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(71) Applicant: **Wavin B.V.**
8011 CW Zwolle (NL)

(72) Inventor: **Roelfsema, Marcel**
7701 BS Dedemsvaart (NL)

(74) Representative: **de Vries, Janna**
Wavin T&I
P.O. Box 110
7700 AC Dedemsvaart (NL)

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(54) **Mounting assembly with a mounting tool for mounting a water treatment unit in a water reservoir**

(57) A mounting assembly for mounting a water treatment unit in a water reservoir. The assembly comprises:
- a mounting device for supporting the water treatment unit in the water reservoir;
- locking means, operable for locking the water treatment unit in place in the mounting device, in at least one direction; and
- a mounting tool, arranged for installing the water treatment unit in the mounting device and operating the locking means, both from a location outside the water reservoir.

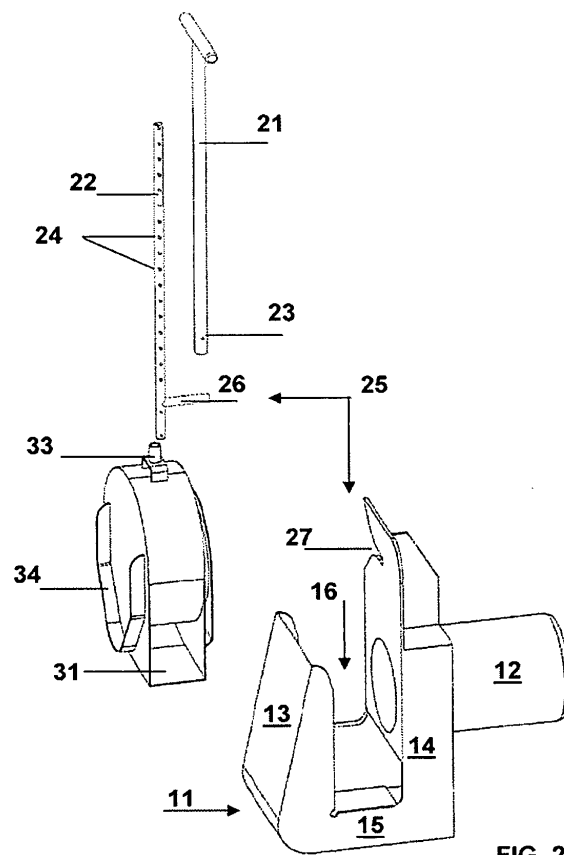


FIG. 2

Description

Background of the invention

[0001] The present invention generally relates to the field of water management and more particularly to draining water, in particular rain water, away in a controlled manner. In this context, the present invention provides a mounting assembly for mounting a water treatment unit such as a flow control means or a filter within a water reservoir such as a manhole, inspection chamber, infiltration unit or the like.

Prior art

[0002] GB 2 334 791 A discloses a mounting assembly for mounting a water treatment unit, in particular a vortex valve unit in position in a water reservoir, in particular a drainage gully. This known mounting assembly comprises a first element securable to an end wall of the vortex valve unit, and a second element mountable adjacent an outlet opening of the drainage gully. The first element may define a wedge-shaped slot capable of receiving and locating a corresponding head portion of the second element. During installation, the unit is lowered onto said head portion, e.g. using a handle, so that the head portion engages and is located in the slot. This process may prove difficult, especially when the drainage gully is tall.

Summary of the invention

[0003] The object underlying the present invention is to provide a mounting assembly for holding a water treatment unit in position in a water reservoir, so that its outlet communicates with an outlet from the reservoir, which mounting assembly is so constructed that the water treatment unit may be more easily installed into the water reservoir.

[0004] This object is solved by means of a mounting assembly according to claim 1. The mounting assembly comprises a mounting device that is mountable in the water reservoir, e.g. in an outlet thereof, and that is arranged to support the water treatment unit. The assembly further comprises locking means that are operable for locking the water treatment unit in place once installed, for instance to prevent it from being urged upward by the water in the reservoir. The assembly furthermore comprises a mounting tool with which the unit can be placed into the mounting device from a position outside the water reservoir and with which furthermore the locking means can be operated to lock the unit into place. Thanks to such mounting tool, time and effort can be saved because an installer no longer needs to descend into the water reservoir for mounting and demounting a water treatment unit.

Preferred embodiments are described in the dependent claims.

[0005] According to one aspect, the mounting tool may have an adjustable length. This renders the tool universally applicable, i.e. with water reservoirs of differing heights. The length of the mounting tool can readily be adjusted, in situ, according to the installation depth of the water treatment unit.

[0006] The locking means may be part of the mounting tool or can be formed as separate parts. In the latter case, the mounting tool may be removed from the reservoir after installation of the water treatment unit.

[0007] According to a further aspect, the mounting assembly may comprise means for pulling the water treatment unit towards the outlet opening of the water reservoir upon operating the locking means. This may reduce leakage between the water treatment unit and the mounting device.

[0008] Alternatively or in addition, the mounting assembly may comprise means for lifting the water treatment unit from the mounting device, upon unlocking the locking means. This may be advantageous because during use, the water treatment unit may be pressed or sucked against an outlet of the water reservoir due to the surrounding water and/or a pressure fall between the outlet of the water treatment unit and said outlet of the reservoir. As a result, demounting of the unit may require a rather large initial force. The lift function may assist in generating said force.

[0009] According to a further aspect, the mounting device may comprise a supporting bracket with a supporting portion that is shaped to support the water treatment unit from below. Thanks to such supporting portion, the supporting bracket extends underneath the water treatment unit to support it and to protect it. As the water treatment unit can be simply lowered onto the supporting portion of the supporting bracket, the installation of the water treatment unit is greatly facilitated. Furthermore, supporting the water treatment unit from below may contribute to a more favourable load distribution on said unit, as compared to prior art brackets which support the water treatment unit by engaging a side wall thereof, and hence subject the unit to a torque (generated by the unit's own weight).

[0010] According to a further aspect, the supporting portion preferably forms the bottom of a recess in which the water treatment unit can be accommodated. Thanks to such recess, installation of the water treatment unit may be further facilitated, as the recess may act as a catch, helping to guide the unit in place. The recess may furthermore provide lateral support, thus forming a stable and protective environment for the water treatment unit. Preferably, the recess is dimensioned to support the water treatment unit sideways in at least two directions, preferably a front side and a rear side of the unit. In this description, the side of the unit that faces the outlet is referred to as the front side, and the opposite side of the

unit is referred to as the rear side. With such sideways support the water treatment unit can be readily installed. Supporting the front and rear side of the unit may also contribute to a more favourable load distribution on the unit.

