



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
05.12.2018 Bulletin 2018/49

(51) Int Cl.:
E03C 1/33 (2006.01)

(21) Application number: **17174293.5**

(22) Date of filing: **02.06.2017**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
 Designated Extension States:
BA ME
 Designated Validation States:
MA MD

(72) Inventors:
 • **The inventors have waived their right to be thus mentioned.**

(74) Representative: **Lemcke, Brommer & Partner Patentanwälte Partnerschaft mbB**
Siegfried-Kühn-Straße 4
76135 Karlsruhe (DE)

(71) Applicant: **Franke Technology and Trademark Ltd**
6052 Hergiswil (CH)

(54) **SINK AND METHOD OF INSTALLING SAME**

(57) We propose a method of installing a sink (1) in a worktop cut-out (11 a), comprising:

a) providing a sink (1) made at least partly from a resin-compound material, with:

at least one bowl (2) with a bottom wall (3) and a circumferential side wall (4);

at least one outlet opening located in said bottom wall (3);
 a circumferential rim (5) located at an upper edge of said bowl (2) around an outside thereof, said rim (5) extending outwardly from said side wall (4) by an extent (E);

a number of resilient clamping elements (6) arranged on the outside of said bowl (2) adjacent said rim (5), which clamping elements (6), in a free or uncompressed state thereof, extend outwardly beyond the extent (E) of said rim (5), and which clamping elements (6) are devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall (4), at least some of said clamping elements (6) being attached to the sink in respective recesses (R) arranged in said side wall (4) or in a transition region between said side wall (4) and said rim (5);

b) making said worktop cut-out (11a), it being larger in dimension than an area circumscribed by said rim (5) but smaller than an envelope around said clamping elements (6) in their uncompressed state while defining a cut-out side wall (11 b) extending essentially at right angles with respect to an upper surface (11 d) and a lower surface of said worktop (11);

c) placing said sink (1) in said cut-out (11 a) so that said cut-out side wall (11 b) is located opposite said rim (5), said sink (1) being centered within said cut-out (11a) by means of said clamping elements (6), which are com-

pressed between said cut-out side wall (11 b) and said sink (1).

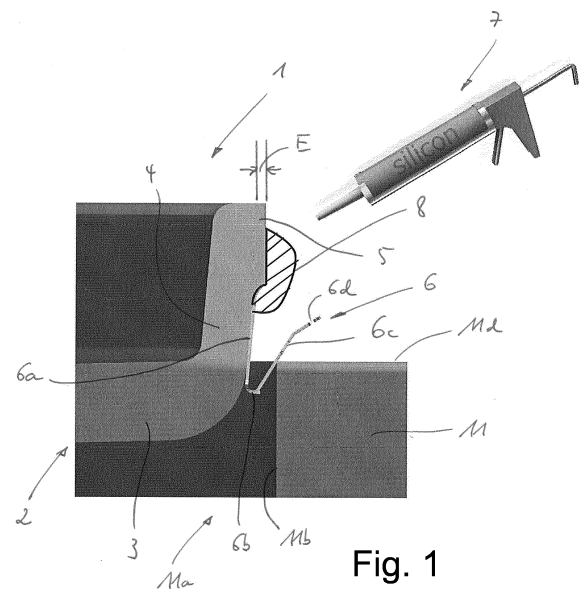


Fig. 1

Description

[0001] The present application relates to a sink, in particular a kitchen sink, according to claim 1.

[0002] According to a further aspect, the application relates to a (kitchen) workplace according to claim 8 comprising a sink and a worktop, said worktop having a cut-out therein, in which said sink is installed.

[0003] Furthermore, according to another aspect thereof, the application relates to a method of installing a sink in a worktop cut-out according to claim 12.

[0004] Today, different installation methods are used for installing sinks, in particular kitchen sinks, in a built-in kitchen.

[0005] Using the undermount method, the sink has outwardly directed flanges along its side walls, which flanges are fixed to the lower surface of a worktop by means of brackets or the like. Accordingly, with the undermount method, the sink has to be installed from below the worktop which may be cumbersome and difficult.

[0006] So-called inset or slimtop sinks present an edge portion around the sink bowl, which edge portion is intended to be placed on top of the upper worktop surface when installing the sink. The sink in question further presents clamps which are - on one side - attached to said edge portion, whereas the other extremity of said clamps is brought into contact with the lower worktop surface. Then, by means of screws comprised in said clamps, the sink is fixed to the worktop. Again, the main installation work has to be done from below the worktop, which can be cumbersome and difficult. Furthermore, said clamps can present a rather intricate design.

[0007] So-called flushmount sinks differ from the above-mentioned inset or slim top sinks in that said edge portion of the sink is not located on top of the upper worktop surface, but is located in a shallow circumferential recess around a worktop cut-out. In this way, the sink does not protrude from the upper worktop surface, which can be appreciated for reasons of design and hygiene. Flushmount sinks are fixed to the worktop by means of clamps, much like inset or slim top sinks.

[0008] While sinks can be made from various materials, metal (steel) and ceramic materials are widely used for this purpose. Recently, resin-compound materials, such as Franke Fraganite, made from quartz sand and acrylic resin, are used as an alternative to the aforementioned materials, which presents advantages as far as wear-resistance and hygienic properties are concerned.

