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(54) **METHOD FOR ATTACHING A PANEL TO A SHOWER TRAY**

(57) Method for applying a panel (2) to a shower tray (1), which comprises the following steps
a) forming a groove (7) in the upperside of a shower tray, whereby the groove is provided with an at least partially flat base (9), a first substantially vertical wall (8) and a second facing wall closer to the edge, comprising a substantially vertical section (10) and an adjoining slanted section (11); and
b) connecting a panel (2), which on an underside contains at least a flat section (5) and a bevelled section (6), to the shower tray by applying the underside of the panel in the groove such that the bevelled section (6) is at least partially in contact with the slanted section (11) of the groove.

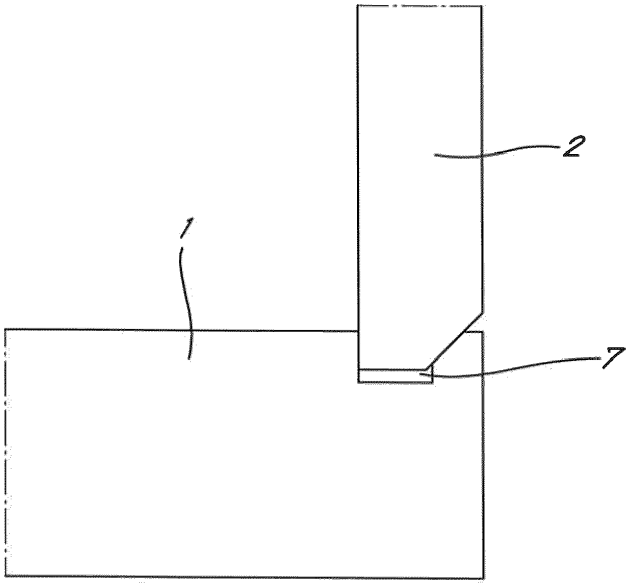

Fig. 1

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Description

[0001] The present invention relates to shower systems, more specifically to attach shower wall panels to a shower tray.

[0002] In particular, the invention is intended for the silicone-free installation of shower systems.

[0003] It is known to create shower spaces by first installing a shower tray provided with a drain, level in a room on the floor on the level of a drain. The shower tray is usually installed adjacent to an existing partition or wall or adjacent to several walls, for example in a corner. Shower wall panels are installed against the existing walls on the outer edges of the upperside of the shower tray.

[0004] The shower wall panels are connected with the shower tray, and also mutually, by glueing. The connections are then sealed with silicones to prevent water seeping in. The shower wall panels are also glued to the existing wall on the rearside.

[0005] Although the aforementioned method certainly has its merits, a disadvantage is that installing the panels level with the shower tray requires the necessary skill and routine such that it is recommended to use skilled installers and this method is less suitable as such for do-it-yourself enthusiasts.

[0006] Another disadvantage is that the connections in which the silicone layer is applied, are often not entirely leakproof in practice. Furthermore, according to the manufacturers of the silicones the silicone layer needs to be periodically renewed, typically every three to five years. This is laborious because the old silicone layers must be removed and reapplied by a person skilled in the art. This involves extra costs and every time implies a renewed risk of leaks by a possibly badly sealed connection.

[0007] The purpose of the present invention is to provide an alternative that provides a solution for at least one of the aforementioned and other disadvantages.

[0008] To this end, the invention relates to a device for showering and a method for installing panels on a shower tray.

[0009] The method according to the invention comprises a number of steps. A step a) is forming a groove in the upperside of a shower tray, near an edge of the shower tray, whereby the longitudinal direction of the groove is parallel to the nearby edge and whereby the groove is provided with an at least partially flat base, a first substantially vertical wall in the longitudinal direction and a second facing wall closer to the edge, comprising a substantially vertical section and an adjoining slanted section.

[0010] Preferably, the shower tray is made of a casting material and provided with an opening for the drain. The shower tray can already be provided with a built-in S-trap. The invention is not limited to a shower tray but can be applied to every alternative tray or tub in which it is possible to shower, such as for example a bath tub.

[0011] A next step b) is connecting a panel, which comprises at least a flat section and a bevelled section on an underside, to the shower tray, by applying the underside of the panel in the groove such that the bevelled section is at least partially in contact with the slanted section of the groove.

