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(54) **Siphon accessible to plumbing snake via feed opening**

Geruchverschluss zugänglich für eine Federwelle über eine Zugriffsöffnung

Siphon accessible pour une spirale de nettoyage par une ouverture d'entrée

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Description

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

[0002] Such a siphon is known in the prior art, for example from DE 102006053751. A siphon can for instance be used for a shower drain. It is important here that the height of the siphon is limited, since a shower drain is placed in a floor and the thickness of the floor can limit the maximum overall depth.

[0003] In addition, it is important in complying with regulations that the water trap in the siphon has a certain minimal height.

[0004] Finally, it is desirable to be able to take the siphon apart for cleaning purposes, but also to be able to gain access to the outlet pipe to which the siphon is connected. This latter is important if there is a blockage and the outlet pipe has to be cleaned with for instance a plumbing snake.

[0005] In the known siphons the access to the outlet pipe is limited because there is an intermediate wall standing upright from the bottom. When for instance a plumbing snake must be carried into the outlet pipe, it must then be inserted between the upright wall and the housing after removal of the tubular part. If the aim is the smallest possible overall depth, the space between the housing and the upright wall is then adversely affected.

[0006] It is moreover usual for an outlet pipe of the drain or shower drain to which the siphon is connected to also protrude into the feed opening. The lower edge of this outlet pipe likewise determines the accessibility of the outlet opening of the housing.

[0007] In addition, it is desirable from an aesthetic viewpoint to have increasingly narrower and smaller feed openings. This does however prevent the possibility of constructing the siphon from separate, removable components.

[0008] It is now an object of the invention to improve the access to the outlet pipe, while the overall height of the siphon can be minimized.

[0009] This object is achieved according to the invention with a siphon according to claim 1.

[0010] When the plug is removed for cleaning purposes, ample access is created through the opening to the outlet pipe lying therebehind. This access is no longer limited by the space between the upright wall and the housing. This opening in the wall now also allows more freedom in the design of the siphon, the upright wall and the housing.

[0011] It is hereby possible for the upper edge of the upright wall to be at a higher position than the lower edge of the feed opening or the inserted outlet pipe of a drain or shower drain arranged on the siphon. It is even possible to guide and seal this outlet pipe in an edge hanging downward from the feed opening, thereby creating adjustability.

[0012] In an embodiment of the siphon not according to the invention a part of the wall of the tubular part lies against the opening in the upright intermediate wall.

[0013] Because the tubular part lies against the opening a simple construction is obtained, wherein the removable tubular part easily seals the opening in the upright wall.

[0014] In another embodiment of the siphon not according to the invention an upright edge is arranged along the periphery of the opening in the upright intermediate wall, and the tubular part lies against the upright edge.

[0015] A tunnel is in fact formed by the upright edge along the periphery of the opening, this tunnel partially spanning the distance between the upright wall and the tubular part.

[0016] In the siphon according to the invention a downward hanging edge is arranged around the feed opening. The tubular part not according to the invention can lie against the downward hanging edge, whereby a guiding and positioning is formed for the tubular part. A seal is preferably arranged between the tubular part and the downward hanging edge of the feed opening. This prevents a direct connection occurring between the feed opening and the outlet pipe, whereby unpleasant odours can escape from the siphon via the feed opening.

[0017] In a preferred embodiment of the siphon according to the invention the opening in the upright intermediate wall lies substantially in the same line as the outlet opening. A plumbing snake for instance can hereby be introduced easily into the outlet opening via the feed opening and the opening in the upright wall.

[0018] In another preferred embodiment of the siphon according to the invention the feed opening has an elongate form, such as an ellipse or a rectangle.

[0019] A siphon not according to the invention comprising:

- a housing with at least a bottom, a top and a wall extending between the bottom and top, wherein a feed opening is arranged in the top and wherein the housing further comprises an outlet opening;
- a dividing wall hanging downward from the top and dividing the housing into two chambers which are connected to each other close to the bottom via an opening in the dividing wall;
- an outlet pipe extending through the outlet opening, wherein the end surface of the outlet pipe extends at least as far as a passage in the dividing wall, wherein an opening directed toward the top of the housing is arranged in the part of the tube located in the housing;
- a removable sealing element arranged in at least the outlet pipe for the purpose of sealing the passage.

[0020] Because the outlet pipe is inserted into the housing, the housing can take a simple form. In addition, easy cleaning of the siphon according to the invention is ensured via the sealing element in the outlet pipe.

[0021] In a preferred embodiment of the siphon not according to the invention the outlet pipe extends through

the passage in the dividing wall, and the part of the outlet pipe extending beyond the dividing wall is sealed by the sealing element.

[0022] These and other features of the invention will be further elucidated on the basis of the accompanying drawings.

