to one of the preceding claims, wherein the main float (7) is housed inside a cup-shaped container (16) open at the top, integrally fixed to the support body (4) and provided with a bottom discharge hole (17). 55

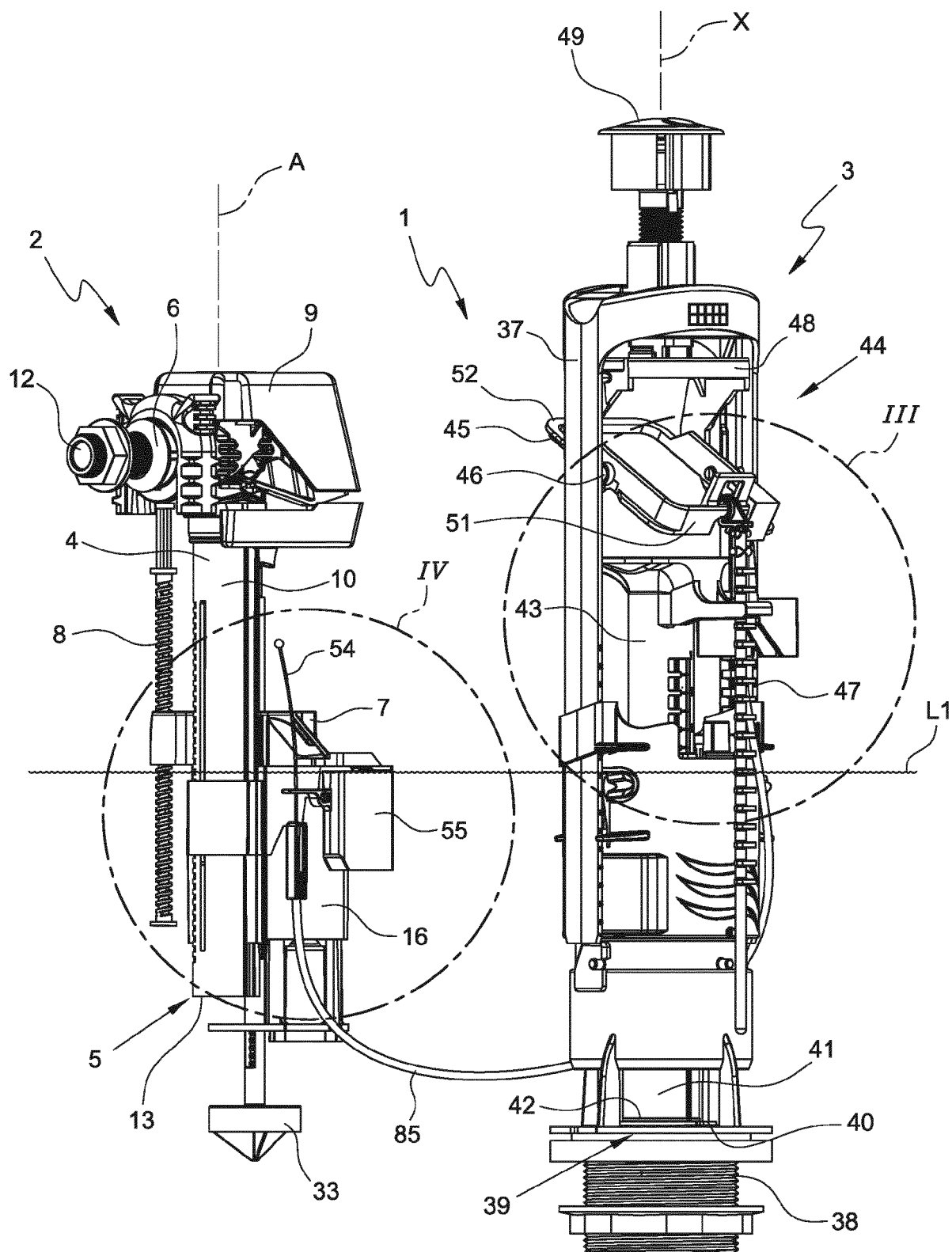


FIG. 1

