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(54) **Drain with siphon**

Ablauf mit Siphon

Bouche d'égout à siphon

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(73) Proprietor: **Easy Sanitary Solutions B.V.
7575 BK Oldenzaal (NL)**

(72) Inventor: **KEIZERS, Jurgen Hendrik Peter Joseph
7582 GH Losser (NL)**

(74) Representative: **'t Jong, Bastiaan Jacob
Inaday Patent B.V.
Hengelosestraat 141
7521 AA Enschede (NL)**

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Description

[0001] The invention relates to a drain according to claim 1.

[0002] Such a drain is known from EP 1518969. In the case of this drain a vertical outlet pipe as well as a horizontal outlet pipe with pipe bend can be inserted into the outflow opening. In the case of the horizontal outlet pipe the upward inclining bottom ensures that a relatively flat drain with siphon is obtained, while the collecting housing still has a great maximum depth, whereby a relatively high water trap can be obtained.

[0003] The siphon cover is arranged over the upright wall and together with the upright wall and the collecting housing provides for the siphon action. The siphon cover extends here over the upright wall and has downward directed wall parts extending to a position just above the bottom of the collecting housing.

[0004] In this known drain the downward directed wall parts of the siphon cover must connect sealingly to the raised bottom in order to guarantee a full height of the water trap. The theoretical height of the water trap is determined by the lowest point of the underside of the siphon cover and the upper edge of the upright wall around the outflow opening. Practical experience has however shown that the siphon cover does not connect sealingly to the raised bottom, whereby leakage of air occurs and the effective height of the water trap is determined by the highest point of the siphon cover at the raised bottom and the upper edge of the upright wall around the outflow opening. As a result of the air leakage it is possible for unpleasant odours to escape from the sewer via the siphon.

[0005] It is also possible for an overpressure to occur in the sewer. In order to prevent the water in the siphon being pressed out there has to be a minimum height of water. This minimum water height is typically 4 centimetres.

[0006] It is now an object of the invention to reduce or even obviate the above stated drawbacks.

[0007] This object is achieved with a drain according to the preamble which is characterized by an inner cover which is arranged in and at a distance from the siphon cover and which connects to the outflow opening, and wherein a bridge part hanging over the tunnel is arranged between the inner cover and the siphon cover.

[0008] The bridge part hangs over the raised bottom part in which the tunnel is formed. Together with the siphon cover, the bridge part and the inner cover a space is thus formed from which the tunnel or a raised bottom part is separated. This prevents the chance of leakage along the tunnel or the raised bottom part, thereby guaranteeing that the water trap always has the maximum height.

[0009] The invention ensures that the outflow opening, which due to the upright wall debouches high in the collecting housing, forms a connection to the lowest part of the collecting housing.

[0010] The tunnel can either be incorporated into the bottom of the collecting housing or be provided as a tube protruding through the side wall of the housing and debouching in the outflow opening.

[0011] In a preferred embodiment of the drain according to the invention the bridge part comprises an upper wall arranged above the tunnel and side walls directed downward from the upper wall on either side adjacently of the tunnel.

[0012] Such a bridge part provides a siphon cover which is kept separate from the raised bottom part for the tunnel, so that the problem of sealing is no longer an issue.

[0013] In another embodiment of the drain according to the invention the inner cover seals against the upright wall arranged around the outflow opening.

[0014] The seal on the upright wall is easily possible by means of for instance an O-ring. In addition, this also provides the option of removing the entity of siphon cover, bridge part and inner cover in one operation so that the drain can be easily cleaned.

[0015] In a further embodiment of the drain according to the invention the tunnel is arranged in the bottom of the collecting housing for the purpose of receiving an outlet pipe arranged on the outflow opening.

[0016] With this embodiment it is possible to connect a vertical outlet pipe or a horizontal outlet pipe to the outflow opening, wherein the horizontal pipe is received in the tunnel.

[0017] A closable cover can further be provided in the siphon cover in order to allow access to the outflow opening without having to remove the siphon cover.

[0018] The invention further relates to a combination of a drain according to the invention and an outlet pipe, wherein the outlet pipe is inserted into the outflow opening.