[0012] Typically, the panels are flat panels with a rectangular shape on the underside. The upperside can be rectangular, but alternatively the upper edge can also be curved. Preferably, the panels are made from a casting material.

[0013] Because the connection is simply realised by installing the bevelled section of the panel on the slanted part of the groove, the installation can be done without intervention of a professional installer.

[0014] Due to the form of the connection, the underside of the inside of the panel is pressed against the first vertical wall of the groove. This prevents water or moisture from seeping in under the panel.

[0015] In an embodiment an adhesive material is applied on the base of the groove before applying the panel in the groove such that after applying the panel in the groove, the adhesive material forms a layer between the flat section on the underside of the panel and the flat section of the base of the groove. Preferably, the adhesive material is a polymer adhesive which after drying is practically impenetrable for water, such as for example a polymer adhesive based on methyl methacrylate. The adhesive layer prevents water or moisture from seeping in which might still penetrate in the underside of the panel between the inside of the panel and the wall of the groove.

[0016] An advantage of the connection between panel and shower tray, as described above, is that this solution provides a leakproof connection such that sealing with silicones is unnecessary.

[0017] In an embodiment of the invention, the bevelled part of the panel has an inclination that substantially corresponds with an inclination of the slanted section of the second wall of the groove. Typically, said inclination is an angle in the range of 30° to 70°, or preferably of 40° to 60°.

[0018] To facilitate the installation of the panel and for a higher stability after installation, making the bevelled part of the panel wider than the slanted section of the second wall of the groove is an option.

[0019] In a practical embodiment, forming the groove in the upperside of a shower tray can at least comprise substeps of milling a triangular slit in the upperside of the shower tray parallel with the edge;
milling a rectangular slit parallel with the edge such that the rectangular slit partially overlaps the triangular slit.

[0020] In a further embodiment of the invention, before the panel is connected to the corresponding groove, spacers are applied on the existing wall behind the panel which are configured such that on applying the panel in the groove, substantially perpendicular to the upperside of the shower tray, the rearside of the panel is in contact with the spacers. Preferably, the spacers comprise a first and a second part which are screwably interconnectable.

[0021] If several panels are applied to a shower tray it is possible to mutually connect adjacent panels to each other. To this end, a panel groove in a first panel is formed in an upright side or, in the case of a corner joint, in the inside near an upright edge. The panel groove is provided with an at least partially flat base, a first substantially vertical wall in the longitudinal direction and a second facing wall closer to the edge consisting of a substantially vertical section and an adjoining slanted section. An adjoining panel, which comprises at least a flat section and a bevelled section on the adjoining upright side, is connected to the first panel by applying the panel with the upright side in the panel groove such that the bevelled section of the adjoining panel is at least partially in contact with the slanted section of the panel groove of the first panel.

[0022] The invention also relates to a device for showering which applies the method, according to one of the aforementioned embodiments or a combination thereof. The device comprises a shower tray provided with at least one groove formed in the upperside of the shower tray near an edge of the shower tray whereby the longitudinal direction of the groove is parallel with the nearby edge and whereby the groove is provided with an at least partially flat base, a first substantially vertical wall in the longitudinal direction and a second facing wall closer to the edge, comprising a substantially vertical section and an adjoining slanted section and at least one panel that at an underside comprises at least a flat section and a bevelled section.

[0023] With the intention of better showing the characteristics of the invention, a preferred embodiment of a device and a method according to the invention are described by way of an example without any limiting nature, with reference to the accompanying drawings wherein:

figure 1 schematically and in cross-section shows a section of a shower tray on which a shower wall panel is installed according to the invention;
figures 2a and 2b show milling steps according to an embodiment of the method according to the invention for forming a groove in a shower tray;
figure 2c schematically and in cross-section shows the shower tray with groove, formed according to the steps of figures 2a and 2b.
figure 3a shows a milling step according to an embodiment of the method according to the invention for forming the underside of a shower wall panel;
figure 3b schematically and in cross-section shows the shower wall panel with a bevelled section on the underside, formed according to the step of figure 3a;
figures 4a and 4b show different embodiments of the invention for mutually connecting two adjacent shower wall panels at an angle.

[0024] Figure 1 schematically shows a section of a shower tray 1 on which a panel 2 is installed on the upperside near an outer edge. The shower tray is made from a casting material and provided with an opening for the drain. The panel is a shower wall panel made from the same material as the shower tray.