[0009] It is an object of the present invention to provide a new sink and a corresponding installation method, which present a unique integration of the sink with the worktop, while facilitating the installation work while enhancing wear-resistance and hygienic properties. Furthermore, a cut-out section of the worktop shall be protected, which is not easily possible with the above-mentioned current installation methods.

[0010] The object is achieved by means of a sink according to claim 1, in particular kitchen sink, made at least

partly from a resin-compound material, the sink comprising: at least one bowl with a bottom wall and a circumferential side wall; at least one outlet opening located in said bottom wall; a circumferential rim located at an upper edge of said bowl around an outside thereof, said rim extending outwardly from said side wall by an extent; a number of resilient clamping elements arranged on the outside of said bowl adjacent said rim, which clamping elements, in a free or uncompressed state thereof, extend outwardly beyond the extent of said rim, and which clamping elements are devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall, at least some of said clamping elements being attached to the sink in respective recesses arranged in said side wall and/or in a transition region between said side wall and said rim.

[0011] According to another aspect of the invention, the object is achieved by means of a workplace according to claim 8, said workplace comprising a sink, in particular kitchen sink, said sink made at least partly from a resin-compound material and comprising: at least one bowl with a bottom wall and a circumferential side wall; at least one outlet opening located in said bottom wall; a circumferential rim located at an upper edge of said bowl around an outside thereof, said rim extending outwardly from said side wall by an extent; a number of resilient clamping elements arranged on the outside of said bowl adjacent said rim, which clamping elements, in a free or uncompressed state thereof, extend outwardly beyond the extent of said rim, and which clamping elements are devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall, at least some of said clamping elements being attached to the sink in respective recesses arranged in said side wall and/or in a transition region between said side wall and said rim; and a worktop, said worktop having a cut-out therein, in which said sink is installed, said cut-out defining a cut-out side wall extending essentially at right angles with respect to an upper and lower surface of said worktop, wherein said cut-out side wall is located opposite said rim, and wherein said sink is centered within said cut-out by means of said clamping elements, which are compressed between said cut-out side wall and said sink.

[0012] According to a further aspect of the invention, the object is also achieved by means of a method of installing a sink in a worktop cut-out according to claim 12, said method comprising a) providing a sink made at least partly from a resin-compound material with: at least one bowl with a bottom wall and a circumferential side wall; at least one outlet opening located in said bottom wall; a circumferential rim located at an upper edge of said bowl around an outside thereof, said rim extending outwardly from said side wall by an extent; a number of resilient clamping elements arranged on the outside of said bowl adjacent said rim, which clamping elements, in a free or uncompressed state thereof, extend outwardly beyond the extent of said rim, and which clamping elements are

devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall, at least some of said clamping elements being attached to the sink in respective recesses arranged in said side wall and/or in a transition region between said side wall and said rim; b) making said worktop cut-out, it being larger in dimension than an area circumscribed by said rim but smaller than an envelope around said clamping elements in their uncompressed state while defining a cut-out side wall extending essentially at right angles with respect to an upper and lower surface of said worktop; c) placing said sink in said cut-out so that said cut-out side wall is located opposite said rim, said sink being centered within said cut-out by means of said clamping elements, which are compressed between said cut-out side wall and said sink.

[0013] Further disclosed is a device for installing a sink in a worktop cut-out, said sink made at least partly from a resin-compound material and comprising at least one bowl with a bottom wall and a circumferential side wall; at least one outlet opening located in said bottom wall; a circumferential rim located at an upper edge of said bowl around an outside thereof; said device comprising at least one installing jig for placing on an upper face of said rim and extending coplanar with said upper face of said rim while extending, at least locally, beyond said rim outwardly from said sink, and a jig counterpart for removably fixing said installing jig to said sink.

[0014] Owing to its rim design, the sink according to the present invention is capable of breaking current installation rules. Preferably, the rim extends across the worktop cut-out section, thus potentially protecting the latter, and an upper edge of said rim is coplanar with the upper worktop surface, when installed.

[0015] In this way, a side wall of the worktop cut-out can be protected and does not require to be polished or otherwise treated prior to installing the sink, which can greatly reduce installation costs.

[0016] Preferably, the sink rim is floating in the worktop cut-out, i.e. does not come into contact with a side wall of said cut-out. A corresponding gap can be sealed by using any suitable sealant, e.g. a silicone sealant.

[0017] Installation of the sink according to the present invention can be executed by pushing the sink in the worktop cut-out from above the worktop, preferable by using a suitable installation device according to one aspect of the present invention.

[0018] The sink can be kept in its final position within the worktop cut-out by means of the resilient clamping elements arranged on the outside of the sink bowl (so-called fastfix clips) in combination with the adhesive action of said sealant (e.g. silicone).

[0019] As a final result, the installed sink can present a flushmount-like rim in terms of alignment with the worktop upper surface, while greatly facilitating the required installation work.

[0020] Owing to the mentioned installation method, the rim of the sink according to the present invention can be

much thinner than standard in the market, e.g. 4 mm vs. 15 through 30 mm, which can be seen as advantageous in terms of esthetics. Thus, in a preferred embodiment of the sink according to the present invention, a value of the extent by which the sink rim extends outwardly from the sink side wall is comprised between 2.5 mm and 6 mm, preferably between 2.5 mm and 5 mm, and more preferably equals about 4 mm, as mentioned.