[0019] In a preferred embodiment of the combination according to the invention the outlet pipe comprises a pipe bend and pipe parts arranged on either side of the pipe bend, wherein a first pipe part is inserted into the outflow opening and wherein the second pipe part is received in the tunnel.

[0020] Because the second pipe part is received in the tunnel, the overall depth of the drain is no more than the height of the drain itself. This is particularly advantageous when the floor thickness is limited.

[0021] In addition, it is further possible to allow the inner cover to run on into the bottom of the collecting housing.

[0022] These and other features of the invention are further elucidated with reference to the accompanying drawings.

Figure 1 is a perspective cross-sectional view of an embodiment of the drain according to the invention with a vertical outlet pipe.

Figure 2 shows the embodiment according to figure 1 with a horizontal outlet pipe.

Figure 3 is a cross-sectional view along the line III-

III in figure 2.

Figure 4 shows a drain with partially cut-away parts. This drain is not covered by the wording of claim 1 and does therefore not show an embodiment of the present invention.

[0023] Figure 1 is a perspective cross-sectional view of a drain 1 according to the invention. The drain has a collecting housing 2 provided on the upper side with an outward directed horizontal flange 3. This flange 3 is arranged around inflow opening 4 of the collecting housing.

[0024] A height-adjustable grating holder 5 with grating 6 is arranged in inflow opening 4. Grating holder 5 is sealed with an O-ring 7 against collecting housing 2.

[0025] Collecting housing 2 has a bottom with a low bottom part 8 and a high bottom part 9. An outflow opening formed by an upright wall 10 is provided in this bottom 8, 9. Provided in this upright wall 10 is a groove 11 for a seal (not shown) with which an outlet pipe 12 is sealed relative to upright wall 10.

[0026] The high bottom part 9 forms a tunnel 22 (see figure 3) for receiving a horizontal outlet pipe (see figure 2).

[0027] A siphon cover 13 is arranged over upright wall 10. This siphon cover 13 has an upper surface with a downward directed wall 14 which leaves clear a passage 15 at the low bottom part 8 and lies more or less against the high bottom part 9.

[0028] In order to prevent leakage along the high bottom part 9 and siphon cover 13, a bridge part 16 is arranged here on the downward directed wall 14 and hangs over the high bottom part 9. Bridge part 16 connects to an inner cover 17 which is arranged around upright wall 10 and sealed thereagainst by means of O-ring 18.

[0029] Figure 2 shows drain 1 according to figure 1. A horizontal outlet pipe 19 with a pipe bend 20 and a free end 21 is inserted here instead of a vertical outlet pipe 12 into the outflow opening and upright wall 10. Because the high bottom part 9 forms a tunnel 22 in bottom 8, 9 to outflow opening 10, the horizontal part of pipe 19 can be received in this tunnel 22, whereby the height of drain 1 is not affected.

[0030] Figure 3 is a cross-sectional view along the line III-III in figure 2. It will be apparent from this cross-section that bridge part 16 has an upper wall with downward directed side walls 23 extending on either side of tunnel 22.

[0031] Bridge part 16 with the downward directed side walls 23 thus ensures that passage opening 15 is always close to the low bottom part 8 so that a maximum height for a water trap is obtained.

[0032] In this embodiment the water which has flowed via passage opening 15 between siphon cover 13 and inner cover 17 has the option of flowing into outlet pipe 21 from all radial directions. It is however also possible to reduce the distance between siphon cover 13 and inner cover 17 at the position of bridge part 16 such that siphon cover 13 and inner cover 17 lie against each other. There is however still a bridge part 16 here which provides the

transition between inner cover 17 and the siphon cover 13 in the deeper part of collecting housing 2.

[0033] Figure 4 shows a drain 20 not covered by claim 1. In this figure 4 parts are cut away for a better view.

[0034] Drain 20 has a collecting housing with an inflow opening bounded by upper edge of the collecting housing. Running through the collecting housing is an outlet pipe 24 which provides an outflow opening 25 with upright walls in collecting housing.

[0035] A siphon cover 26 is provided over this outflow opening 25. Further arranged on the inner side and at a distance from this siphon cover 26 is an inner cover 27 which, as seen in longitudinal direction of outlet pipe 24, connects on either side via a bridge part to siphon cover 26.

[0036] Siphon cover 26, inner cover 27 and bridge parts provide a passage opening 28 close to the bottom of the collecting housing so that a maximum height for the water trap is obtained.