[0011] A contact area of the supporting bracket which, in use, abuts a rear side of the water treatment unit facing away from the outlet, may be slanted. This will allow the outlet of the water treatment unit to be moved away from the outlet of the water reservoir during demounting of the water treatment unit.

[0012] According to a further aspect, the mounting device may comprise self-centring means. These means may co-operate with the general shape of the water treatment unit, so as to guide the unit to a predetermined position in the supporting bracket. The self centring means may facilitate installation and render it fool proof. It is not necessary to accurately manoeuvre the unit when lowering it into the mounting device. The water treatment unit will always achieve a predetermined position, e.g. a position wherein the outlet of the unit is aligned with the outlet opening from the water reservoir.

[0013] The mounting assembly may further comprise a collar provided on the water treatment unit around the outlet thereof. In this case, sealing means between the outlet of the water treatment unit and the supporting bracket can be dispensed with, which reduces the number of parts and also facilitates the mounting of the water treatment unit within the water reservoir.

[0014] According to a further aspect, the mounting device may comprise securing means for securing the mounting device in an outlet of the water reservoir. These securing means may for instance comprise a hollow spigot end dimensioned to fit into the outlet of the water reservoir. This provides for a simple way to secure the mounting device into the water reservoir. No need for additional fastening means such as screws or the like and no need to make any changes to the reservoir or to impair its structural integrity otherwise.

[0015] It is noted that the mounting device and the mounting tool are independent aspects. It would be possible to use the mounting device described above with a mounting tool other than the one described above, or without any mounting tool at all. Also, the above described mounting tool could be used in order to mount a water treatment unit by means of a mounting device other than the one described above.

Brief description of the drawings

[0016]

FIGs.1 and 2 show two exploded views of a water treatment unit and a mounting assembly according to the present invention;

FIG. 3 shows the water treatment unit and the mounting assembly of Figures 1 and 2 installed within a water reservoir; and

FIGs. 4-7 show modified embodiments of a mounting assembly according to the invention.

Detailed description of preferred embodiments

[0017] Preferred mounting assemblies for mounting a water treatment unit within a water reservoir in accordance with the present invention will now be described with reference to the accompanying drawings.

[0018] In this description, a water treatment unit 3, 103, 203, 303 is understood to be a unit with an inlet 31, an outlet 32 and water treatment means (not shown) arranged between said inlet 31, 331 and said outlet 32 for 'treatment' of water entering the unit. Such 'treatment' may for instance include filtering and/or control of a flow rate. The water treatment unit 3, 103, 203, 303 may for instance comprise a vortex unit, designed to generate a vortex between the inlet 31, 331 and the outlet 32 so as to cause an outlet flow of the unit to have a substantially constant flow rate. In an alternative embodiment, the water treatment unit 3, 103, 203, 303 may for instance comprise a filter, a valve, an orifice, etc.. The shape of the water treatment unit may vary accordingly. It may for instance be substantially drum shaped, as shown in Figures 1-5, or cone shaped, as shown in Figure 6. Of course, other shapes are possible.

[0019] In each case, the water treatment unit 3, 103, 203, 303 is to be mounted in a water reservoir 4 so that its outlet 32 can communicate with an outlet 5 of said water reservoir 4. The water reservoir 4 can for instance be an inspection chamber or manhole (as shown in Figure 3), a water tank, an infiltration unit, or the like. The reservoir outlet 5 may take the form of an opening in a side wall of the water reservoir 4 and may in turn communicate with another component, for instance a drainage pipe extending away from the water reservoir 4.

[0020] Referring now to Figures 1-3 showing a first embodiment of a mounting assembly 1 according to the invention for mounting a water treatment unit 3 in a water reservoir 4. The mounting assembly 1 comprises a mounting device 10, a mounting tool 20 and locking means 25. The mounting device 10 can be secured in the water reservoir 4 prior to installation of the water treatment unit 3. The mounting tool 20 can be used for installing the water treatment unit 3 in the mounting device 10. The locking means 25 can be used to lock the water treatment unit 3 in place, in at least one direction. In the illustrated embodiment, the locking means 25 are operable by the mounting tool 20 from a position outside the reservoir 4.

[0021] The mounting device 10 comprises a supporting bracket 11 for supporting the treatment unit 3, and a spigot end 12 for securing the supporting bracket 11 in an outlet 5 of the water reservoir 4 (as shown in Figure 3). The supporting bracket 11 has a supporting portion 15 arranged to support the water treatment unit 3 from beneath, and two upstanding legs 13, 14 arranged to support the unit 3 sideways, i.e. laterally. More particular,

the supporting bracket 11 comprises a front leg 14 that abuts a front side of the water treatment unit 3, i.e. the side featuring the outlet 32, and a rear leg 13 that abuts a rear side. The supporting portion 15, the front leg 14, and the rear leg 13 together define a recess 16, designed to receive and support the water treatment unit 3 in at least three directions.

[0022] The mounting device 10 may further comprise self centring means to guide the water treatment unit 3 towards a predetermined position within the supporting bracket 11, i.e. a position wherein the outlet 32 of the unit 3 is aligned with the spigot end 12 and ultimately with the outlet 5 of the reservoir 4. In the embodiment shown in Figures 1 and 2, the self centring means comprise two guiding profiles 18 which are provided on the rear leg 13 of the supporting bracket 11. The guiding profiles 18 can co-operate with a substantially V-shaped rim 34 on the rear side of the water treatment unit 3. The design is such that the water treatment unit 3, during insertion, will slide towards the aligned position under influence of gravity. Of course, in alternative embodiments, the self centring means may be provided on a different portion of the mounting device 10, for instance on the front leg 14, or on opposite sides of the supporting portion 15 between the front and the rear leg. Also, the self centring means may be shaped differently. For instance, the V-shaped rim 34 on the unit 3 may be reversed, having its apex pointing upward. In such case, the guiding profiles 18 may be designed to be received between the slanted portions of said rim 34.