[0021] In another embodiment of the sink according to the present invention, said rim can be configured in solid material or can be configured by outward and downward bending of the side wall material used for production of the sink.

[0022] In yet another embodiment of the sink according to the present invention, said clamping elements are compressible inwardly towards said side wall to an extent that they do not extend outwardly beyond said extent of the rim. In this way, an easy installation of the sink in a worktop cut-out from above the worktop is made possible.

[0023] According to yet another embodiment of the sink according to the present invention, a clamping force per unit length of the side wall, as caused by said clamping elements in said loaded or compressed state thereof, is essentially evenly distributed around the sink, preferably by adapting a number of the clamping elements and/or by adapting a mutual spacing between individual clamping elements and/or by adapting the clamping force of individual clamping elements. In this way, it can be easily made possible to self-center the sink during insertion in the worktop cut-out by means of said clamping elements. This can help to achieve a uniform gap around the sink, which is advantageous in terms of sealing said gap as well as in terms of esthetics.

[0024] According to a further embodiment of the sink according to the present invention, individual clamping elements comprise at least one spring element, which is hook-shaped in cross-section, with a first leg extending essentially parallel to said side wall and preferably downwardly from said rim, a second leg extending outwardly from said first leg and from said side wall, and a third leg extending outwardly from said second leg and from said side wall as well as parallel to said first leg, in said free or uncompressed state of the clamping elements, said third leg at least partially overlapping with said first leg. This can further help to facilitate installing the sink from above the worktop, while ensuring a reliable clamping action for holding the sink within the worktop cut-out during installation and prior to effectiveness of an additional adhesive material used for fixing the sink in the worktop cut-out.

[0025] In order to further enhance the clamping effect, according to a preferred further embodiment of the sink according to the present invention, a free end portion of said third leg is further angled outwardly from said side wall.

[0026] For easy installation and for achieving an esthetical effect, the sidewall of the sink can have an es-

entially flat configuration. Furthermore, the sink as such can have an overall rectangular shape, when seen from above, preferably with rounded corners.

[0027] In a preferred further embodiment of the workplace according to the present invention, a distance between said rim and said worktop cut-out side wall can be essentially uniform around said sink for achieving a superior esthetical effect. This has already been mentioned above and can be achieved by means of adapting the clamping force per unit length of the sink side wall, as detailed above.

[0028] In yet another embodiment of the workplace according to the present invention, an adhesive sealing joint is located around said rim between said sink and said cut-out side wall, preferably a silicone joint or the like. While filling the gap between the floating rim and the cut-out side wall, said joint can be devised to durably hold the sink in place within the worktop cut-out, in combination with a clamping action of the clamping elements. Accordingly, a main effect of the clamping elements can be to center the sink during installation thereof and to hold it in place until the adhesive sealant has set (or cured).

[0029] According to yet another embodiment of the workplace according to the present invention, an upper face or upper edge of said rim can be essentially coplanar with the upper worktop surface, thus achieving a superior esthetical and hygienical effect.

[0030] As already mentioned before, an embodiment of the inventive method can comprise placing the sink in the worktop cut-out from above the worktop, beginning with a bottom part of the sink, which bottom part is located opposite said rim. This may greatly facilitate installation of the sink, in particular in comparison with current undermount methods.

[0031] In yet another embodiment of the method according to the invention, said method may comprise placing the sink in the worktop cut-out and lowering it therein until an upper face of said rim is essentially coplanar with the upper surface of the work top.

[0032] Prior to method step c), in yet another further embodiment of the inventive method, a bead of an adhesive sealing material can be placed around the rim, preferably a silicone material or the like, so that, during method step c), an adhesive sealing joint is formed around the rim between the sink and the cut-out side wall, preferably a silicone joint or the like. The joint can be effective to close the gap between the sink rim and the cut-out side wall, while protecting the latter from moisture or the like. Furthermore, the adhesive sealing material will hold the sink in place after curing or setting.

[0033] In yet a further embodiment of the inventive method, prior to step c), the sink can be provided with a removable installation device, said installation device comprising at least one installing jig placed on an upper face of the sink rim and extending essentially coplanar with said upper face of said rim while extending, at least locally, beyond said rim outwardly from the sink. Then

method step c) can be performed until said installing jig comes into contact with said upper worktop surface. Afterwards, the installation device can be removed. In this way, the above-described embodiment of the inventive method enables flushmount-like installation of the sink in an easy and reliable fashion.

[0034] For protecting the worktop surface, in particular from said sealing material, prior to method step c), in a further embodiment of the inventive method, the worktop can be provided on its upper surface, adjacent a contour of the cut-out, with a removable protective cover, in particular a tape, which protective cover can be removed after completion of step c).

[0035] In yet a further embodiment of the inventive method, prior to step a), a number of recesses can be made in said side wall or in a transition region between said side wall and said rim, in particular by drilling, grinding, milling, boring, ablating or cutting, and at least some of said clamping elements can be attached to the sink in respective recesses, preferably by glueing or adhesive bonding. In this way, and sink as well as already existing resin-compound sinks can be easily (retro)fitted with the new fixation technology.