Claims

1. Drain (1), comprising:

- a collecting housing (2) with an inflow opening (4) on the upper side of the collecting housing (2), an outflow opening (10) and a bottom having a low bottom part (8) and a high bottom part (9), wherein a tunnel (22) is formed by the high bottom part (9) and which tunnel extends to the outflow opening, which outflow opening is provided in the bottom of the collecting housing (2);
- an upright wall (10) forming the outflow opening; and
- a siphon cover (13, 14) arranged over the upright wall (10);

characterized by

an inner cover (17) which is arranged inside the siphon cover (13, 14) and which connects to the upright wall arranged around the outflow opening, and wherein a bridge part (16) hanging over the tunnel (22) is arranged between the inner cover (17) and the siphon cover (13, 14).

2. Drain (1) as claimed in claim 1, wherein the bridge part (16) comprises an upper wall arranged above the tunnel (22) and side walls (23) directed downward from the upper wall on either side adjacently of the tunnel (22).
3. Drain (1) as claimed in claim 1 or 2, wherein the inner cover (17) seals against the upright wall (10) arranged around the outflow opening (10).
4. Drain (1) as claimed in any of the foregoing claims, wherein the tunnel (22) is arranged for the purpose

of receiving an outlet pipe arranged on the outflow opening (10).

5. Combination of a drain (1) as claimed in claims 1-4 and an outlet pipe (12, 19), wherein the outlet pipe is inserted into the outflow opening (10).
6. Combination as claimed in claim 5, wherein the outlet pipe (19) comprises a pipe bend and pipe parts arranged on either side of the pipe bend, wherein a first pipe part is inserted into the outflow opening and wherein the second pipe part is received in the tunnel.

Patentansprüche

1. Ablauf (1), umfassend:

- ein Sammelgehäuse (2) mit einer Zulauföffnung (4) an der oberen Seite des Sammelgehäuses (2), einer Auslauföffnung (10) und einem Boden mit einem tiefen Bodenteil (8) und einem hohen Bodenteil (9), wobei ein Tunnel (22) durch das hohe Bodenteil (9) gebildet ist und welcher Tunnel sich zu der Auslauföffnung erstreckt, welche Auslauföffnung im Boden des Sammelgehäuses (2) bereitgestellt ist;
- eine aufrechte Wand (10), die die Auslauföffnung bildet; und
- eine Siphonabdeckung (13, 14), die über der aufrechten Wand (10) angeordnet ist;

gekennzeichnet durch

eine Innenabdeckung (17), die im Inneren der Siphonabdeckung (13, 14) angeordnet ist und die mit der aufrechten Wand verbunden ist, die um die Auslauföffnung angeordnet ist, und wobei ein Brückenteil (16), das über dem Tunnel (22) hängt, zwischen der Innenabdeckung (17) und der Siphonabdeckung (13, 14) angeordnet ist.

2. Ablauf (1) nach Anspruch 1, wobei das Brückenteil (16) eine obere Wand umfasst, die über dem Tunnel (22) angeordnet ist, und Seitenwände (23), die von der oberen Wand an jeder Seite neben dem Tunnel (22) nach unten gerichtet sind.
3. Ablauf (1) nach Anspruch 1 oder 2, wobei die Innenabdeckung (17) gegen die aufrechte Wand (10) abgedichtet ist, die um die Auslauföffnung (10) angeordnet ist.
4. Ablauf (1) nach einem der vorstehenden Ansprüche, wobei der Tunnel (22) zum Zweck einer Aufnahme eines Auslassrohrs angeordnet ist, das an der Auslauföffnung (10) angeordnet ist.

5. Kombination aus einem Ablauf (1) nach einem der Ansprüche 1-4 und einem Auslassrohr (12, 19), wobei das Auslassrohr in die Auslauföffnung (10) eingesetzt ist.

6. Kombination nach Anspruch 5, wobei das Auslassrohr (19) eine Rohrkrümmung und Rohrteile umfasst, die an jeder Seite der Rohrkrümmung angeordnet sind, wobei ein erstes Rohrteil in die Auslauföffnung eingesetzt ist und wobei das zweite Rohrteil im Tunnel aufgenommen ist.

