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(54) **Drain with roughened layer**

Bodenablauf mit aufgerauhter Schicht

Bouche d'égout avec couche rugosifiée

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Description

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

[0002] Such a drain in the form of an elongate shower drain is known from the prior art, in particular from GB 1153611. In order to obtain a good seal between the drain and for instance a concrete floor when the shower drain is placed in the concrete floor, it is usual to adhere a sealing membrane to the shower drain. This sealing membrane ensures a water-impermeable layer to which tiles can then be adhered in order to finish the floor.

[0003] The sealing membrane can be arranged during fitting of the drain, although it has also been usual for years for drains to be provided with a factory-supplied sealing membrane adhered to the drain.

[0004] During use the shower drain will be heated by the hot shower water being drained through the shower drain. The shower drain will then cool again to room temperature. As a result of these temperature changes the drain expands and contracts again. Due to this expansion and contraction of the drain forces are exerted on the sealing membrane, whereby it eventually detaches from the concrete floor, with all the consequences this entails.

[0005] In addition, it is recommended to finish the shower floor with drain in a single operation. This means that the adhesive layer for the tiles is already applied while the concrete floor has not yet cured. In such a wet-on-wet process the problem occurs that the membrane does not adhere properly to both wet layers. This results in the danger that, after curing of the concrete floor and adhesive layer, the membrane is not fixed.

[0006] It is an object of the invention to obviate the above stated drawbacks. This object is achieved according to the invention with a drain according to claim 1.

[0007] The adhesion between the different layers, such as concrete floor or adhesive layer, is improved by roughening the surface. Grains are arranged on the roughened surface. These grains preferably have a minimum dimension of 0.3 mm. The roughened surface hereby acquires a texture similar to coarse sandpaper and the adhesion of the elastic layer is considerably improved.

[0008] Now that the layer has an improved adhesion to the surrounding layers, it is of further importance for the layer to be elastic. The forces created by expansion and contraction of the drain will be transmitted via the layer to the surrounding layers, such as the concrete floor. If the layer is not elastic, the layer could begin to tear due to these forces.

[0009] A flange has the advantage that a large adhering surface is provided for the elastic layer. Tapping-in of tiles is on the other hand made more difficult by the flange.

[0010] In a preferred embodiment of the drain according to the invention a second elastic layer is arranged, this second elastic layer being arranged on both the opposite second side of the flange and the first elastic layer.

The adhering surface on the flange is hereby doubled because both the upper side and the underside of the flange are used to attach the layer. As a result the width of the flange can be reduced while retaining sufficient adhering surface for the elastic layer.

[0011] In another preferred embodiment of the drain according to the invention at least one side wall of the tray is at least partially folded and the edge of the elastic layer is clamped fixedly between the folded part. A very good attachment of the elastic layer is obtained due to the clamping.

[0012] In another preferred embodiment of the drain according to the invention the flexible layer is provided with an anchoring element at a distance from the tray. Such an anchoring element is particularly advantageous in the wet-on-wet process. The anchoring element can here be pressed into the still soft concrete mortar, hereby obtaining further certainty that the elastic layer will remain attached to the underlying layer. In addition, an anchoring element further ensures that the drain itself cannot come loose either.

[0013] The anchoring element is preferably a thickened portion. The anchoring element can also be formed by a double-folded part of the elastic layer. In this latter case the double-folded parts are preferably already adhered to each other so that, when the drain is inserted into the concrete floor, the anchoring element requires no further attention.

[0014] In yet another embodiment of the drain according to the invention a third elastic layer is arranged on the first elastic layer, wherein the elasticity of the third layer is greater than the elasticity of the first layer.

[0015] This third elastic layer forms an additional certainty that the layer remains water-impermeable. In the unlikely event the first elastic layer should tear, the third elastic layer will then yield due to the greater elasticity and continue to guarantee the water-impermeability. This third, highly elastic layer can moreover contribute toward an improved sound damping.

[0016] The third layer preferably extends into the attachment zone of the edge of the first layer to the side wall.

[0017] The first layer can optionally be interrupted close to the attachment of the first layer to the side wall of the tray. A defined tear is in fact arranged in the first layer by this interruption. Depending on the movement between the drain and the concrete floor, such a defined tear can be recommended.

[0018] These and other features of the invention are further elucidated with reference to the accompanying figures.