Figure 1 shows a perspective view of a first embodiment of a siphon not according to the invention.
Figure 2 shows a cross-sectional view of the siphon of figure 1.
Figure 3 shows a cross-sectional view of the siphon of figure 1 during cleaning.
Figure 4 shows a perspective view with partly broken-away parts of a second embodiment not according to the invention.
Figure 5 shows a cross-sectional view of a third embodiment not according to the invention.
Figure 6 shows a cross-sectional view of an embodiment according to the invention.
Figure 7 shows a cross-sectional view of a fourth embodiment not according to the invention.
Figure 8 is a cross-sectional view of a fifth embodiment not according to the invention.
Figure 9 shows a sixth embodiment not according to the invention.
Figure 10 shows a seventh embodiment not according to the invention.

[0023] Figures 1 and 2 show a siphon 1 not according to the invention. This siphon 1 has a housing with an upper surface 2, a bottom surface 3 and a peripheral wall 4 extending therebetween.

[0024] Provided in peripheral wall 4 is an opening to which an outlet pipe 5 is connected.

[0025] An upright intermediate wall 6 is arranged on bottom surface 3. Provided in this upright intermediate wall 6 is a passage 7 lying substantially in line with outlet opening 8 to which outlet pipe 5 is connected.

[0026] Further provided in upper surface 2 of siphon 1 is a feed opening 9 in which a removable tubular part 10 is arranged. This tubular part 10 is supported by a rib 11 arranged along feed opening 9. Tubular part 10 further lies against the upright intermediate wall 6 at the position of passage 7. Tubular part 10 here seals the passage.

[0027] In the situation of the siphon not according to the invention shown in figure 2 the siphon forms a usual water trap. The outlet pipe 14 of a drain, such as a shower drain 13, is inserted between tubular part 10 and the downward hanging edge of feed opening 9. The distance between siphon 1 and a drain 13 can hereby vary. It can clearly be seen that the lower edge of outlet tube 14 is at a lower position than upper edge 15 of the upright intermediate wall 6. This is not possible in a prior art siphon because such a prior art siphon can no longer be cleaned.

[0028] Water W flows via feed opening 9 into tubular part 10. The water herein enters the chamber bounded by upright intermediate wall 6. The water subsequently flows over the edge of intermediate wall 6 and herein enters a second chamber bounded by intermediate wall 6 and peripheral wall 4. Finally, the water W leaves via outlet pipe 5. Because upper edge 15 is at a higher position than the lower edge of outlet pipe 14, it is possible to provide a larger water trap when housing 2, 3, 4 has a certain height.

[0029] Figure 3 shows siphon 1 not according to figure 1, wherein tubular part 10 has been removed from feed opening 9. Because tubular part 10 has been removed, passage 7 is left clear. It is hereby possible to introduce for instance a plumbing snake 12 directly into outlet pipe 5 via feed opening 9 and passage 7. This considerably facilitates cleaning and unblocking.

[0030] Figure 4 shows a second embodiment 20 of a siphon not according to the invention. This siphon 20 also has a housing 21, wherein an oval-shaped feed opening 22 is provided in the upper surface. Inserted into this oval-shaped feed opening 22 is an oval-shaped tube part 23 which is provided on the underside with a recess 24.

[0031] Further provided on the bottom surface in housing 21 is an upright intermediate wall 25 which is interrupted by the oval-shaped tube part 23. In the inserted position of tube part 23 the intermediate wall 25 is fully sealed thereby, whereby a first chamber is formed which water W enters from feed opening 22. The water then flows over the upper edge of upright intermediate wall 25 and thereby enters a second chamber, after which it can drain away via outlet pipe 26.

[0032] Figure 5 finally shows a third embodiment 30 not according to the invention. This siphon 30 corresponds by and large to siphon 1 of figure 1. Also provided in siphon 30 is a housing 31 with a feed opening 32 in the upper surface. Inserted into this feed opening 32 is a tubular part 33 which, just as tubular part 10 of siphon 1, has a recess 34.

[0033] Provided on the bottom surface of housing 31 is an upright intermediate wall 35 which is arranged concentrically to tubular part 33. A passage 36 is provided in intermediate wall 35. Connected to this passage 36 is a horizontal tube part 37 which extends between passage 36 and tubular part 33. The direct connection between the chambers on either side of intermediate wall 35 is hereby sealed by tubular part 33. A peripheral O-ring 38, which brings about sealing, is provided on tubular part 33. Easy access to outlet pipe 39 is created after removal of part 33.

[0034] Figure 6 shows a variant of the embodiment 30 of figure 5, which is according to the invention. The same parts are designated with the same reference numerals.

[0035] In this variant the tubular part 33 of figure 5 is omitted. A plug 65 is instead placed in passage 36.

[0036] Figure 7 shows a fourth embodiment 40 not according to the invention.

[0037] Siphon 40 has a housing with a top 41, a bottom 42 and a peripheral wall 43 extending therebetween. A feed opening 44 is arranged in the top. Placed on this

opening is an upright edge 45 between which a grating 46 can be placed. The upper side of grating 46 can be arranged in roughly the same plane as the upper side of for instance a tile floor.

