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(54) **TRAP**

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(56) References cited:
EP-A1- 1 571 269
WO-A1-2014/121465
WO-A1-2014/209107
WO-A1-2016/071318

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Description

[0001] The present invention relates to a trap according to the preamble of claim 1.

[0002] Obviously a thousand and one different types of traps are already known.

However, the invention is aimed specifically at a type of trap intended to be installed internally in a tank and not externally to such tank.

[0003] Such traps to which the invention relates, have the major advantage that they are located in the space delimited by the tank, such that they are easily accessible, contrary to traps provided externally to such tanks and which are imbedded in screed, are located under a floor, and the like.

Typically, such tank will be installed in a floor, but according to the invention this is not necessarily the case.

[0004] Traps of this type are already known and usually they are provided with at least the following elements:

- an internal part with a bottom and an upstanding, internal wall, whereby the internal part opposite the bottom is provided with an opening for the supply of discharge water or discharge fluid;
- an external part in the form of a hood that can serve as conductive element for the supply of discharge water or discharge fluid to the opening on the internal part;
- a covering part on the external part intended to extend over the internal part after assembly and in particular over the opening on the internal part and this at a certain distance thereof;
- an external wall of the external part which extends from the covering part to an edge and whereby this external wall after assembly surrounds a part of the internal wall.

[0005] Such known traps are fantastic, because they are easily accessible, for example, to clean them or to remove dirt, such as hair or other unclean elements which could obstruct the flow through the trap.

[0006] On the other hand, such traps of this type can be improved.

[0007] Indeed, a problem with the known traps of this type is that in the external wall and the internal wall of the trap, openings need to be provided to connect the trap to the drain pipe for which the trap is intended.

For an efficient operation the connection of the drain pipe with every said opening must be hermetically sealed, which requires a multitude of sealing rings and the like.

[0008] It is clear that the more seals are applied, the greater the risk of leaks.

[0009] A reduction of the number of seals is therefore desirable.

[0010] Furthermore, the assembly of a trap according to such design involves many different steps.

[0011] An improvement of the efficiency of the installation of such trap is therefore also necessary.

[0012] Furthermore, it is customary for example to provide a grille intended to be mounted in the opening on the internal part in order to prevent oversized elements in the discharge water or the discharge fluid from flowing through to the internal part or to prevent insects and vermin coming from the sewer system.

[0013] However, the known traps of the aforementioned type are designed in such a way that the grille is difficult to access or the grille can easily be installed wrongly.

[0014] The purpose of the present invention is therefore to provide a solution for one or several of the aforementioned or possible other disadvantages.

[0015] More specifically, a purpose of the present invention is to provide an improved trap of the type that can be installed in a tank and whereby the risk of leakage is limited as much as possible.

[0016] Another purpose of the invention is to make improvements to a trap of the aforementioned type which ensure that a grille can be fitted without any problem and faultlessly over a discharge opening.

[0017] Another purpose of the invention is to improve the efficiency when using a trap of the described type and to limit the costs related with both the manufacture and the installation of such trap as much as possible.

[0018] WO2016071318 discloses a trap, which comprises a first drainage channel situated between an inlet and an outlet, comprising, viewed in the flow direction, a first closing wall for the closing off of an uppermost part of the drainage channel and a second closing wall for the closing off of a lowermost part of the first drainage channel. The first and second closing walls, viewed in a horizontal direction, overlap. The odor trap comprises an elongated main body. The inlet substantially extends over the length of a first planar surface of the main body, which first planar surface is determined by the first closing wall. The second closing wall is situated in the main body. The outlet is situated in a second planar surface, situated opposite the first planar surface.

[0019] WO2014209107 discloses a siphon assembly comprising a transit tube part and a siphon unit. The siphon unit comprises a siphon container with a bottom and side walls; a passage in front wall; and around the passage a collar of rubber or silicone extending out of the front wall. The siphon unit further comprises a siphon cap with an upper side and side walls, and a passage in a front wall. The siphon container is arranged within the siphon cap, with the collar extending outwards through the passage of the siphon cap.

[0020] Both embodiments require complicated intervention for maintenance.

[0021] To this end, the invention relates to a trap that is suitable for use in a water discharge tank, whereby the trap is intended to be installed in the tank and connected to an opening in a wall of the tank that leads to a drain pipe of the sewer or an end of such drain pipe that extends against the wall of the tank or through the wall of the tank into the tank, whereby the trap, moreover, is at least pro-

vided with the following elements:

- an internal part with a bottom and an upstanding, internal wall, whereby the internal part opposite the bottom is provided with an opening for the supply of discharge water or discharge fluid;
- an external part in the form of a hood that can serve as conductive element for the supply of discharge water or discharge fluid to the opening on the internal part;
- a covering part on the external part intended to extend over the internal part after assembly and in particular over the opening on the internal part and this at a certain distance thereof;
- an external wall of the external part which extends from the covering part to an edge and whereby this external wall after assembly surrounds a part of the internal wall;
- a grille intended to be mounted in the opening on the internal part in order to prevent oversized elements in the discharge water or discharge fluid from flowing through to the internal part;

whereby the covering part of the external part is executed as a separate lid that can be affixed in a removable way on the external wall of the external part and whereby said lid is provided with retaining means with which the grille can be held in place in a detachable way, whereby by affixing the lid on the external wall the grille is fittingly affixed in the opening of the internal part.

[0022] An advantage of a trap according to the invention is that the grille is very easily accessible.

[0023] Another major advantage of such a trap according to the invention is that the grille is automatically installed correctly as it were by affixing it in the retaining means and affixing the lid on the external wall.

[0024] A wrong installation of the grille is thus avoided.

[0025] Another preferred characteristic of a trap according to the invention consists in connecting the external wall of the external part and the internal wall of the internal part of the trap in a fixed way.

[0026] An advantage of such embodiment of a trap according to the invention is that the trap can be installed as one unit, whereby the internal part and practically the entire external part of the trap no longer have to be disassembled for maintenance, etc. later.

[0027] In this way it is avoided that during maintenance the connection between parts of the trap and the drain pipe connected to it needs to be broken and fixed again afterward.

[0028] This is advantageous in terms of the prevention of leakages.

[0029] In a very preferred embodiment of a trap according to the invention, the external wall and the internal wall come together on the level of a common wall part, whereby in this common wall part a transit opening is provided for connection to the aforementioned drain pipe of the tank.

[0030] It is clear that such embodiment of a trap according to the invention offers an enormous advantage, because there is only one transit opening that needs to be sealed for connection to a drain pipe, which is unlike the known embodiments of a trap that are installed in a tank.

[0031] Consequently, fewer sealing means such as sealing rings need to be applied, the installing of such trap is much simpler and the risk of leaks is much smaller.

[0032] In another embodiment of a trap according to the invention the internal wall of the internal part and the external wall of the external part are each provided with a transit opening intended for connection to the aforementioned drain pipe of the tank.

[0033] Such embodiment of a trap according to the invention does not have the advantage that only one transit opening is applied to connect to a drain pipe.

[0034] Nevertheless, such embodiment can still be advantageous, for example to be able to take apart parts of the trap in order to clean them.

[0035] Indeed, in an embodiment whereby these parts are connected with each other, certain parts are not necessarily always easily accessible for such cleaning.

[0036] Another preferred aspect of a trap according to the invention consists in designing the trap in such a way with a view to an assembly whereby the opening in the wall of the tank, the opening in the external wall and the opening in the internal wall extend in line with each other.

[0037] An advantage of such embodiment of a trap according to the invention is that all parts of the trap are well aligned to each other for an efficient installation of the trap and the connection thereof to a drain pipe.

[0038] In another preferred embodiment of a trap according to the invention, the trap is also provided with a separate connecting piece to connect the trap to the drain pipe on the aforementioned tank, whereby the connecting piece is essentially formed by a pipe section that is provided with a flange on one end.

[0039] According to the invention the connecting piece is preferably designed with a view to an assembly whereby the pipe section is centred over the transit opening in the common wall part of the external wall and the internal wall of the trap.

[0040] Obviously said embodiments of a trap according to the invention are advantageous because of the fact that the separate connecting piece ensures an efficient connection of the trap to the drain pipe concerned.

[0041] According to the invention the external wall of the external part of the trap and the connecting piece are preferably provided with complementary connecting parts in order to be able to attach the flange of the connecting piece in a detachable way to the external part of the trap and this in such a way that the flange is pressed against the external part of the trap.

[0042] Such embodiment of a trap according to the invention ensures the correct connection and minimises the risk of leaks.