[0023] The water treatment unit 3 may be provided with a collar 35 around its outlet 32. In mounted condition, this collar 35 may lie contiguous with the spigot end 12 of the mounting device 10. Applicant has found that thanks to such collar 35, no sealing means are needed between the unit 3 and the supporting bracket 11, which may facilitate installation and allows the unit 3 to be lowered into the bracket 11 from a remote location (i.e. outside the reservoir 4). The collar 35 may not completely prevent leakage, but does help to reduce leakage and moreover shifts the location of the leakage away from the outlet 32 of the unit 3. Applicant has found that this may have a positive effect on the water treatment unit's performance, especially where said unit comprises a vortex unit. Furthermore, note that the collar 35 does not need to be inserted in the outlet opening 5 of the water reservoir 4. This too facilitates installation of the water treatment unit 3 and allows it to be lowered into place from a position outside the water reservoir 4.

[0024] The mounting tool 20 comprises an elongated member that enables the water treatment unit 3 to be installed and removed from a remote location. According to an advantageous embodiment, as shown in Figures 1 and 2, the length of the mounting tool 20 can be adjustable. To that end, the tool 20 comprises a first tubular member 21 and a second tubular member 22, which is slidably received in the first member 21. In the illustrated embodiment, the length can be adjusted stepwise by

means of a latching pin 23 and matching holes 24 provided in the respective members 21, 22. In other embodiments, the length adjustment may be continuous, e.g. by replacing the pin-hole arrangement by another locking arrangement, which may for instance be based on frictional and/or clamping force. In any event, the adjustable length is advantageous because in practice the height of the water reservoir 4, e.g. a manhole, may be varied depending on its installation depth. To that end, a manhole 4 may typically be assembled from modular parts, i.e. a base 6, a shaft 7 and a cone 8 (as shown in Figure 3), wherein the shaft 7 may come in different lengths or be cut to length, in situ.

[0025] The mounting tool 20 and water treatment unit 3 further comprises cooperating coupling means 33. In the embodiment shown in Figures 1 and 2, the coupling means 33 are designed to allow rotation of the mounting tool 20 around its longitudinal axis, for reasons that will become clear below. The coupling means 33 may be releasable or not.

[0026] The locking means 25, in the illustrated embodiment, comprise a locking pin 26 provided on the mounting tool 20, and a locking slot 27, provided in the mounting device 10. After positioning the water treatment unit 3 in the supporting bracket 11, the mounting tool 20 can be rotated around its longitudinal axis, thereby causing the locking pin 26 to enter the locking slot 27. This in turn will lock the water treatment unit 3 in place, in vertical direction, against the upward pressure of the water.

[0027] Of course, the locking means 25 may be provided on other components of the mounting assembly 1. For instance, the locking pin 26 could be formed as a separate part, detached from the mounting tool 20. Such locking pin 26 could for instance be mounted on the mounting device 10, in a rotatable or slidable manner, so as to be operable by the mounting tool 20 between a locking and an unlocking position. Such an embodiment provided the advantage that the mounting tool 20 can be removed after installation and locking of the unit 3.

[0028] Fig. 4 shows a slightly modified embodiment wherein the locking means 125 include a pull function causing the water treatment unit 3 to be pulled towards the outlet 5 of the water reservoir 4 upon, that is, during locking of the locking means 125. Components corresponding to the previous embodiment have been denoted with corresponding reference numerals, increased by 100. The locking pin 126 is provided with a transverse head 128 and the locking slot 127 is bordered by wedge shaped edges 129. When the locking means 125 are operated by rotating the mounting tool 120 about its longitudinal axis, the head 128 of the locking pin 126 will be guided along the wedge shaped edges 129 of the locking slot 127, causing the water treatment unit 3 to be urged towards the front leg 114 of the supporting bracket 111 and, therefore, towards the spigot end 112 and outlet 5 of the water reservoir 4.

[0029] The advantage of such a pull function is that leakage between the water treatment unit 103 and the

water reservoir 104 can be reduced.

[0030] Fig. 5 shows another modified embodiment of a mounting assembly 201 in accordance with the present invention. Like components are denoted with like reference numerals, increased by 200. In this modified embodiment, the locking means 225 include a lift function. To this end the locking slot 227 has an arched or inclined shape which will cause the locking pin 226 and consequently the water treatment unit 203 to be moved upward upon, that is, during unlocking of the locking means 225.

[0031] This is advantageous because during use, the water treatment unit 3 may become pressed or sucked against the spigot end 212 of the mounting device 201 due to the surrounding water pressure and/or a pressure fall that may exist over the unit's outlet 235 and the spigot end 212. As a result, during demounting of the water treatment unit 3, a rather large initial force may be needed to separate the unit from the mounting device 210. This can be facilitated by the above lift function.

[0032] To this same effect, a contact surface of the rear leg 13, 113, 213 of the supporting bracket 11, 111, 211 that abuts the rear side of the water treatment unit 3 may have a somewhat slanted orientation. This will allow the outlet 32 of the water treatment unit 3 to be moved away from the spigot end 12, 112, 212 and outlet 5 of the water reservoir 4 during demounting of the water treatment unit 3.

[0033] Figure 6 shows another embodiment of a mounting assembly 301 according to the invention, wherein corresponding components have been denoted with corresponding reference numerals, increased by 300. In this embodiment, the locking means 325 are based on resilient snap action. To that end, the locking slot 327 is, near its closed end, provided with two resilient tongues 329 (alternatively, it could have been provided with one tongue). These tongues 329 allow the locking pin 326 to be inserted in the slot 327 with relative ease, but resist removal there from, up to a certain threshold value. To release the pin 326 from the slot 327, a force exceeding said threshold value must be applied on the pin 326.

[0034] Of course, other snap-like locking means are possible. The locking means may for instance comprise one or more resilient tongues or fingers provided on the water treatment unit, and mating ridges or recesses provided on or in the supporting bracket, or vice versa. When the unit is lowered into the bracket, these tongues or fingers will snap behind the ridges or recesses and thus lock the unit into place. An example of such embodiment will be discussed in further detail below, with reference to Figure 7.

[0035] In the embodiment of Figure 6, the locking slot 327 has a substantially vertical orientation. The locking pin 326 has been formed by bending an end portion of the mounting tool 320 over an angle of about 90 degrees. Thanks to these modifications, the locking means 325 can be operated by a translational instead of a rotational movement of the mounting tool 320. This may contribute

to fool proof installation, since there is no need for an installer to rotate the mounting tool to lock, respectively unlock the locking means 325. Locking and unlocking will 'automatically' take place during translational operation of the mounting tool 320.

[0036] Of course, the locking means may have many other configurations that may be operable through other movements of the mounting tool, e.g. a rotation around a horizontal axis, or a combination of a translation and rotation.

[0037] Also, from the illustrated embodiments it will be clear that the locking means can be provided on various parts of the mounting assembly, e.g. on the mounting tool, on the supporting bracket, on some other part of the mounting device, and/or on the water treatment unit.