[0038] Further hanging downward from top 41 is a dividing wall 47 which divides the housing into a first chamber 48 and a second chamber 49. Dividing wall 47 stops just before it reaches the bottom 42, so that there is a connection 50 between first chamber 48 and second chamber 49.

[0039] Further provided in the housing is an outlet opening 51 which debouches into second chamber 49. Protruding through this outlet opening 51 is an outlet pipe 52, the end surface 53 of which lies against dividing wall 47. Provided in this dividing wall is a passage which is sealed by a plug 54. When this plug 54 is removed a direct connection is created between outlet pipe 52 and feed opening 44, whereby easy cleaning is possible.

[0040] Outlet pipe 52 is further provided on the upper side with an opening 55, this opening 55 being directed toward the top 41 of the housing.

[0041] Water which flows via feed opening 44 into the first chamber 48 of the housing can then flow via connection 50 to second chamber 49. Here the water must move upward in order to be able to flow into opening 55 of outlet pipe 52. This provides a siphoning action.

[0042] Figure 8 shows a variant of the embodiment according to figure 7. The same parts are therefore designated with the same reference numerals. In this embodiment 60 outlet pipe 52 is also inserted through the passage in dividing wall 47, whereby end surface 53 of the tube is now situated in first chamber 48. End surface 53 is fully sealed relative to first chamber 48. A sealing element 61 is however placed in end surface 53, whereby easy access can be gained to outlet pipe 52 for the purpose of cleaning siphon 60.

[0043] Figure 9 shows a sixth embodiment 70 not according to the invention. This embodiment has a housing 71 with an inflow opening 72 on the top side. A stepped peripheral wall 73 hangs downward from this inflow opening 72. A first chamber 74 is formed by this downward hanging wall 73.

[0044] An outlet pipe 75 is arranged against housing 71. This outlet pipe 75 has on the upper side a passage 76 with which outlet pipe 75 connects to first chamber 74.

[0045] Water W entering the housing via inflow opening 72 must subsequently flow under the downward hanging wall 73 and then upward in first chamber 74 to the higher-lying passage 76. The water W can then flow via passage 76 into outlet pipe 75.

[0046] Inflow opening 72 is dimensioned such that a shower drain 77 can protrude partially into inflow opening 72. Outlet pipe 78 of the shower drain here protrudes into the tube formed by the downward hanging wall 73. This considerably limits the height of the combination of siphon 70 and shower drain 77.

[0047] Figure 10 shows a seventh embodiment 80 not according to the invention. This embodiment greatly resembles a prior art siphon.

[0048] The embodiment 80 not according to the invention has a housing 81 with an outlet 82 on the underside. A funnel-like feed opening 83 is arranged in the upper side of housing 81.

[0049] A receptacle 84 is further arranged under the funnel-like feed opening. This receptacle 84 ensures that water W flowing in via feed opening 83 must first flow upward over the upper edge of receptacle 84 in order to reach outlet 82.

[0050] An opening with a plug 85 is further provided in the bottom of receptacle 84. After removal of plug 85 direct access can be gained to outlet 82 via feed opening 83.

[0051] A prior art siphon is removable to enable cleaning of the siphon. The funnel-like feed opening 83 can be integrated with housing 81.

[0052] It will of course be evident that the siphon according to the invention is suitable for shower drains, bath drains as well as for drains where the overall height is important and accessibility is limited after installing.

Claims

1. Siphon (30), comprising:

   - a housing (31) with at least a bottom, a top and a wall extending between the bottom and top, wherein a feed opening (32) is arranged in the top, wherein the housing (31) further comprises an outlet opening, a downward hanging edge, which is arranged around the feed opening and an intermediate wall (35) standing upright from the bottom, wherein the upper edge of the upright intermediate wall (35) lies above the bottom of the downward hanging edge and wherein an opening (36) is arranged in the upright intermediate wall (35),

   characterized in that the intermediate wall (35) encloses the downward hanging edge, wherein a horizontal tube part (37) is arranged with one end to the opening (36) and with the other end to the downward hanging edge and wherein a plug (65) is arranged in the horizontal tube part (37).

2. Siphon as claimed in claim 1, wherein the opening in the upright intermediate wall lies substantially in the same line as the outlet opening.

3. Siphon as claimed in claim 1 or 2, wherein the feed opening has an elongate form, such as an ellipse or a rectangle.

Patentansprüche

1. Siphon (30), umfassend:

- ein Gehäuse (31) mit mindestens einem Boden, einer Oberseite und einer Wand, die sich zwischen dem Boden und der Oberseite erstreckt, wobei eine Zufuhröffnung (32) in der Oberseite angeordnet ist, wobei das Gehäuse (31) weiter eine Auslassöffnung umfasst, eine nach unten hängende Kante, die um die Zufuhröffnung herum angeordnet ist, und
- eine Trennwand (35), die vom Boden aus aufrecht steht, wobei die obere Kante der aufrechten Trennwand (35) über dem Boden der nach unten hängenden Kante liegt, und wobei eine Öffnung (36) in der aufrechten Trennwand (35) angeordnet ist;
- **dadurch gekennzeichnet, dass** die Trennwand (35) die nach unten hängende Kante umschließt, wobei ein horizontales Rohrteil (37) mit einem Ende zu der Öffnung (36) hin und mit dem anderen Ende zu der nach unten hängenden Kante angeordnet ist, und wobei ein Stöpsel (65) in dem horizontalen Rohrteil (37) angeordnet ist.