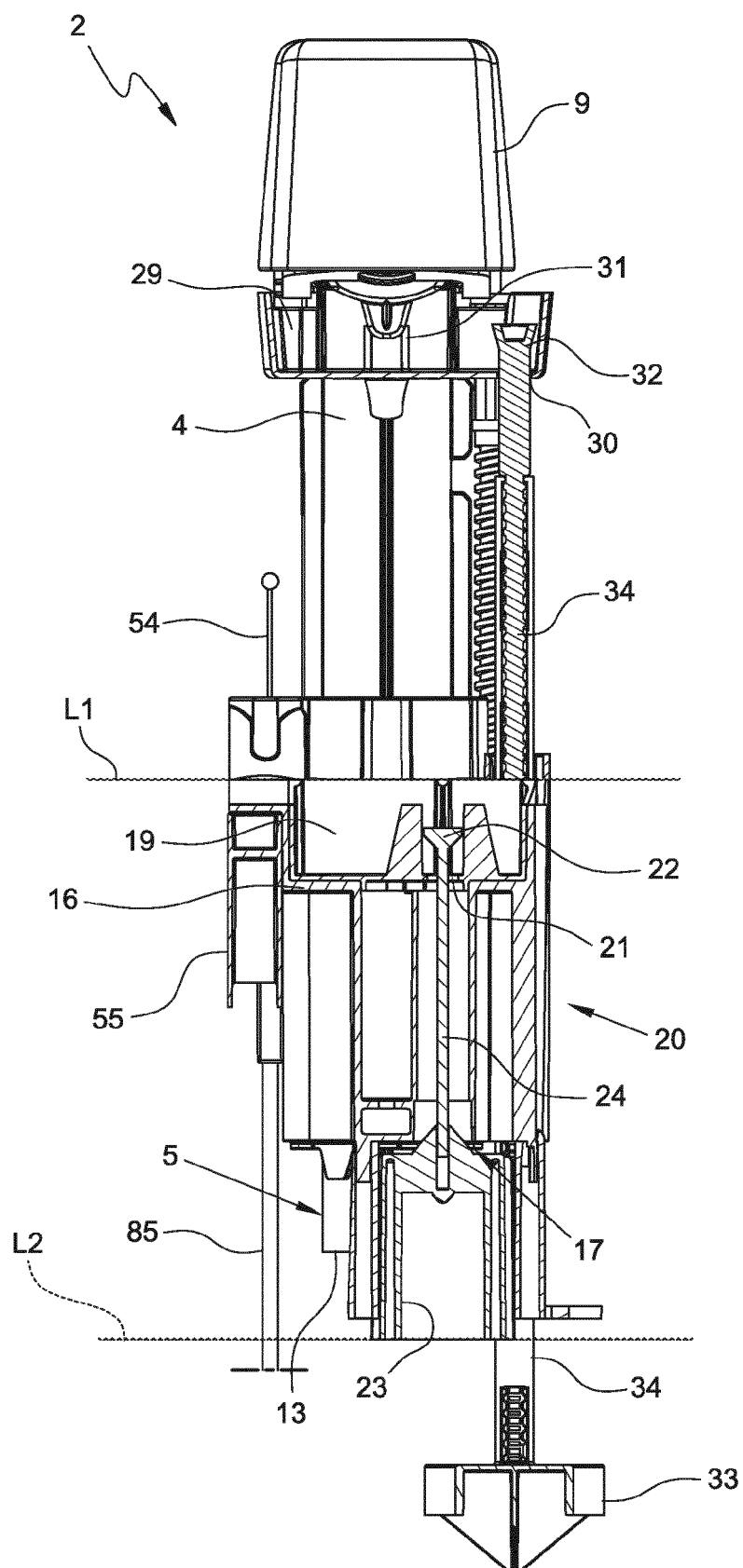


FIG. 2

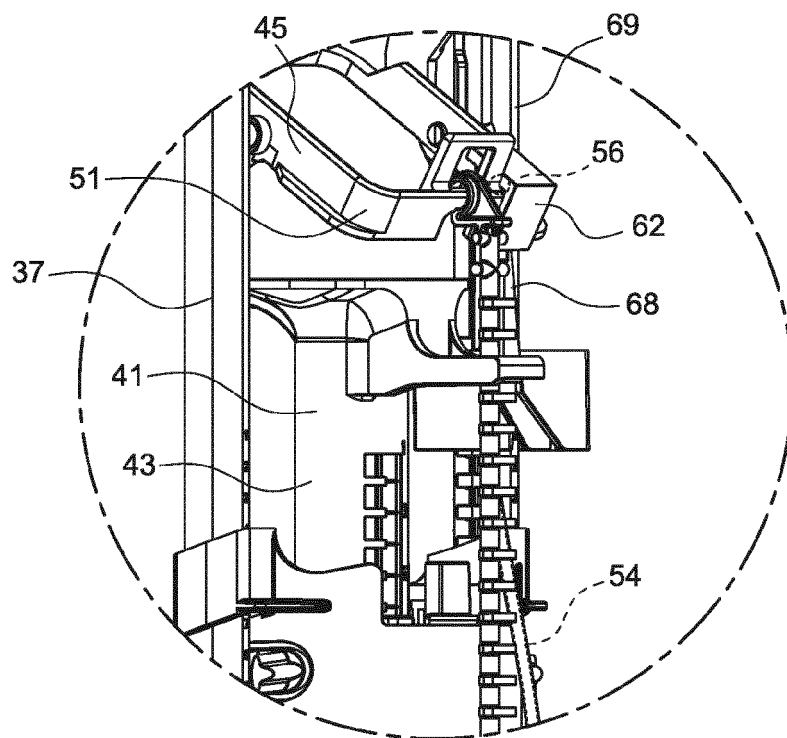


FIG. 3

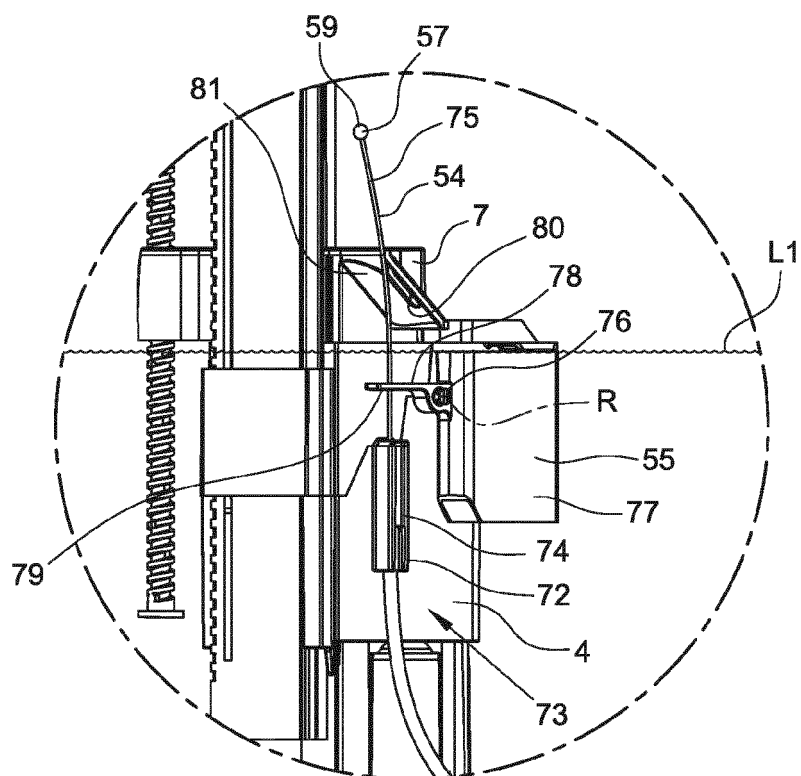