[0043] In an even more preferred embodiment of a trap

according to the invention said flange is essentially a flat flange with rectangular contours and the complementary connecting parts contain the following elements:

- a pair of oblong openings provided in an edge protruding from the plane of the external part of the trap in which two protrusions on the flange of the connecting piece, which extend in the extension of the plane of the flange, can be fittingly inserted;
- two hooks provided on the external wall of the trap which face each other and between which the two side edges of the rectangular contours of the flange can be fittingly affixed for a movement of the flange over the external wall.

[0044] Such embodiment of a trap according to the invention offers a very efficient solution to connect the trap to a drain pipe of a tank.

[0045] In an even more preferred embodiment of a trap according to the invention the flange is provided with parts raised from the plane of the flange and this in the positions of the flange that are caught between the hooks on the external wall of the trap, when the flange has been installed in the correct location for the alignment of the pipe section of the connecting piece with the transit opening in the trap.

[0046] Such embodiment of a trap according to the invention ensures an easy connection of the connecting piece with the remaining part of the trap, whereby by pressing the flange against the external wall of the trap a watertight connection is ensured.

[0047] Moreover, it is possible to connect such connecting piece many times to the remaining part of the trap without any wear and tear occurring, as is the case with the known traps of this type which are provided with a similar connecting piece.

[0048] The invention also relates to a trap with all the characteristics of the preamble of the main claim of this application and whereby the trap is also provided with a separate connecting piece for connecting the trap to the drain pipe on the tank, whereby the connecting piece is essentially formed by a pipe section provided on one end with a flange, whereby the external wall of the external part of the trap and the connecting piece are provided with complementary connecting parts intended to be able to attach the flange of the connecting piece in a detachable way to the external part of the trap and this in such a way that the flange is pressed against the external part of the trap.

[0049] Obviously, such embodiment of a trap according to the invention can also be provided with a connecting piece as described above and it can be arranged that the connecting piece and the remaining part of the trap can be connected in such a way that there is a certain tension between both parts to ensure a good connection, for example according to the ideas described above.

[0050] In short, the application of a connecting piece with flange and the ways of connecting such flange to the external wall of the trap are also considered a separate invention with new and inventive characteristics, without the need for the external part to be made in two parts too.

[0051] With the intention of better showing the characteristics of the invention, a preferred embodiment of a trap is described hereinafter according to the invention, by way of an example without any limiting nature, with reference to the accompanying drawings wherein:

figure 1 shows a perspective view of a disassembled version of a trap as is known according to the state of the art;
figure 2 similarly shows a perspective view of a trap according to the invention
figure 3 shows a perspective view of the part indicated in figure 2 with F3;
figure 4 shows a view from above according to the arrow F4 in figure 3;
Figure 5 shows a frontal view according to the arrow F5 in figure 3;
figure 6 shows a cross-section according to the section indicated with the line VI-VI in figure 5; figure 7 shows a perspective view of the part indicated in figure 2 with F7;
figure 8 shows a view from above according to the arrow F8 in figure 7;
figure 9 shows a cross-section according to the section indicated with the line IX-IX in figure 8; figure 10 shows a cross-section according to the section indicated with the line X-X in figure 8; figure 11 shows a perspective view of the part indicated in figure 2 with F11;
figure 12 shows a view from above according to the arrow F12 in figure 11;
Figure 13 shows a frontal view according to the arrow F13 in figure 11;
figure 14 shows a perspective view of the part indicated in figure 2 with F14;
figure 15 is a view from above according to the arrow F15 in figure 14;
Figure 16 is a frontal view according to the arrow F16 in figure 14; and,
figure 17 is a cross-section according to the section indicated with the line XVII-XVII in figure 16.

[0052] Figure 1 is a trap 1 as known according to the state of the art.

[0053] This trap 1 is suitable to be installed on the inside 2 of a water discharge tank 3.

[0054] Such tank 3 is typically imbedded in a floor, e. g. in a floor of a shower or the like, but other applications are not excluded according to the invention.

[0055] The intention hereby is that the trap 1 is connected to an opening 4 in a sidewall 5 of the tank 3 that leads to a drain pipe 6 of the sewer or to an end 7 of such drain pipe 6 that extends against the sidewall 5 of the tank or possibly extends through the sidewall 5 of the

tank 3 to the inside 2 of the tank 3.

[0056] The trap 1 has an internal, box-shaped part 8 and an external, hood-shaped part 9, as well as a grille 10 which needs to be affixed between these two parts 8 and 9 over an opening 11 on the internal part 8 such that the discharge water or the discharge fluid is led to the drain pipe 6.

[0057] In the sidewalls 12 and 13 of the internal part 8 and the external part 9 openings 14 and 15 are provided, to which a connecting piece 16 is connected to make the connection between the space in the internal part 8 and the drain pipe 6.

[0058] To obtain a watertight sealing between the different parts, a number of sealing rings 17 and 18 need to be placed during assembly as well.

[0059] It is clear that to place the grille 10 or to clean the grille 10 the internal part 8 and the external part 9 need to be disassembled.

[0060] The sealing rings 17 and 18 between the different parts will also have to be removed each time and put back afterwards.

[0061] Obviously, this is very laborious and time-consuming.

[0062] Moreover, during such maintenance there is always the possibility of leakage due to wear and tear of the sealing rings 17 and 18 or due to a bad assembly thereof.

[0063] Moreover, in practice it has appeared that the grille 10 is often placed incorrectly by the users, such that dirt or hairs, etc. can indeed end up in the internal part 8 or in the drain pipe 6 resulting in a bad flow or blockage in the drainage system.

[0064] Figures 2 to 17 show a trap 19 according to the invention which is suitable for the same purpose, more specifically for an assembly on the inside 2 of a water discharge tank 3 in a floor.

[0065] The trap has an internal part 20 with a bottom 21 and an upstanding, internal wall 22.

[0066] Opposite the bottom 21, the internal part 20 is provided with an opening 23 for the supply of discharge water or discharge fluid.

[0067] The trap 19 also contains a grille 24 intended to be mounted in the opening 23 on the internal part 20 in order to prevent oversized elements in the discharge water or discharge fluid from flowing through to the internal part 20.

[0068] Moreover, the trap 19 has an external part 25 in the form of a hood that serves as conductive element for the supply of discharge water or discharge fluid to the opening 23 on the internal part 20.

[0069] The external part 25 contains a covering part 26 intended to extend over the internal part 20 after assembly.

[0070] In particular the intention is that the covering part 26 extends after assembly over the opening 23 on the internal part 20 and this at a certain distance D thereof, which is shown in the cross-section of figure 6.

[0071] Thus, the discharge water or discharge fluid can flow under the covering part 26 to the grille 24 and the opening 23.

[0072] The external part 25 also contains an external wall 27 which after assembly extends from the covering part 26 to a bottom edge 28.

[0073] After assembly the external wall 27 surrounds part 29 of the internal wall 22.

[0074] After assembly the bottom edge 28 is located at a certain height H above the bottom of the internal part 20, which is clearly illustrated in figure 5, such that the discharge water or the discharge fluid can flow along this bottom edge 28 in the space 30 between the inside 31 of the external wall 27 and the outside 32 of the internal wall 22 to the opening 23 and the grille 24, which is made clear by means of figure 4 for example.

[0075] All these characteristics can also be found in the trap 1 shown in figure 1 and which is known according to the state of the art.

[0076] However, the trap 19 according to the invention is special primarily because the covering part 26 of the external part 25 is made as a separate lid 33 that can be installed on the external wall 27 of the external part 25 in a removable way.

[0077] In short, the external part 25 of the trap 19 according to the invention is made in two parts, whereas the external part 9 in known traps 1 is a one-piece unit.

[0078] Also, in a known trap 1, as is shown in figure 1, the internal part 8 and the external part 9 are made as two separate elements, whereas in the embodiment of a trap 19 according to the invention 19, as is shown in figure 2, the external wall 27 of the external part 25 and the internal wall 22 of the internal part 20 of the trap 19 are connected with each other in a fixed way.

[0079] In other words, a special characteristic of the invention consists in that the trap 19 according to the invention contains a double-walled element 34 that is formed by the internal part 20 with the bottom 21 and the upstanding, internal wall 22 and whereby this internal part 20 is provided at the top with an opening 23 for a grille 24, whereby this internal part 20 is connected in a fixed way to an external wall 27 and whereby between the internal wall 22 and the external wall 27 there is a space 31 for the supply of discharge water or discharge fluid to the opening 23.

[0080] This double-walled element 34 is sealable at the top with the lid 33.

[0081] The lid 33 of the external part 25 is an essentially flat lid 33 and it has a shape that is complementary to the opening 35 formed by an edge 36 at the top 37 of the external wall 27.

[0082] The lid 33 is provided on the bottom 38 with an edge 39 that can be fittingly affixed in the edge 36.