[0036] A further embodiment of the installation device comprises that the counterpart of said installing jig is to be located at the sink outlet opening on an outside of the sink bowl. Therefore, said counterpart can be devised accordingly.

[0037] Preferably, said counterpart, in a further embodiment of the installation device, can be devised as a plate-like element, a planar dimension of which is bigger than a clear opening of said outlet opening. In this way, said counterpart can be placed over said outlet opening without passing therethrough.

[0038] In a further embodiment of the installation device, the device comprises a connecting means for detachably connecting the installing jig and the counterpart. Preferably, said connecting means are devised as a screw means, so that detachably connecting said installing jig and said counterpart can be readily achieved without the use of any specialized tools or the like.

[0039] For detachably connecting said installing jig and said counterpart, according to a further embodiment thereof, the installation device may comprise corresponding openings in said installation jig and in said counterpart for passing through said connecting means.

[0040] If said connecting means are devised as a screw means, in yet another embodiment of the installation device, at least said opening in said counterpart can be devised as a threaded bore. This further facilitates detachably connecting said installation jig and said counterpart.

[0041] According to yet another preferred embodiment of the installation device, said connecting means may comprise an abutment means, which defines a maximum distance of said installation jig and said counterpart, so that fixing the device on a sink can be achieved in a secure and reliable fashion.

[0042] Further features and advantages of the present invention will now be described in connection with exemplary embodiments thereof with relation to the drawings.

- Figure 1 is a perspective view of a sink according to the present invention, further illustrating the optional method step of placing a bead of an adhesive sealing material around the sink rim;
- Figures 2a-2c show different steps during installation of the sink of Fig. 1 in a worktop;
- Figures 3a-3c show the installation steps of Fig. 2 from a perspective view;
- Figure 4 shows a tool for making the recesses for locating the clamping elements;
- Figure 5 shows a clamping element located in a recess made according to Fig. 4;
- Figure 6 is a perspective view of a sink according to the present invention installed in a worktop;
- Figure 7 shows a detail from Fig. 6;
- Figures 8a-8d show a sink together with an installation device;
- Figure 9 shows a worktop with a cut-out, prior to installing a sink according to the present invention;
- Figure 10 shows the worktop of Fig. 9 after applying a removable protective cover according to a preferred method step;
- Figure 11 shows an intermediate state during installation of the sink according to Fig. 1 or Figs. 2a through 2c or Figs. 8a through 8d according to the inventive method;
- Figure 12 shows a detail from Fig. 11; and
- Figures 13a-13d show successive method steps for completing the sink installation process.

[0043] In Fig. 1, the sink according to the present invention is denoted by means of reference numeral 1. Said sink 1 can - without limitation - be devised as a kitchen sink and is at least partially made of a resin-com-

pound material, such as Fraganite (quartz + acrylic resin). It comprises a bowl 2 with a bottom wall 3 and a circumferential side wall 4. At least one outlet opening, which cannot be seen in Fig. 1, is located in said bottom wall 3 (cf. Fig. 6). A circumferential rim 5 is located at an upper edge of said bowl 2 around an outside thereof, as can be readily seen from Fig. 1. Said rim 5 extends outwardly from said side wall 4 by an extent E. Preferably, side wall 4 and rim 5 are formed integrally from said resin-compound material, as shown. Furthermore, the sink 1 comprises a number of resilient clamping elements 6 arranged on the outside of said bowl 2 adjacent said rim 5. In Fig. 1, one clamping element 6 is shown in a free or uncompressed state, in which it extends outwardly beyond the extent E of said rim 5. The clamping elements 6 are devised for providing, in a loaded or compressed state thereof, a clamping force directed outwardly from said side wall 4, for holding the sink in a corresponding worktop cut-out, as will be explained in more detail below.

[0044] Referring again to Fig. 1 and to Fig. 12, it can be easily gathered that the clamping element 6, in its unloaded state, does extend outwardly beyond the extent E of said rim 5. In a preferred embodiment, a value of said extent E can be comprised between 2.5 mm and 6 mm, preferably between 2.5 mm and 5 mm, and more preferably equals about 4 mm.

[0045] As can further be gathered from Fig. 1 and Fig. 12, the clamping elements 6 can comprise at least one spring element which is hook-shaped in cross section, with a first leg 6a extending essentially parallel to said side wall 4 and preferably downwardly from said rim 5, a second leg 6b extending outwardly from said first leg 6a and from said side wall 4, and a third leg 6c extending outwardly from second leg 6b and from said side wall 4 as well as parallel to said first leg 6a, in said free or uncompressed state of the clamping elements 6, as shown in Fig. 12. Furthermore, said third leg 6c at least partly overlaps with said first leg 6a. A free end portion of said third leg 6c is angled outwardly from said side wall 4, as shown at reference numeral 6d.

[0046] As can further be gathered from Fig. 1 and Fig. 12, the rim 5 is configured in solid resin-compound material for increased mechanical strength.

[0047] Furthermore, from Fig. 1 and Fig. 12 it can be gathered that the clamping elements 6 are compressible inwardly toward the side wall 4 to an extent that they do no longer extend outwardly beyond said extent E of the rim 5. This enables easy installation of the sink 1 from above a worktop, as will be explained in detail below.

