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(54) **Showerdrain with insert**

(57) The invention relates to a shower drain, comprising:
- a lower tray with a bottom surface and standing side walls along the edges of the bottom surface; and
- an outlet opening arranged in the lower tray;
- an insert with an upper surface, wherein the insert is arranged on the bottom wall, the upper surface of the insert lies substantially flush with the upper edge of the side walls, and wherein an inflow opening is defined by at least a part of the insert.

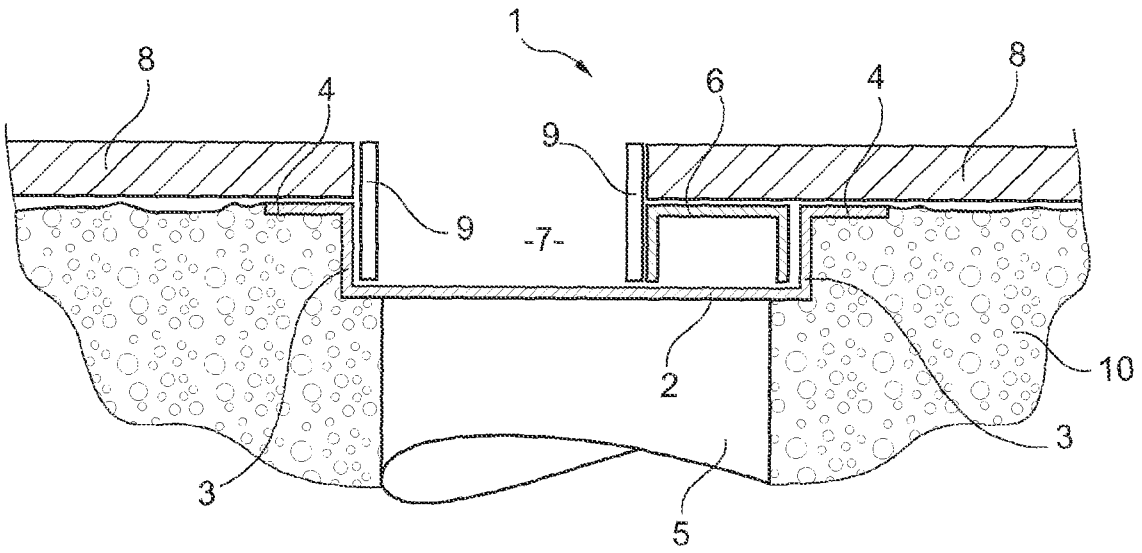

Fig. 1

EP 2 405 062 A1

Description

[0001] The invention relates to a shower drain, comprising:

- a lower tray with a bottom surface and standing side walls along the edges of the bottom surface; and
- an outlet opening arranged in the lower tray.

[0002] Such a shower drain has been known for some years. The lower tray is usually placed in a sub-floor, for instance by being cast in concrete, or is placed in covering floors, such as for instance sand cement. In the lower tray an outlet opening is then further provided which is connected to an outlet pipe, normally via a siphon or stench trap.

[0003] A finishing layer is subsequently arranged over the sub-floor. This is often a tile layer, but can also be a cement layer, wood layer, moulding resin layer such as epoxy, vinyl layer, etc.

[0004] The first known shower drains had a relatively large width, wherein a grating was placed in the lower tray to cover the large inflow opening. Over a period of years the width of the shower drains has been reduced to even a very narrow inflow opening.

[0005] Since a shower drain is available in different widths, it will be necessary for the manufacturer to produce and stock different types of lower tray. This necessarily entails costs.

[0006] In addition, the design of prior art shower drains is limited mainly to rectangular shapes. Manufacturing a lower tray of differing form is costly.

[0007] When a shower space or sanitary space is renovated, it may be that a shower drain has already been arranged. This will have a relatively large width however, and this is undesirable nowadays. The old shower drain will therefore have to be removed from the floor, which will necessarily often involve demolition work. A new, narrower lower tray can then be arranged in the formed hole.

[0008] It is now an object of the invention to reduce or even obviate the above stated drawbacks.

[0009] This object is achieved according to the invention with a shower drain according to the preamble, which is characterized by:

- an insert with an upper surface, wherein an inflow opening is defined by at least a part of the insert.

[0010] The insert fills a part of the lower tray, whereby the inflow opening, which is normally formed by the upper edges of the side walls of the lower tray, is narrowed. The finishing layer can be arranged over the insert, whereby the exterior of the shower drain appears narrow while the lower tray is wider. The water capacity of the lower tray is hereby maintained despite the narrowing.

[0011] A universal lower tray is in addition provided by the shower drain according to the invention, while the exterior appearance, which is formed substantially by the inflow opening, can be chosen as desired. This is because the insert can take any desired form without the water-tightness being adversely affected. The water-tightness is guaranteed by the universal lower tray in which the insert is arranged.

[0012] The insert narrows the original inflow opening, whereby the surface area is reduced. If water remains behind in the lower tray, for instance at the position of the siphon, the surface along which water can evaporate is likewise reduced due to the narrowing. In addition, the insert provides for a closed buffer space in which water can be stored.