[0083] Another very important characteristic of the invention is that the lid 33 of the trap 19 is provided with retaining means 40 with which the grille 24 can be held in place in a detachable way.

[0084] These retaining means 40 are such that by affixing the lid 33 on the external wall 27 the grille 24 is

fittingly affixed in the opening 23 of the internal part 20.

[0085] The grille 24 is in this case more or less oval-shaped according to the contours formed by an upstanding edge 41 on the internal part 20 which delimits the opening 23.

[0086] The grille 24 is hereby formed by an oval-shaped outer edge 42 between which ribs 43 are provided.

[0087] The grille has a thickness T corresponding to the height T' of the aforementioned upstanding edge 41.

[0088] In the embodiment shown in the figures, the retaining means 40 on the lid 33 of the external part 25 are also formed by upstanding protrusions 44 which are affixed centrally in the plane of the lid 33 on the bottom 38 thereof.

[0089] On their free ends 45 these protrusions 44 are provided with slots 46 in which ribs 43 of the grille 24 can be clicked tight in a detachable way.

[0090] These protrusions 44 are made with a length D' which corresponds with the distance D that needs to be bridged between the covering part 26 or therefore the lid 33 and the opening 23 in which the grille 24 needs to be placed.

[0091] It is clear that such design of a trap 19 according to the invention strongly simplifies the maintenance and the installation of the grille 24.

[0092] Moreover, care has been taken that the grille 24 cannot possibly be installed wrongly.

[0093] The connection between the external wall 27 and the internal part of the double-walled element 34 is on the one hand realised by connecting pieces 47.

[0094] In the embodiment of the figures, the trap 19 on the other hand is also provided with an interesting characteristic, whereby more specifically the external wall 27 and the internal wall 22 come together on the level of a common wall part 48.

[0095] In other words, on the level of this common wall part 48 the double-walled element 34 is not provided with a double wall, whereas the remaining part 29 of the internal wall 22 is indeed surrounded by an external wall 27.

[0096] Moreover, in this common wall part 48 a transit opening 49 is provided intended to realise the connection between the space 50 in the internal part 20 and said drain pipe 6 of the tank 3.

[0097] It is clear that such embodiment of a trap 19 according to the invention with only one transit opening 49 on the level of the common wall part is advantageous and the sealing is much simpler, than is the case in the known traps 1 whereby openings 14 and 15 in the side-walls 12 and 13 are provided.

[0098] To connect the space 50 in the internal part 20 to the drain pipe 6 on the tank 3, the trap 19 is also provided with a separate connecting piece 51.

This connecting piece 51 is essentially formed by a pipe section 52 which on one end 53 is provided with a flange 54.

[0099] In this case the pipe section 52 is provided with exterior screw thread 55 which can co-operate with the internal screw thread provided in the drain pipe 6.

[0100] The flange 54 has more or less rectangular contours and at the back 56 is practically flat.

[0101] The intention is that the connecting piece 51 is mounted against the common wall part 48, whereby the pipe section 52 is centred over the transit opening 49 in the common wall part 48 of the external wall 27 and the internal wall 22 of the trap 19.

[0102] To this end the external wall 27 of the external part 25 of the trap 19 or more exactly the common wall part 48 and the connecting piece 51 are provided with complementary connecting parts 57 which are intended to attach the flange 54 of the connecting piece 51 in a detachable way to the external part 25 of the trap 19 and this in a way that the flange 54 is pressed against the external part 25 of the trap 19.

[0103] These complementary connecting parts 57 are formed on the one hand by a pair of oblong openings 58 provided in an edge 59 protruding from the plane of the external part 25 of the trap 19.

[0104] This protruding edge 59 extends over the width of the common wall part 48 to the top 37 thereof.

[0105] Moreover, two protrusions 60 on the flange 54 of the connecting piece 51 form parts 57 that are complementary to these oblong openings 58.

[0106] The two protrusions 60 on the flange 54 are provided on the top corners 61 of the flange 54 and they extend in the extension of the plane of the flange 54.

[0107] These protrusions 60 can be fittingly inserted in the oblong openings 58 by an upward shift of the flange 54 over the common wall part 48.

[0108] On the other hand, two hooks 63 that face each other are provided on the edge 62 of the common wall part 48 under the transit opening 49.

[0109] The two opposite side edges 64 of the rectangular contours of the flange 54 can be fittingly inserted between these hooks 63 for a movement of the flange 54 over the external wall 27 or the common wall part 48.

[0110] On the corners 65 opposite the protrusions 60, the flange 54 is provided with raised parts 66 from the plane of the flange 54 which form complementary parts 57 on the hooks 63.

[0111] More specifically, these raised parts 66 are provided on the positions of the flange 54 that are caught between the hooks 63 on the external wall 27 of the trap 19, when the flange 54 is installed in the correct location for the alignment of the pipe section 52 of the connecting piece 51 with the transit opening 49 in the trap 19.

[0112] In this way the flange 54 is clamped in the hooks 63 after a correct assembly.

This embodiment offers the major advantage that the connecting piece 51 can be detached many times and reconnected to the trap 19 without significant wear and tear occurring, as the connecting piece 51 is only tightened to the trap 19 during the assembly at the very last moment on the level of the hooks 63 and the raised parts 65.

In the known traps 1 a seal on the connecting piece is

shifted over the whole length until the connecting piece is in the right position, which obviously puts a great burden on the seal, resulting in premature damage to the seal.

The raised parts 66 in the embodiment of the figures are realised by making the corners 65 kinked.

[0113] In the embodiment shown in the figures it suffices to use sealing rings 67 and 68 to ensure a watertight sealing of the parts.

The present invention is by no means limited to the embodiments described as an example of a trap 19 according to the invention, but such trap 19, can be realised in all kinds of other forms and dimensions without departing from the scope of the appended claims.

Claims

1. Trap (19) that is suitable for use in a water discharge tank (3), whereby the trap (19) is intended to be installed in the tank (3) and connected to an opening (4) in a wall (5) of the tank (3) whereby the trap (19), moreover, is at least provided with the following elements:

   - an internal part (20) with a bottom (21) and an upstanding, internal wall (22), whereby the internal part (20) opposite the bottom (21) is provided with an opening (23) for the supply of discharge water or discharge fluid;
   - an external part (25) in the form of a hood that serves as conductive element for the supply of discharge water or discharge fluid to the opening (23) on the internal part (20);
   - a covering part (26) of the external part (25) intended to extend over the internal part (20) after assembly and over the opening (23) on the internal part (20) and this at a certain distance (D) thereof;
   - an external wall (27) of the external part (25) which extends from the covering part (26) to an edge (28) and whereby this external wall (27) after assembly surrounds a part (29) of the internal wall (20) ;
   - a grille (24) intended to be mounted in the opening (23) on the internal part (20) in order to prevent oversized elements in the discharge water or discharge fluid from flowing through to the internal part (20); **characterized in that** the covering part (26) of the external part (25) is executed as a separate lid (33) that can be affixed in a removable way on the external wall (27) of the external part (25), and **in that** said lid (33) is provided with retaining means (40) with which the grille (24) can be held in place in a detachable way, whereby by affixing the lid (33) on the external wall (27) the grille (24) is fittingly affixed in the opening (23) of the internal part (20).

2. Trap (19) according to claim 1, **characterised in that** the lid (33) of the external part (25) is an essentially flat lid (33) that has a shape that is complementary to the opening (35) formed by an edge (36) at the top (37) of the external wall (27).

3. Trap (19) according to one of the preceding claims, **characterised in that** the retaining means (40) on the lid (33) of the external part (25) are formed by protrusions (44) on the lid (33) which are provided with slots (46) in which ribs (43) of the grille (24) can be clicked tight in a detachable way.

4. Trap (19) according to one of the preceding claims, **characterised in that** the external wall (27) of the external part (25) and the internal wall (22) of the internal part (20) of the trap (19) are connected with each other in a fixed way.

5. Trap (19) according to one of the preceding claims, **characterised in that** the external wall (27) and the internal wall (22) come together on the level of a common wall part (48), whereby in this common wall part (48) a transit opening (49) is provided intended for connection to said drain pipe (6) of the tank (3).

6. Trap (19) according to one of the preceding claims, **characterised in that** the internal wall (22) of the internal part (20) and the external wall (25) of the external part (27) are each provided with a transit opening intended for connection to said drain pipe (6) of the tank (3).

7. Trap (19) according to one of the preceding claims, **characterised in that** the trap (19) is also provided with a separate connecting piece (51) for connection of the trap (19) to a drain pipe (6) of the tank (3), whereby the connecting piece is essentially formed by a pipe section (52) which on one end (53) is provided with a flange (54).