[0048] Referring now to Fig. 3a, it can be seen that a clamping force per unit length of the side wall 4, as caused by said clamping elements 6 in their loaded or compressed state, is essentially evenly distributed around the sink, by adapting the number of the clamping elements 6. According to a preferred embodiment, all of the clamping elements 6 are essentially identical; however, more clamping elements can be placed along the longer side walls of the rectangular sink 1, thus enabling center-

ing of the sink 1 within a worktop cut-out. In this context, the number of clamping elements 6 at opposing side walls 4 of the sink 1 should be identical, which cannot be seen in Fig. 3a.

[0049] Further according to Fig. 1, by means of a suitable device 7, a bead 8 of an adhesive sealing material is placed around the rim 5, which adhesive sealing material can be - without limitation - a silicone material. The effect of said bead 8 will be explained below. Preferably, said bead 8 is placed around the entire periphery of the rim 5 around the sink 1, more preferably with a bead width or diameter of approx. 7 mm.

[0050] Fig. 1 further shows a worktop 11 having an essentially rectangular cut-out 11a, which cut-out 11a is intended to be fitted with a sink 1 as described above in connection with Figs. 1 and 12. To this end, the cut-out 11a is made larger in dimension than an area circumscribed by the sink rim 5 but smaller than an envelope around said clamping elements 6 in their uncompressed state while defining a cut-out side wall 11b extending essentially at right angles with respect to an upper and lower surface of said worktop. Reference numeral 11d denotes an upper surface 11d of worktop 11. Worktop 11 can be made of wood, metal, stone or any other suitable (composite) material. It should be noted that the side wall 11b of cut-out 11a needs not to be polished or otherwise treated when installing sink 1 as described above by using an installation method according to the present invention.

[0051] Figs. 2a through 2c show the sink 1 of Fig. 1 (with bead 8) and its interaction with worktop 11 (cut-out 11a) during installation of the sink 1. Fig. 2a shows a clamping element 6 in its free state prior to interaction. When sink 1 is lowered according to arrows A1, it gradually enters cut-out 11a while the clamping elements 6 make contact with the cut-out side wall 11b (Fig. 2b) which has a centering effect on the entire sink (arrow A2). Fig. 2c shows the final installation state, wherein the clamping elements 6 hold the sink 1 in the cut-out 11a. The sink 1 is mounted flush with the worktop upper surface 11d, e.g. by using an appropriate alignment device 20 and pushing according to arrow A3. The material of bead 8 fills a gap between rim 5 of sink 1 and cut-out side wall 11b.

[0052] Figs. 3a through 3c show the same sequence of events as Fig. 2a through 2c from a perspective view.

[0053] The clamping elements 6 (cf. Fig. 1) are located in respective recesses R in said side wall 4 of the sink 1 or in a transition region T between said side wall 4 and said rim 5, as shown in Fig. 4 and Fig. 5. Fig. 4 further shows a tool 30 for making said recesses R in the resin-compound material of sink 1, in particular by drilling, grinding, milling, boring, ablating or cutting. In Fig. 4, tool 30 is devised as a rotational cutting tool with cutting head 31 and driving shaft 32. At least some of said clamping elements 6 can then be attached to the sink in respective recesses R by glueing or adhesive bonding (cf. Fig. 5). The clamping element 6 shown in Fig. 6 has multiple legs

6b, 6c of slightly differing shape, which is an optional feature of the present invention.

[0054] Fig. 6 shows another perspective view of sink 1 installed in worktop 11. In Fig. 6, the outlet opening 3a, which cannot be seen in Fig. 1, is clearly visible and located in bottom wall 3 (cf. Fig. 6).

[0055] Fig. 7 is a detailed view of the gap between sink 1 and worktop 11 as already mentioned in connection with Fig. 2c. Said gap is filled with the material of bead 8 (silicone). Preferably, rim 5 and gap together are only 6.5 mm wide.

[0056] Figs. 8a through 8d show a sink 1 different from that of Figs. 1 through 7 and its interaction with a special installation device denoted by reference numeral 9. The sink shown in Figs. 8a-d as well as in the following figures is not made of a resin-compound material, but of metal. However, it could easily be replaced by a sink according to the present invention, i.e., made of resin-compound material and having clamping elements installed in recesses, as detailed above.

[0057] The installation device 9 comprises and installing jig 9a and a so-called jig counterpart or counterpart 9b. The installing jig 9a can be best seen in Figs. 8a and 8c, whereas the counterpart 9b can be best seen in Figs. 8b and 8d. The installing jig 9a and its counterpart 9b can be made - for instance - in plastic or wood-composite material, without limitation. The installing jig 9a has a flat, sheet-like configuration of overall rectangular shape with circumferentially protruding flaps 9c and grip openings 9d, which are located in vicinity of an edge portion of the installing jig 9a. Further comprised are two connecting openings 9e which are located near a center of the installing jig 9a. As can be seen from Fig. 8c, the installing jig 9a can be placed on top of the sink 1, so that it rests on an upper edge or upper face of the rim, while said flaps 9c protrude outwardly from the sink 1 with respect to the rim. Preferably, the location of each flap 9c corresponds to the location of a clamping element 6.

