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(54) **DRAIN CHANNEL WITH HOLDER**

(57) The invention relates to a drain channel, comprising:
- a lower tray with a bottom surface, an outlet opening arranged in the bottom surface and standing walls with horizontal flanges provided along the edge of the bottom surface;
characterized by
- two holders formed from a U-shaped profile placed on the bottom surface of the lower tray, which holders comprises a substantially U-shaped cross-section with a bottom surface and standing walls along the bottom surface; wherein the two holders lie against standing walls of the lower tray.

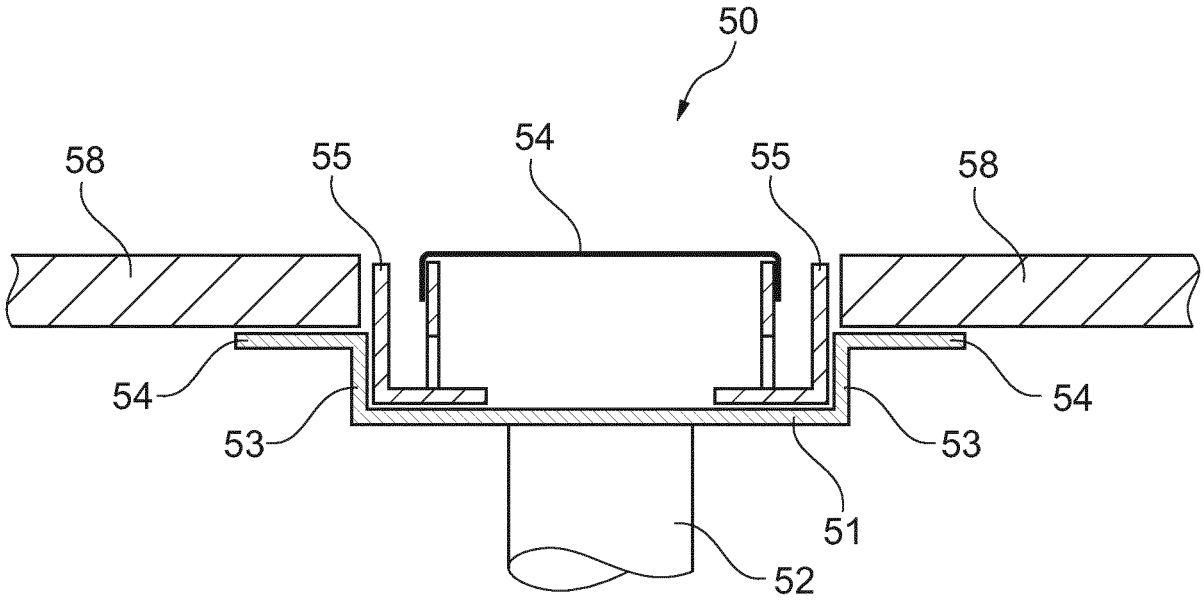

Fig. 7

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Description

[0001] The invention relates to a drain channel, comprising a lower tray with a bottom surface, an outlet opening arranged in the bottom surface and standing walls with horizontal flanges provided along the edge of the bottom surface.

[0002] Such a drain channel according to the preamble is known as an elongate shower drain. A holder placed in the lower tray can here comprises a tile identical to the tiles surrounding the shower drain. With the exception of a number of narrow inflow gaps, the shower drain is hereby concealed from view.

[0003] In the known drain channels the holder is usually manufactured from a thick plate of stainless steel, which is bent to form a tray of U-shaped cross-section. The upper edges of the tray are preferably finished here in order to avoid sharp edges and unevenness. Supports can further be arranged on the underside of the holder in order to hold the holder a distance from the bottom surface of the lower tray. Water can hereby flow along the sides of the holder into the lower tray and then flow under the holder to the outlet opening. Because different processes are required for such a holder, the costs are relatively high.

[0004] It is an object of the invention to provide a drain according to the preamble, wherein the manufacturing costs can be reduced.

[0005] This object is achieved according to the invention with a drain channel according to the invention.

[0006] A strong wall can still be obtained with a thin plate by folding the plate double. In addition, the double-folding at the same time creates a finished edge on the upper side which is also nicely straight. The folded edge ensures a rounded upper edge of the holder. Because a thinner plate can be used to manufacture the holder, the material costs are hereby reduced and the weight is also reduced. The holder can moreover be manufactured using only a single bending machine, and it is instance possible to dispense with welding operations and grinding operations.

[0007] In an embodiment of a drain channel the downward directed wall part extends to a position below the bottom surface. The downward directed wall part hereby simultaneously forms a support or spacer, whereby the holder is held at a distance from the lower tray.

[0008] Possible supports under the holder can also be concealed from view by the downward directed wall parts.

[0009] An advantage here is that the lower edge of the downward directed wall part can be easily adapted to the slope usually present in the lower tray.

[0010] In another embodiment at least one recess is arranged in the lower edge of the downward directed wall part. Owing to this at least one recess the water can move under the holder more easily and flow into the outlet opening of the lower tray.