Revendications

1. Bouche d'égout (1), comprenant :

- un boîtier de collecte (2) avec une ouverture d'arrivée (4) sur le côté supérieur du boîtier de collecte (2), une ouverture de sortie (10) et un fond présentant une partie de fond basse (8) et une partie de fond haute (9), dans lequel un tunnel (22) est formé par la partie de fond haute (9) et lequel tunnel s'étend jusqu'à l'ouverture de sortie, laquelle ouverture de sortie est fournie dans le fond du boîtier de collecte (2) ;
- une paroi verticale (10) formant l'ouverture de sortie ; et
- un couvercle de siphon (13, 14) agencé sur la paroi verticale (10) ;

caractérisée par

un couvercle intérieur (17) qui est agencé à l'intérieur du couvercle de siphon (13, 14) et qui se raccorde à la paroi verticale agencée autour de l'ouverture de sortie, et dans laquelle une partie de pont (16) suspendue au-dessus du tunnel (22) est agencée entre le couvercle intérieur (17) et le couvercle de siphon (13, 14).

2. Bouche d'égout (1) selon la revendication 1, dans laquelle la partie de pont (16) comprend une paroi supérieure agencée au-dessus du tunnel (22) et des parois latérales (23) dirigées vers le bas depuis la paroi supérieure sur chaque côté du tunnel (22) de manière adjacente.
3. Bouche d'égout (1) selon la revendication 1 ou 2, dans laquelle le couvercle intérieur (17) se ferme contre la paroi verticale (10) agencée autour de l'ouverture de sortie (10).
4. Bouche d'égout (1) selon l'une quelconque des revendications précédentes, dans laquelle le tunnel (22) est agencé dans le but de recevoir un tuyau de sortie agencé sur l'ouverture de sortie (10).
5. Combinaison d'une bouche d'égout (1) selon les re-

vendications 1-4 et d'un tuyau de sortie (12, 19), dans laquelle le tuyau de sortie est inséré dans l'ouverture de sortie (10).

6. Combinaison selon la revendication 5, dans laquelle le tuyau de sortie (19) comprend un coude de conduite et des parties de conduite agencées sur chaque côté du coude de conduite, dans laquelle une première partie de conduite est insérée dans l'ouverture de sortie et dans laquelle la seconde partie de conduite est reçue dans le tunnel.