8. Trap (19) according to claims 5 and 7, **characterised in that** the connecting piece (51) is designed with a view to an assembly whereby the pipe section (52) is centred over the transit opening (49) in the common wall part (48) of the external wall (27) and the internal wall (22) of the trap (19).

9. Trap (19) according to claim 7 or 8, **characterised in that** the external wall (27) of the external part (25) of the trap (19) and the connecting piece (51) are provided with complementary connecting parts (57) intended to be able to attach the flange (54) of the connecting piece (51) in a detachable way to the external part (25) of the trap (19) and this in such a way that the flange (54) is pressed against the external part (25) of the trap (19).

10. Trap (19) according to claim 9, **characterised in that** the flange (54) is an essentially flat flange (54) with rectangular contours and that the complementary connecting parts (57) contain the following elements:

- a pair of oblong openings provided (58) in an edge (59) protruding from the plane of the external part (25) of the trap (19) in which two protrusions (60) on the flange (54) of the connecting piece (51), which extend in the extension of the plane of the flange (54), can be fittingly inserted;
- two hooks (63) provided on the external wall (27) of the trap (19) which face each other and between which the two side edges (64) of the rectangular contours of the flange (54) can be fittingly affixed for a movement of the flange (54) over the external wall (27).

11. Trap according to claim 10, **characterised in that** the flange (54) is provided with raised parts (66) from the flange (54) and this on the positions of the flange (54) that are caught between the hooks (63) on the external wall (27) of the trap (19), when the flange (54) is installed in the correct location for the alignment of the pipe section (52) of the connecting piece (51) with the transit opening (49) in the trap (19).

Patentansprüche

1. Siphon (19), der zur Verwendung in einem Wasserablauftank (3) geeignet ist, wobei der Siphon (19) dazu vorgesehen ist, in dem Tank (3) installiert und mit einer Öffnung (4) in einer Wand (5) des Tanks (3) verbunden zu werden, wobei der Siphon (19) darüber hinaus zumindest mit den folgenden Elementen versehen ist:

- ein Innenteil (20) mit einem Boden (21) und einer aufrechtstehenden Innenwand (22), wobei das Innenteil (20) gegenüber dem Boden (21) mit einer Öffnung (23) für die Zufuhr von Ablaufwasser oder Ablaufflüssigkeit versehen ist;
- ein Außenteil (25) in Form einer Haube, die als leitendes Element für die Zufuhr von Ablaufwasser oder Ablaufflüssigkeit zu der Öffnung (23) am Innenteil (20) dient;
- ein Abdeckteil (26) des Außenteils (25), das sich nach dem Zusammenbau über das Innenteil (20) und über die Öffnung (23) am Innenteil (20) erstrecken soll, und dies in einem bestimmten Abstand (D) davon;
- eine Außenwand (27) des Außenteils (25), die sich vom Abdeckteil (26) bis zu einem Rand (28) erstreckt und wobei diese Außenwand (27) nach dem Zusammenbau einen Teil (29) der Innenwand (20) umgibt;
- ein Gitter (24), das dazu bestimmt ist, in der Öffnung (23) des Innenteils (20) montiert zu werden, um zu verhindern, dass übergroße Elemente im Ablaufwasser oder in der Ablaufflüssigkeit zum Innenteil (20) durchströmen, **dadurch gekennzeichnet, dass** das Abdeckteil (26) des Außenteils (25) als ein separater Deckel (33) ausgeführt ist, der abnehmbar an der Außenwand (27) des Außenteils (25) befestigt werden kann, und dass der Deckel (33) mit Haltemitteln (40) versehen ist, mit denen das Gitter (24) entfernbar an Ort und Stelle gehalten werden kann, wobei durch Befestigen des Deckels (33) an der Außenwand (27) das Gitter (24) passend in der Öffnung (23) des Innenteils (20) befestigt wird.

2. Siphon (19) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Deckel (33) des Außenteils (25) ein im Wesentlichen flacher Deckel (33) ist, der eine Form aufweist, die komplementär zu der Öffnung (35) ist, die durch einen Rand (36) an der Oberseite (37) der Außenwand (27) gebildet wird.

3. Siphon (19) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Haltemittel (40) am Deckel (33) des Außenteils (25) durch Vorsprünge (44) am Deckel (33) gebildet sind, die mit Schlitzen (46) versehen sind, in denen Rippen (43) des Gitters (24) abnehmbar einschnappen können.

4. Siphon (19) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Außenwand (27) des Außenteils (25) und die Innenwand (22) des Innenteils (20) des Siphons (19) fest miteinander verbunden sind.

5. Siphon (19) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Außenwand (27) und die Innenwand (22) auf der Höhe eines gemeinsamen Wandteils (48) zusammenkommen, wobei in diesem gemeinsamen Wandteil (48) eine Durchgangsöffnung (49) vorgesehen ist, die zur Verbindung mit der genannten Abflussleitung (6) des Tanks (3) bestimmt ist.

6. Siphon (19) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Innenwand (22) des Innenteils (20) und die Außenwand (25) des Außenteils (27) jeweils mit einer Durchgangsöffnung versehen sind, die zur Verbindung mit der genannten Abflussleitung (6) des Tanks (3) bestimmt ist.

7. Siphon (19) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Siphon (19) auch mit einem separaten Verbindungsstück (51) zur Verbindung des Siphons (19) mit einer

Abflussleitung (6) des Tanks (3) versehen ist, wobei das Verbindungsstück im Wesentlichen durch einen Rohrabschnitt (52) gebildet wird, der an einem Ende (53) mit einem Flansch (54) versehen ist.

8. Siphon (19) nach den Ansprüchen 5 und 7, **dadurch gekennzeichnet, dass** das Verbindungsstück (51) im Hinblick auf eine Montage ausgelegt ist, wobei der Rohrabschnitt (52) über der Durchgangsöffnung (49) im gemeinsamen Wandteil (48) der Außenwand (27) und der Innenwand (22) des Siphons (19) zentriert ist.

9. Siphon (19) nach Anspruch 7 oder 8, **dadurch gekennzeichnet, dass** die Außenwand (27) des Außenteils (25) des Siphons (19) und das Verbindungsstück (51) mit komplementären Verbindungsteilen (57) versehen sind, die dazu bestimmt sind, den Flansch (54) des Verbindungsstücks (51) lösbar an dem Außenteil (25) des Siphons (19) befestigen zu können, und zwar so, dass der Flansch (54) gegen den Außenteil (25) des Siphons (19) gedrückt wird.

10. Siphon (19) nach Anspruch 9, **dadurch gekennzeichnet, dass** der Flansch (54) ein im Wesentlichen flacher Flansch (54) mit rechteckigen Konturen ist und dass die komplementären Verbindungsteile (57) die folgenden Elemente enthalten:

- ein Paar länglicher Öffnungen (58), die in einem Rand (59) vorgesehen sind, der aus der Ebene des äußeren Teils (25) des Siphons (19) herausragt, in denen zwei Vorsprünge (60) am Flansch (54) des Verbindungsstücks (51), die sich in der Verlängerung der Ebene des Flansches (54) erstrecken, passend eingesetzt werden können;
- zwei an der Außenwand (27) des Siphons (19) vorgesehene Haken (63), die einander zugewandt sind und zwischen denen die beiden Seitenkanten (64) der rechteckigen Konturen des Flansches (54) für eine Bewegung des Flansches (54) über die Außenwand (27) passend befestigt werden können.

11. Siphon nach Anspruch 10, **dadurch gekennzeichnet, dass** der Flansch (54) mit vom Flansch (54) erhabenen Teilen (66) versehen ist und zwar an den Stellen des Flansches (54), die zwischen den Haken (63) an der Außenwand (27) des Siphons (19) eingeklemmt sind, wenn der Flansch (54) an der richtigen Stelle für die Ausrichtung des Rohrabschnitts (52) des Verbindungsstücks (51) mit der Durchgangsöffnung (49) im Siphon (19) installiert ist.