[0038] In the embodiment of Figure 6, the water treatment unit 303 has a substantial conical shape. The supporting bracket 311 has a supporting portion 315 and two upstanding legs 313, 314 designed to support the unit 303 from beneath and sideways respectively.

[0039] In Figure 7, another embodiment is shown, wherein the locking means 425 are based on resilient snap action. Corresponding components have been denoted with corresponding reference numerals, increased by 400. The locking means 425 comprise a resilient finger 429 which is provided on the bracket 411, more particularly on its front leg 414. In normal condition, the finger 429 extends in the recess 16 of the bracket 411, in the installation path of the water treatment unit 403. When lowering the unit 403 into place the finger 429 will be resiliently pushed out of the way by the collar 435 of the unit 403, towards the front leg 414, which may be provided with a recess to temporarily accommodate the finger 429. After the collar 435 has passed, the finger 429 will resiliently bounce back, thus blocking upward movement of the unit 403. Of course, in an alternative embodiment, two or more fingers could be provided. The fingers could be provided on another part of the bracket, e.g. on its rear leg 413 or support portion 415, where they can co-operate with other parts of the water treatment unit 403 and/or the mounting tool 420, e.g. the end portion 426 thereof. Alternatively, the or each finger could be provided on the water treatment unit 403. It is also possible to provide both the bracket 411 and the water treatment unit 403 with one or more resilient fingers. The fingers may also be oriented so as to be activated by horizontal movement of the unit 403 and/or the mounting tool 420, that is in a direction towards or away from the outlet or in a direction perpendicular thereto (i.e. in a plane perpendicular to the axis of the outlet). The resilience of the fingers may also be directed and dimensioned to bias the unit 403 towards the outlet, in mounted condition, so as to obtain a close fit between the outlet of the unit and the outlet of the water reservoir. Release means may be provided, e.g. on the mounting tool 420, with which the or each finger 429 can be pushed out of the way to allow the unit 403 to be released from the bracket 411.

[0040] The invention is not in any way limited to the exemplary embodiments presented in the description and drawing. All combinations (of parts) of the embodiments shown and described are explicitly understood to be incorporated within this description and are explicitly understood to fall within the scope of the invention. For instance, the modifications according to Figs. 4 and 5 could be combined in order to provide both the pulling function upon locking the locking means and the lifting function upon unlocking the locking means.

[0041] The following numbered paragraphs provide further disclosure of the present subject matter.

1. Mounting assembly (1, 101, 201, 301, 401) for mounting a water treatment unit (3, 103, 203, 303, 403) in a water reservoir (4) so that an outlet (32) of the water treatment unit communicates with an outlet (5) of the water reservoir (4), wherein the mounting assembly comprises a mounting device (10, 110, 210, 310, 410) which comprises a supporting bracket (11, 111, 211, 311, 411) and securing means for securing the supporting bracket in the water reservoir (4), wherein the supporting bracket (11, 111, 211, 311, 411) comprises a supporting portion (15, 115, 215, 315, 415) which is shaped to support the water treatment unit (3, 103, 203, 303, 403) from below.

2. The mounting assembly (1, 101, 201, 301, 401) of claim 1, wherein the securing means of the mounting device (10, 110, 210, 310, 410) comprise a hollow spigot end (12, 112, 212, 312, 412) dimensioned to fit into the outlet (5) of the water reservoir (4).

3. The mounting assembly (1, 101, 201, 301, 401) of claim 1 or 2, in which the supporting portion (15, 115, 215, 315, 415) forms the bottom of a recess (16) formed in the supporting bracket, wherein the recess (16) is dimensioned to support the water treatment unit (3, 103, 203, 303, 403) sideways, in at least two directions.

4. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the mounting device (10, 110, 210, 310, 410) comprises self centring means (18) to guide the water treatment unit (3, 103, 203, 303, 403) towards a position in which its outlet (32) is aligned with the outlet (5) of the water reservoir (4).

5. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, comprising an elongated mounting tool (20, 120, 220, 320, 420) for installing the water treatment unit (3, 103, 203, 303, 403) in the mounting device (10, 110, 210, 310, 410) from a location outside the water reservoir (4).

6. The mounting assembly (1, 101, 201, 301, 401) of claim 5, wherein the mounting tool (20, 120, 220, 320, 420) has an adjustable length.

7. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, comprising locking means (25, 125, 225, 325, 425) operable for locking the water treatment unit (3, 103, 203, 303, 403) in place in at least one direction.

8. The mounting assembly (1, 101, 201, 301, 401) of claim 7 and claim 5 or 6, wherein the mounting tool (20, 120, 220, 320, 420) is arranged to operate the locking means (25, 125, 225, 325, 425).

9. The mounting assembly (1, 101, 201) of claim 8, wherein the locking means (25, 125, 225) are operated by a rotation of the mounting tool (20, 120, 220).

10. The mounting assembly (301, 401) of claim 8, wherein the locking means (325) are operated by a translation of the mounting tool (320, 420).

11. The mounting assembly (1, 101, 201, 301) of any one of claims 7-10, wherein the locking means (25, 125, 225, 325, 425) comprise a locking slot (27, 127, 227, 327) formed in the mounting device (10, 110, 210, 310) and a locking pin (26, 126, 226, 326) co-operating with the locking slot for locking the water treatment unit in place in the at least one direction.

12. The mounting assembly (1, 101, 201, 301) of claim 11 and claim 5 or 6, wherein the locking pin (26, 126, 226, 326) is provided on the mounting tool (20, 120, 220, 320).

13. The mounting assembly (1, 101, 201, 301, 401) of any one claims 7-12, wherein the locking means (325, 425) comprise one or more resilient parts (329, 429) and wherein locking action is based on resilient snap action of said one or more resilient parts.

14. The mounting assembly (1, 101, 201, 301, 401) of any one of claims 7-13, comprising means for pulling the water treatment unit (3, 103, 203, 303, 403) towards the outlet (5) of the water reservoir (4) upon locking the locking means (25, 125, 225, 325, 425).

15. The mounting assembly (1, 101, 201, 301, 401) of any one of claims 7-14, comprising means for lifting the water treatment unit (3, 103, 203, 303, 403) upon unlocking the locking means (25, 125, 225, 325, 425).

[0042] These and many comparable variations are understood to fall within the scope of the invention as outlined by the claims.