[0011] In a preferred embodiment of the drain channel a wall part comprises a protrusion for holding the wall part at a distance. By giving a wall part a protrusion a required distance can hereby be obtained, and the holder can for instance be centered in the lower tray or between a finishing layer of tiles.

[0012] An object, such as for instance a tile or a layer of glass, can be placed in the holder of the drain channel according to the invention.

[0013] In known shower drains it is possible to reverse the holder with tile and place it in this position in the lower tray, whereby the underside of the holder becomes visible. Because the underside of the holder is embodied as stainless steel, an attractive strip of stainless steel thus becomes visible.

[0014] The drawback of this known shower drain is however that one of the two possible visible surfaces lies against the lower tray of the drain and can be damaged. When people walk over the drain channel, the holder will slide back and forth in the lower tray. Scratches may then result on each contact surface between the holder and the lower tray. After a period of time the holder can hereby no longer be reversed because the scratches on the surface are unacceptable.

[0015] This drawback of the known prior art is solved with yet another embodiment of the invention, which comprises a protective cover for covering the object placed in the holder, the protective cover having an upper surface and an edge depending along the edge of the upper surface.

[0016] With the protective cover it is possible to opt to allow either the protective cover or, after removal of the protective cover, the object placed in the holder to determine the appearance of the drain channel. Now that the holder thus no longer need be reversed, the risk of damage to one of the visible surfaces is avoided.

[0017] In addition, the use of a protective cover over the object placed in the holder has the advantage that the protective cover itself need not be supporting when the protective cover lies against the upper surface of the object. The material thickness of the protective cover can hereby be limited, which is also advantageous for the overall height of the holder.

[0018] Now that the cost of the holder can be reduced with the invention, it can be advantageous to provide both a holder and a grating in one packaging for a drain. This reduces the storage for different variants of a product.

[0019] In a preferred embodiment of the drain channel the depending edge of the protective cover engages at least partially round the holder. The upper edges of the holder are hereby concealed from view by the protective cover.

[0020] In another embodiment of the drain channel according to the invention the protective cover has a substantially U-shaped cross-section.

[0021] In yet another embodiment of the drain channel according to the invention the lower tray has standing walls along the edge of the bottom surface.

[0022] In the drain channel according to the invention

the lower tray can further be elongate, and a siphon is arranged on the outlet opening. Such an elongate embodiment has the advantage that the shower drain can extend over the width of the shower floor and that a slope need be provided in only one direction in the floor.

[0023] In a highly preferred embodiment of the drain according to invention the object placed in the holder is a tile and the protective cover is manufactured from stainless steel.

[0024] In yet another embodiment of the drain according to the invention the object placed in the holder comprises adjusting means for adjusting the height of the protective cover. Using the adjusting means it is possible to make the upper surface of the protective cover flush with the surface of the surrounding tiles.

[0025] According to the invention the object can also be formed by a strip of plastic, such as polystyrene, to which is adhered a plate of a desired material, for instance glass, stainless steel or wood. The strip of plastic imparts sufficient strength, while the adhered plate defines the appearance.

[0026] The adhered plate can optionally rest with its edges on the upper edges of the holder. In such a case the object need not rest on the bottom surface of the holder, whereby space is available for discharge of water. In addition, it is possible to provide for instance LED lighting under the adhered plate.

[0027] These and other features of the invention are further elucidated with reference to the accompanying figures.

Figure 1 shows a perspective view with exploded parts of an embodiment of a drain channel.

Figure 2 shows a cross-section of the drain channel according to figure 1.

Figure 3 shows a cross-section of a second embodiment of a drain channel.

Figure 4 shows a perspective view of a finishing frame of a third embodiment.

Figure 5 shows a cross-sectional view of a fourth embodiment.

Figures 6 and 7 show a first embodiment of a drain channel according to the invention.

Figure 8 shows a perspective view of a sixth embodiment of a drain channel.

Figure 9 shows a cross-sectional view of a variant of the embodiment according to figure 8.

[0028] Figure 1 shows a drain channel 1. This drain channel 1 has a lower tray 2 with a bottom surface 5 and standing walls 6. An outlet opening 7 to which a siphon 3 is connected is arranged in bottom surface 5. Siphon 3 is provided with an outflow 4 to which an outlet pipe can be connected.

[0029] Placed in lower tray 2 is a finishing frame 8 with which the sides of adjacent tiles can be finished. This finishing frame 8 is optionally height-adjustable so as to thus be able to allow for thickness variation in the tiles.

[0030] A holder 9 is further placed in lower tray 2. This holder 9 is manufactured from a U-shaped profile. The U-shaped profile is directed with the open side upward. Provided on the underside are supports 10 which hold holder 9 a distance from bottom surface 5 of lower tray 2. These supports 10 are bent out of the bottom wall of holder 9.

[0031] As will be apparent from figure 2, the upright longitudinal edge of holder 9 is folded double so that a strong and finished edge is created.

[0032] Supports 10 can optionally also be provided in releasable and exchangeable manner so that the height of holder 9 in lower tray 2 can be adjusted.