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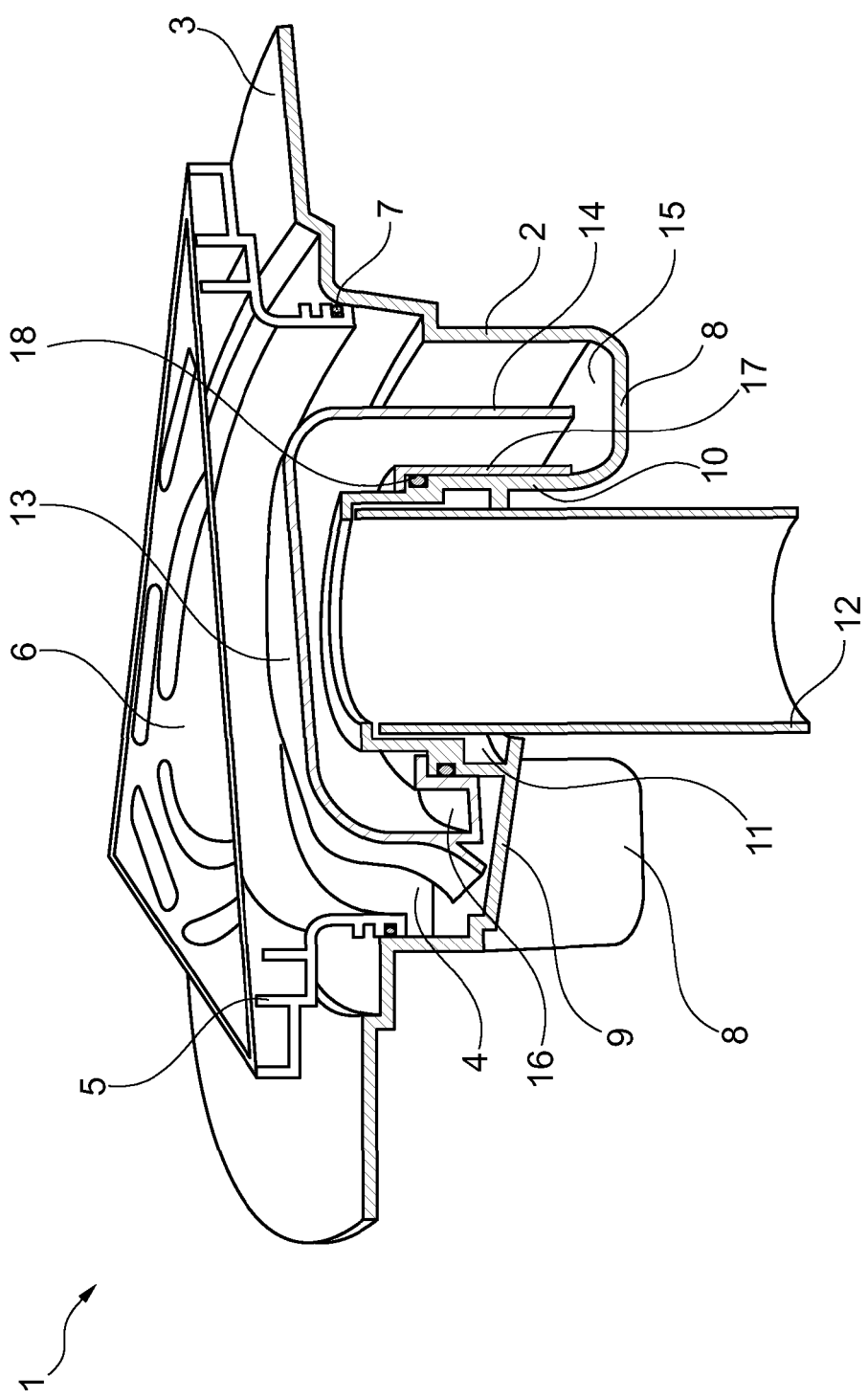