[0013] For the manufacture of shower drains it is possible to opt for only one width of the lower tray while different inserts are provided in order to realize a desired visible inflow opening. The advantage of a lower tray in only one width is that the quality standards can be optimized. One of the quality standards is the water-tightness of the lower tray. When only one width is manufactured, the machines need not be reset repeatedly, as when a number of different widths are being manufactured.

[0014] Because an insert lies in the lower tray, it can be manufactured with lower quality standards, or at least in respect of water-tightness. In addition, the length of an insert can easily be shortened.

[0015] For the purpose of storage at the manufacturer or wholesaler it is also advantageous that, with a limited number of lower trays, a large number of different shower drains can be held in stock.

[0016] With a shower drain according to the invention it is further possible to easily narrow an old, wide shower drain without having to break the lower tray out of the floor. This is particularly advantageous during renovation of old shower spaces. It is usual here to arrange a new finishing layer over the old finishing layer. The insert then forms a support for the new finishing layer, which runs over the upper surface of the insert.

[0017] It is also possible with the shower drain according to the invention to adapt the form of the inflow opening with a suitable insert. In this way a square drain can for instance be converted to a round drain.

[0018] The insert can be supplied separately together with a lower tray, or the insert can be fixed in the lower tray at the factory. When it is supplied separately, it is still possible during installation to opt for a secondary drainage, wherein leakage water can still run under the tile between the insert and the wall of the lower tray and into the lower tray.

[0019] The insert is preferably arranged on the bottom wall. The insert hereby supports on the floor and possible bending of the insert is prevented as far as possible.

[0020] In an embodiment according to the invention the insert lies close to or lies against a standing side wall and extends along substantially the length of this side wall. Particularly in the case of a rectangular form of the shower drain the width of the lower tray can easily be narrowed with this embodiment.

[0021] In another embodiment the inflow opening is

defined by a number of upper edges of the standing side walls and at least one edge of the insert.

[0022] In yet another embodiment of the shower drain according to the invention the insert is height-adjustable. The upper surface of the insert can hereby be set to the same height as the surrounding floor, so that a finishing layer can subsequently be arranged over the surrounding floor and the insert.

[0023] In a preferred embodiment of the shower drain according to the invention the upper surface of the insert lies substantially flush with the upper edge of the side walls. This embodiment is particularly suitable for a new installation. The new finishing layer, such as tiles, is then arranged over the upper edge and on the upper surface.

[0024] A horizontal flange can further be arranged along the upper edge of the side walls. A sealing membrane can for instance be easily arranged on this horizontal flange. This membrane provides for a watertight connection of the lower tray to the floor, wherein the membrane normally runs under a finishing layer such as a tile layer.

[0025] A preferred embodiment of the shower drain according to the invention comprises a frame arranged in the inflow opening, wherein the upper edge of the frame protrudes above the upper edge of the side walls and the upper surface of the insert. This frame protrudes above the upper surface and thereby forms a finish for the side of the finishing layer. It further provides for a protection of the side of the finishing layer, so that this cannot be damaged or form a sharp edge, for instance for feet.

[0026] This frame is preferably height-adjustable, so that it can be easily adapted to the thickness of the finishing layer.

[0027] A grating arranged in the inflow opening can further be provided in the shower drain according to the invention.

[0028] In another preferred embodiment of the shower drain according to the invention an edge of the upper surface of the insert comprises a standing flange. This flange can provide finish and protection for the side of the finishing layer.

[0029] In a highly preferred embodiment of the shower drain according to the invention the insert comprises a removable part for the purpose of gaining access to the outlet opening. When the inflow opening of the lower tray is made very narrow, it is often difficult or impossible to gain access to the outlet opening, for instance to unblock the outlet or clean a siphon. In the invention the lower tray is of a usual width, whereby an outlet and siphon of usual dimensions can be provided. Removing the removable part from the insert now creates sufficient space to gain easy access to the outlet opening.

[0030] The invention further comprises a combination of a shower drain according to the invention and a finishing layer, such as a tile layer, wherein the finishing layer extends over the upper surface of the insert. Because the finishing layer extends over the upper surface of the insert, a part of the shower drain is concealed from view and the shower drain appears narrower. In addition, the insert forms a strong substrate for the finishing layer since the insert is arranged on the bottom wall of the lower tray.

[0031] Although the invention is particularly suitable for varying the width of the inflow opening, the same principle can also be applied to vary the length of the lower tray, which can for instance be advantageous if a second tile layer is arranged on the wall, or if a new shower door of a different width is arranged above the shower drain. The length of the shower drain can in this way also be adjusted to a multiple of the tile width of a surrounding tile floor.

[0032] These and other features of the invention are further elucidated with reference to the accompanying drawings.

Figure 1 is a cross-sectional view of a first embodiment of the invention.
Figure 2 is a cross-sectional view of a second embodiment of the invention.
Figure 3 is a cross-sectional view of a third embodiment of the invention.
Figure 4 is a cross-sectional view of a fourth embodiment of the invention.
Figure 5 is a perspective view of a fifth embodiment of the invention.
Figure 6 shows a sixth embodiment of the invention.
Figure 7 shows a seventh embodiment of the invention.
Figure 8 shows a eighth embodiment of the invention.
Figure 9 shows a ninth embodiment of the invention.
Figure 10 shows a tenth embodiment of the invention.