[0025] The shower wall panel 2, as also shown in Figure 3b, has a flat section 5 and a bevelled section 6 on the underside adjacent to the rearside 4 of the panel. The shower tray 1 is provided with a groove 7 on the upperside near an outer edge, as also shown in Figure 2c. The groove 7 is parallel with the nearby edge in its longitudinal direction. The groove 7 has a flat base 9, a first substantially vertical wall 8 and a second facing wall closer to the outer edge of the shower tray, consisting of a substantially vertical section 10 and an adjoining slanted section 11.

[0026] The shower wall panel 2 is connected to the shower tray by installing the underside of the shower wall panel in the groove 7 such that the bevelled section 6 of the shower wall panel is in contact with the slanted section 11 of the groove. The bevelled section 6 of the shower wall panel and the slanted section 11 of the groove 7 have an inclination of 45°. The bevelled section 6 of the shower wall panel is wider than the slanted section 11 of the groove 7, whereas the flat section 5 of the shower wall panel is narrower than the base 9 of the groove 7. Said configuration simplifies the installation of the shower wall panel in the groove and also ensures a connection that counteracts tilting of the shower wall panel installed in the groove.

[0027] The method for installing shower wall panels 2 on a shower tray 1 is very simple. By way of an example, the installation of a device for showering provided with two shower wall panels in a corner configuration is described below.

[0028] First, two grooves perpendicular to each other are formed on the upperside of the shower tray nearby two adjacent outer edges. As shown in Figure 2a, to form a groove 7, using a triangular 45° milling cutter 12, a triangular slit is first milled in the upperside of the shower tray, parallel to the outer edge of the shower tray. Subsequently, as shown in Figure 2b, parallel and partially overlapping with the already formed triangular slit, a rectangular slit is milled using a rectangular milling cutter 13. The installation of the rectangular milling cutter 13 is such that an edge of the milling cutter is closer to the outer edge than the middle of the triangular slit. The thus formed groove 7 has a flat base 9, a first substantially vertical wall 8 and a second facing wall closer to the edge, consisting of a substantially vertical section 10 and an adjoining slanted section 11.

[0029] The shower tray 1 provided with the grooves 7 is installed level in a designated corner with due regard for an expansion joint and with the grooves adjacent to the existing walls in the relevant corner. To install the shower wall panels 2 level on the shower tray, per shower wall panel six to twelve spacers are applied on the existing walls. The spacers consist of two parts that are screwably connected to each other. The length of the spacers, i.e. the dimension perpendicular to the existing wall, is

regulated by screwing or unscrewing the second part relative to the first part that is connected to the existing wall. Said connection with the existing wall is possible by glueing, for example using double-sided sticky tape, but is of course also possible in another known way such as, for example, a plug and screw connection. Using a spirit level the length of every spacer is individually regulated such that the free ends of (the second part of) the spacers, provided for one panel, each have a contact surface in one and the same plane, substantially perpendicular to the upperside of the shower tray. On said contact surfaces of the spacers or on the rearside of the panel (2) on the level of the spacers, an adhesive material is applied, such as, for example a layer of glue or double-sided sticky tape.

[0030] As shown in Figure 3a, the underside of the shower wall panels 2 is bevelled using a triangular 45° milling cutter which is installed on the rearside 4 of the shower wall panel 2. As such the underside of the shower wall panels 2 have a flat section 5 and a bevelled section 6 adjoining the rearside 4 of the panel.

[0031] To be able to mutually connect the two panels with each other in the corner, a panel groove is formed in one of the panels on the inside/front side 3 near an upright outer edge. The panel groove is provided with a flat base, a first substantially vertical wall in the longitudinal direction parallel with the upright edge and a second facing wall closer to the edge, consisting of a substantially vertical section and an adjoining slanted section. The other panel is bevelled on the adjoining upright side such that the side contains a flat section and a bevelled section adjoining the rearside of the panel.

[0032] Alternatives for mutually interconnecting two adjacent panels (2) in a corner are shown in Figure 4a and Figure 4B. An L-shaped profile (14) is used, which is installed on the rearside (4) of one of the two panels, in this case the left panel. The installation of the L-profile on the panel can be done in the factory or during installation. The attachment is made with an adhesive material such as, for example, double-sided sticky tape or glue, for example a polymer adhesive. Optionally, for attaching the L-profile a section of the rear wall on which the L-profile will be installed may be milled. If milling the rear wall is chosen this can be executed such that after attachment of the L-profile (14) on the panel the rearside (4) of the panel and the rearside of the L-profile lie in the same plane as shown for the left panel of Figure 4a. The L-profile protrudes such beyond the side of the left panel that an opening is formed in which the right panel can be fittingly applied.