Fig. 1

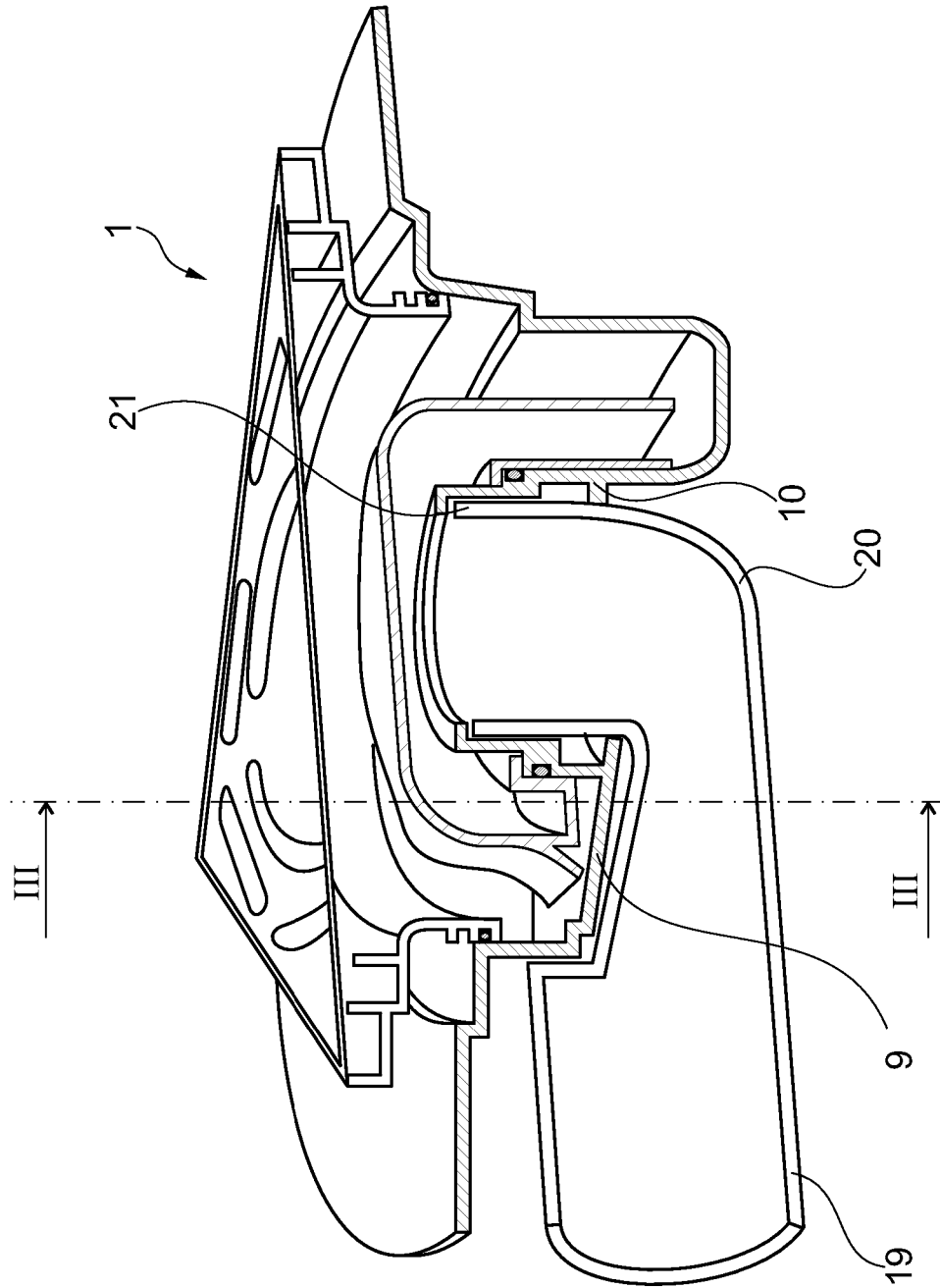


Fig. 2

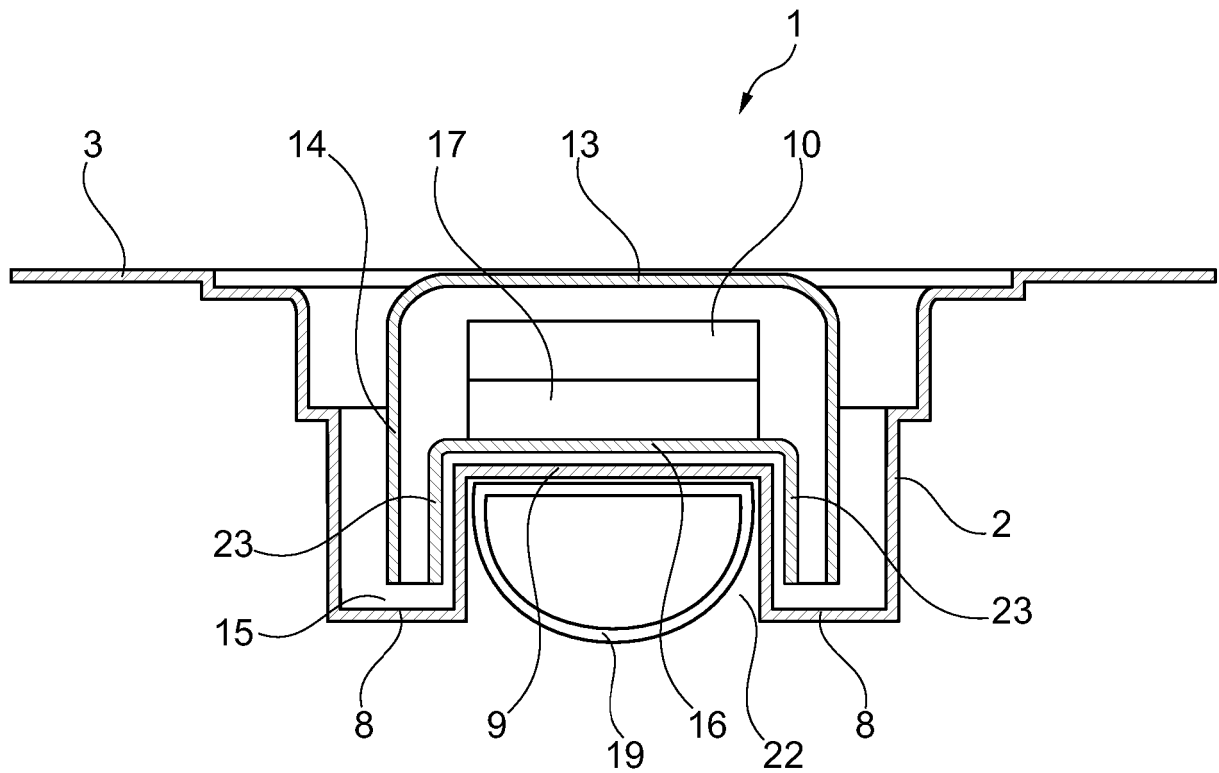


Fig. 3