[0033] An object 14 is placed in holder 9. This object 14 can be a tile, but also a mouldable and curing material such as for instance concrete or Corian.

[0034] A protective cover 11 can optionally be placed over holder 9 and object 14. This protective cover 11 has an upper surface 12 and depending side walls 13. In the shown embodiment the protective cover 11 has a U-shaped cross-section.

[0035] Because the underlying object 14 and holder 9 must be sufficiently strong even without protective cover 11, the wall thickness of protective cover 11 can remain small. The advantage hereof is that the material costs for protective cover 11 remain limited.

[0036] Figure 3 shows a second embodiment 20. This embodiment 20 has a lower tray 21 with horizontal flanges 22.

[0037] A holder 23 is placed in lower tray 21. Holder 23 has a U-shaped cross-section in which an adjusting foot 24 is arranged. This adjusting foot 24 has a support surface 25 on which protective cover 26 can rest.

[0038] Using adjusting foot 24 the height of protective cover 26 can be set so that it lies flush with a surrounding tile floor. Drain channel 20 can thus be adapted to the thickness of tiles 27.

[0039] In this embodiment the side walls of holder 23 are strengthened and finished by inward double-folding of the edge.

[0040] Figure 4 shows a holder 30 of a third embodiment. Holder 30 is folded from a single plate such that a bottom surface 31 is formed with standing walls 32, 33 around bottom surface 31. Longitudinal walls 32 are folded over to form downward directed side walls 34. These side walls 34 extend to a position below bottom surface 31, so that side walls 34 function as legs.

[0041] Recesses 35 are further provided in the lower edge of side walls 34 so that water for discharge can flow under holder 30. Protrusions 36 formed from the downward directed wall part are further provided at suitable positions on side walls 34 to enable centering of holder 30.

[0042] Figure 5 shows a variant of holder 30 according to figure 4. In this embodiment holder 40 is also folded from a thin plate. The thus formed side walls 41 of holder 40 are directed vertically downward.

[0043] In this embodiment holder 40 is placed on a flat

plate 43. This flat plate 43 is provided with an outlet pipe 44.

[0044] An object 45 such as a tile or a glass part can further be placed in holder 40. This object can optionally be covered with a protective cover 46.

[0045] A first embodiment 50 of a drain channel according to the invention is shown in figures 6 and 7. This drain channel 50 has a lower tray with a bottom surface 51 in which an outlet opening 52 is provided. Standing walls 53 with horizontal flanges 54 are provided along the edge of bottom surface 51.

[0046] A holder formed from a U-shaped profile 55 is placed in lower tray 51, 52, 53, 54. This U-shaped profile 55 has openings 56 in that wall parts 57 are bent outward.

[0047] U-shaped profiles 55 lie against side walls 53 of the lower tray and thereby also cover the side part of tiles 58.

[0048] A protective cover 59 can be arranged over the holder formed by U-shaped profiles 55. A secondary holder, in which an object such as a tile or glass part can be arranged, can optionally also be arranged on U-shaped profiles 55.

[0049] Figure 8 shows a sixth embodiment 60. In this embodiment 60 the holder is folded from a single plate so that a bottom surface 61 and two standing walls 62 result. Bent out of bottom surface 61 are tongues 63 which run parallel to upright walls 62.

[0050] Bending tongues outward 63 creates openings 64 in bottom surface 61.

[0051] A spacer block 65 is clamped between tongues 63 to enable placing of holder 61, 62 at a determined height in a lower tray. Spacer blocks 65 are provided on the end surfaces with protrusions 66 which are placed into openings 67 of tongues 63 and thereby hold spacer blocks 65 fixedly.

[0052] Figure 9 shows a cross-section of a variant of the embodiment according to figure 8. This variant 70 has a holder with a bottom surface 71, an upward directed wall 72 and a double-folded downward directed wall 73. Tongues 74 between which a spacer block 75 is clamped are likewise bent out of bottom surface 71.

[0053] Because downward directed wall 73 extends as far as tongues 74, openings 76 are concealed from view.

Claims

1. Drain channel (50), comprising:

- a lower tray with a bottom surface (51), an outlet opening (52) arranged in the bottom surface (51) and standing walls (53) with horizontal flanges (54) provided along the edge of the bottom surface (51);

characterized by

- two holders formed from a U-shaped profile (55) placed on the bottom surface of the lower tray, which holders comprises a substantially U-shaped cross-section with a bottom surface and standing walls along the bottom surface;

wherein the two holders (55) lie against standing walls (53) of the lower tray.

2. Drain channel (50) according to claim 1, wherein the U-shaped profile (55) has bent outward wall parts (57) providing openings (56).

3. Drain channel (50) according to claim 1 or 2, further comprising a protective cover (59) arranged over the holders formed by the U-shaped profiles (55).

4. Drain channel (50) according to claim 3, further comprising a secondary holder, in which an object can be arranged, arranged on the U-shaped profiles (55).