[0058] As can be gathered from Fig. 8b, the square-shaped counterpart 9b is placed over an outlet opening 3a of sink bottom wall 3. In this context, the overall dimensions of counterpart 9b are devised such that it completely covers said outlet opening 3a, without passing therethrough. Preferably, sink 1 has an edge contour 3b around said opening 3b, which contour 3b corresponds to a shape of the counterpart 9b in form fitting manner.

[0059] As can further be seen from Fig. 8b, said counterpart 9b has a central opening 9f which can be devised as a threaded bore.

[0060] Fig. 8c illustrates how a screw means (connecting means) 10 can be inserted through opening 9e for connecting the installing jig 9a and its counterpart 9b mutually and in connection with the sink 1 (cf. Fig. 8d). To this end, the screw means 10 is screwed into threaded bore 9f of counterpart 9b. In this way, the installing jig 9a and its counterpart 9b are securely and removably attached to sink 1, as shown in Fig. 8d. Sink 1 can then be manipulated by simply engaging grip openings 9d.

[0061] Fig. 9 shows a worktop 11 having an essentially rectangular cut-out 11a, which cut-out 11a is intended to be fitted with a sink 1 as described earlier. To this end, the cut-out 11a is made larger in dimension than an area circumscribed by said rim but smaller than an envelope around said clamping elements in their uncompressed state while defining a cut-out side wall 11 b extending essentially at right angles with respect to an upper and lower surface of said worktop. Worktop 11 can be made of wood, metal, stone or any other suitable (composite) material. It should be noted that the side wall 11b of cut-out 11 a needs not to be polished or otherwise treated when installing sink 1 as described above by using an installation method according to the present invention.

[0062] According to Fig. 10, worktop 11 has been provided, adjacent a contour of cut-out 11 a, with a removable protective cover 11c made from strips of a suitable tape material.

[0063] Referring now to Fig. 11, sink 1 with installation device 9 and bead 8 (not shown; cf. Fig. 1) is inserted downwardly (arrow D) in the cut-out (cf. Fig. 9, 10) of worktop 11. In this way, as shown in Fig. 12, the clamping elements 6 are compressed by interaction with the cut-out side wall 11 b, thus generating a force for holding sink 1 within the cut-out 11a. Methodwise, sink 1 is pushed downwardly D until the flaps 9c of installing jig 9a make contact with an upper surface 11 d of worktop 11. Then, edge 5 of sink 1 is located within cut-out 11 a opposite side wall 11 b, and sealing material of bead 8 is located between said side wall 11 b and said rim 5 for sealing a gap therebetween and for durably holding the sink after setting or curing of the adhesive sealing material, while further protecting side wall 11 b.

[0064] Fig. 13a shows the state of the installation after said contact between installing jig 9a and worktop 11. An upper face or upper edge (not shown) of the sink rim is now coplanar with worktop upper surface 11 d.

[0065] Then, according to Fig. 13b, connecting means or screw 10 is removed from installation device 9, thus separating installing jig 9a and its counterpart 9b. As can be easily gathered from Fig. 13b (cf. also Fig. 11 and Fig. 8c), connecting means 10 has an abutment 10a which comes into contact with installing jig 9a (cf. Fig. 13a) for defining a maximum distance between connected installing jig 9a and counterpart 9b.

[0066] Then, according to Fig. 13c, the installation device 9 is completely removed from sink 1 on worktop 11.

[0067] Finally, in the method step illustrated in Fig. 13d, the protective cover 11 is removed, thus achieving a complete workplace according to an aspect of the present invention. In this context, it should be checked whether or not the gap between the sink bowl and the worktop is filled properly with the sealing material. If not, some adjustment could be made. The clamping elements will hold the sink in position until the sealing material has dried (set or cured).

[0068] With reference to Fig. 1 or Fig. 12, the sealing material (silicone) could be applied with a bead diameter

of approximately 7 mm all around the sink rim.

[0069] With respect to Figs. 8a through 8d, said screw means 10 can be devised with an M8 thread. The same holds for the threaded bore 9f of counterpart 9b.

[0070] Preferably, the dimensions of cut-out 10a according to Figs. 9 and 10 should correspond to a sink bowl length +2 mm and to a sink bowl width +2 mm, respectively. However, any concrete dimensions will also depend on the respective dimensions of clamping elements 6 and rim 5 (extent E) according to Fig. 1 and Fig. 12.

[0071] Accordingly, protective cover 11c according to Fig. 10 could be applied with a respective width of 20 through 30 mm, without limitation.

Claims

1. Sink (1), in particular kitchen sink, made at least partly from a resin-compound material, the sink comprising:

at least one bowl (2) with a bottom wall (3) and a circumferential side wall (4);

at least one outlet opening (3a) located in said bottom wall (3);

a circumferential rim (5) located at an upper edge of said bowl (2) around an outside thereof, said rim (5) extending outwardly from said side wall (4) by an extent (E);

a number of resilient clamping elements (6) arranged on the outside of said bowl (2) adjacent said rim (5), which clamping elements (6), in a free or uncompressed state thereof, extend outwardly beyond the extent (E) of said rim (5), and which clamping elements (6) are devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall (4),

at least some of said clamping elements (6) being attached to the sink in respective recesses (R) arranged in said side wall (4) or in a transition region (T) between said side wall (4) and said rim (5).