Revendications

1. Piège (19) qui est approprié pour son utilisation dans un réservoir d'écoulement d'eau (3) ; dans lequel le piège (19) est destiné à être monté dans le réservoir (3) et à être relié à une ouverture (4) pratiquée dans une paroi (5) du réservoir (3) ; dans lequel, en outre, le piège (19) est au moins muni des éléments repris ci-après :

- une partie interne (20) comprenant une base (21) et une paroi interne verticale (22) ; dans lequel la partie interne (20) opposée à la base (21) est munie d'une ouverture (23) pour l'acheminement d'eau d'évacuation ou d'un fluide d'évacuation ;
- une partie externe (25) sous la forme d'un capot qui fait office d'élément conducteur pour l'acheminement de l'eau d'évacuation ou du fluide d'évacuation dans la direction de l'ouverture (23) sur la partie interne (20) ;
- un élément (26) de la partie externe (25) faisant office de recouvrement, destiné à s'étendre par-dessus la partie interne (20) après le montage et par-dessus l'ouverture (23) sur la partie interne (20) et ceci à une certaine distance (D) de ladite ouverture ;
- une paroi externe (27) de la partie externe (25) qui s'étend à partir de l'élément (26) faisant office de recouvrement jusqu'à un bord (28), et de manière telle que cette paroi externe (27) après le montage, entoure une partie (29) de la paroi interne (20) ;
- une grille (24) destinée à être montée dans l'ouverture (23) sur la partie interne (20) dans le but d'empêcher des éléments surdimensionnés dans l'eau d'évacuation ou dans le fluide d'évacuation de s'écouler à travers elle en direction de la partie interne (20) ;

caractérisé
en ce que l'élément (26) de la partie externe, faisant office de recouvrement est réalisé sous la forme d'un couvercle séparé (33) qui peut être fixé d'une manière amovible sur la paroi externe (27) de la partie externe (25) ; et
en ce que ledit couvercle (33) est muni de moyens de retenue (40) avec lesquels la grille (24) peut être maintenue en place d'une manière amovible ; dans lequel, en fixant le couvercle (33) sur la paroi externe (27), la grille (24) est fixée de manière appropriée dans l'ouverture (23) de la partie interne (20).

2. Piège (19) selon la revendication 1, **caractérisé en ce que** le couvercle (33) de la partie externe (25) représente un couvercle essentiellement plat (33) qui possède une configuration dont la forme est complémentaire à celle de l'ouverture (35) réalisée à l'in-

tervention d'un bord (36) au sommet (37) de la paroi externe (27).

3. Piège (19) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les moyens de retenue (40) sur le couvercle (33) de la partie externe (25) sont réalisés à l'intervention de protrusions (44) sur le couvercle (33), qui sont munies de fentes (46) dans lesquelles des nervures (43) de la grille (24) peuvent être fermement insérées par encliquetage d'une manière amovible.

4. Piège (19) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la paroi externe (27) de la partie externe (25) et la paroi interne (22) de la partie interne (20) du piège (19) sont reliées l'une à l'autre de manière inamovible.

5. Piège (19) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la paroi externe (27) et la paroi interne (22) se rencontrent au niveau d'une partie de paroi commune (48) ; dans lequel, dans cette partie de paroi commune (48), une ouverture de transit (49) est prévue, destinée à la liaison audit tuyau d'évacuation (6) du réservoir (3).

6. Piège (19) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la paroi interne (22) de la partie interne (20) et la paroi externe (25) de la partie externe (27) sont chacune munies d'une ouverture de transit destinée à la liaison audit tuyau d'évacuation (6) du réservoir (3).

7. Piège (19) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le piège (19) est également muni d'une pièce de liaison séparée (51) destinée à relier le piège (19) à un tuyau d'évacuation (6) du réservoir (3) ; dans lequel la pièce de liaison est essentiellement réalisée à l'intervention d'un tronçon de tuyau (52) qui, à une extrémité (53), est muni d'une bride (54).

8. Piège (19) selon les revendications 5 et 7, **caractérisé en ce que** la pièce de liaison (51) est conçue à des fins de montage ; dans lequel le tronçon de tuyau (52) est centré sur l'ouverture de transit (49) dans la partie de paroi commune (48) de la paroi externe (27) et de la paroi interne (22) du piège (19).

9. Piège (19) selon la revendication 7 ou 8, **caractérisé en ce que** la paroi externe (27) de la partie externe (25) du piège (19) et la pièce de liaison (51) sont munies de pièces de liaison complémentaires (57) destinées à permettre la fixation de la bride (54) de la pièce de liaison (51) d'une manière amovible à la partie externe (25) du piège (19) et ceci d'une manière telle que la bride (54) est pressée contre la partie externe (25) du piège (19).

10. Piège (19) selon la revendication 9, **caractérisé en ce que** la bride (54) représente une bride (54) essentiellement plate comprenant des contours rectangulaires et **en ce que** les pièces de liaison complémentaires (57) contiennent les éléments suivants :

- une paire d'ouvertures oblongues (58) prévues dans un bord (59) faisant saillie par rapport au plan de la partie externe (25) du piège (19), dans lesquelles deux protrusions (60) sur la bride (54) de la pièce de liaison (51), qui s'étendent sur l'étendue du plan de la bride (54), peuvent être insérées d'une manière appropriée ;
- deux crochets (63) prévus sur la paroi externe (27) du piège (19), qui se font mutuellement face et entre lesquels les deux bords latéraux (64) des contours rectangulaires de la bride (54) peuvent être fixés d'une manière appropriée pour un mouvement de la bride (54) par-dessus la paroi externe (27).

11. Piège (19) selon la revendication 10, **caractérisé en ce que** la bride (54) est munie d'éléments surélevés (66) par rapport à la bride (54) et ceci aux endroits de la bride (54) qui sont saisis entre les crochets (63) sur la paroi externe (27) du piège (19) lorsque la bride (54) est montée à l'endroit correct pour l'alignement du tronçon de tuyau (52) de la pièce de liaison (51) avec l'ouverture de transit (49) dans le piège (19).