2. Siphon nach Anspruch 1, wobei die Öffnung in der aufrechten Trennwand im Wesentlichen in derselben Linie wie die Auslassöffnung liegt.

3. Siphon nach Anspruch 1 oder 2, wobei die Zufuhröffnung eine längliche Form aufweist, wie die einer Ellipse oder eines Rechtecks.

Revendications

1. Siphon (30) comprenant :

- un logement (31) avec au moins un fond, un sommet et une paroi s'étendant entre le fond et le sommet, dans lequel une ouverture d'alimentation (32) est agencée dans le sommet, dans lequel le logement (31) comprend en outre une ouverture de sortie, un bord pendant vers le bas, qui est agencé autour de l'ouverture d'alimentation et
une paroi intermédiaire (35) se dressant verticalement du bas, dans lequel le bord supérieur de la paroi intermédiaire verticale (35) se situe au-dessus du fond du bord pendant vers le bas et dans lequel une ouverture (36) est agencée dans la paroi intermédiaire verticale (35),
caractérisé en ce que la paroi intermédiaire (35) enserre le bord pendant vers le bas, dans lequel une partie de tube horizontale (37) est agencée avec une extrémité dans l'ouverture (36) et avec l'autre extrémité dans le bord pendant vers le bas, et dans lequel un obturateur (65) est agencé dans la partie de tube horizontale (37).

2. Siphon selon la revendication 1, dans lequel l'ouverture dans la paroi intermédiaire verticale se situe sensiblement sur la même ligne que l'ouverture de sortie.

3. Siphon selon la revendication 1 ou 2, dans lequel l'ouverture d'alimentation a une forme allongée telle qu'une ellipse ou un rectangle.