2. Sink (1) according to claim 1, wherein a value of said extent (E) is comprised between 2.5 mm and 6 mm, preferably between 2.5 mm and 5 mm, and more preferably equals about 4 mm.

3. Sink (1) according to claim 1, wherein said rim (5) is configured in solid material.

4. Sink (1) according to claim 1, wherein said clamping elements (6) are compressible inwardly toward said side wall (4) to an extent that they do not extend outwardly beyond said extent (E) of said rim (5).

5. Sink (1) according to claim 1, wherein a clamping force per unit length of said side wall (4), as caused by said clamping elements (6) in said loaded or compressed state thereof, is essentially evenly distributed around the sink (1), preferably by adapting a number of the clamping elements (6) and/or by adapting a mutual spacing between individual clamping elements (6) and/or by adapting a clamping force of individual clamping elements (6).
6. Sink (1) according to claim 1, wherein said clamping elements (6) comprise at least one spring element which is hook-shaped in cross section with a first leg (6a) extending essentially parallel to said side wall (4) and preferably downwardly from said rim (5), a second leg (6b) extending outwardly from said first leg (6a) and from said side wall (4), and a third leg (6c) extending outwardly from said second leg (6b) and from said side wall (4) as well as parallel to said first leg (6a), in said free or uncompressed state of said clamping elements (6), said third leg (6c) at least partially overlapping with said first leg (6a).
7. Sink (1) according to claim 1, wherein a free end portion (6d) of said third leg (6c) is further angled outwardly from said side wall (4).
8. Workplace comprising a sink (1), in particular kitchen sink, made at least partly from a resin-compound material, said sink comprising:
- at least one bowl (2) with a bottom wall (3) and a circumferential side wall (4);
at least one outlet opening (3a) located in said bottom wall (3);
a circumferential rim (5) located at an upper edge of said bowl (2) around an outside thereof, said rim (5) extending outwardly from said side wall (4) by an extent (E);
a number of resilient clamping elements (6) arranged on the outside of said bowl (2) adjacent said rim (5), which clamping elements (6), in a free or uncompressed state thereof, extend outwardly beyond the extent (E) of said rim (5), and which clamping elements (6) are devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall (4), at least some of said clamping elements (6) being attached to the sink in respective recesses (R) arranged in said side wall (4) or in a transition region (T) between said side wall (4) and said rim (5);
and a worktop (11), said worktop (11) having a cut-out (11 a) therein, in which said sink (1) is installed, said cut-out (11a) defining a cut-out side wall (11 b) extending essentially at right angles with respect to an upper surface (11d) and a lower surface of said worktop (11), wherein said cut-out side wall (11 b) is located opposite said rim (5), and wherein said sink (1) is centered within said cut-out (11 a) by means of said clamping elements (6), which are compressed between said cut-out side wall (11 b) and said sink (1).
9. Workplace according to claim 8, wherein a distance or gap between said rim (5) and said cut-out side wall (11 b) is essentially uniform around said sink.
10. Workplace according to claim 8, wherein an adhesive sealing joint is located around said rim (5) between said sink (1) and said cut-out side wall (11b), preferably a silicone joint or the like.
11. Workplace according to claim 8, wherein an upper face of said rim (5) is essentially coplanar with said upper worktop surface (11 d).
12. Method of installing a sink (1) in a worktop cut-out (11 a), comprising:
- a) providing a sink (1) made at least partly from a resin-compound material, with:
- at least one bowl (2) with a bottom wall (3) and a circumferential side wall (4);
at least one outlet opening (3a) located in said bottom wall (3);
a circumferential rim (5) located at an upper edge of said bowl (2) around an outside thereof, said rim (5) extending outwardly from said side wall (4) by an extent (E);
a number of resilient clamping elements (6) arranged on the outside of said bowl (2) adjacent said rim (5), which clamping elements (6), in a free or uncompressed state thereof, extend outwardly beyond the extent (E) of said rim (5), and which clamping elements (6) are devised for providing, in a loaded or compressed state thereof, a clamping force outwardly from said side wall (4);
at least some of said clamping elements (6) being attached to the sink in respective recesses (R) arranged in said side wall (4) or in a transition region (T) between said side wall (4) and said rim (5);
- b) making said worktop cut-out (11a), it being larger in dimension than an area circumscribed by said rim (5) but smaller than an envelope around said clamping elements (6) in their uncompressed state while defining a cut-out side wall (11 b) extending essentially at right angles

with respect to an upper and lower surface (11 d) of said worktop (11);

c) placing said sink (1) in said cut-out (11 a) so that said cut-out side wall (11 b) is located opposite said rim (5), said sink (1) being centered within said cut-out (11a) by means of said clamping elements (6), which are compressed between said cut-out side wall (11 b) and said sink (1).

5

10

- 13.** Method according to claim 12, comprising placing said sink (1) in said cut-out (11 a) from above said worktop (11), beginning with a bottom part of said sink (1) opposite said rim (5).

15

- 14.** Method according to claim 12, comprising placing said sink (1) in said cut-out (11 a) until an upper face of said rim (5) is essentially coplanar with said upper surface (11 d) of said worktop (11).