Figure 1 shows a perspective view of a first embodiment of a drain according to the invention.

Figure 2 shows a cross-sectional view of the drain according to figure 1.

Figure 3 shows a cross-sectional view of a second embodiment of a drain according to the invention.

Figure 4 shows a cross-sectional view of a third embodiment of a drain according to the invention.

Figure 5 shows a cross-sectional view of the drain according to figure 1 and figure 2 in the fully fitted situation.

[0019] Figure 1 shows a first embodiment of a drain, such as a shower drain 1 according to the invention. This shower drain 1 has a tray with a bottom surface 2 and upright walls 3. Horizontally extending flanges 4 are formed on these upright walls 3. A discharge opening 5 for discharging collected shower water is further formed in bottom surface 2.

[0020] An elastic layer 6 is attached with an edge to one of the flanges 4. Figure 2 shows the attachment of elastic layer 6 to flange 4 in more detail. Elastic layer 6 is arranged on the upper side of flange 4. This elastic layer 6 is provided on the surface with grains 7 which provide a roughened surface.

[0021] Arranged on the underside of elastic layer 6 is a second elastic layer 8 which is adhered to both flange 4 and elastic layer 6. This second elastic layer 8 is also provided with grains 7.

[0022] An anchoring element 9 is further provided on the underside of elastic layer 6 at a distance from tray 2, 3, 4. This anchoring element 9 is formed from the material of elastic layer 6. Finally, on the underside of tray 2, 3, 4 is arranged a siphon 10 which connects discharge opening 5 to an outlet pipe 11 and also forms a stench trap.

[0023] Figure 3 shows a second embodiment 15 of a shower drain according to the invention. This shower drain 15 has a bottom surface 16 and upright walls 17. Edges 18 of these walls 17 are folded over.

[0024] An elastic layer 19 is clamped between folded edge 18 and upright wall 17. This elastic layer 19 is provided with a roughened layer in that grains 20 are arranged. A part 21 of elastic layer 19 is folded double and thus forms an anchoring element.

[0025] A second elastic layer 22 with a surface roughened by grains 20 is provided on the underside of bottom surface 16. This layer particularly provides tray 16, 17, 18 with an improved adhesion, thereby preventing release of tray 16, 17, 18 from a sub-floor.

[0026] Figure 4 shows a third embodiment 25 of a shower drain according to the invention. This shower drain 25 also has a bottom surface 26 with upright walls 27 and horizontally extending flanges 28. A siphon 29 for connecting to an outlet pipe 30 is further provided under bottom surface 26.

[0027] A first elastic layer 31 is arranged on one flange 28 by means of a second elastic layer 32. A third, more elastic layer 33 is provided between flange 28, first layer 31 and second layer 32. This third, more elastic layer 33 takes up the movement between shower drain 25 and a sub-floor during expansion and contraction of shower drain 25.

[0028] Finally, figure 5 shows shower drain 1 in fitted situation. Tray 2, 3, 4 is here cast into a concrete floor

35. Grains 7 on elastic layers 6, 8 provide for a good adhesion between these layers and concrete floor 35. In addition, anchoring element 9 is cast into concrete floor 35 and, due to the thereby created form-fitting connection, elastic layer 6 is adhered reliably and watertightly to concrete floor 35.

[0029] A tile floor 36 is subsequently arranged on elastic layer 6. For neat finishing of tiled floor 36 a tile frame 37, which conceals the sides of tiles 36 from view, is placed in shower drain 1. A grating 38 is further placed in tile frame 37 such that the upper surface of tile frame 37, the upper surface of grating 38 and the upper surface of tile floor 36 lie in one plane.