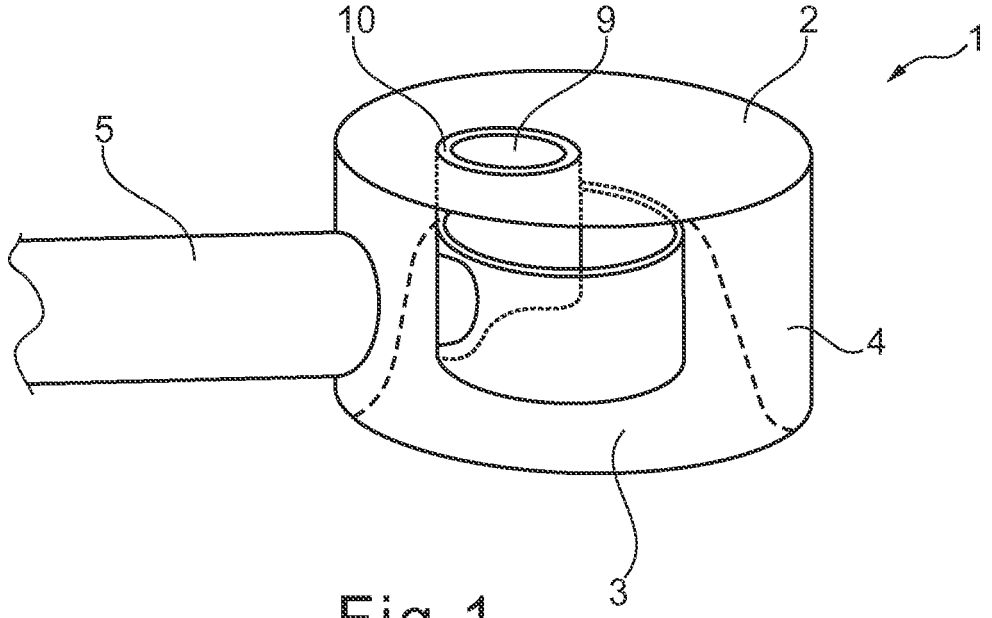


Fig.1

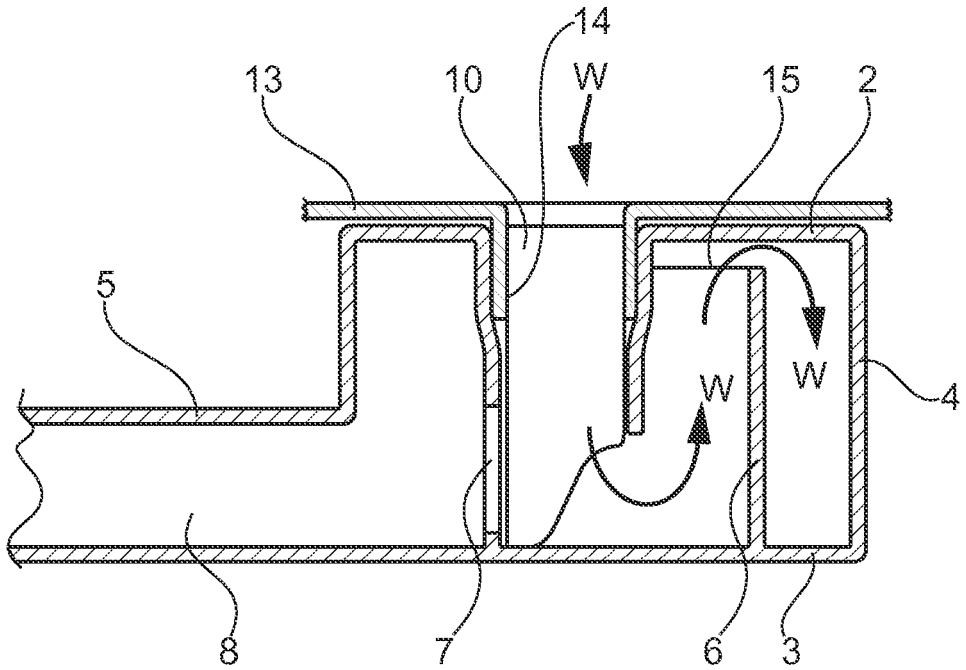


Fig. 2

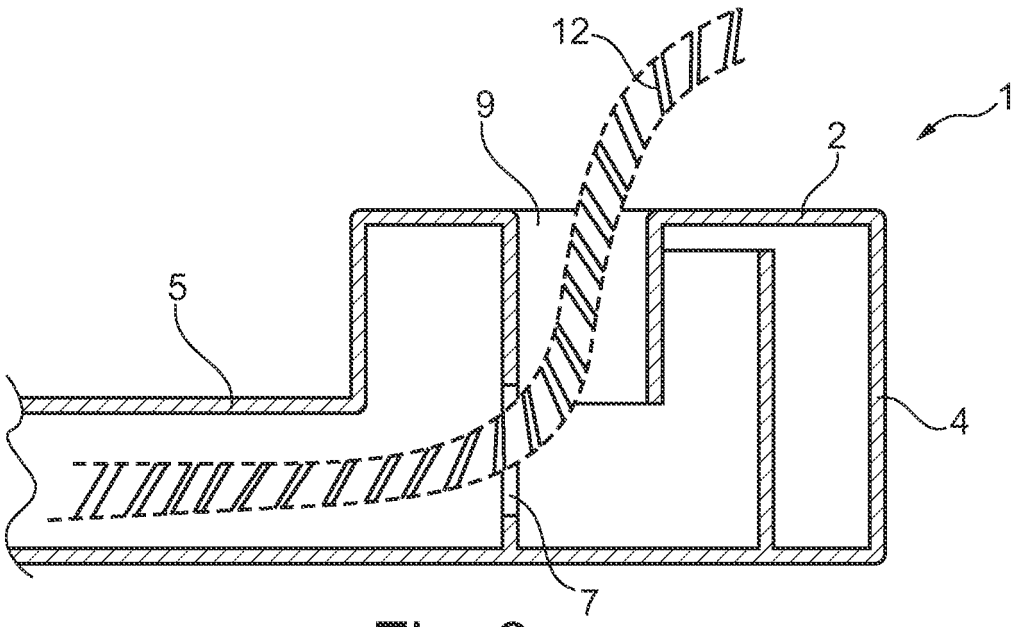


Fig. 3

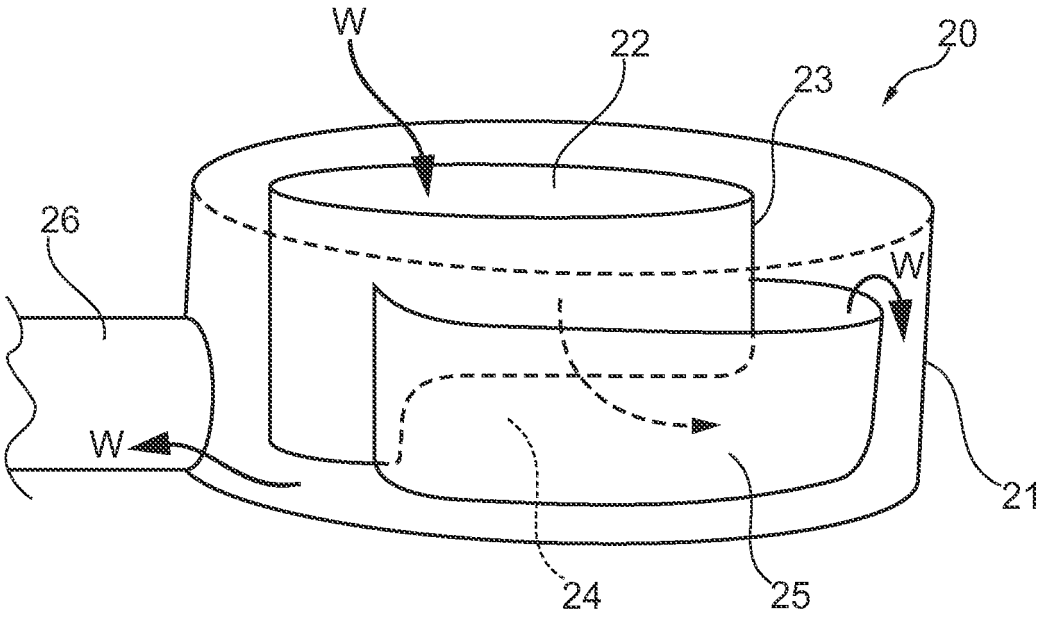