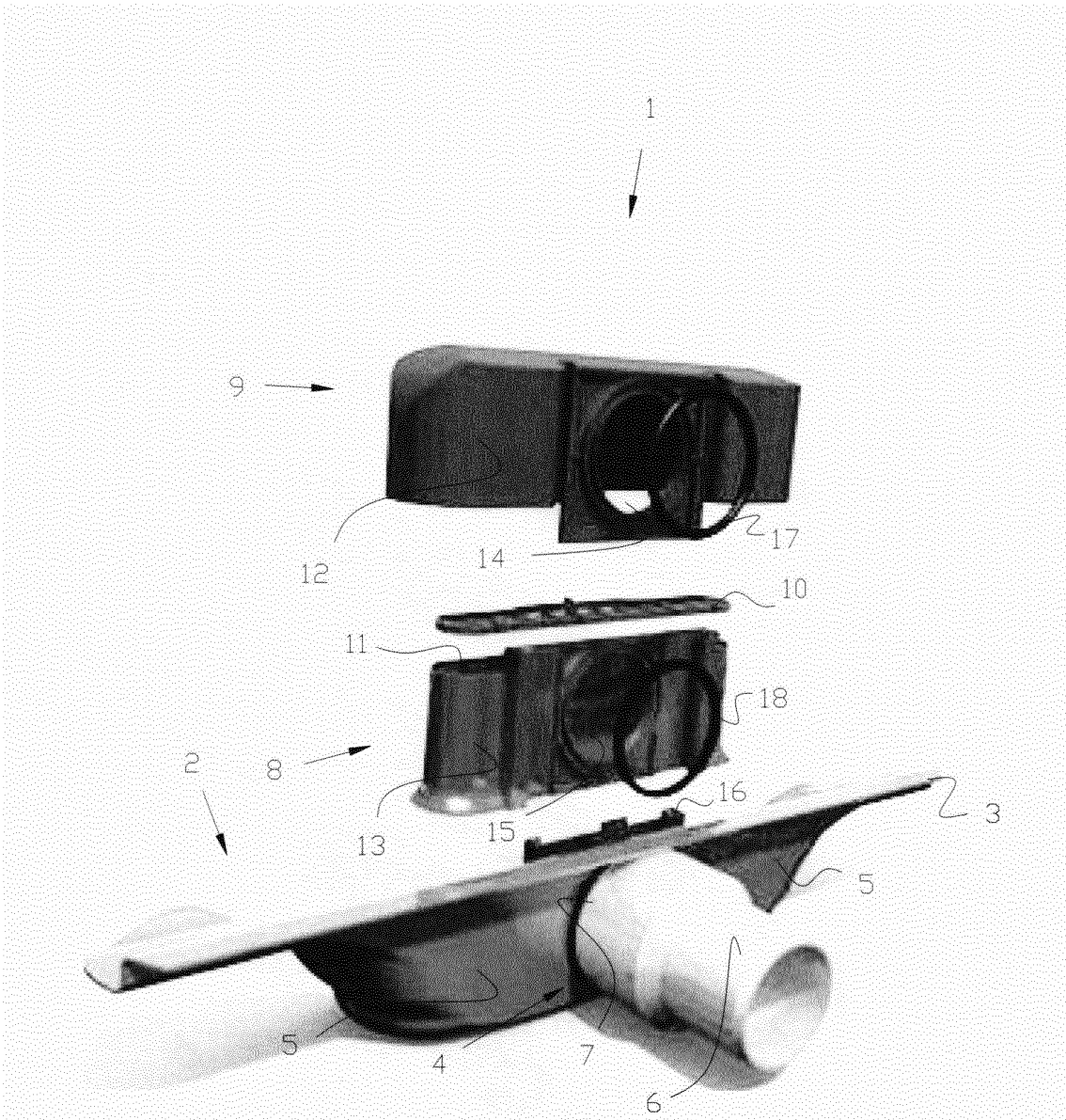
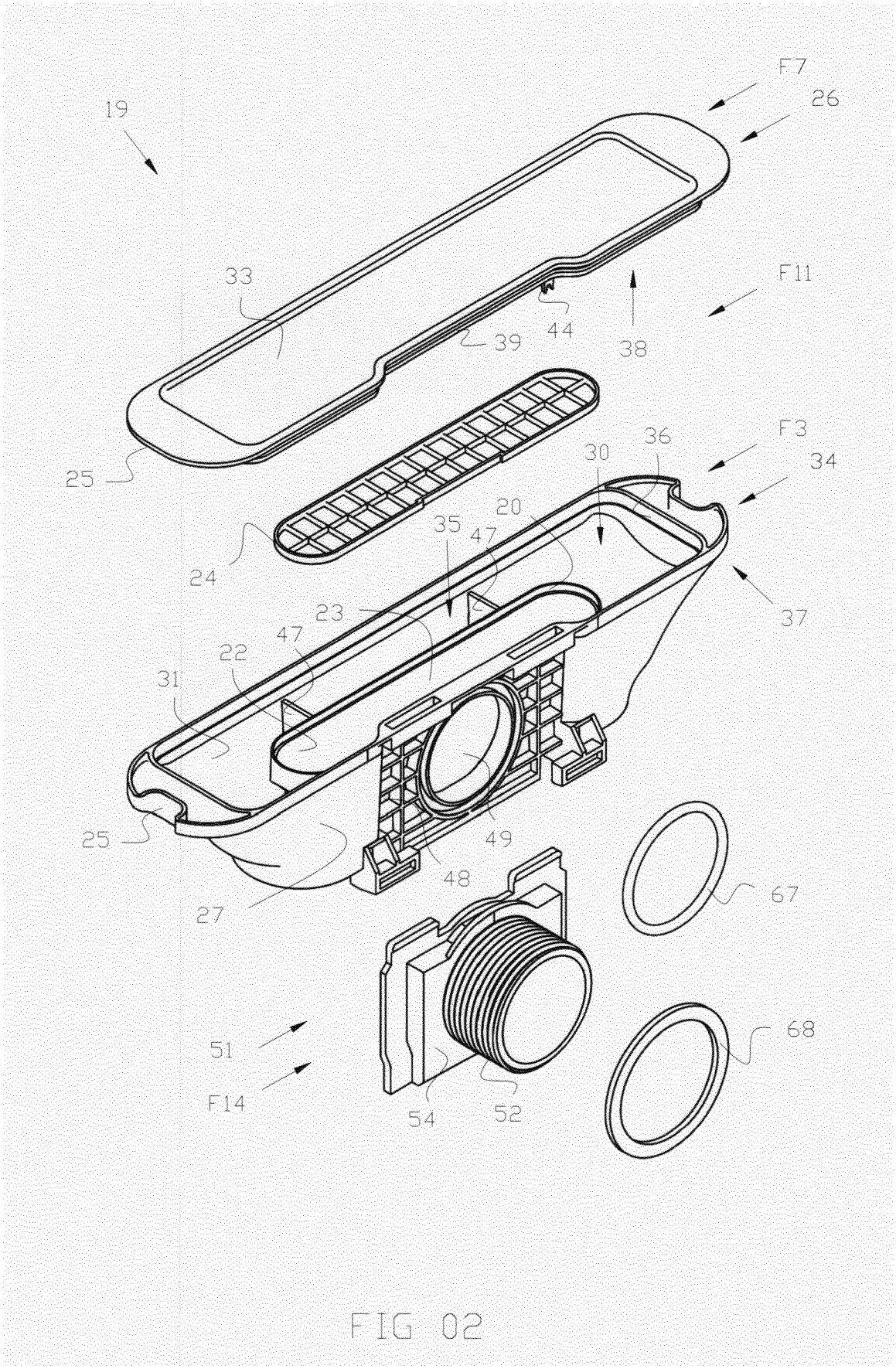


FIG 01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F7
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F11
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F3
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FIG 02