[0033] Figure 1 shows a shower drain 1 according to the invention.
This shower drain 1 has a lower tray with a bottom surface 2 and standing walls 3 along the edges of bottom surface 2. A horizontal flange 4 is arranged on the upper edge of standing walls 3. Arranged in lower tray 2, 3, 4 is an outlet opening to which an outlet pipe 5 is connected.

[0034] An insert 6 is placed in lower tray 2, 3, 4. This insert 6 has a U-shaped cross-section and the upper surface of insert 6 lies flush with horizontal flanges 4.

[0035] Walls 3 and insert 6 define inflow opening 7, in which a frame 9 is arranged. This frame 8 is preferably height-adjustable.

[0036] Lower tray 2, 3, 4 is cast into sub-floor 10. Tiles 8 are arranged over this sub-floor 9, horizontal flanges 4 and insert 6. The sides of tiles 8 are finished with frame 9. When this frame 9 is height-adjustable, the thickness of tiles 8 can easily be taken into account.

[0037] Figure 2 shows a second embodiment 20 of the invention. The same lower tray 2, 3, 4 is shown in this embodiment 20. Arranged in lower tray 2, 3, 4 are two inserts 21, 22 which each lie with the respective upper surface 23, 24 flush with horizontal flanges 4.

[0038] Using the two inserts 21, 22 the inflow opening 25 can be positioned relative to lower tray 2, 3, 4, for instance in the middle. It is also possible to arrange the inflow opening 25 asymmetrically.

[0039] Arranged once again in inflow opening 25 is a frame 26 which finishes and protects the sides of tiles 27.

[0040] Openings are arranged in the underside of inserts 21, 22 and frame 26 so that the water can also flow under inserts 21, 22. The capacity of lower tray 2, 3, 4 is hereby maintained.

[0041] Figure 3 shows a third embodiment 30 of the invention. The same lower tray 2, 3, 4 is also shown here. Placed in lower tray 2, 3, 4 is an insert 31 having standing walls 32, an upper surface 33 and a standing flange 34. Standing flange 34 is connected with a curved part to upper surface 33, thereby creating a cavity 35. When tiles 36 have been arranged over horizontal flanges 4 and upper surface 33, a seal can be arranged in this cavity 35.

[0042] A grating 38 is placed in the inflow opening 37 which is formed by standing flanges 34 of insert 31.

[0043] Figure 4 is a cross-sectional view of a fourth embodiment 40 according to the invention. This shower drain 40 is suitable for placing against a wall 41. The lower tray of shower drain 40 is provided with a bottom surface 42, a standing wall 43 which lies against wall 41, and a lower standing wall 44. A horizontal flange 45 is arranged on the upper edge of standing wall 44. Further provided in upper surface 42 is an outlet opening which connects to an outlet pipe 46.

[0044] An insert 47 is placed in lower tray 42, 43, 44, 45. This insert 47 has a U-shaped cross-section. A finishing layer 48 is arranged over the upper surface of insert 47 and horizontal flange 45.

[0045] A frame 50 is placed in the inflow opening 49 formed by standing wall 43 and insert 47. This frame 50 finishes the finishing layer 48 on one side. Frame 50 has on the other side a horizontal flange 51 on which wall tiles 42 can support.

[0046] Figure 5 shows a perspective view of a shower drain 60 according to the invention. The same lower tray 2, 3, 4 is once again shown here.

[0047] An insert 61 is placed in lower tray 2, 3, 4. This insert 61 has an upper surface 62 and side walls 63 depending from upper surface 62. Arranged on the underside of the side walls are openings 64 for allowing water under insert 61.

[0048] Lower tray 2, 3, 4 is provided with an outlet opening to which an outlet pipe 65 connects. At the position of this outlet opening and outlet pipe 65 a removable part 66 is arranged in the upper surface 62, so that easy access can be gained to the outlet opening and outlet pipe 65.

[0049] When a finishing layer is arranged in this embodiment 60 on upper surface 62 of insert 61, provision must then be made in the finishing layer for removable part 66, so that removable part 66 can also be removed with the finishing layer.

[0050] Figure 6 shows a sixth embodiment 70 according to the invention. This embodiment 70 has a lower tray with a bottom wall 71 and standing walls 72. An outlet pipe 73 is connected to a standing wall 72.

[0051] An insert 74 is placed in lower tray 71, 72. This insert 74 has a stepped upper surface 75, 76. A wall tile 77 is placed on the higher part 75. The lower part 76 of the upper surface forms a closure for lower tray 71, 72, so that the appearance of a shallow shower drain is obtained in which there is normally no water. In addition, this closure by part 76 ensures that the water in lower tray 71, 72 evaporates less quickly.