[0033] Optionally, as shown in Figure 4b, a protrusion (15) can be provided on the inside of the L-profile which, which is installed upon attachment of the profile (14) against the side of the left profile such that the correct installation of the profile (14) on the panel is facilitated.

[0034] A polymer adhesive is applied on the base 9 of the grooves in the shower tray, in the panel groove, or alternatively on the walls of the opening in the L-profile. Subsequently, the underside of the panels 2 is applied in the corresponding grooves 7 in the shower tray 1 and mutually connected in the corner by applying one panel, with the side with the bevelled section, in the panel groove of the other panel and with the rearsides 4 installed against the spacers.

[0035] The result is that after installation, the panels 2 are substantially perpendicular to the shower tray 1 and adhesively connected on the rearside 4 to the spacers attached to the existing walls. An additional advantage of using the spacers is that during the installation of the panels 2 in the grooves 7, the panels cannot tilt backwards (toward the existing wall) and thus do not have to be pulled back after possible tilting. Indeed, pulling back would have a disastrous effect on the quality of the glue connection between the panel 2 and the groove 7.

[0036] After installation the panels 2 are connected with each other and with the shower tray 1 in an adhesive and leakproof way, and alternatively are also connected to the L-profile via the polymer adhesive layer which is applied in the panel groove and the grooves 7 respectively and alternatively on the walls of the opening in the L-profile (14). The connections are not or barely visible. The polymer adhesive, applied on the base 9 of the grooves, is not or barely visible after installation of the panels. The used polymer adhesive is a two components glue based on Methyl Metacrylate such as e.g. Solmmate 10:1 Activator of Bondloc UK Ltd. An additional advantage is that the device for showering can be completely mounted in one and the same day.

[0037] The present invention is by no means limited to the embodiments described as an example and shown in the drawings, but a device and a method according to the invention can be realised in all kinds of forms and dimensions without departing from the scope of the invention.

Claims

1. Method for applying a panel (2) to a shower tray (1), which comprises the following steps

   a) forming a groove (7) in the upperside of a shower tray, near an edge of the shower tray, whereby the longitudinal direction of the groove is parallel to the nearby edge and whereby the groove is provided with an at least partially flat base (9), a first substantially vertical wall (8) and a second facing wall closer to the edge, comprising a substantially vertical section (10) and an adjoining slanted section (11); and

   b) connecting a panel (2), which on an underside comprises at least a flat section (5) and a bevelled section (6), to the shower tray by applying the underside of the panel in the groove such that the bevelled section (6) is at least partially in contact with the slanted section of the groove

(11) .

2. Method according to claim 1, further comprising a step of applying an adhesive material on the base (9) of the groove (7) such that, after applying the panel (2) in the groove, the adhesive material forms a layer between the flat section (5) on the underside of the panel and the base (9) of the groove.

3. Method according to any one of the previous claims, **characterised in that** the adhesive material is a polymer adhesive containing methyl methacrylate

4. Method according to any one of the previous claims, **characterised in that** the bevelled part (6) of the panel (2) is wider than the slanted section (11) of the second wall of the groove (7).

5. Method according to any one of the previous claims, **characterised in that** the bevelled part (6) of the panel (2) has an inclination that substantially corresponds with an inclination of the slanted section (11) of the second wall of the groove (7).

6. Method according to claim 5, **characterised in that** the inclination of the bevelled part (6) of the panel (2) is an angle in the range of 30° to 70°.

7. Method according to any one of the previous claims, **characterised in that** the flat section (9) of the base of the groove (7) is wider than the flat section (5) on the underside of the panel (2).

8. Method according to any one of the previous claims, **characterised in that** forming the groove (7) in the upperside of a shower tray (1) comprises at least of the following substeps

    milling a triangular slit parallel with the edge;
    milling a rectangular slit parallel with the edge such that the rectangular slit partially overlaps the triangular slit.

9. Method according to any one of the previous claims, further comprising a step of applying spacers to a wall and configuring the spacers such that upon applying the panel (2) in the groove (7), substantially perpendicular to the outside of the shower tray (1), the rearside (4) of the panel is in contact with the spacers.