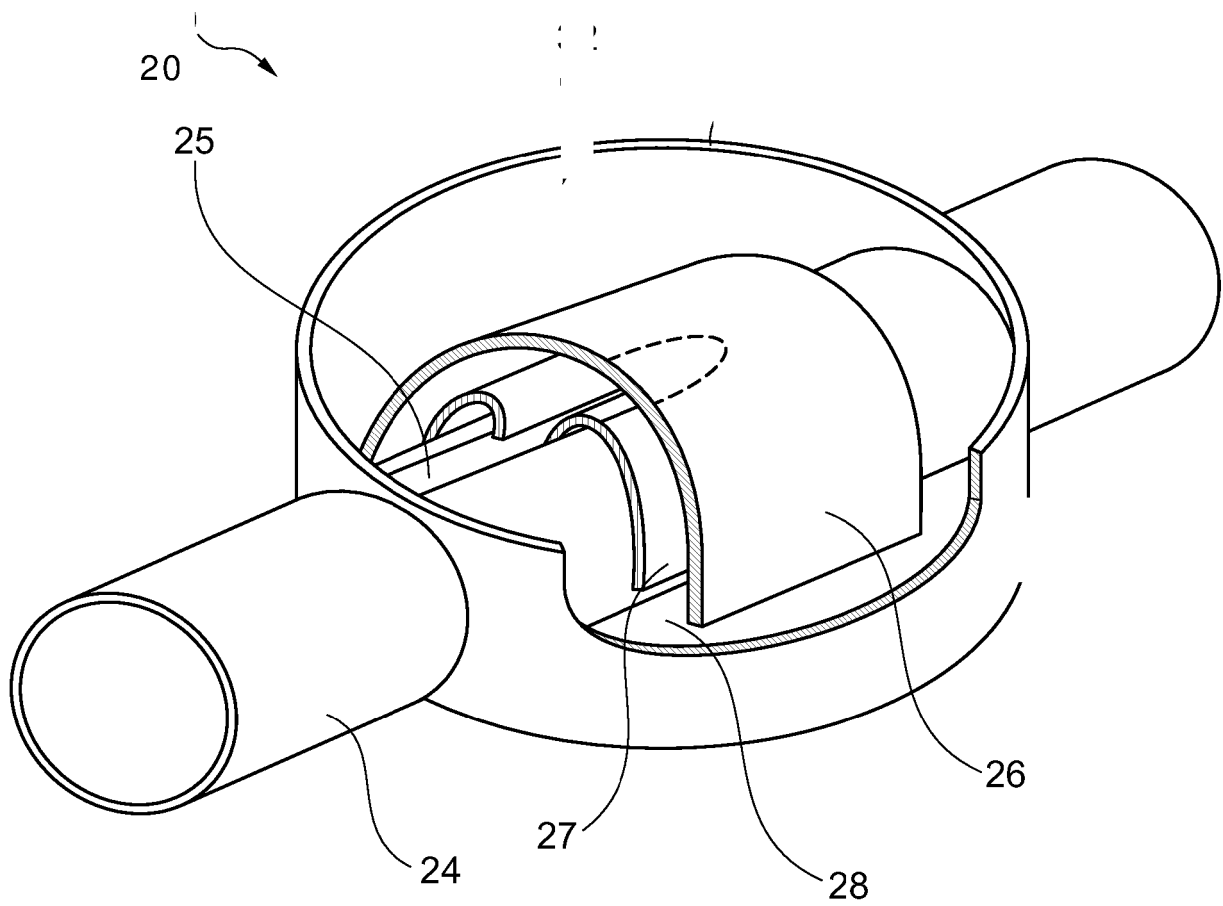


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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