Fig. 4

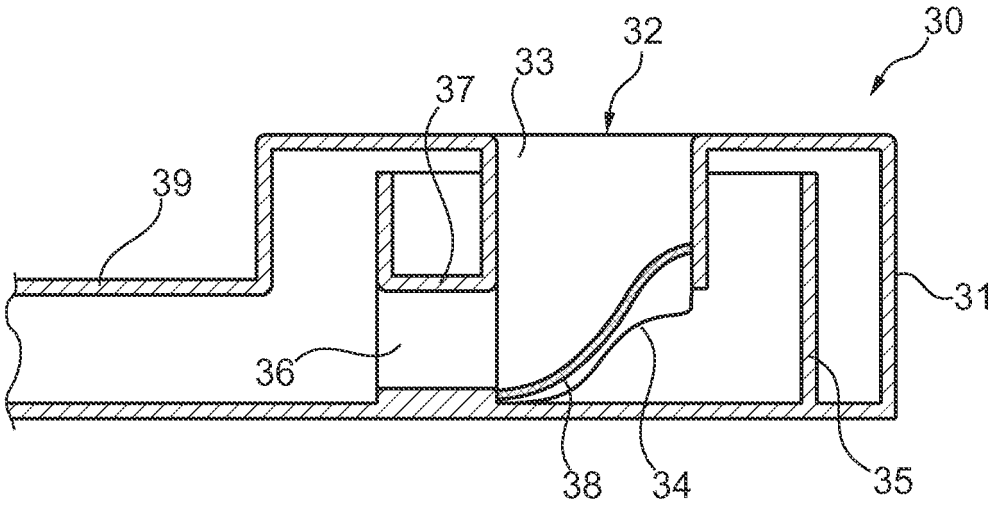


Fig. 5

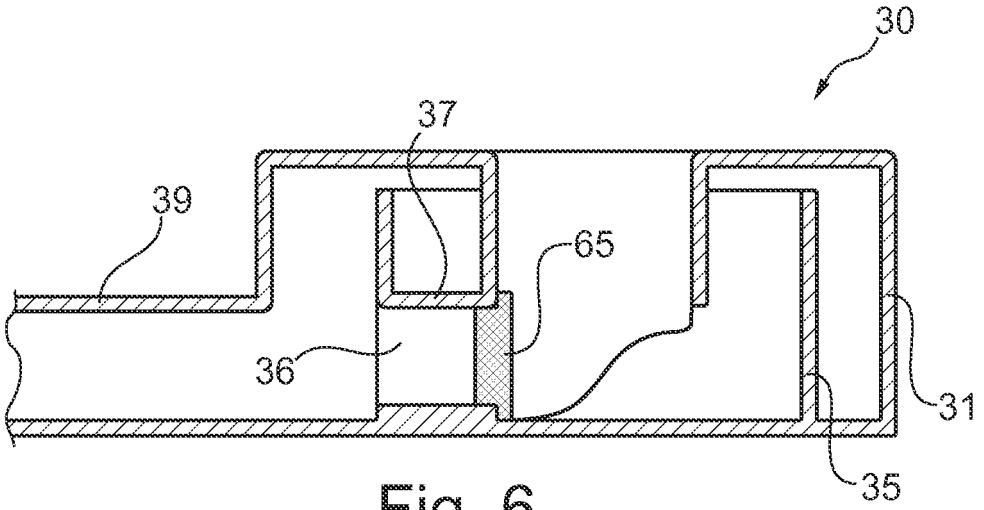


Fig. 6

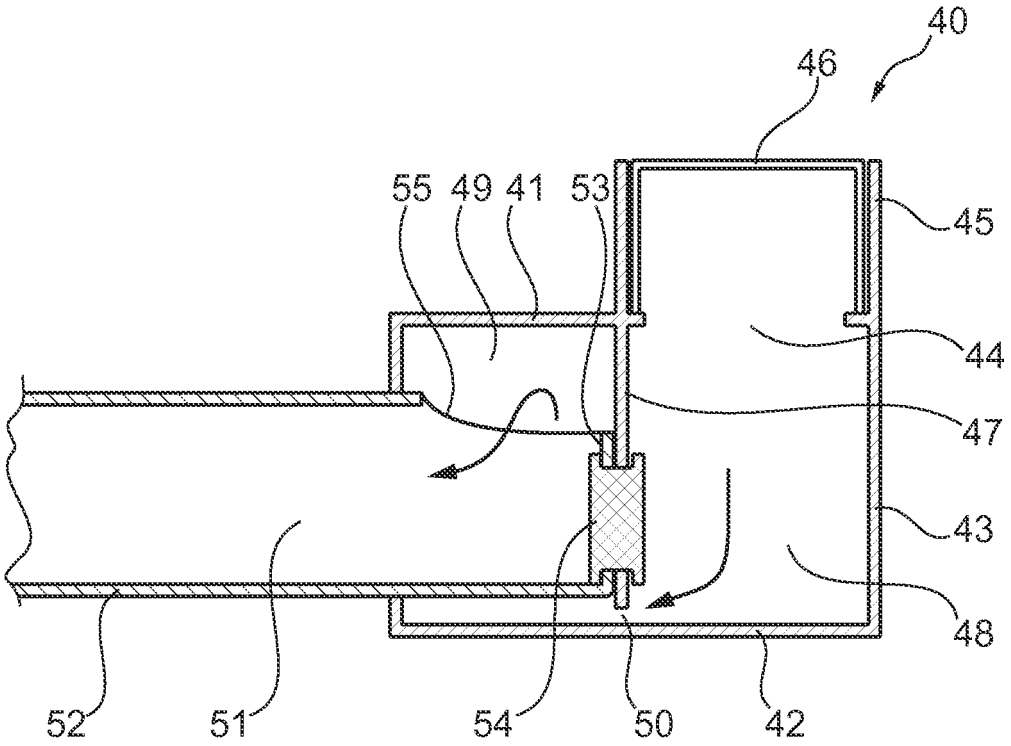