Claims

1. Mounting assembly (1, 101, 201, 301, 401) for mounting a water treatment unit (3, 103, 203, 303, 403) in a water reservoir (4), the assembly comprising:

- a mounting device (10, 110, 210, 310, 410) for supporting the water treatment unit in the water reservoir (4);
- locking means (25, 125, 225, 325, 425), operable for locking the water treatment unit (3, 103, 203, 303, 403) in place in the mounting device, in at least one direction; and
- a mounting tool (20, 120, 220, 320, 420), ar-

- ranged for installing the water treatment unit (3, 103, 203, 303, 403) in the mounting device (10, 110, 210, 310, 410) and operating the locking means (25, 125, 225, 325, 425), both from a location outside the water reservoir (4).
2. The mounting assembly (1, 101, 201) of claim 1, wherein the locking means (25, 125, 225) are operable by a rotation of the mounting tool (20, 120, 220).
 3. The mounting assembly (301, 401) of claim 1 or 2, wherein the locking means (325, 425) are operable by a translation of the mounting tool (320, 420).
 4. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the locking means (25, 125, 225, 325) comprise a locking slot (27, 127, 227, 327) formed in the mounting device (10, 110, 210, 310) and a locking pin (26, 126, 226, 326) insertable in the locking slot for locking the water treatment unit in place in the at least one direction.
 5. The mounting assembly (1, 101, 201, 301) of claim 4, wherein the locking pin (26, 126, 226, 326) is provided on the mounting tool (20, 120, 220, 320).
 6. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the locking means (325, 425) comprise one or more resilient parts (329, 429) and wherein locking action is based on resilient snap action of said one or more resilient parts.
 7. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, comprising means for pulling the water treatment unit (3, 103, 203, 303, 403) towards an outlet (5) of the water reservoir (4) upon locking the locking means (25, 125, 225, 325, 425).
 8. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, comprising means for lifting the water treatment unit (3, 103, 203, 303, 403) upon unlocking the locking means (25, 125, 225, 325, 425).
 9. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the mounting tool (20, 120, 220, 320, 420) has an adjustable length.
 10. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the mounting device (10, 110, 210, 310, 410) is arranged to hold the water treatment unit (3, 103, 203, 303) in a position wherein an outlet (32) of the water treatment unit communicates with an outlet (5) of the water reservoir (4).
 11. The mounting assembly (1, 101, 201, 301) of any one of the preceding claims, wherein the mounting device (10, 110, 210, 310, 410) comprises a supporting bracket (11, 111, 211, 311, 411) with a supporting portion (15, 115, 215, 315, 415) that is shaped to support the water treatment unit (3, 103, 203, 303, 403) from below.
 12. The mounting assembly (1, 101, 201, 301, 401) of claim 11, wherein the supporting portion (15, 115, 215, 315, 415) forms the bottom of a recess (16) formed in the supporting bracket, wherein the recess (16) is dimensioned to support the water treatment unit (3, 103, 203, 303, 403) sideways, in at least two directions.
 13. The mounting assembly (1, 101, 201, 301) of claim 11 or 12, wherein a contact area of the supporting bracket (11, 111, 211, 311, 411) which, in use, abuts a side of the water treatment unit (3, 103, 203, 303, 403) facing away from its outlet (32), is slanted.
 14. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the mounting device (10, 110, 210, 310, 410) comprises self centring means (18) to guide the water treatment unit (3, 103, 203, 303, 403) towards a position in which its outlet (32) is aligned with the outlet (5) of the water reservoir (4).
 15. The mounting assembly (1, 101, 201, 301, 401) of any one of the preceding claims, wherein the mounting device (10, 110, 210, 310, 410) comprises securing means for securing the mounting device in an outlet (5) of the water reservoir (4).