[0052] Figure 7 shows a seventh embodiment 80 according to the invention. This embodiment 80 also has a lower tray with a bottom surface 81, standing walls 82 and horizontal flanges 83. Lying on flanges 83 is an old finishing layer 84.

[0053] For renovation of such a wide shower drain, inserts 85 are placed in lower tray 81, 82, 83 which are height-adjustable by means of adjusting feet 86, so that the upper surface of inserts 85 can be set flush with the upper surface of the old finishing layer 84.

[0054] A new finishing layer 87 is then arranged on the old finishing layer 84 and inserts 85. Finally placed in the newly formed inflow opening is a grating 88 which can be adjusted in height with an adjusting foot 89 in order to set the upper surface of grating 88 flush with the upper surface of finishing layer 87.

[0055] Figure 8 shows an eighth embodiment 90 according to the invention. Shown in this figure is a lower tray 90 suitable for arranging against a wall. This lower tray has a bottom surface 91, a stepped wall flange 92 and a standing wall 93 with horizontal flange 94.

[0056] Old wall tiles 95 are arranged against wall flange 92 and old floor tiles 96 are arranged on horizontal flange 94.

[0057] An insert 97 having a C-shaped cross-section is subsequently placed on bottom surface 91. Wall tiles 99 and floor tiles 100 can then be placed on upper flanges 98, whereby the resulting inflow opening 101 is narrower than the original inflow opening.

[0058] Figure 9 shows a perspective view of a ninth embodiment 110 according to the invention.

[0059] In this embodiment the lower tray is a square drain 111 with an outlet opening 112. In order to modify the shape of drain 111 an insert 113 is placed in lower tray 111. This insert 113 has a square shape with an H-shaped inflow opening 114 formed therein. A new tile 115, in which an H-shaped opening 116 is arranged, can then be arranged over insert 113. Flange 114 here forms a finish for opening 116 in tile 115.

[0060] With this embodiment 110 a square drain is transformed to an H-shaped inflow opening, and the appearance of the drain is thus modified.

[0061] Figure 10 shows a tenth embodiment 120 of the invention.

[0062] Shower drain 120 has a lower tray with bottom wall 121, standing walls 122 and horizontal flanges 123

arranged thereon. An insert 124 is placed at the transition between standing walls 122 and horizontal flanges 123. This insert 124 has a horizontal part 125 which reduces the inflow opening in size. In addition, insert 124 has a downward oriented centring flange 126 with which insert 124 can be positioned in centred manner in lower tray 121, 122, 123.

[0063] Insert 124 further has a standing flange 127 for bounding the narrowed inflow opening and as finish for tiles 128.

Claims

1. Shower drain, comprising:

   - a lower tray with a bottom surface and standing side walls along the edges of the bottom surface; and
   - an outlet opening arranged in the lower tray;

   characterized by

   - an insert with an upper surface, wherein an inflow opening is defined by at least a part of the insert.

2. Shower drain as claimed in claim 1, wherein the insert is arranged on the bottom wall.

3. Shower drain as claimed in claim 1 or 2, wherein the insert lies close to or lies against a standing side wall and extends along substantially the length of this side wall.

4. Shower drain as claimed in any of the foregoing claims, wherein the inflow opening is defined by a number of upper edges of the standing side walls and at least one edge of the insert.

5. Shower drain as claimed in any of the foregoing claims, wherein the insert is height-adjustable.

6. Shower drain as claimed in any of the foregoing claims, wherein the upper surface of the insert lies substantially flush with the upper edge of the side walls.

7. Shower drain as claimed in any of the foregoing claims, wherein a horizontal flange is arranged along the upper edge of the side walls.

8. Shower drain as claimed in any of the foregoing claims, comprising a frame arranged in the inflow opening, wherein the upper edge of the frame protrudes above the upper edge of the side walls and the upper surface of the insert.

9. Shower drain as claimed in any of the foregoing claims, comprising a grating arranged in the inflow opening.

10. Shower drain as claimed in any of the foregoing claims, wherein an edge of the upper surface of the insert comprises a standing flange.

11. Shower drain as claimed in any of the foregoing claims, wherein the insert comprises a removable part for the purpose of gaining access to the outlet opening.

12. Combination of a shower drain as claimed in any of the foregoing claims and a finishing layer, such as a tile layer, wherein the finishing layer extends over the upper surface of the insert.

13. Combination as claimed in claim 12, wherein the upper surface of the insert extends as far as the lower surface of the finishing layer.