FIG. 4

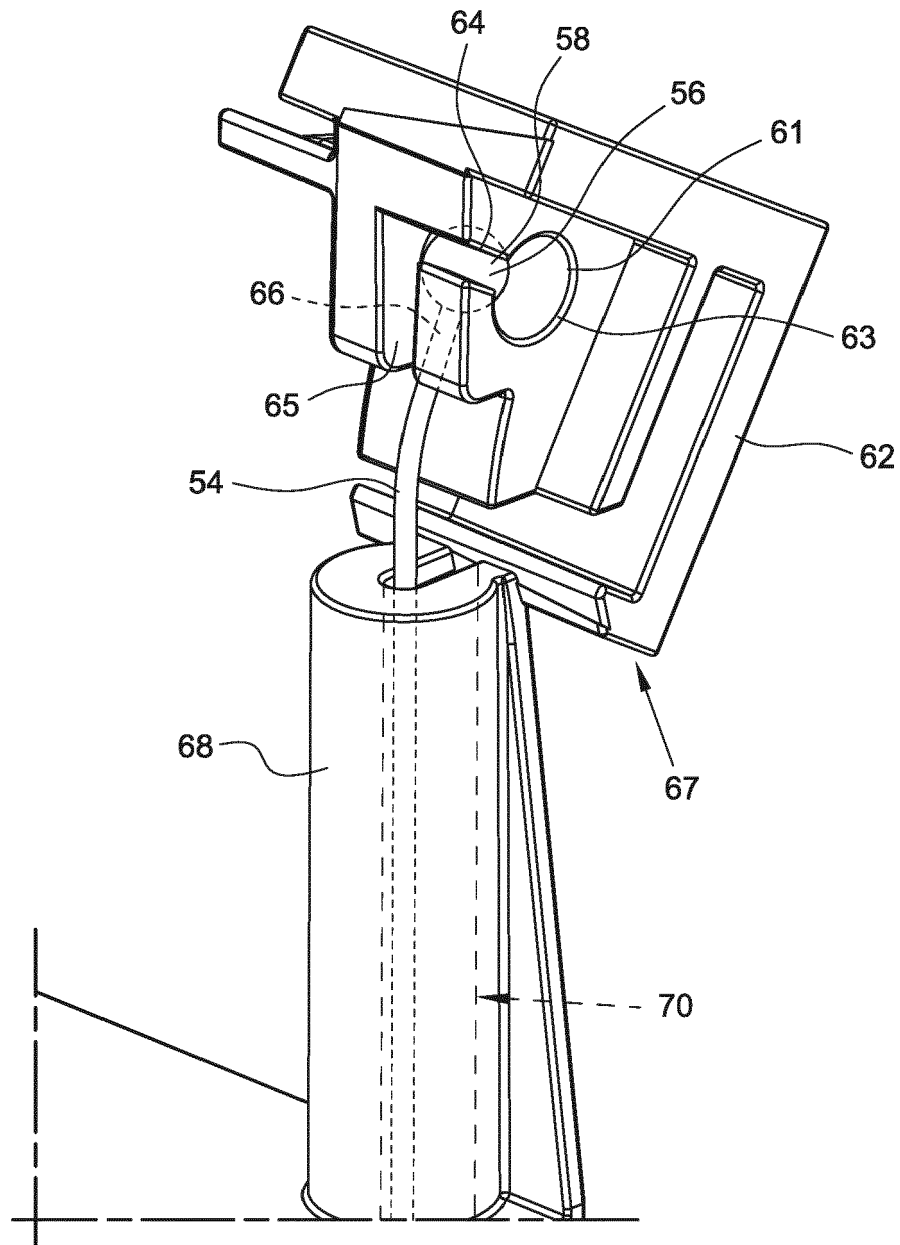


FIG. 5

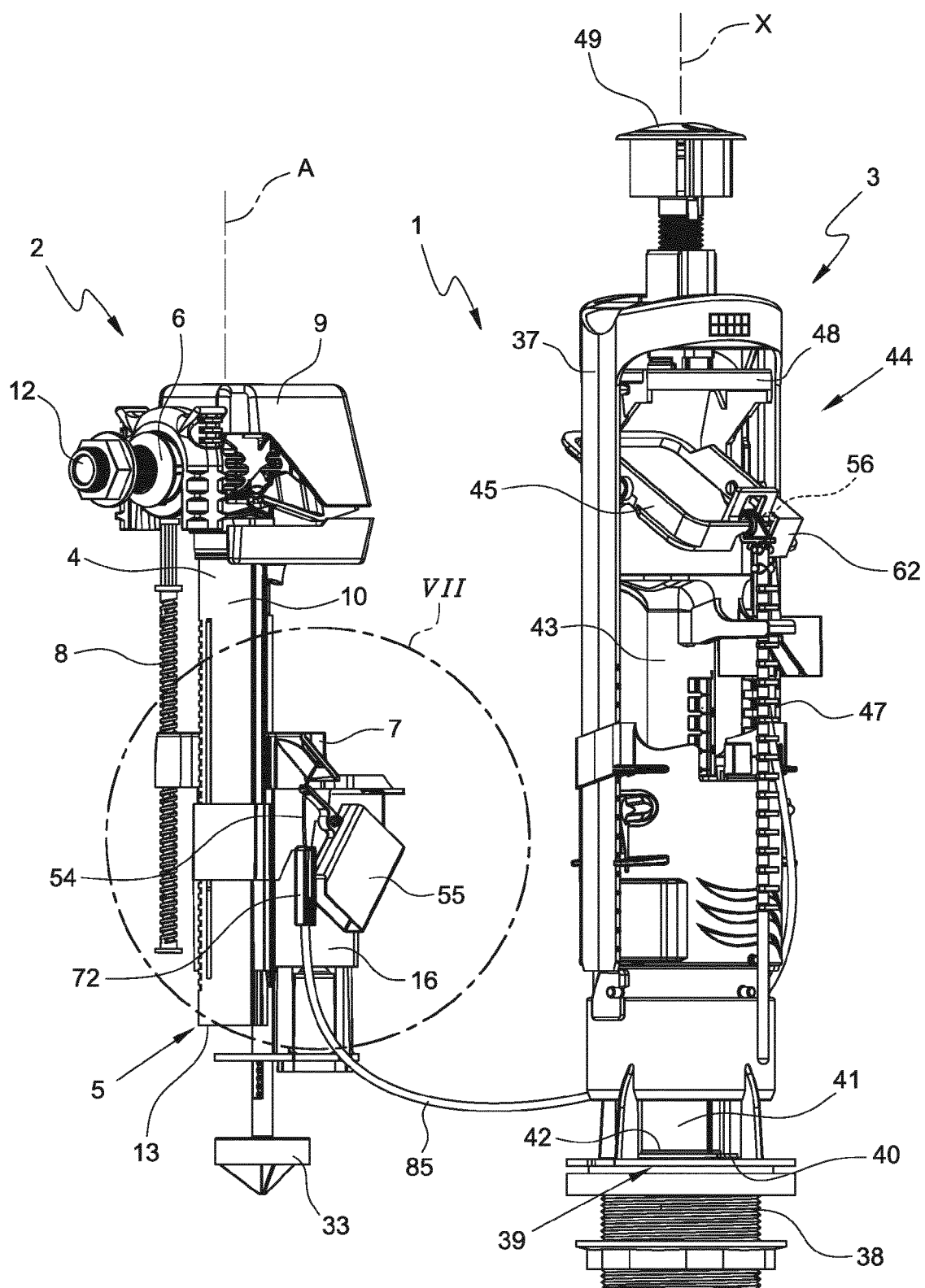


FIG. 6