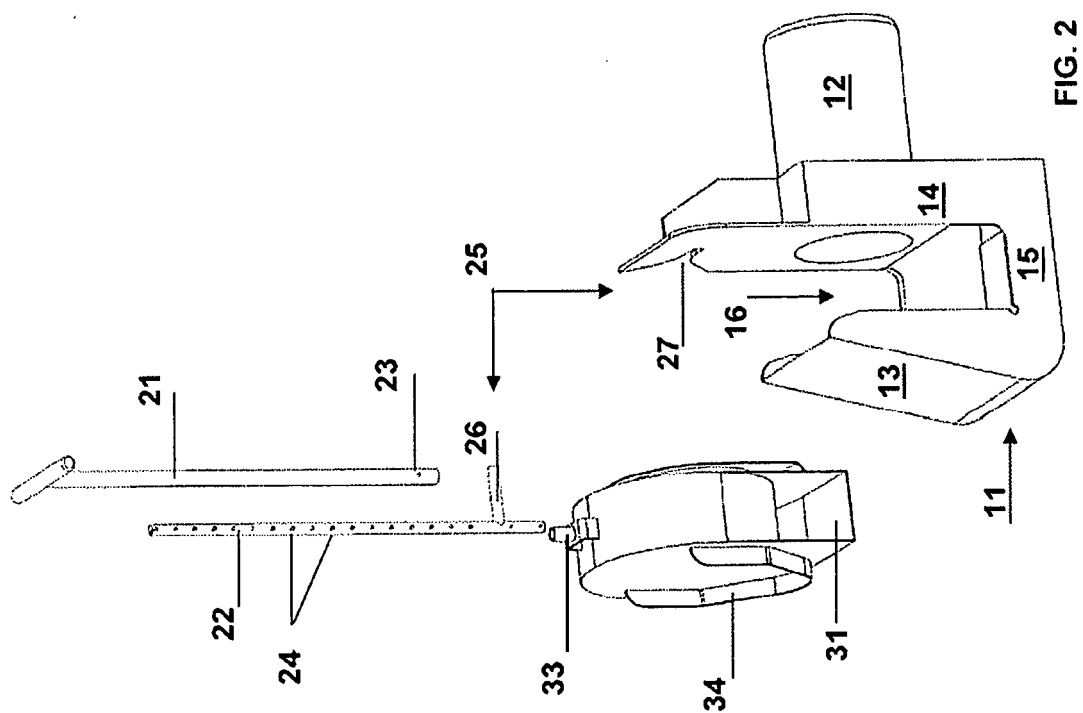


FIG. 2

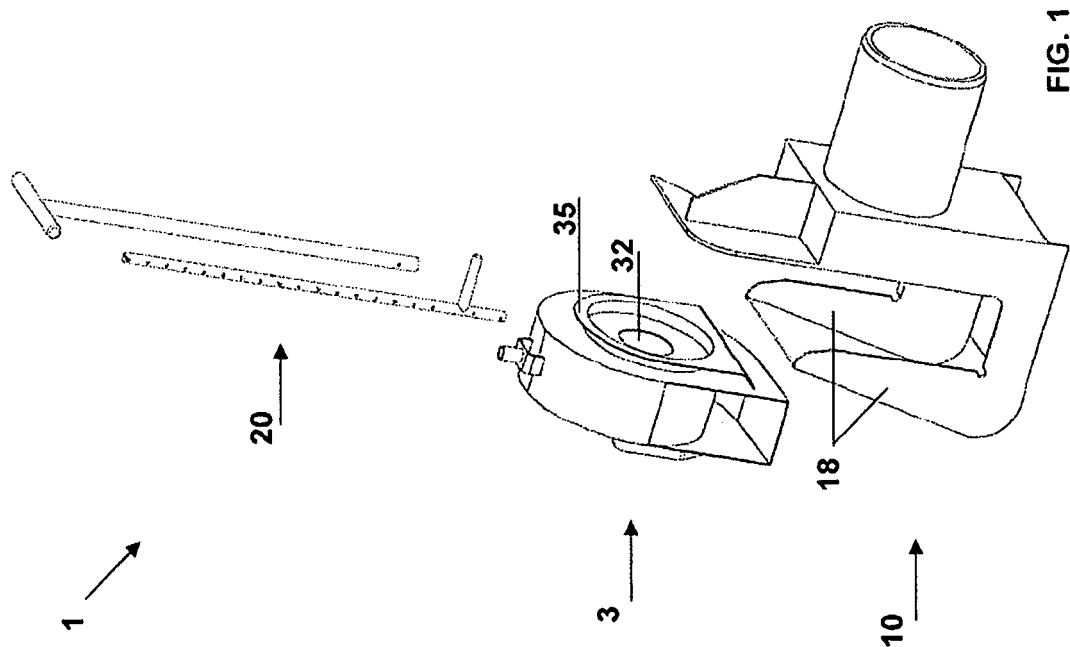


FIG. 1

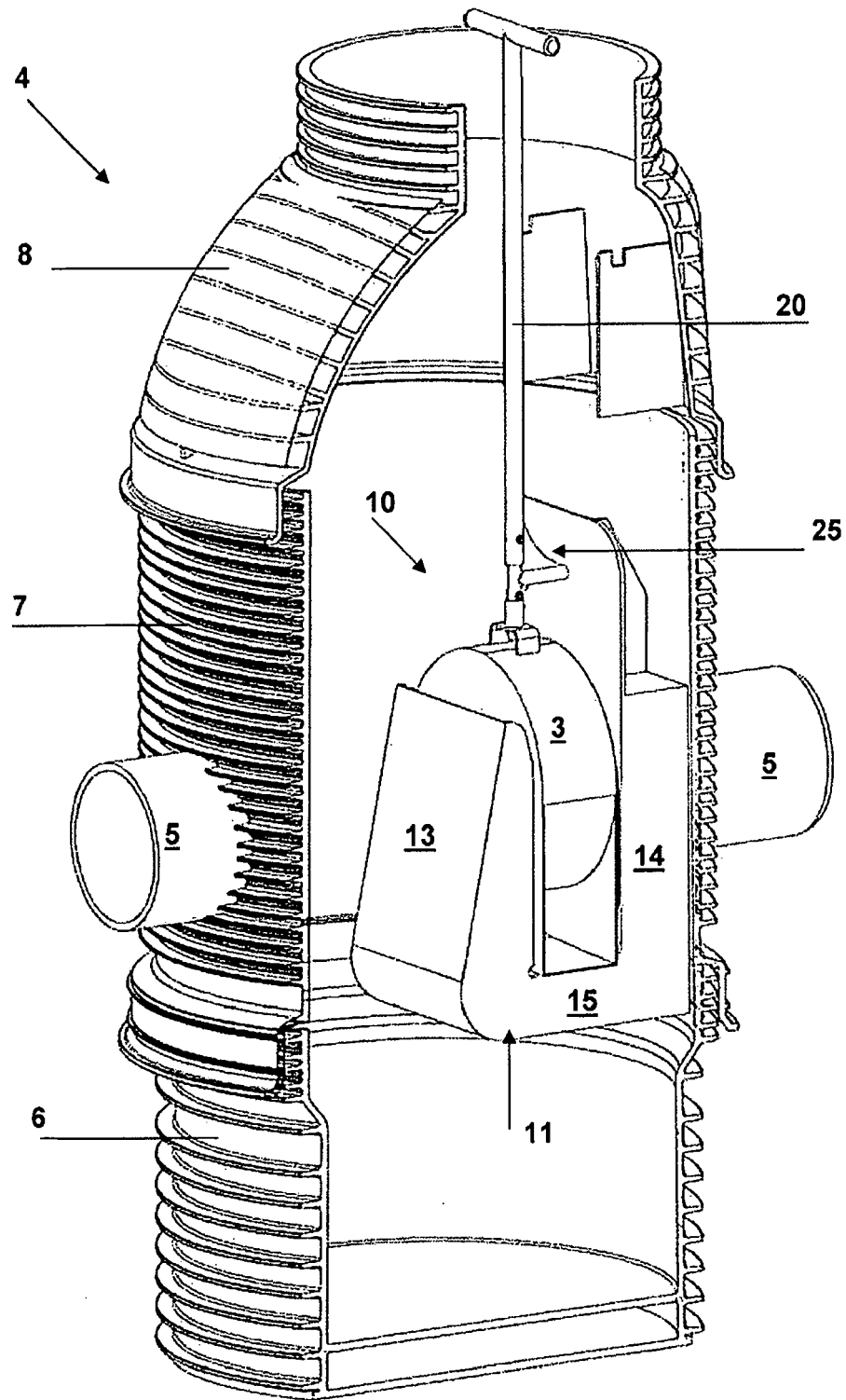


FIG. 3

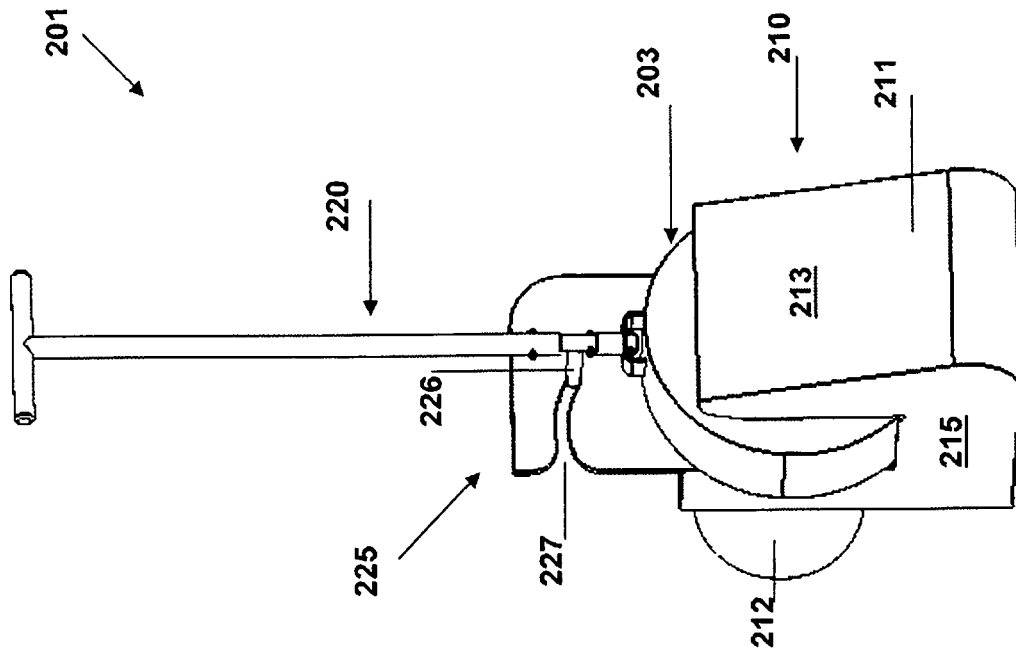


FIG. 5

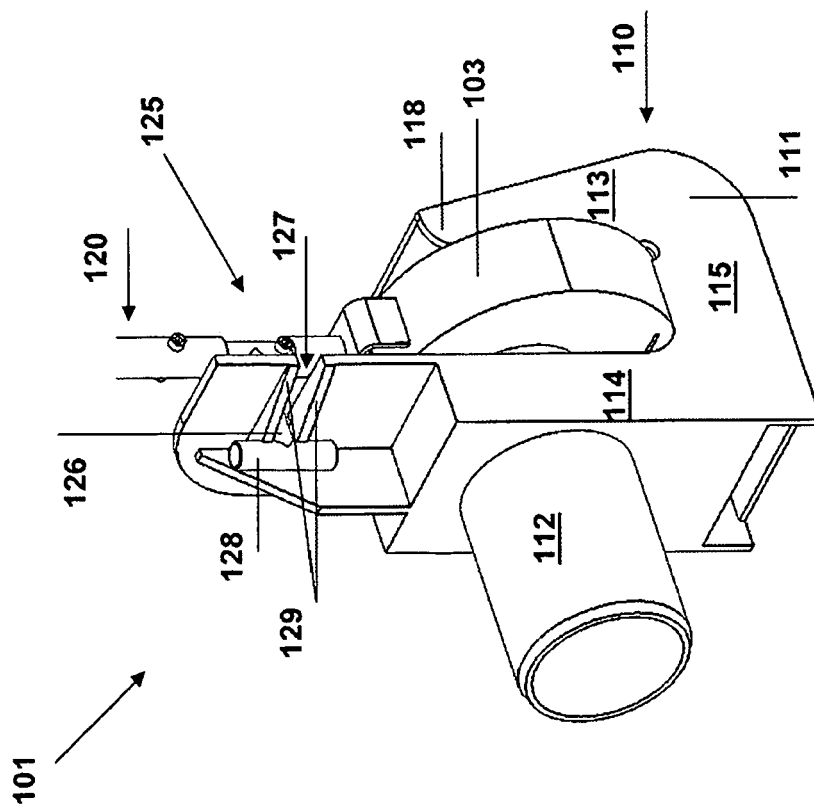


FIG. 4

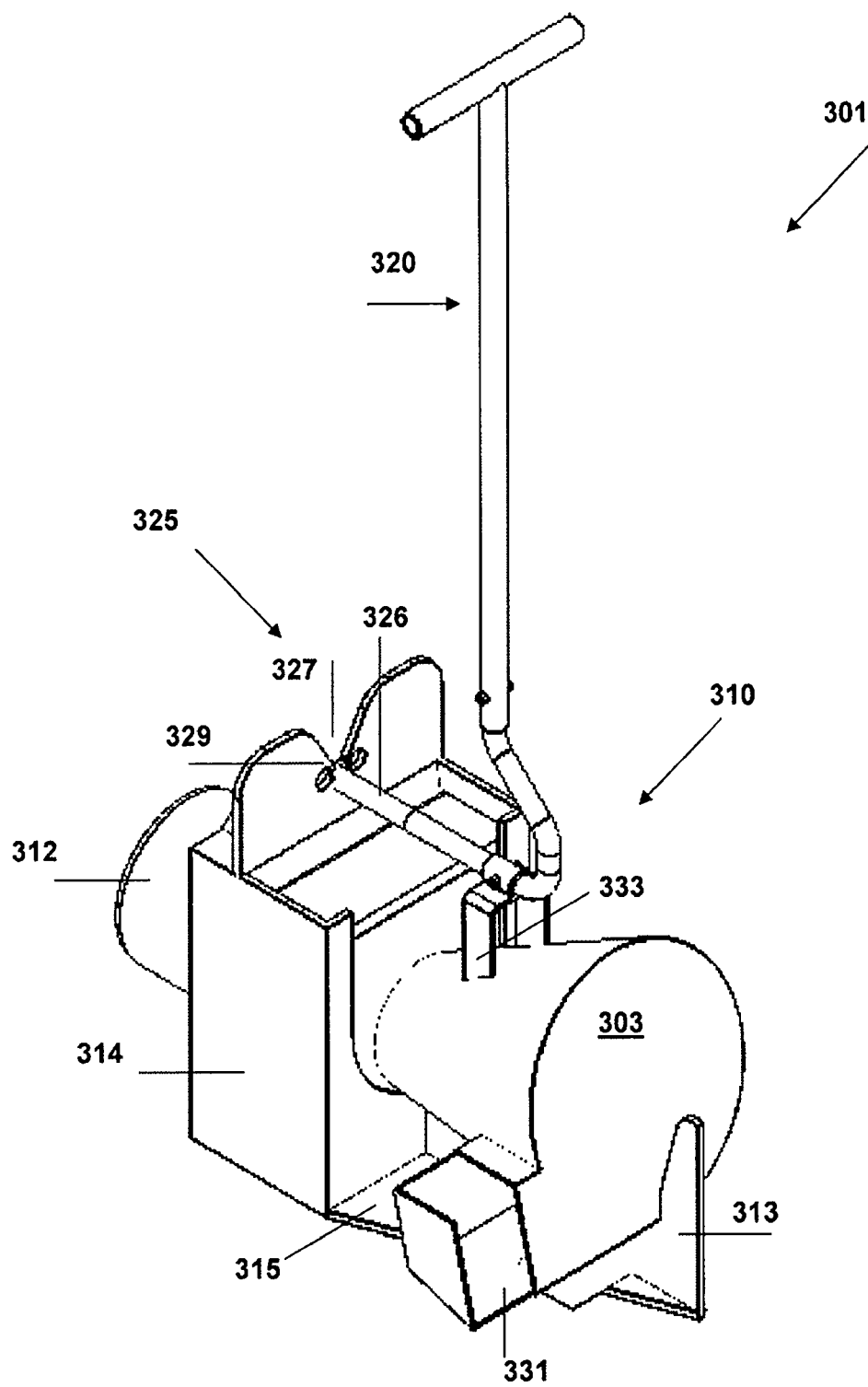


FIG. 6

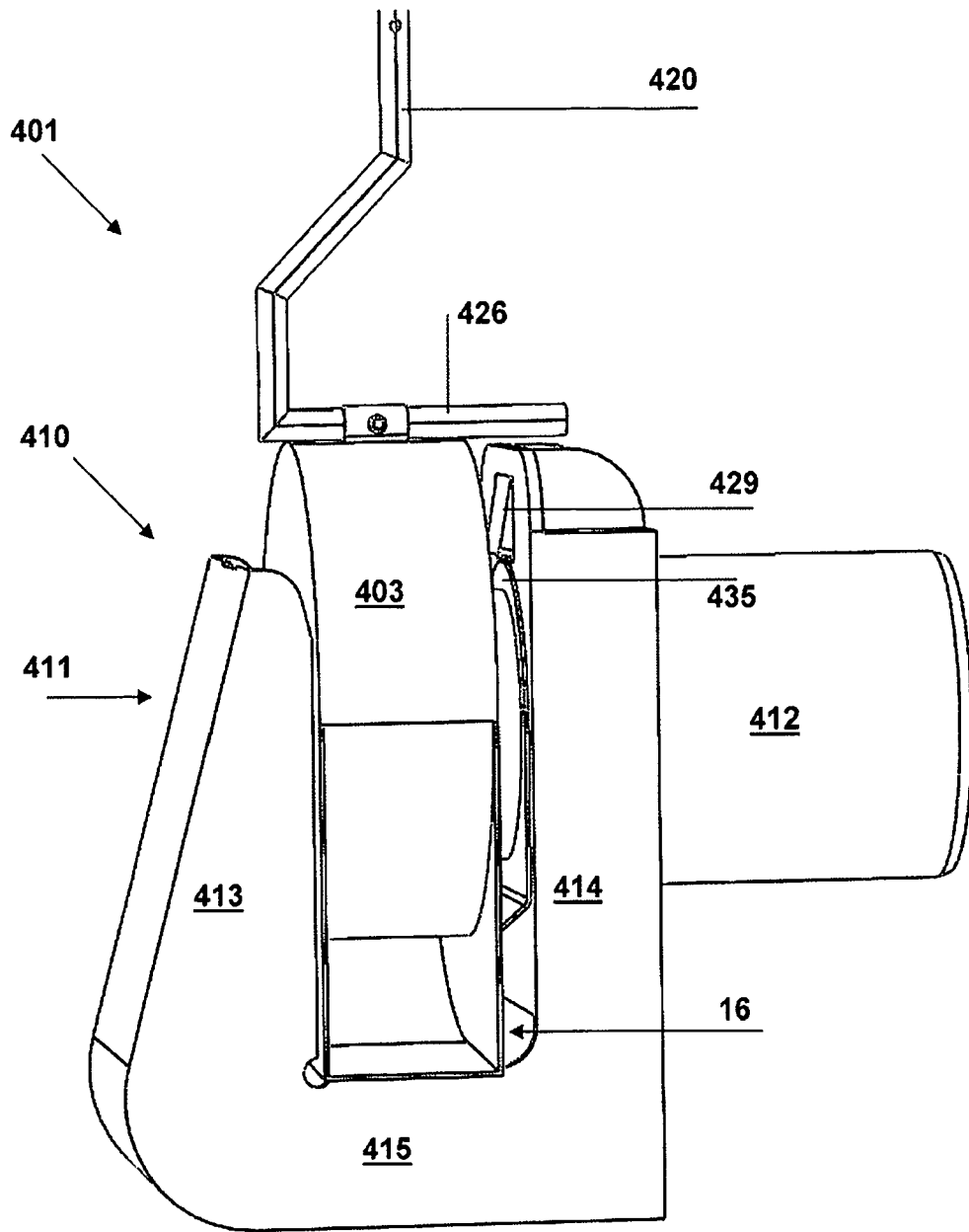


FIG. 7



EUROPEAN SEARCH REPORT

Application Number
EP 10 00 4115

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 620 329 A (SCHMID AUGUST [CH]) 19 October 1994 (1994-10-19)	1-9	INV. E03F5/10
Y	* column 2, line 37 - column 3, line 9 * * column 3, line 56 - column 4, line 10; figures *	10-15	
Y	----- CA 1 198 964 A1 (SCEPTER MFG) 7 January 1986 (1986-01-07)	10-15	
A	* page 3, line 16 - page 5, line 14; figures *	1	
A,D	----- GB 2 334 791 A (HYDRO INT LTD [GB] HYDRO INTERNAT PLC [GB]) 1 September 1999 (1999-09-01) * abstract; figures 1,4-6 * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E03F E02B
Place of search		Date of completion of the search	Examiner
The Hague		13 July 2010	De Coene, Petrus
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 00 4115

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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13-07-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0620329	A	19-10-1994	AT 182645 T	15-08-1999
			CH 687048 A5	30-08-1996
			DE 59408530 D1	02-09-1999

CA 1198964	A1	07-01-1986	NONE	

GB 2334791	A	01-09-1999	AU 3261899 A	15-09-1999
			WO 9943899 A2	02-09-1999
			US 6374858 B1	23-04-2002

EPO FORM P0459

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 2334791 A [0002]