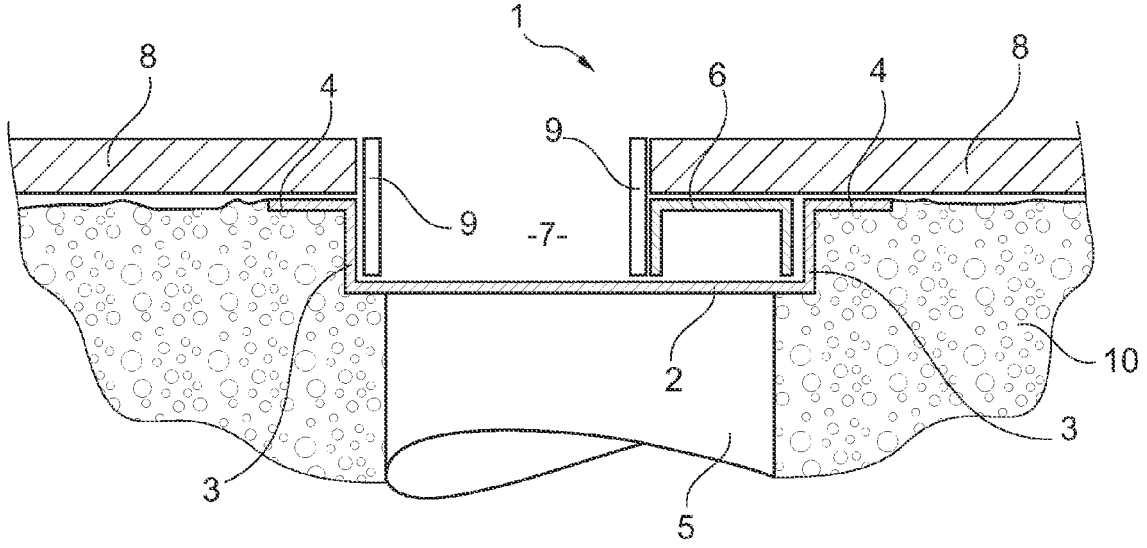

Fig. 1

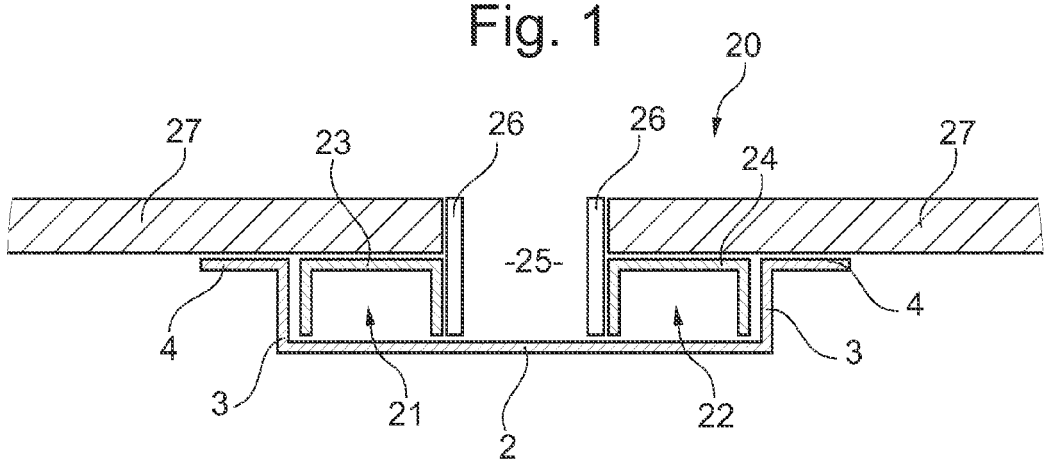

Fig. 2

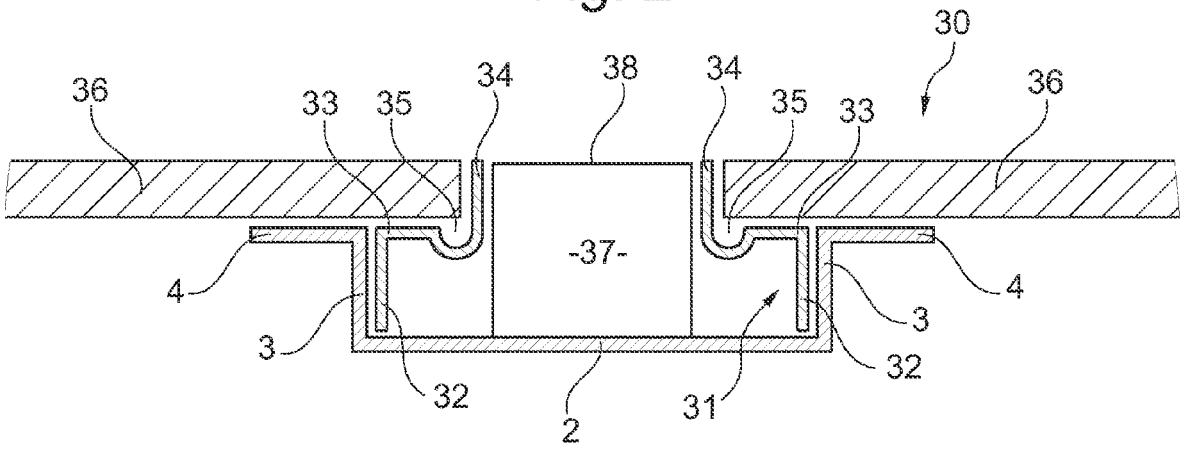

Fig. 3

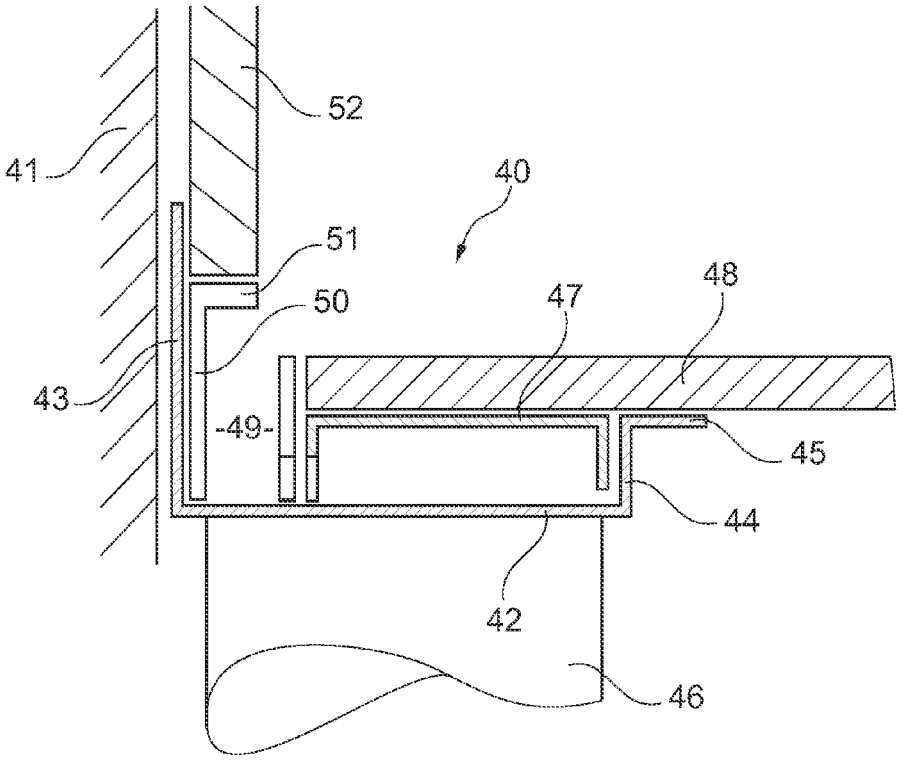

Fig. 4

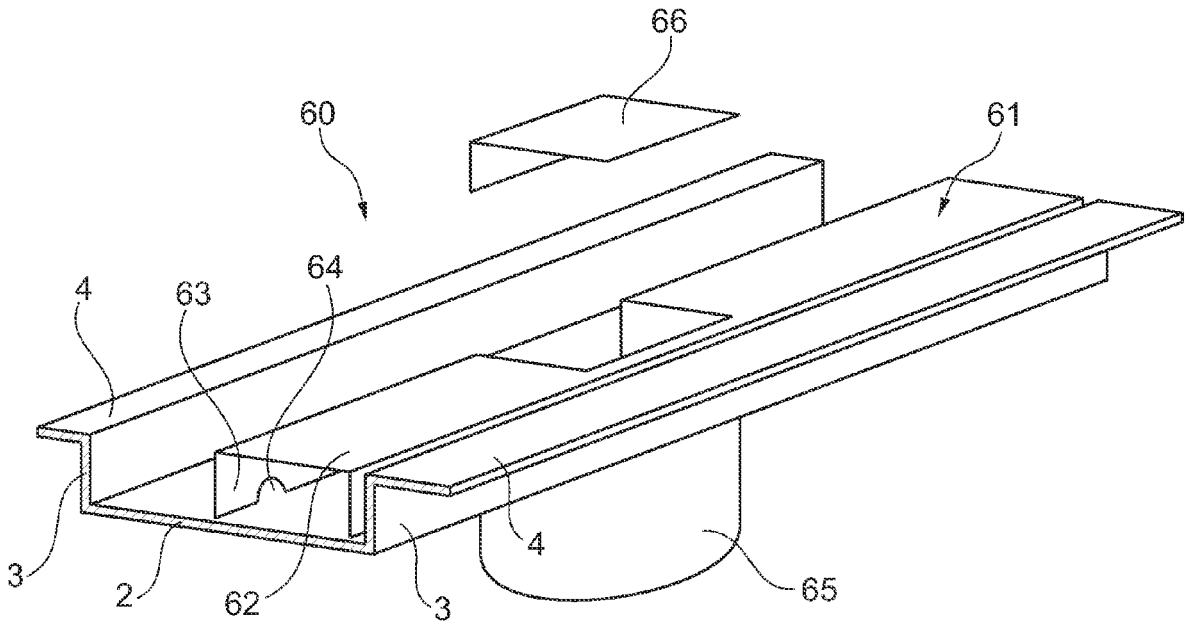

Fig. 5

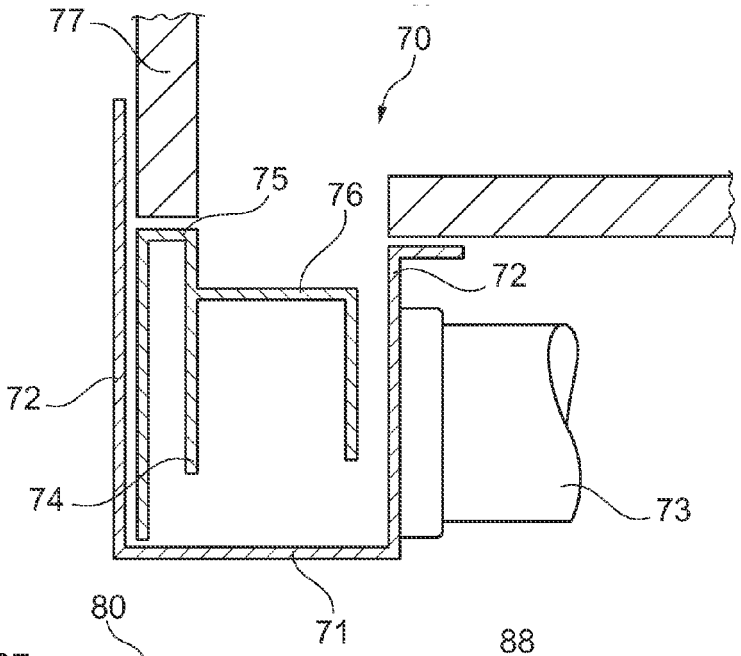