10. Method according to claim 9, **characterised in that** the spacers comprise a first and a second part which are screwably connected to each other, whereby the first part is attached to the wall.

11. Method according to claim 10, further comprising a step of applying an adhesive material on the second part of the spacers or on the panel (2) such that after applying the panel (2), the panel and the spacers are adhesively connected.

12. Method according to any one of the previous claims, further comprising the steps of

    forming a further groove (7) in the upperside of the shower tray (1) on a further edge of the shower tray adjacent to the previous edge according to step a) of the method; connecting a further panel (2) to the shower tray using the further groove according to step b), and
    connecting the further panel, which contains at least a flat section and a bevelled section on a upright side, to the previous panel, by applying the upright side of the panel in a panel groove, formed in the inside of the previous panel nearby an upright edge whereby the panel groove is provided with an at least partially flat base, a first substantially vertical wall in the longitudinal direction and a second facing wall closer to the edge, consisting of a substantially vertical section and an adjoining slanted section, such that the bevelled section of the further panel is at least partially in contact with the slanted section of the panel groove.

13. Method according to any one of the claims 1 to 11, further comprising the steps of

    forming a further groove (7) in the upperside of the shower tray (1) on a further edge of the shower tray adjacent to the previous edge according to step a) of the method; connecting a further panel (2) with the shower tray using the further groove according to step b), and
    connecting the further panel with the previous panel by applying the upright side of the further panel in an L-profile (14) connected to the rearside of the previous panel.

14. Device for showering which applies the method, according to any one of the previous claims, **characterised in that** it at least comprises a shower tray (1) provided with at least one groove (7) formed in the upperside of the shower tray near an edge of the shower tray whereby the longitudinal direction of the groove is parallel to the nearby edge and whereby the groove is provided with an at least partially flat base (9), a first substantially vertical wall (8) in the longitudinal direction and a second facing wall closer to the edge comprising a substantially vertical section (10) and an adjoining slanted section (11); and at least one panel (2) that comprises at least a flat section (5) and a bevelled section (6) on one underside.