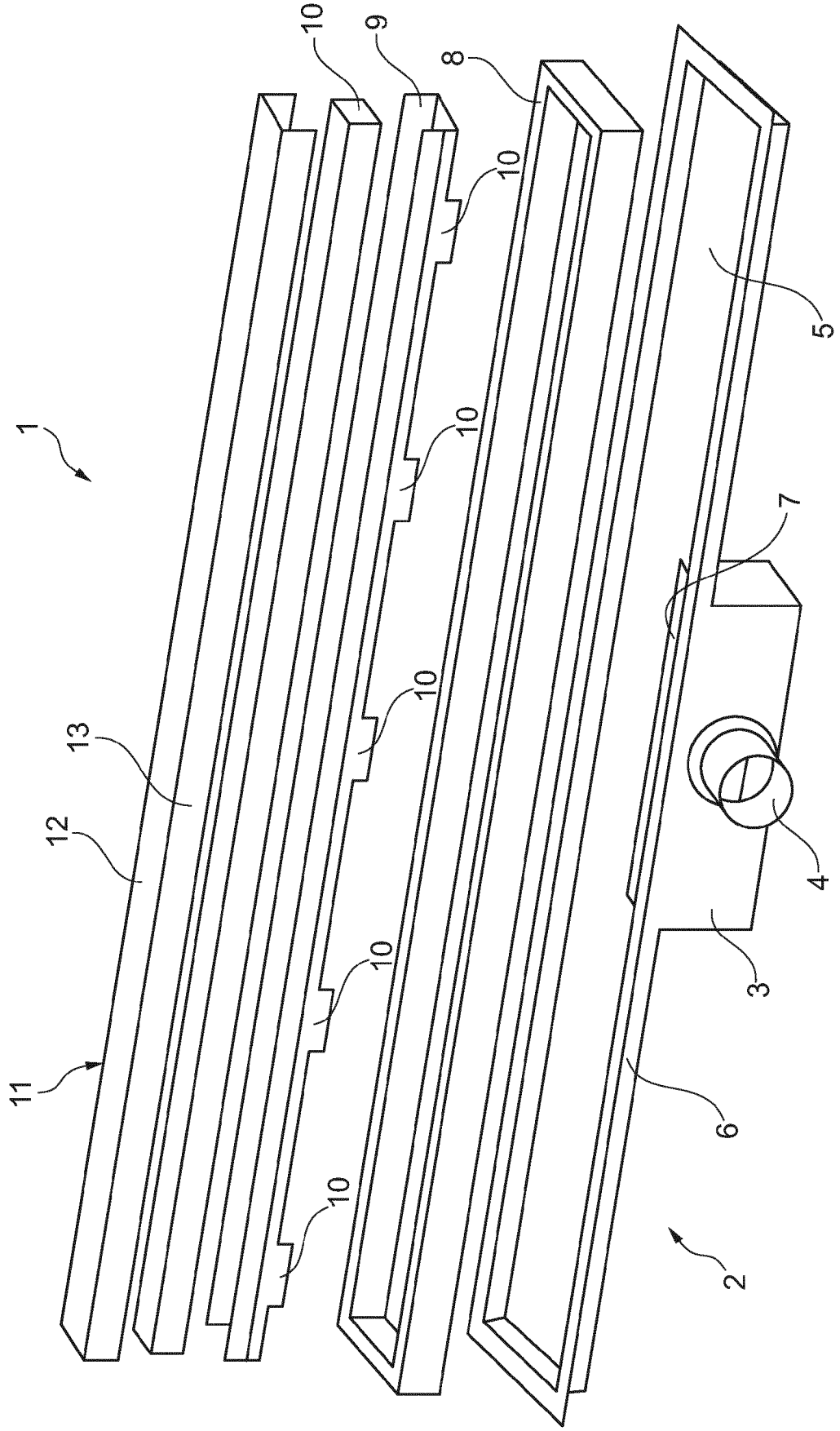

Fig. 1

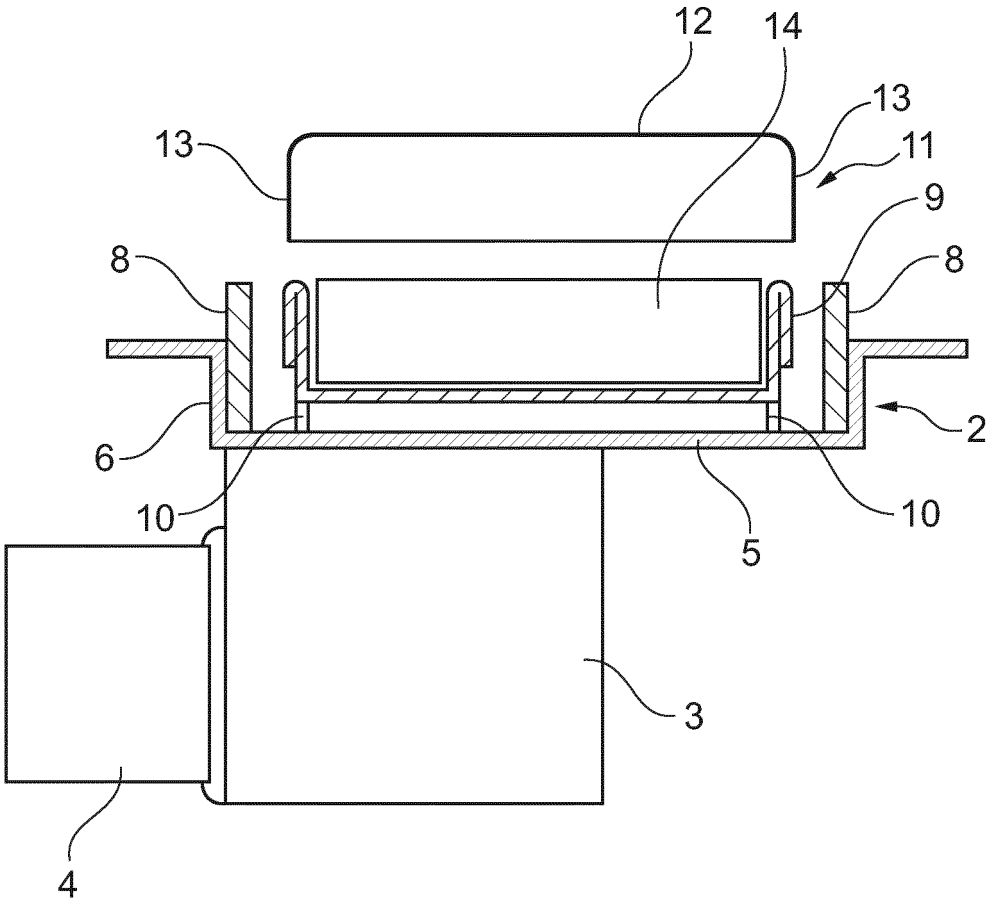

Fig. 2

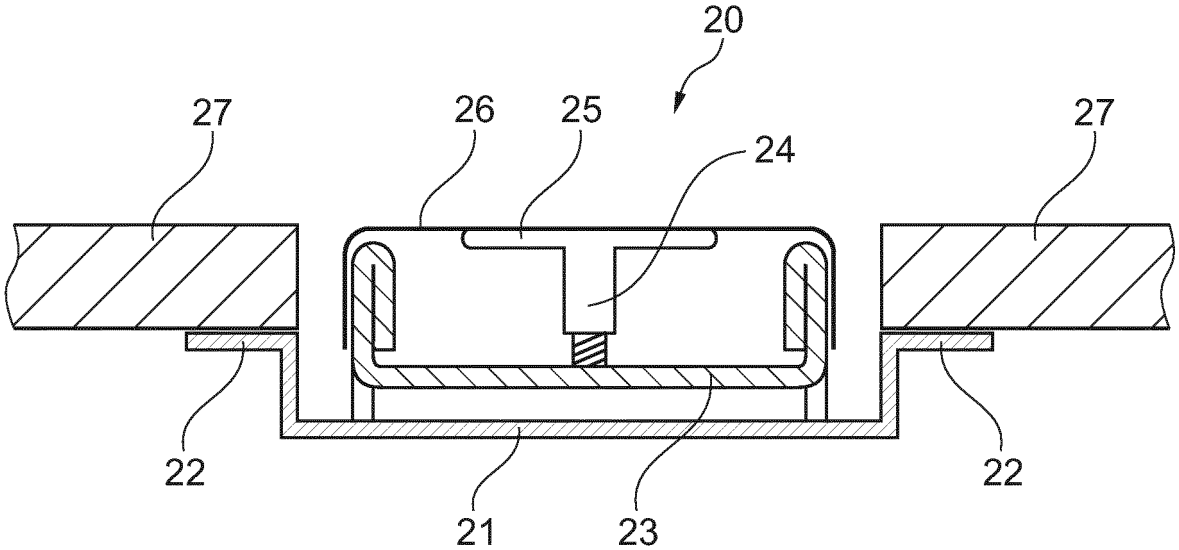

Fig. 3

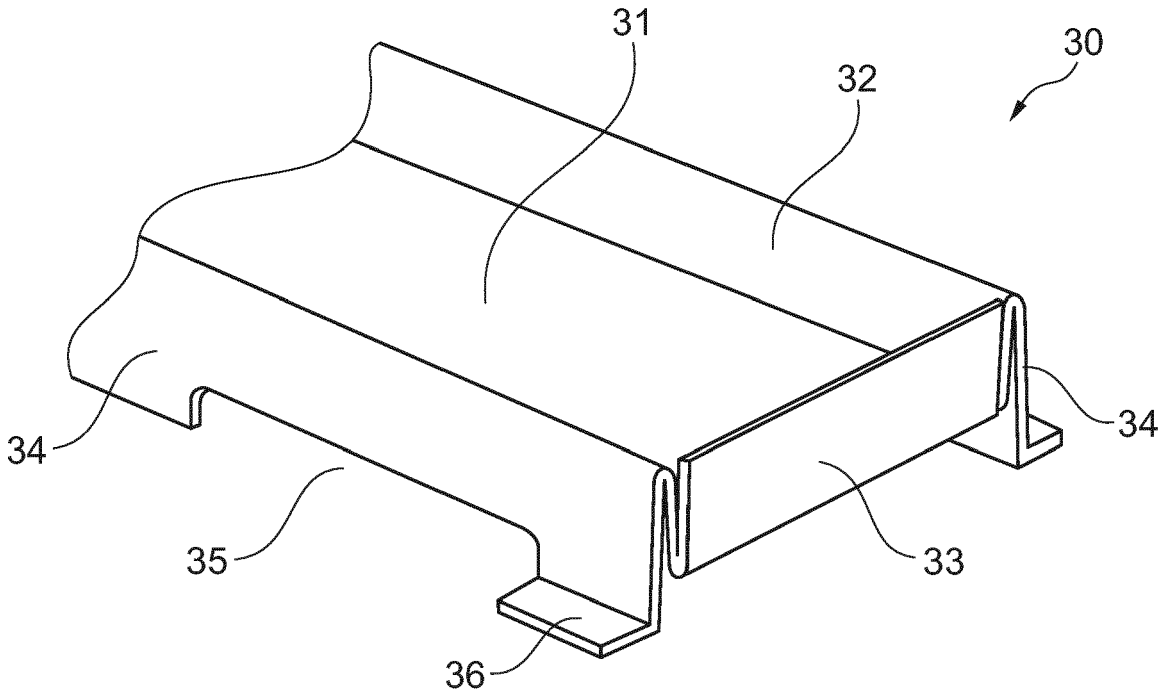

Fig. 4

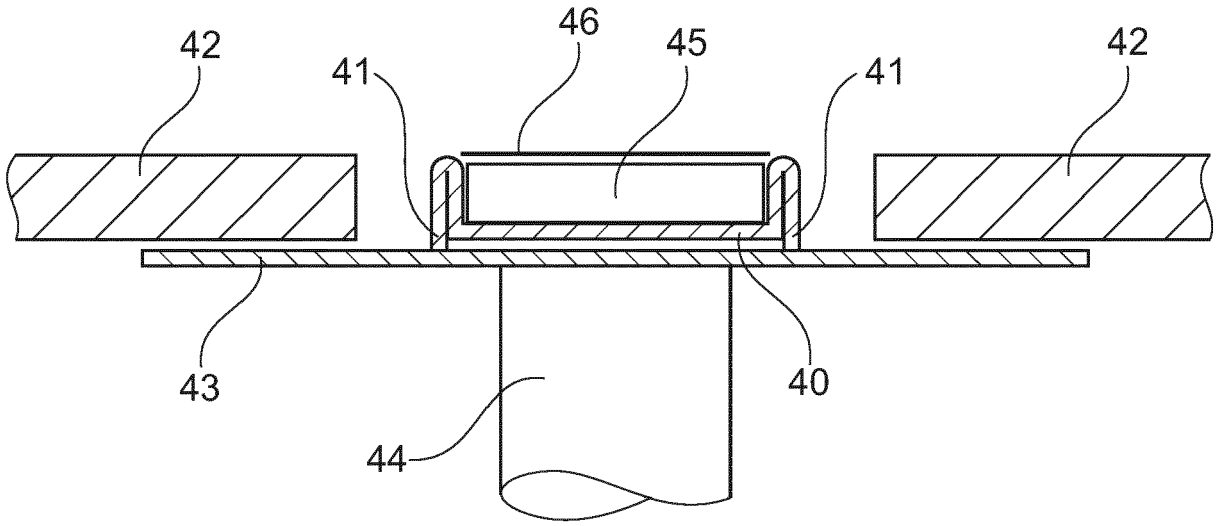