Claims

1. Drain (1; 15; 25), comprising a tray with a bottom surface (2; 16; 26) and upright side walls (3; 17; 27), wherein at least an edge of a layer (6; 19; 31) is arranged on either a side wall (17) of the tray or to one of the flanges (4; 28) formed on the upright side walls (3; 27) of the tray and wherein the layer (6; 19; 31) is elastic, **characterized in that** at least one surface of the elastic layer (6; 19; 31) is roughened by grains (7; 20) arranged to the at least one surface of the elastic layer (6; 19; 31).
2. Drain (1; 15; 25) as claimed in claim 1, wherein the grains (7; 20) have a minimum dimension of 0.3 mm.
3. Drain (1; 25) as claimed in claim 1, wherein a second elastic layer (8; 32) is arranged, this second elastic layer (8; 32) being arranged on both the opposite second side of the flange (4; 28) and the first elastic layer (6; 31).
4. Drain (15) as claimed in any of the claims 1 or 2, wherein at least one side wall (17) of the tray is at least partially folded and wherein the edge of the elastic layer (19) is clamped fixedly between the folded part (17, 18).
5. Drain (1; 15) as claimed in any of the foregoing claims, wherein the flexible layer (6; 19) is provided with an anchoring element (9; 21) at a distance from the tray.
6. Drain (1) as claimed in claim 5, wherein the anchoring element (9) is a thickened portion.
7. Drain (15) as claimed in claim 5, wherein the anchoring element (21) is formed by a double-folded part of the elastic layer (19).
8. Drain (25) as claimed in any of the foregoing claims, wherein a third elastic layer (33) is arranged on the first elastic layer (31), wherein the elasticity of the

third layer (33) is greater than the elasticity of the first layer (31).

9. Drain (25) as claimed in claim 8, wherein the third layer (33) extends into the attachment zone of the edge of the first layer (31) to the side wall (28).
10. Drain (25) as claimed in claim 9, wherein the first layer (31) is interrupted close to the attachment of the first layer (31) to the side wall (28) of the tray.

Patentansprüche

1. Abfluss (1; 15; 25), umfassend einen Einsatz mit einer unteren Fläche (2; 16; 26) und aufrechten Seitenwänden (3; 17; 27), wobei mindestens eine Kante einer Schicht (6; 19; 31) entweder auf einer Seitenwand (17) des Einsatzes oder an einem der Flansche (4; 28) angeordnet ist, die auf den aufrechten Seitenwänden (3; 27) des Einsatzes gebildet sind, und wobei die Schicht (6; 19; 31) elastisch ist, **dadurch gekennzeichnet, dass** mindestens eine Fläche der elastischen Schicht (6; 19; 31) durch Körner (7; 20) aufgeraut ist, die an der mindestens einen Fläche der elastischen Schicht (6; 19; 31) angeordnet sind.
2. Abfluss (1; 15; 25) nach Anspruch 1, wobei die Körner (7; 20) eine minimale Abmessung von 0,3 mm aufweisen.
3. Abfluss (1; 25) nach Anspruch 1, wobei eine zweite elastische Schicht (8; 32) angeordnet ist, wobei die zweite elastische Schicht (8; 32) sowohl auf der gegenüberliegenden zweiten Seite des Flansches (4; 28) als auch auf der ersten elastischen Schicht (6; 31) angeordnet ist.
4. Abfluss (15) nach einem der Ansprüche 1 oder 2, wobei mindestens eine Seitenwand (17) des Einsatzes mindestens teilweise abgekantet ist, und wobei die Kante der elastischen Schicht (19) fest zwischen dem abgekanteten Teil (17, 18) eingespannt ist.
5. Abfluss (1; 15) nach einem der vorigen Ansprüche, wobei die flexible Schicht (6; 19) mit einem Verankerungselement (9; 21) in einem Abstand zu dem Einsatz bereitgestellt wird.
6. Abfluss (1) nach Anspruch 5, wobei das Verankerungselement (9) ein verdickter Abschnitt ist.
7. Abfluss (15) nach Anspruch 5, wobei das Verankerungselement (21) durch einen doppelt gefalteten Teil der elastischen Schicht (19) gebildet wird.
8. Abfluss (25) nach einem der vorigen Ansprüche, wo-

bei eine dritte elastische Schicht (33) auf der ersten elastischen Schicht (31) angeordnet ist, wobei die Elastizität der dritten Schicht (33) höher ist als die Elastizität der ersten Schicht (31).

9. Abfluss (25) nach Anspruch 8, wobei die dritte Schicht (33) sich in den Befestigungsbereich der Kante der ersten Schicht (31) an der Seitenwand (28) erstreckt.
10. Abfluss (25) nach Anspruch 9, wobei die erste Schicht (31) in der Nähe der Befestigung der ersten Schicht (31) an der Seitenwand (28) des Einsatzes unterbrochen ist.