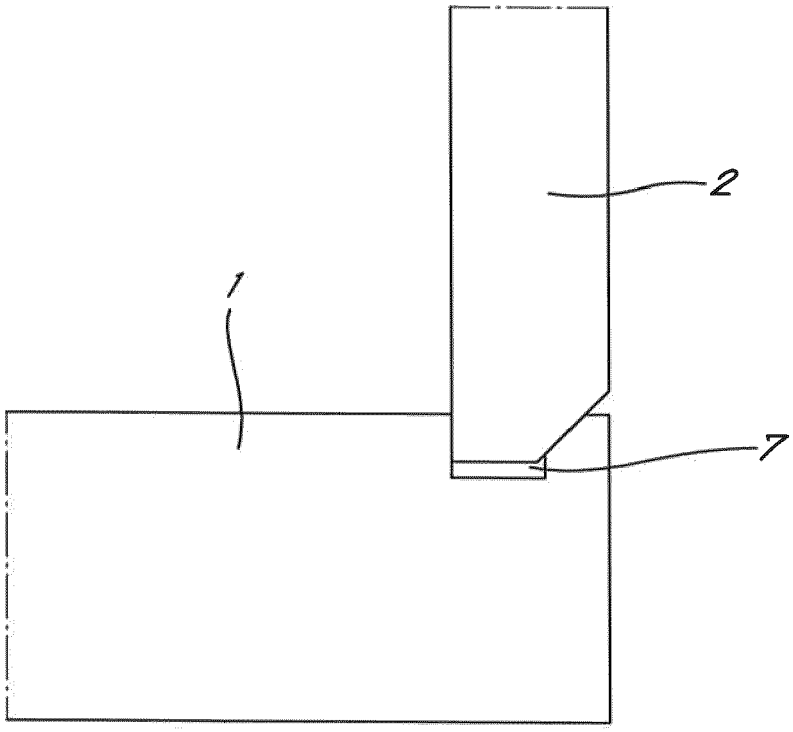

Fig. 1

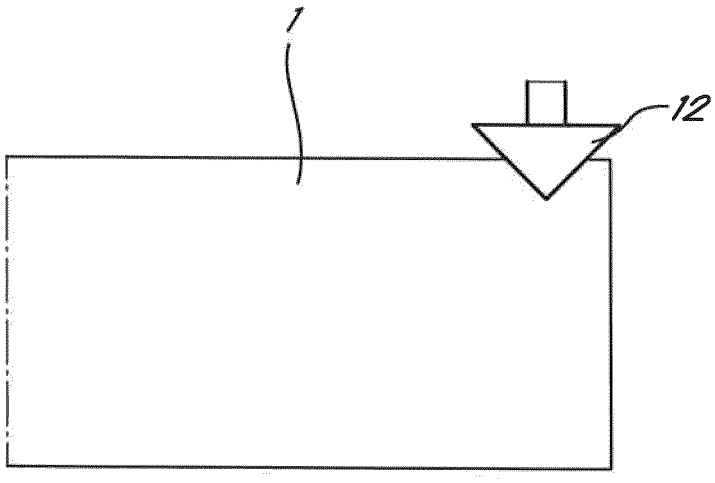

Fig. 2A

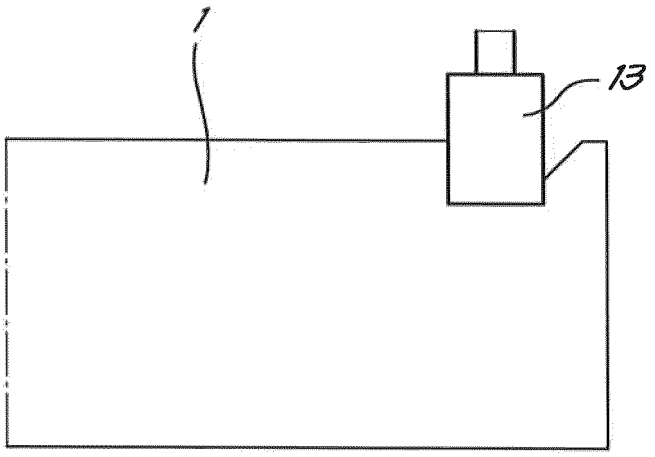

Fig.2B

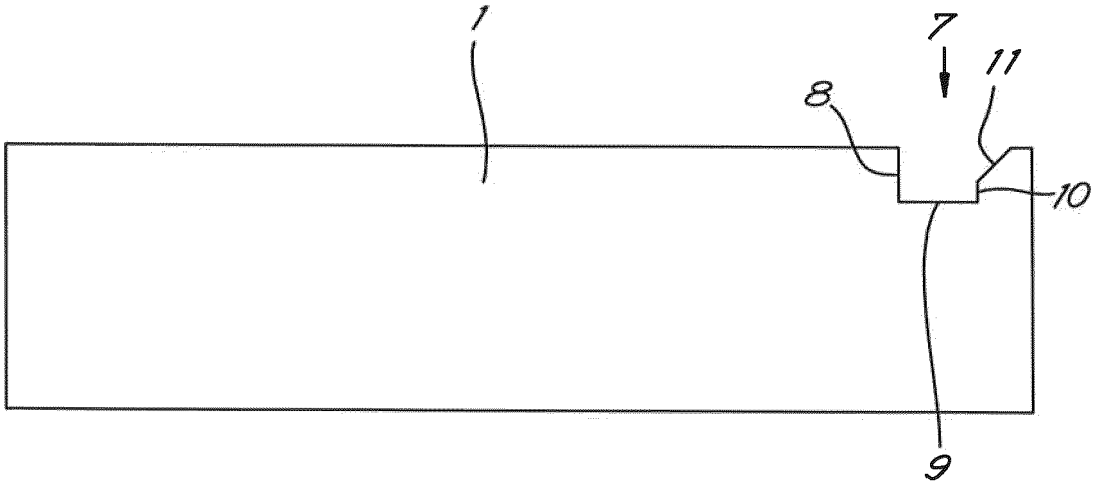

Fig.2C

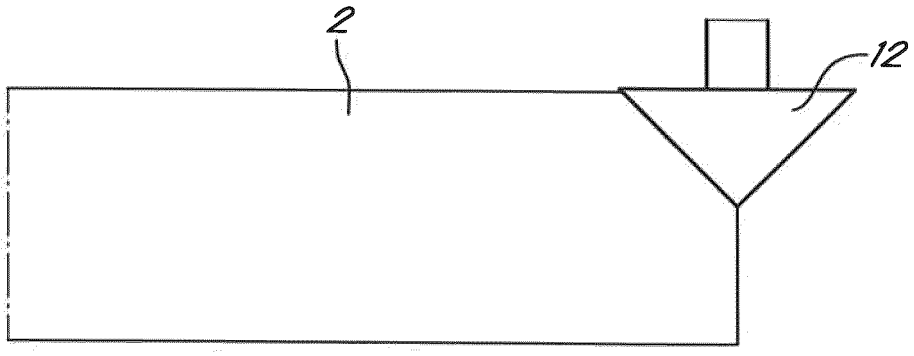

Fig.3A

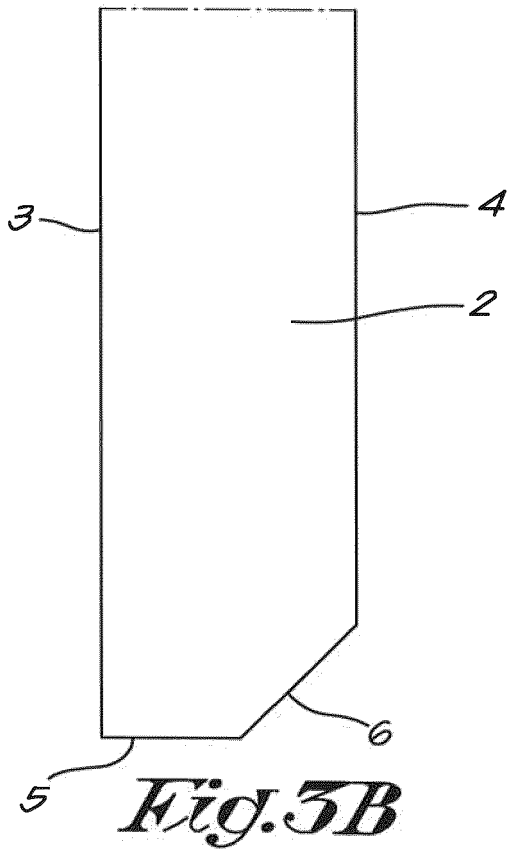

Fig.3B

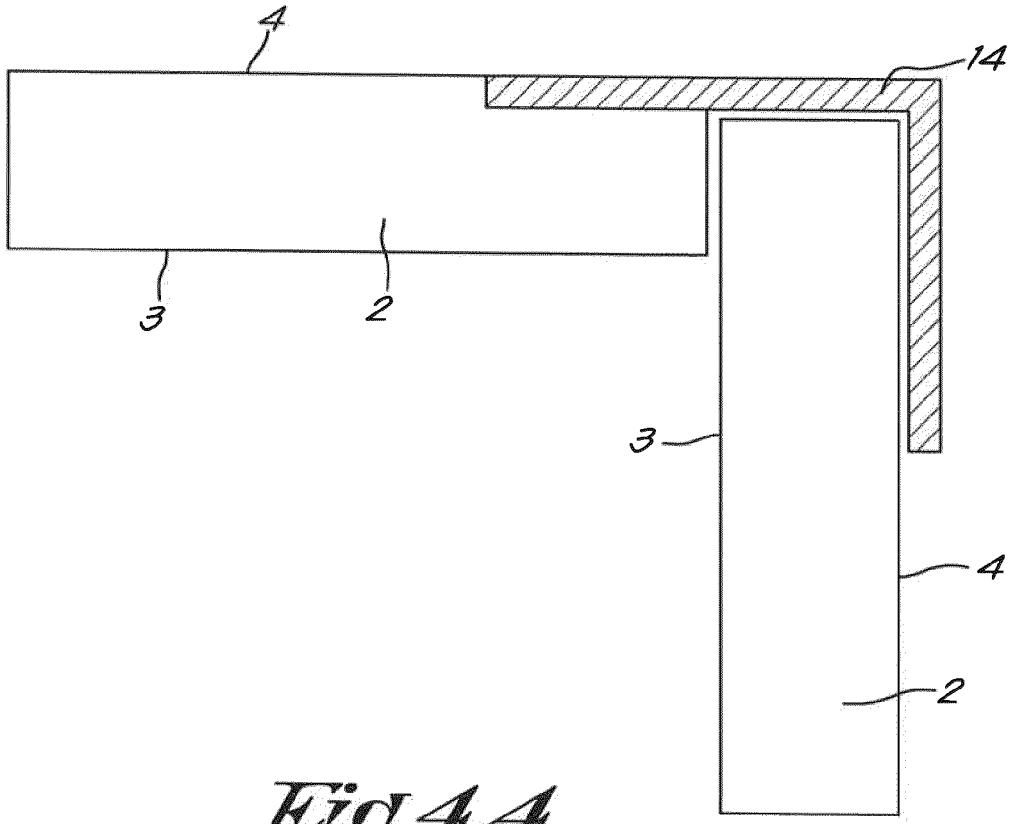

Fig. 4A