Fig. 5

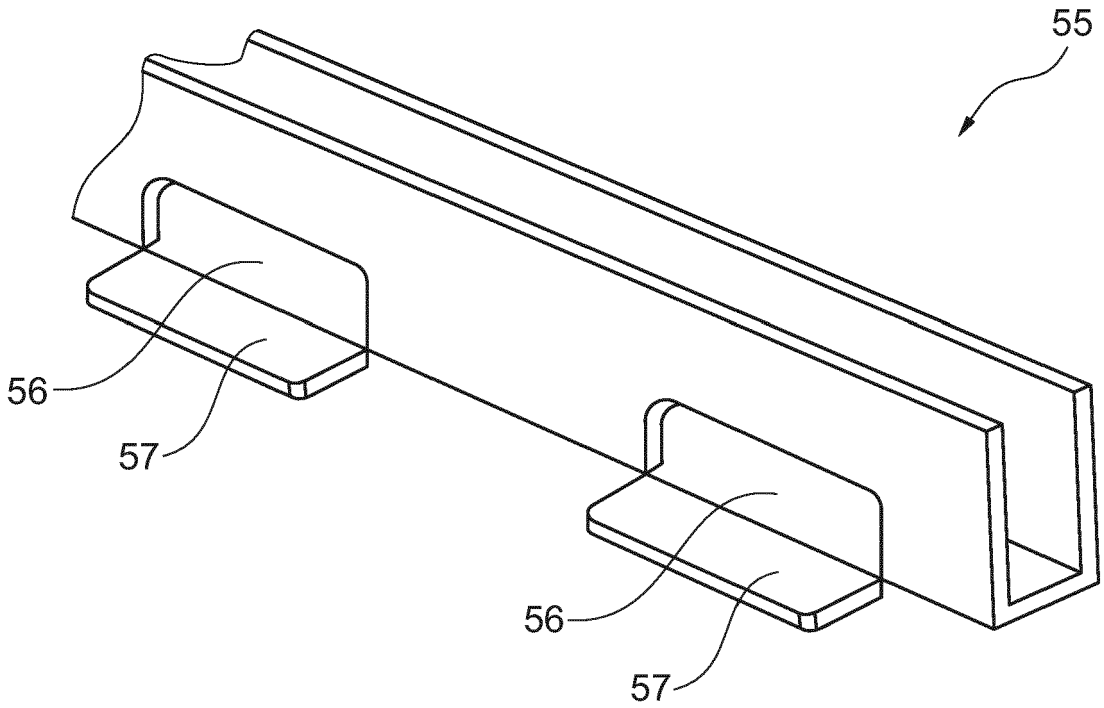

Fig. 6

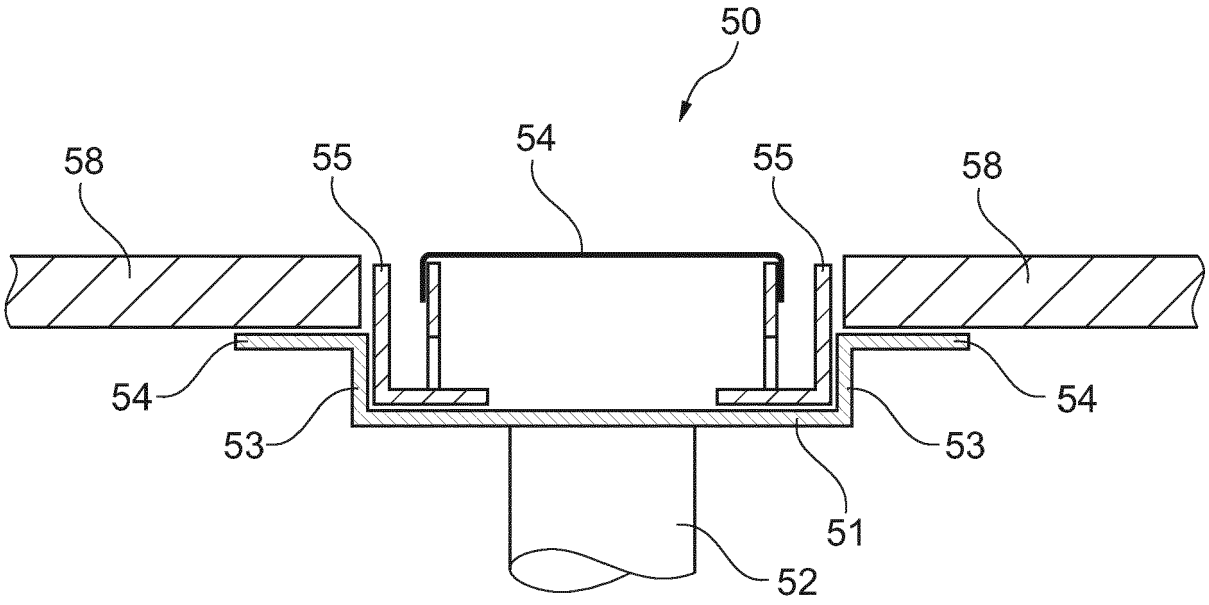

Fig. 7

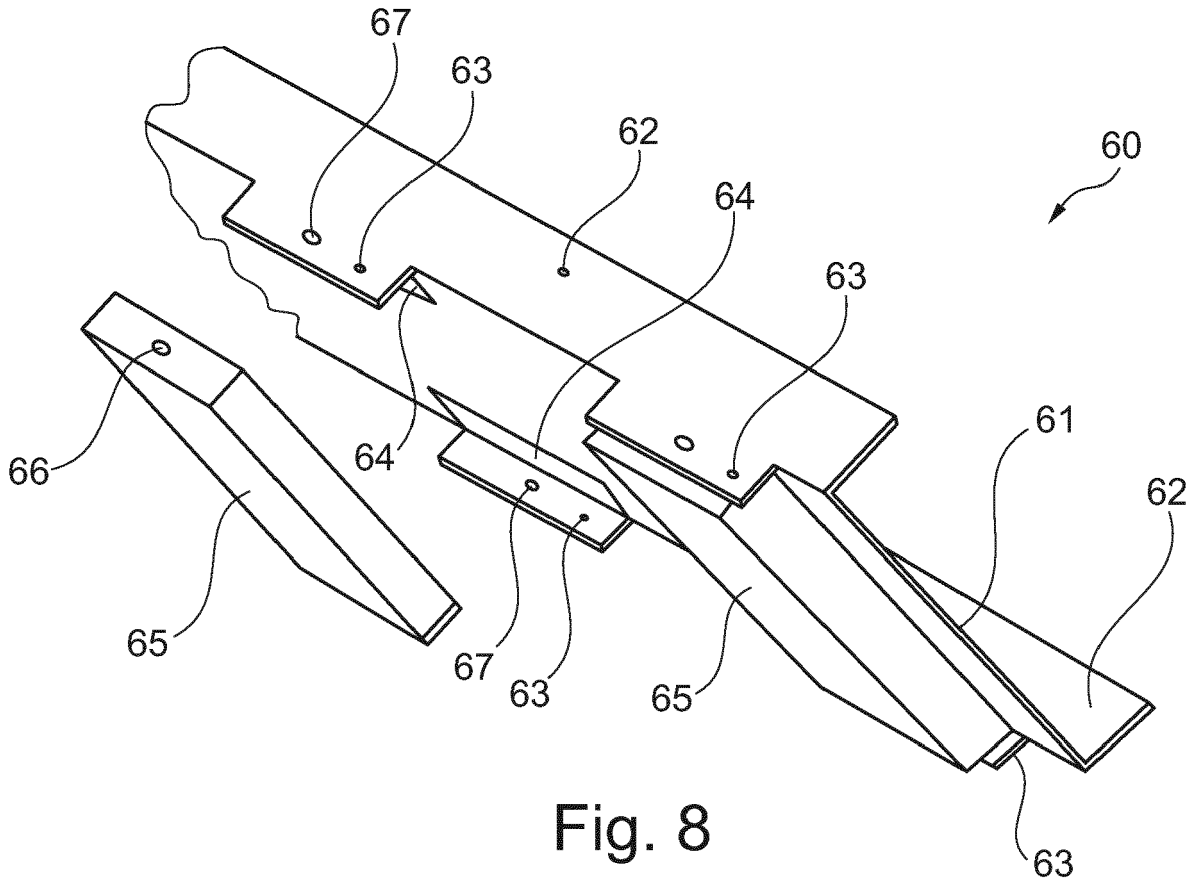
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Fig. 8

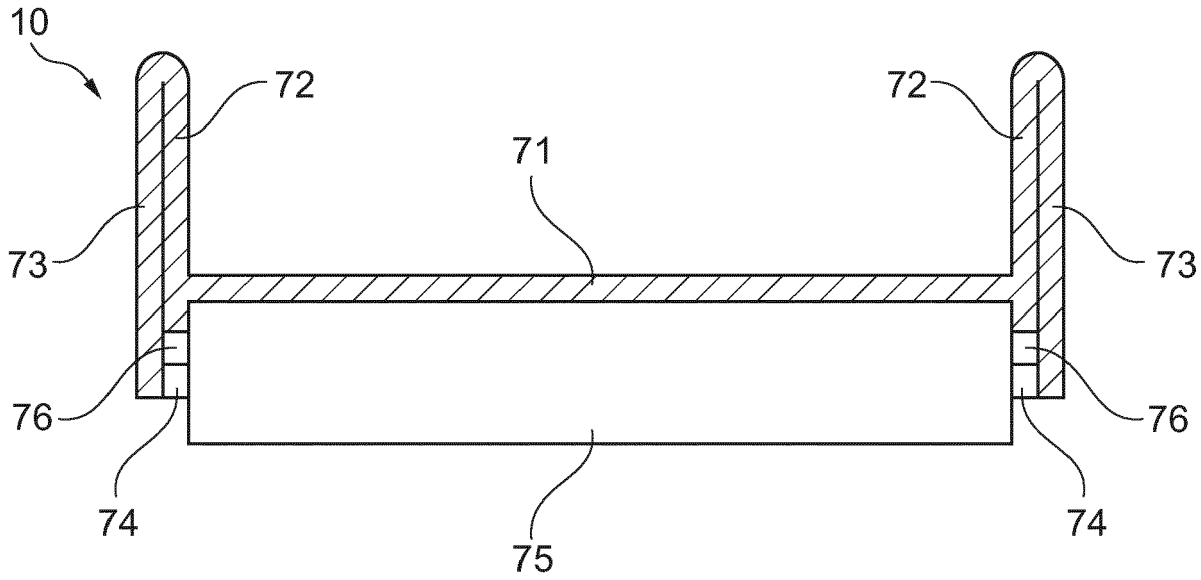
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Fig. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 16 19 0806

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 20 2008 003050 U1 (MEPA PAULI UND MENDEN GMBH [DE]) 3 July 2008 (2008-07-03) * figure 3 * -----	1-4	INV. E03F5/04

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	6 December 2016	Bauer, Josef

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 16 19 0806

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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06-12-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202008003050 U1	03-07-2008	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82