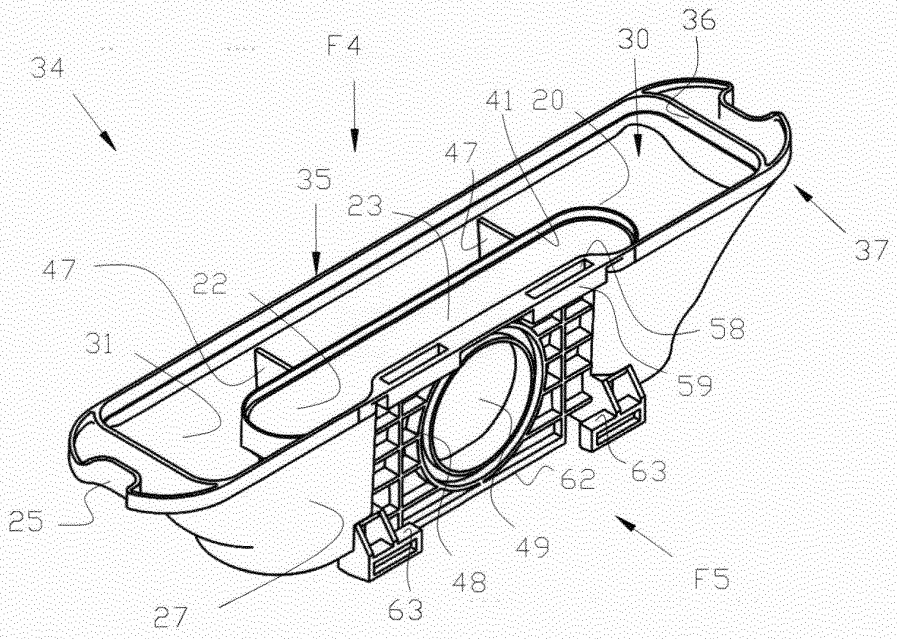

FIG 03

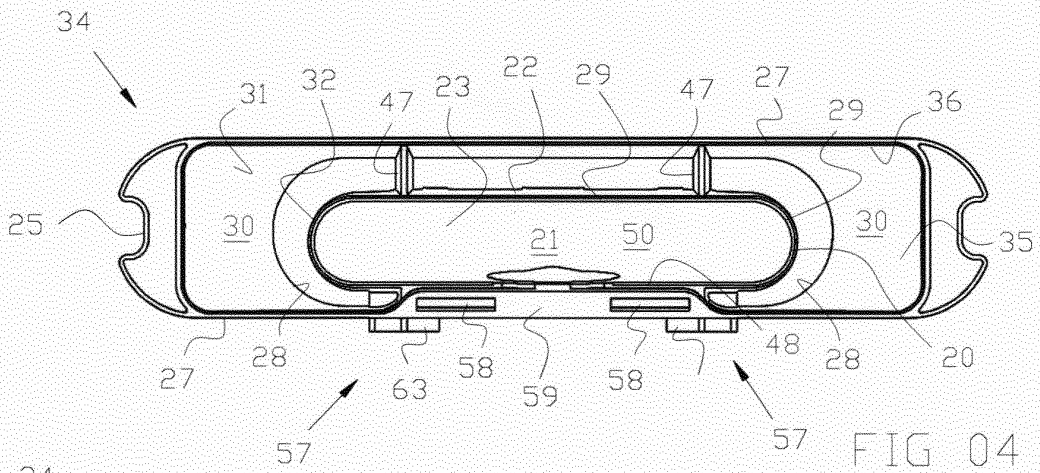

FIG 04

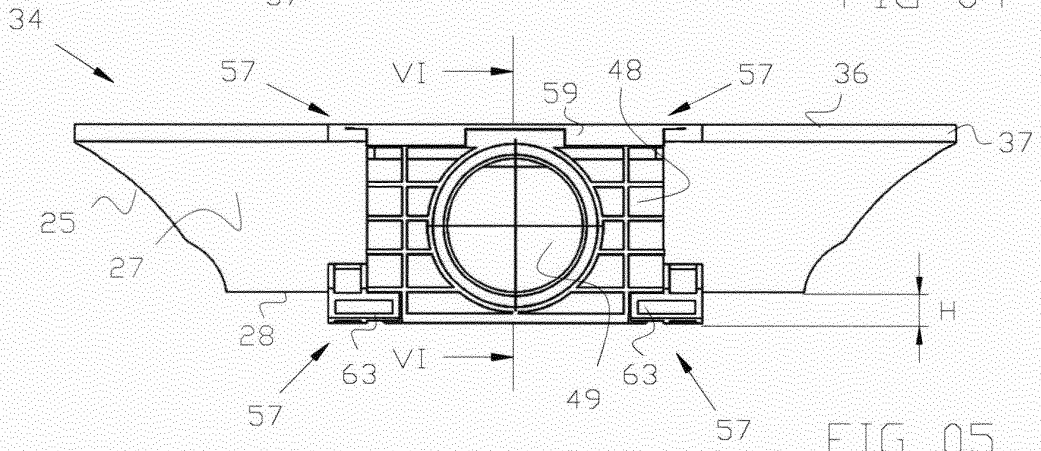

FIG 05

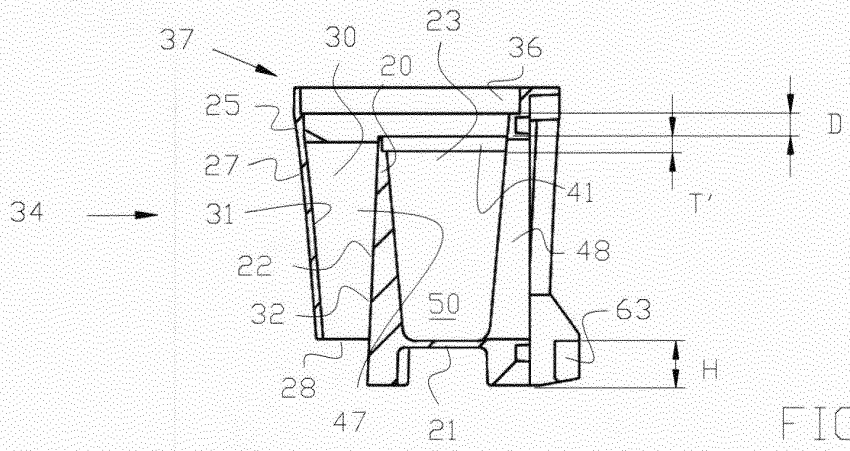

FIG 06

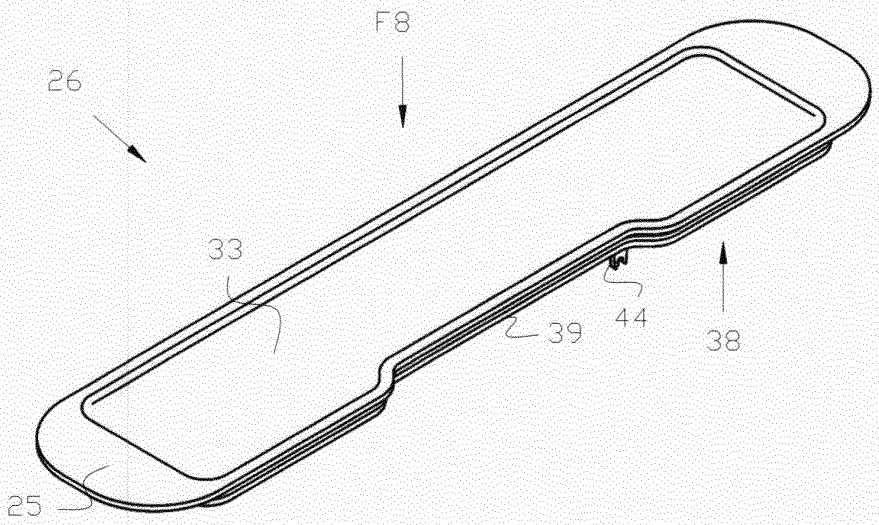

FIG 07

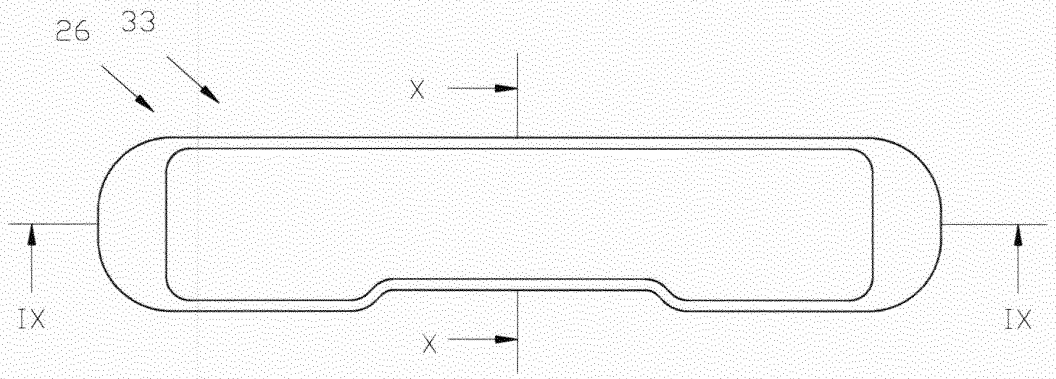

FIG 08

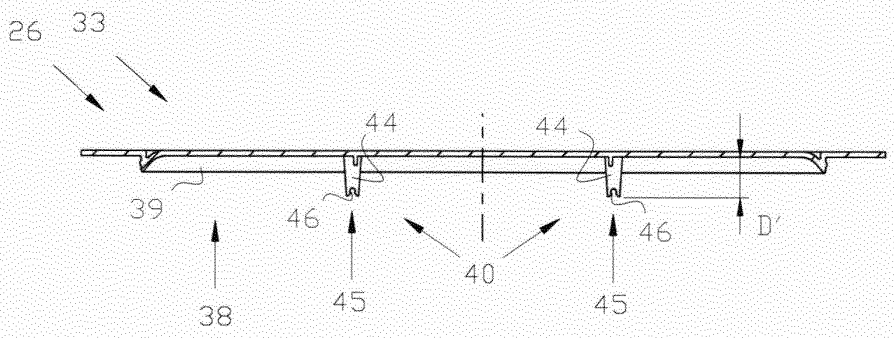

FIG 09

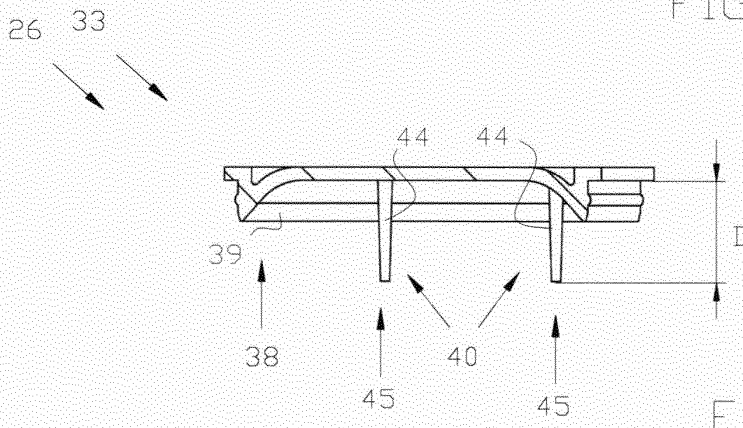

FIG 10

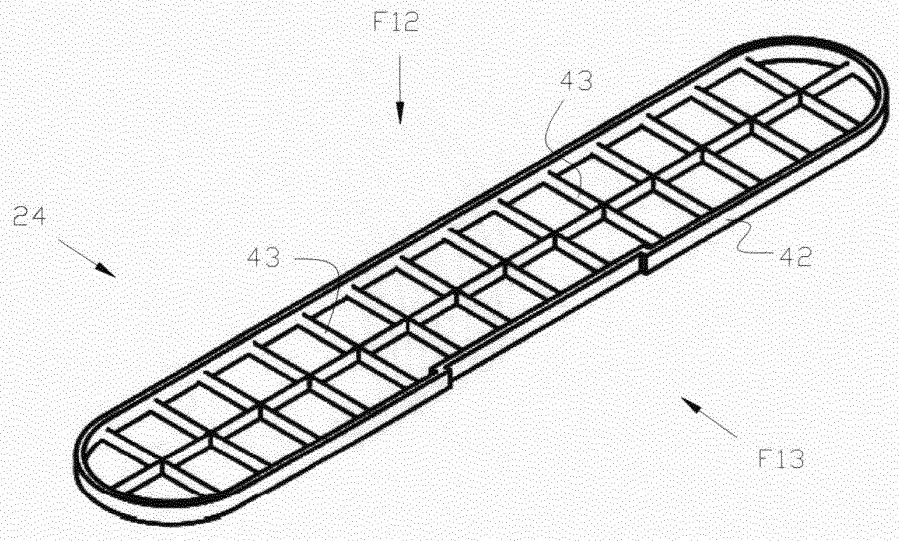