Revendications

1. Bouche d'égout (1 ; 15 ; 25), comprenant un plateau avec une surface inférieure (2 ; 16 ; 26) et des parois latérales verticales (3 ; 17 ; 27), dans laquelle au moins un bord d'une couche (6 ; 19 ; 31) est agencée sur une paroi latérale (17) du plateau ou sur une des brides (4 ; 28) formées sur les parois latérales verticales (3 ; 27) du plateau et dans laquelle la couche (6 ; 19 ; 31) est élastique, **caractérisée en ce qu'**au moins une surface de la couche élastique (6 ; 19 ; 31) est rendue rugueuse par des grains (7 ; 20) agencés sur la au moins une surface de la couche élastique (6 ; 19 ; 31).
2. Bouche d'égout (1 ; 15 ; 25) selon la revendication 1, dans laquelle les grains (7 ; 20) ont une dimension minimale de 0,3 mm.
3. Bouche d'égout (1 ; 25) selon la revendication 1, dans laquelle une deuxième couche élastique (8 ; 32) est aménagée, cette deuxième couche élastique (8 ; 32) étant aménagée sur à la fois le second côté opposé de la bride (4 ; 28) et la première couche élastique (6 ; 31).
4. Bouche d'égout (15) selon l'une quelconque des revendications 1 ou 2, dans laquelle au moins une paroi latérale (17) du plateau est au moins partiellement repliée et dans laquelle le bord de la couche élastique (19) est assemblé de manière fixe entre les parties repliées (17, 18).
5. Bouche d'égout (1 ; 15) selon l'une quelconque des revendications précédentes, dans laquelle la couche souple (6 ; 19) est pourvue d'un élément d'ancrage (9 ; 21) à une certaine distance du plateau.
6. Bouche d'égout (1) selon la revendication 5, dans laquelle l'élément d'ancrage (9) est une partie épaisse.

7. Bouche d'égout (15) selon la revendication 5, dans laquelle l'élément d'ancrage (21) est formé par une partie à double repli de la couche élastique (19).
8. Bouche d'égout (25) selon l'une quelconque des revendications précédentes, dans laquelle une troisième couche élastique (33) est agencée sur la première couche élastique (31), dans laquelle l'élasticité de la troisième couche (33) est supérieure à l'élasticité de la première couche (31). 5 10
9. Bouche d'égout (25) selon la revendication 8, dans laquelle la troisième couche (33) s'étend dans la zone de fixation du bord de la première couche (31) à la paroi latérale (28). 15
10. Bouche d'égout (25) selon la revendication 9, dans laquelle la première couche (31) est interrompue à proximité de la fixation de la première couche (31) à la paroi latérale (28) du plateau. 20

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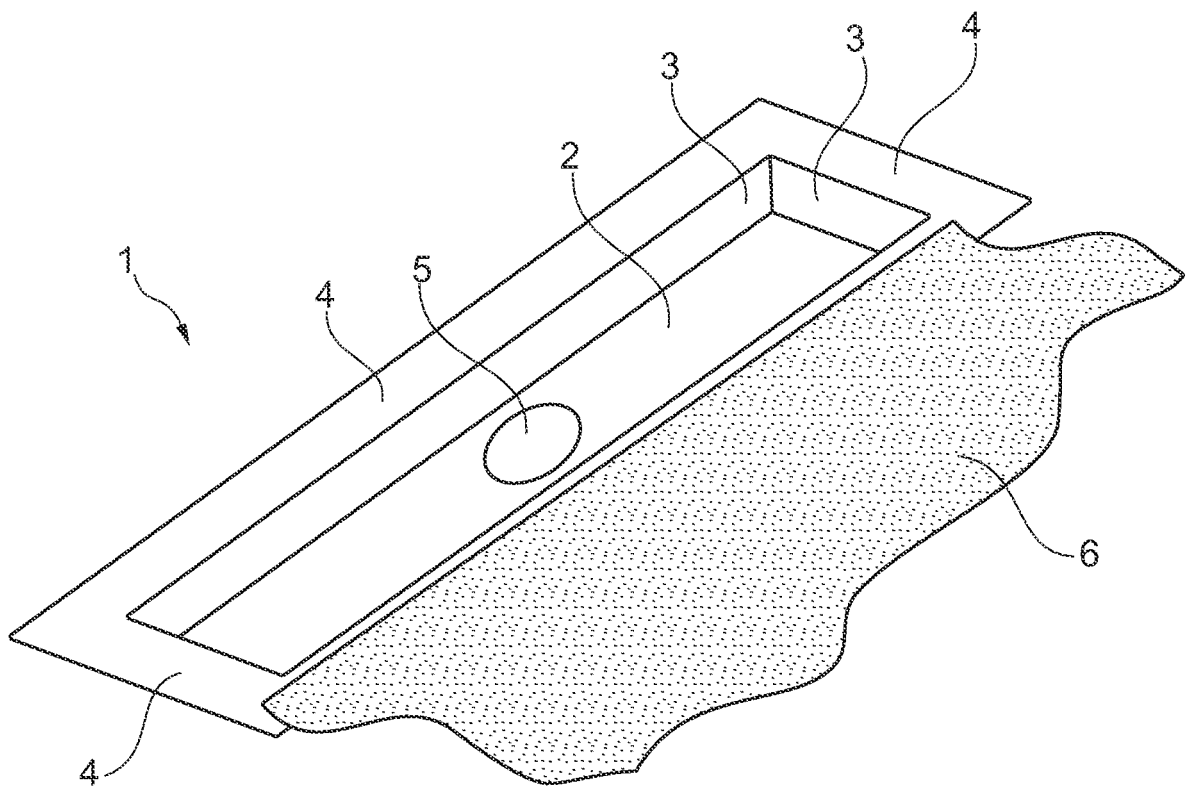