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Fig. 7

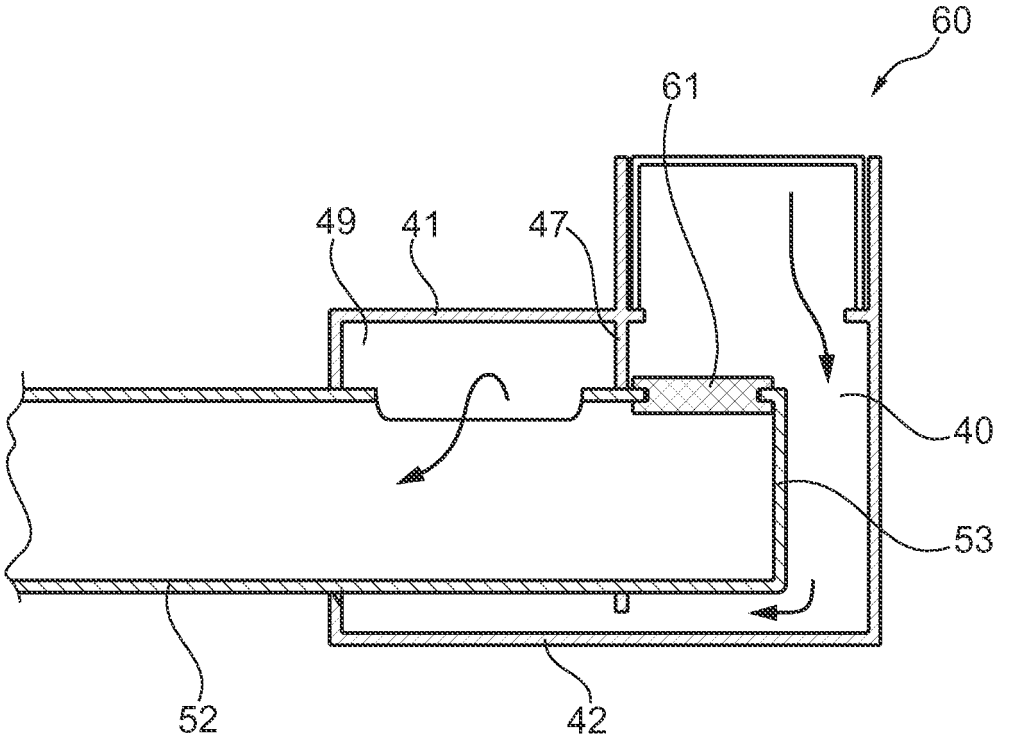

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Fig. 8

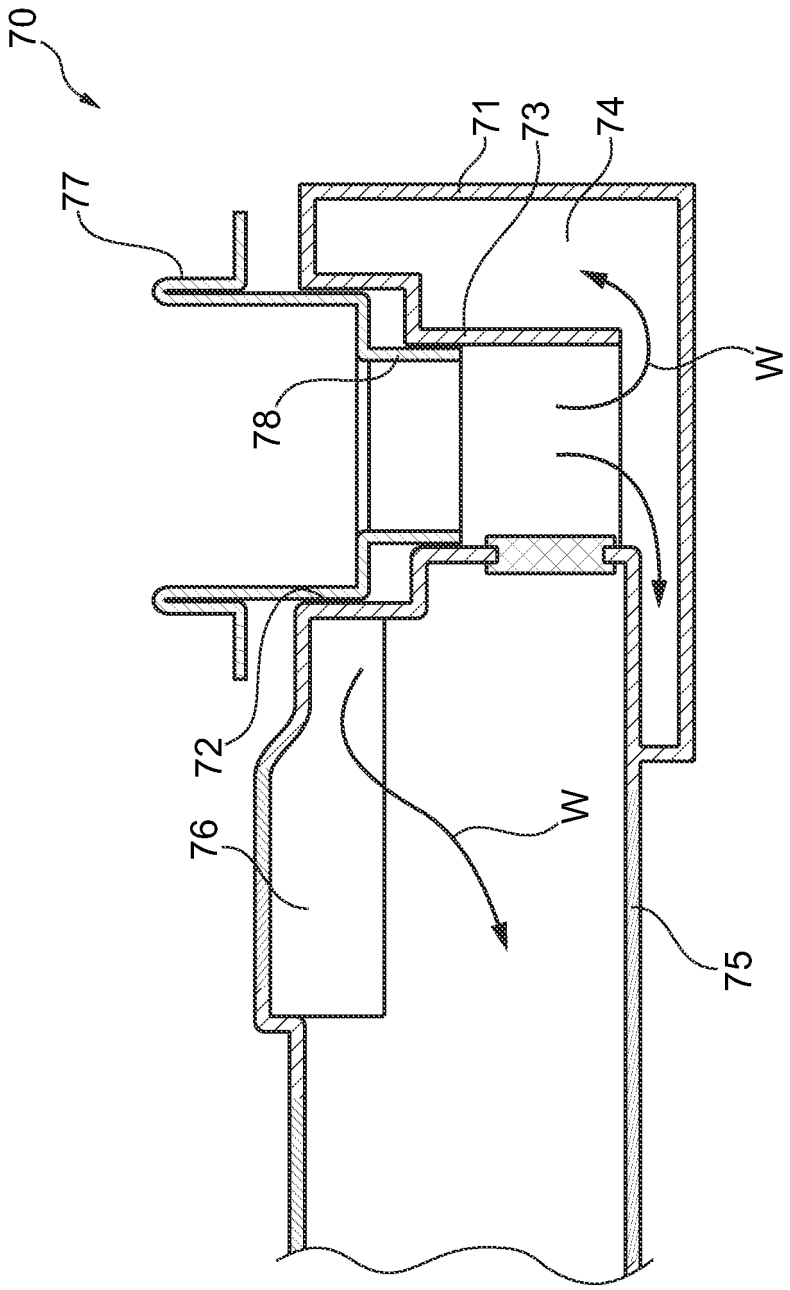