Fig. 6

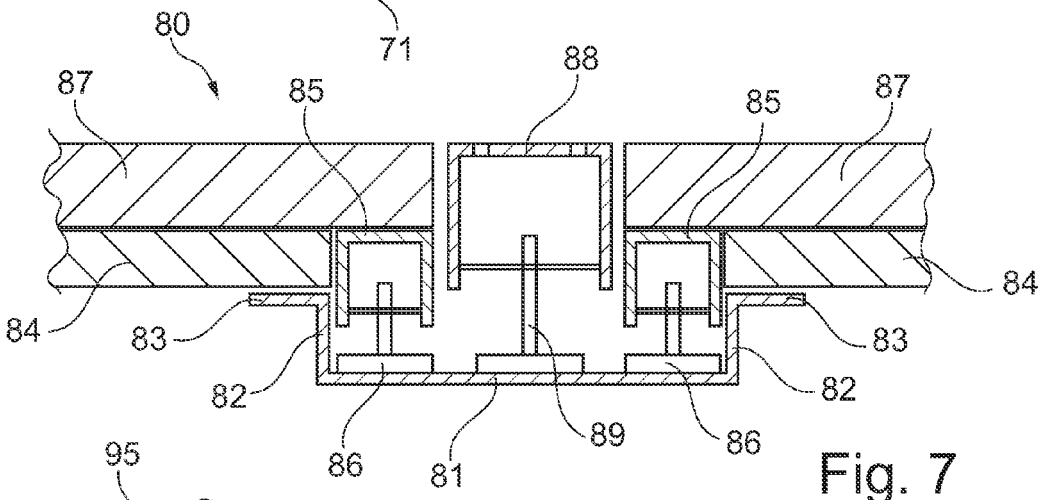

Fig. 7

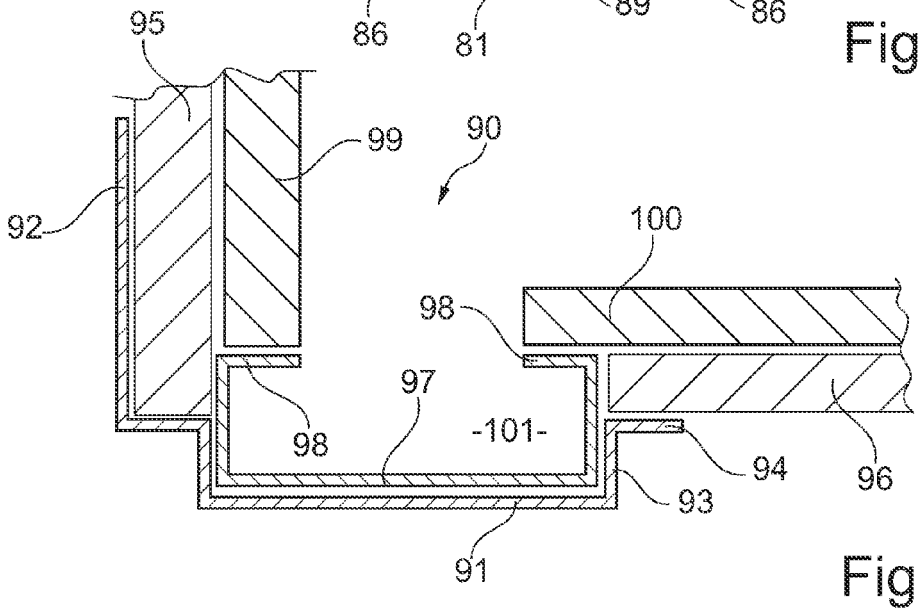

Fig. 8

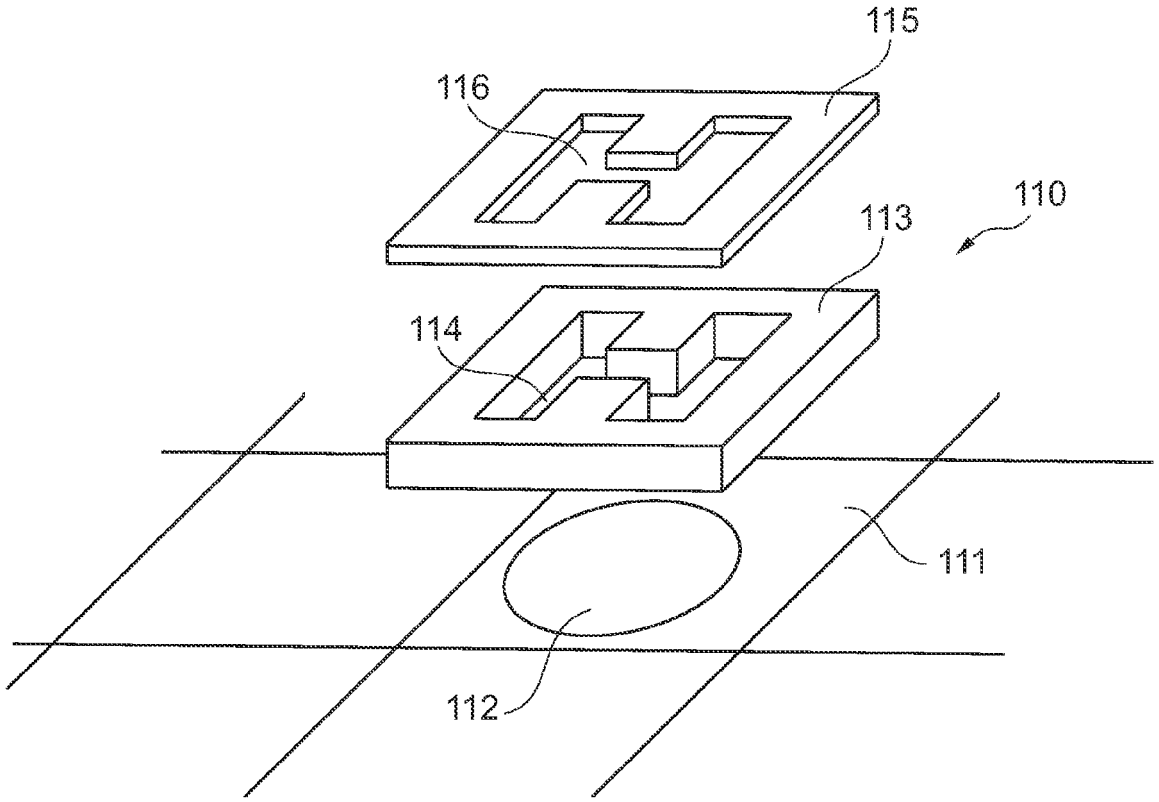
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Fig. 9

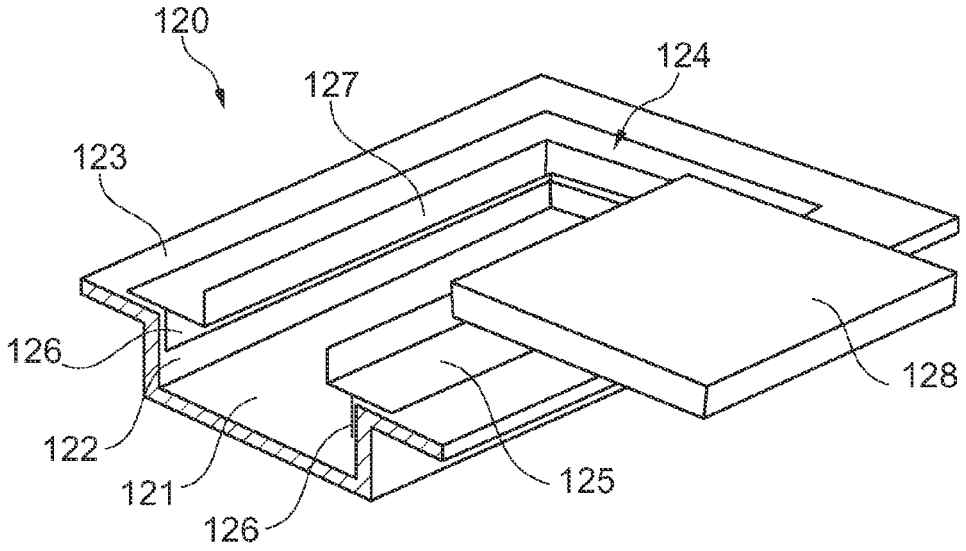
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Fig. 10

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EUROPEAN SEARCH REPORT

Application Number
EP 11 17 2868

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	AU 2005 100 344 A4 (AACHEN IND PTY LTD) 2 June 2005 (2005-06-02) * figures 1-3 * -----	13	

TECHNICAL FIELDS SEARCHED (IPC)

E03F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 October 2011	De Coene, Petrus

CATEGORY OF CITED DOCUMENTS

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05-10-2011

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