FIG 11

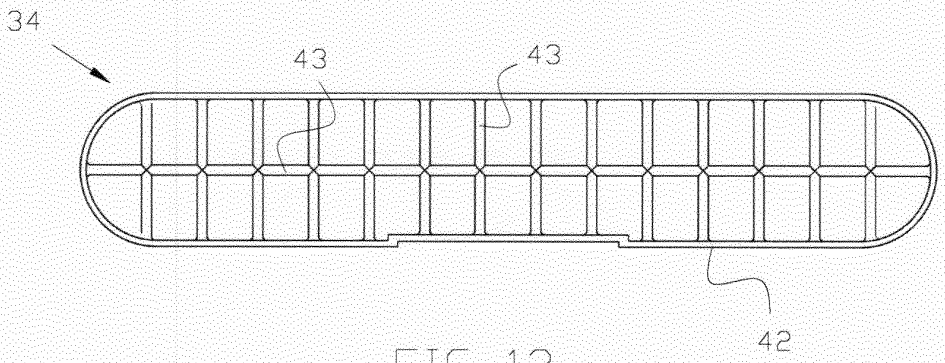

FIG 12

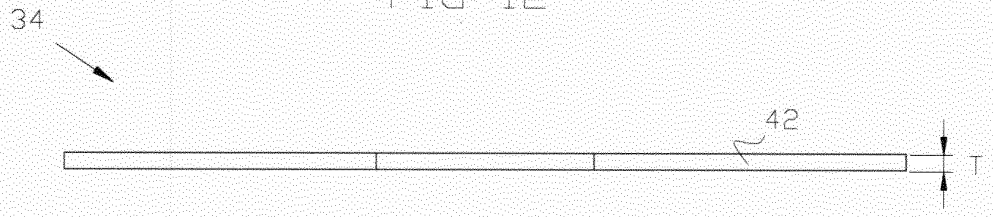

FIG 13

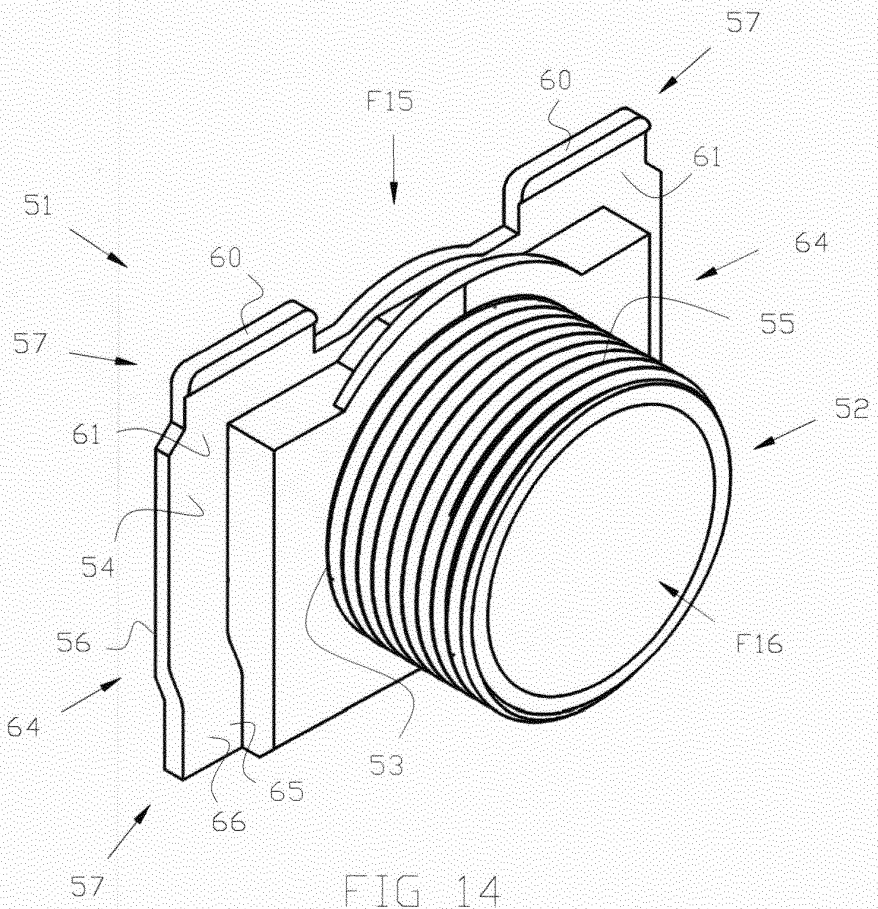

FIG 14

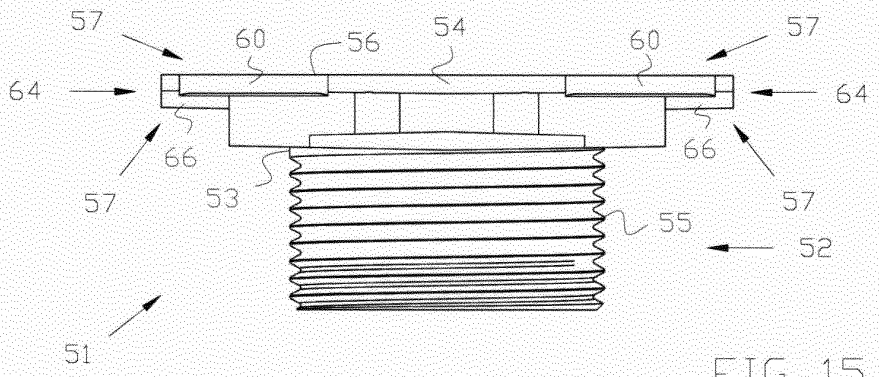

FIG 15

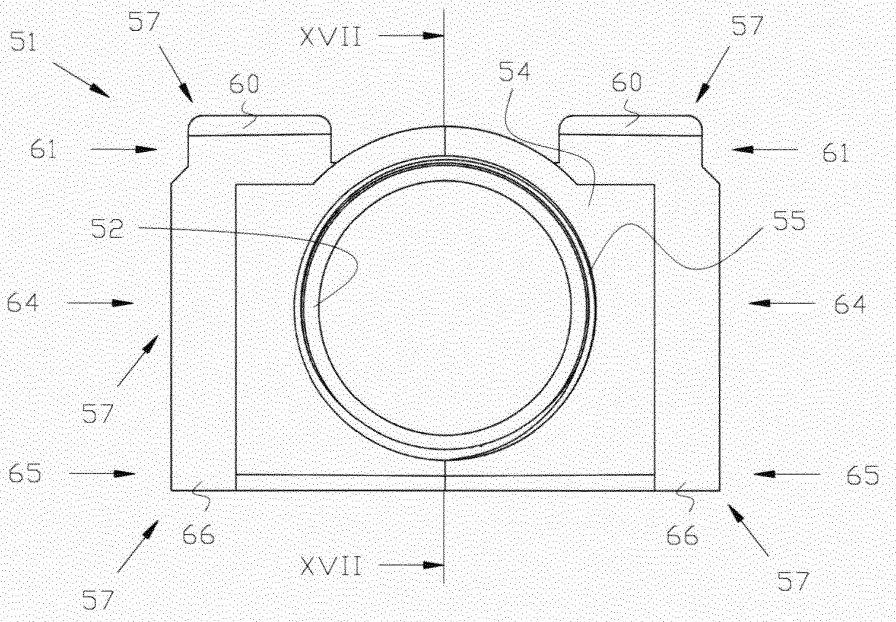

FIG 16

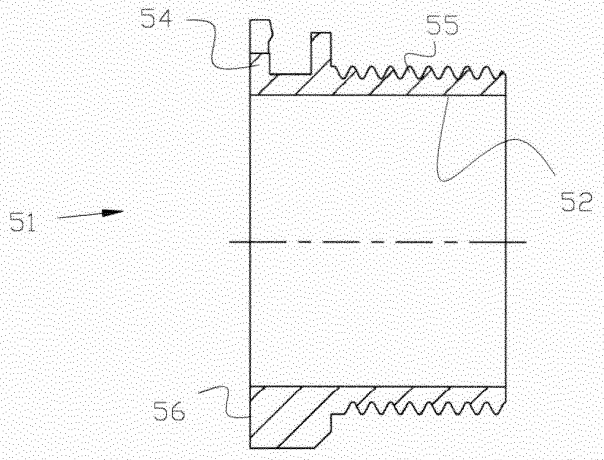

FIG 17

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2016071318 A **[0018]**
- WO 2014209107 A **[0019]**