Fig. 9

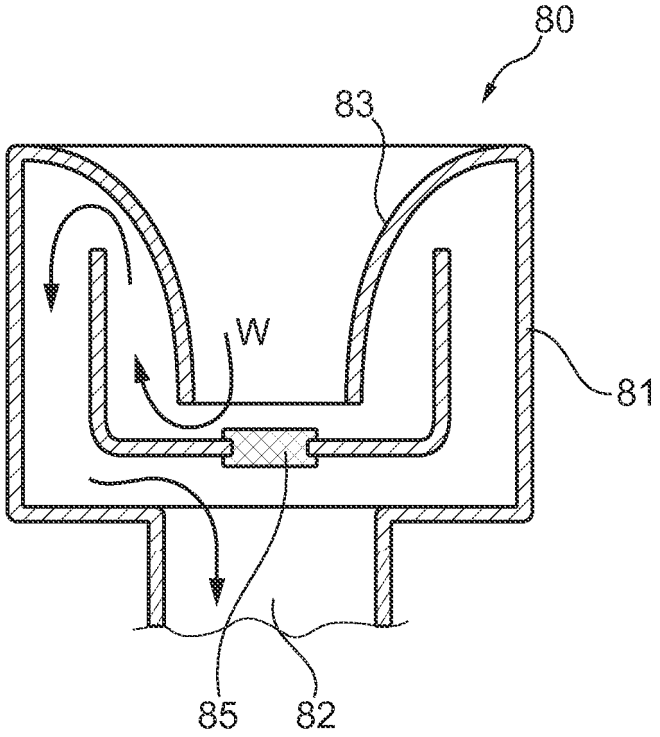


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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