Fig. 1

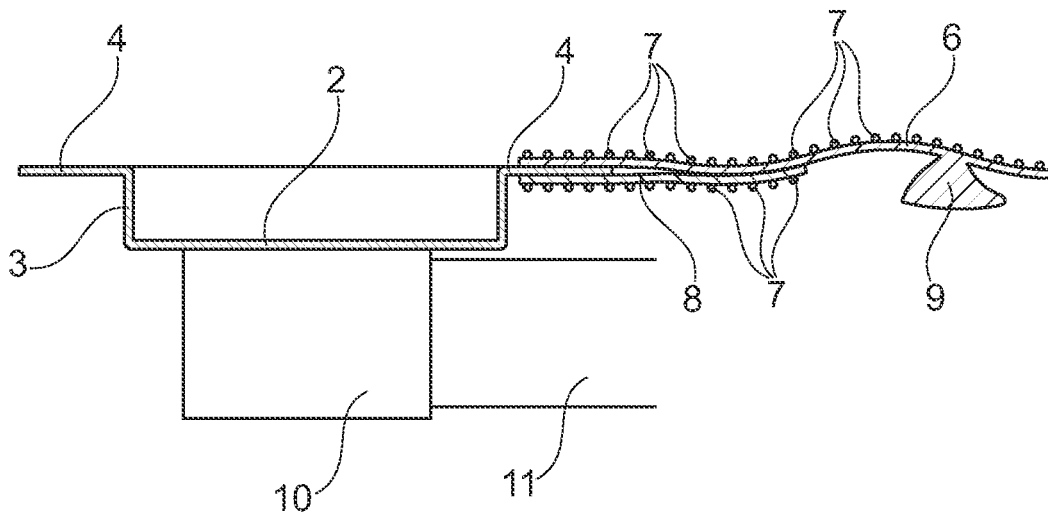


Fig. 2

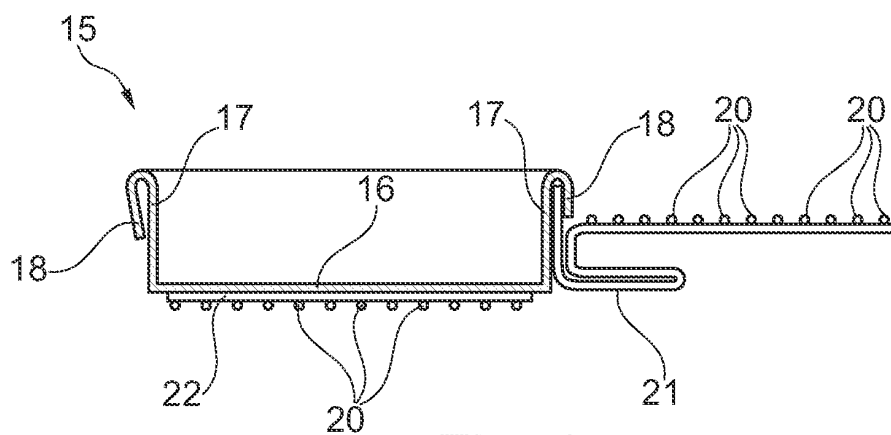


Fig. 3

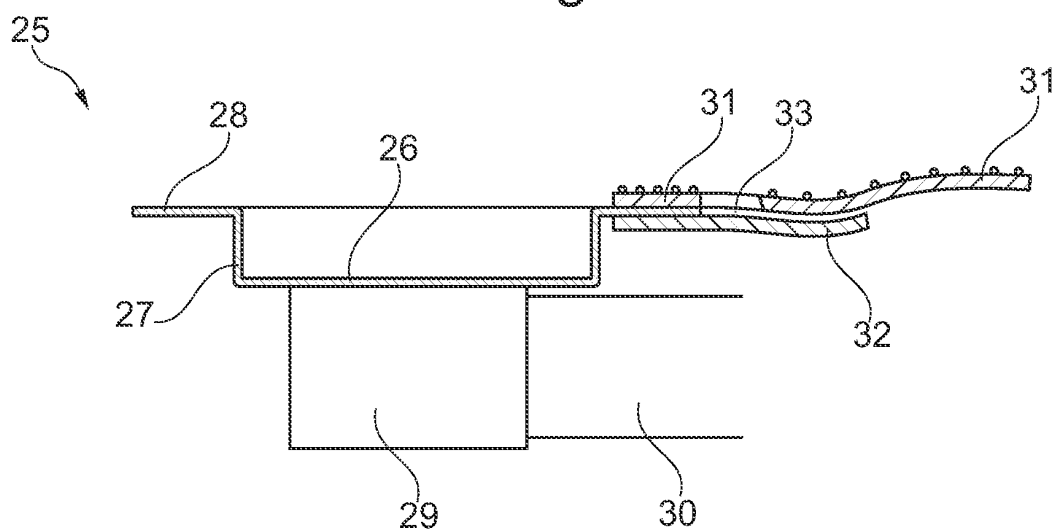