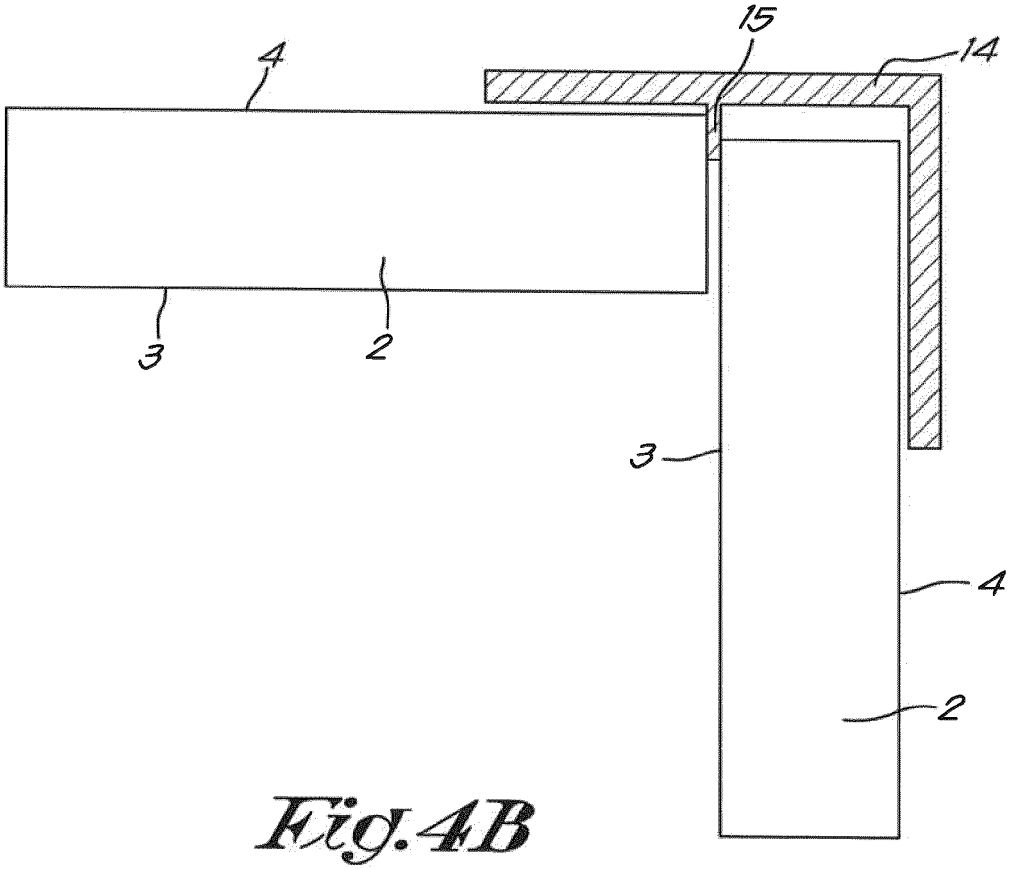

Fig. 4B

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EUROPEAN SEARCH REPORT

Application Number
EP 23 19 4838

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 20 2019 106558 U1 (SANMOD GMBH [AT]) 22 January 2020 (2020-01-22)	1-14	INV. A47K3/00 A47K3/40
A	DE 20 2005 007619 U1 (MUNCH PAUL JEAN [FR]) 15 September 2005 (2005-09-15)	1-14	ADD. A47K3/30
A	WO 2011/110548 A1 (PEISSING ROLF [DE]; SCHOLP WERNER [DE]) 15 September 2011 (2011-09-15)	1-14	

TECHNICAL FIELDS SEARCHED (IPC)

A47K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 January 2024	Oliveras, Mariana

CATEGORY OF CITED DOCUMENTS

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