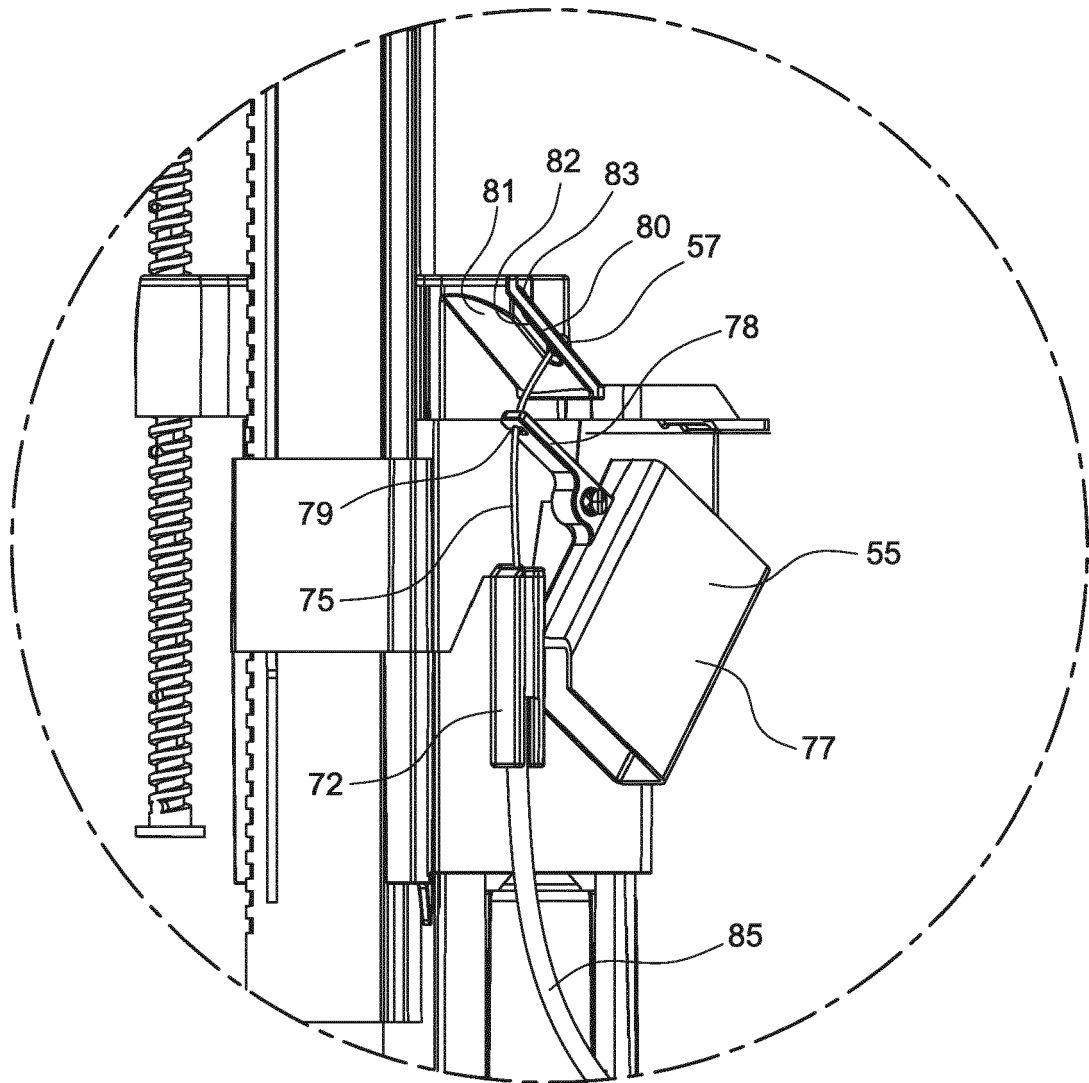


FIG. 7



EUROPEAN SEARCH REPORT

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Place of search Munich		Date of completion of the search 7 May 2018	Examiner Isailovski, Marko
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