Fig. 4

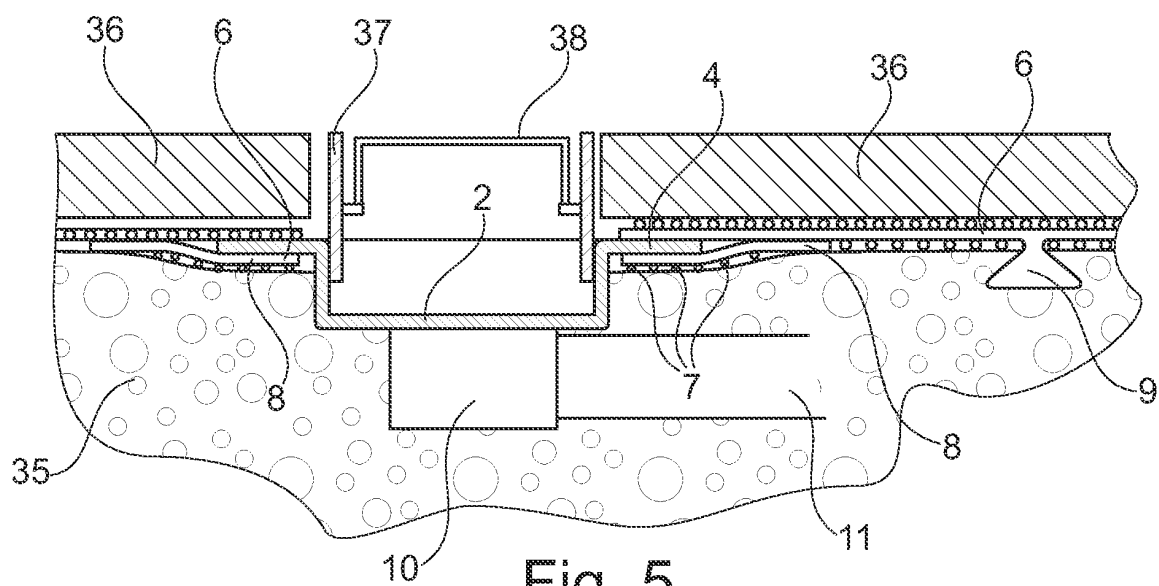


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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