20

- 15.** Method according to claim 12, comprising:

prior to step c), placing a bead (8) of an adhesive sealing material around said rim (5), preferably a silicone material or the like, so that, during step c), an adhesive sealing joint is formed around said rim (5) between said sink (1) and said cut-out side wall (11 b), preferably a silicone joint or the like.

25

30

- 16.** Method according to claim 12, comprising:

prior to step c), providing said sink (1) with a removable installation device (9), said installation device (9) comprising at least one installing jig (9a) placed on an upper face of said rim (5) and extending coplanar with said upper face of said rim (5) while extending, at least locally (9c), beyond said rim (5) outwardly from said sink (1), then performing step c) until said installing jig (9a) comes into contact with said upper worktop surface (11 d), and then removing said installation device (9).

35

40

- 17.** Method according to claim 12, comprising:

45

prior to step c), providing said worktop (11) on its upper surface (11d), adjacent a contour of said cut-out (11a), with a removable protective cover (11c), in particular tape, and removing said protective cover (11c) after completion of step c).

50

- 18.** Method according to claim 12, comprising:

55

prior to step a), making a number of recesses (R) in said side wall (4) or in a transition region (T) between said side wall (4) and said rim (5),

in particular by drilling, grinding, milling, boring, ablating or cutting, and attaching at least some of said clamping elements (6) to the sink in respective recesses (R), preferably by glueing or adhesive bonding.

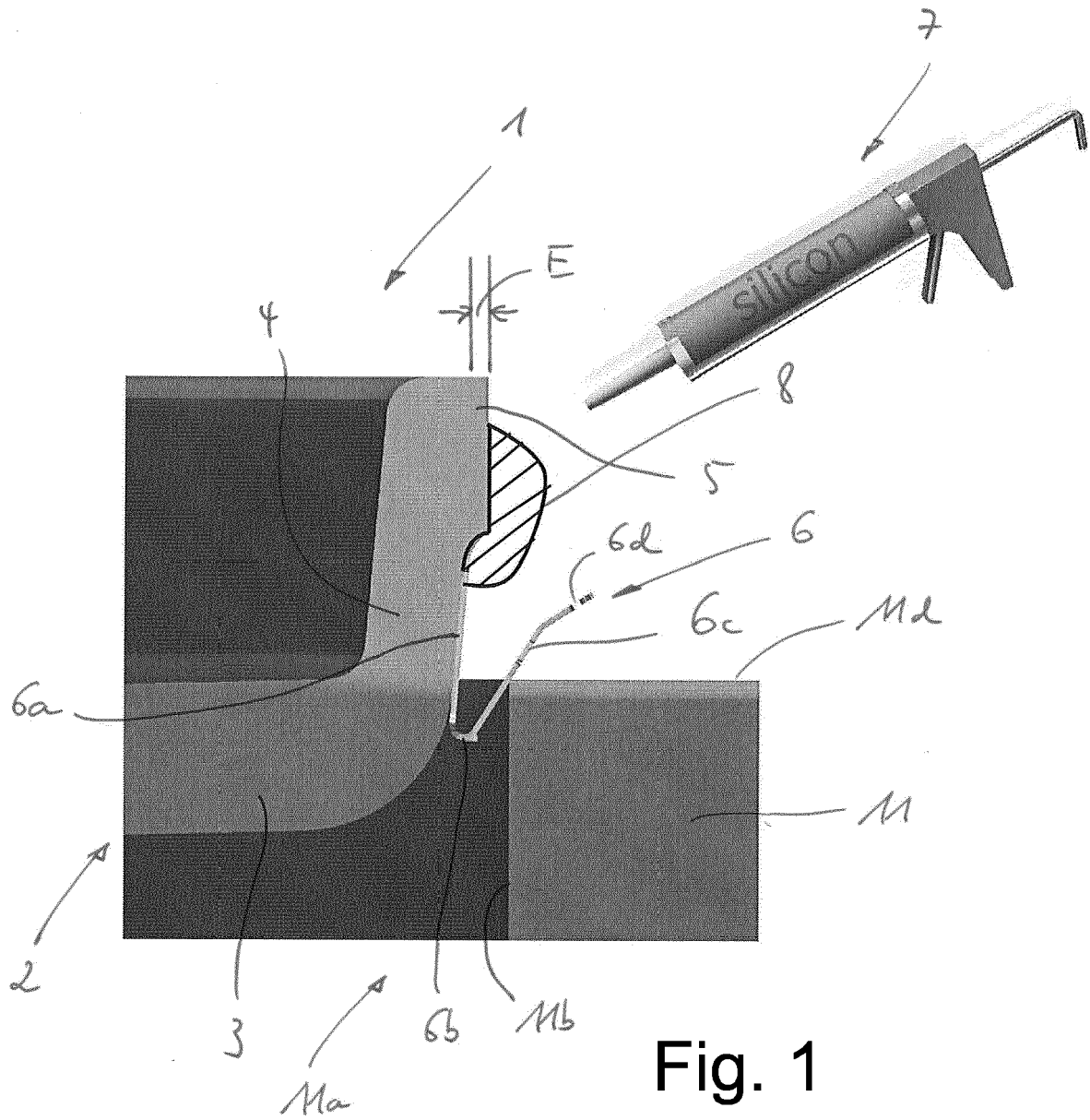


Fig. 1

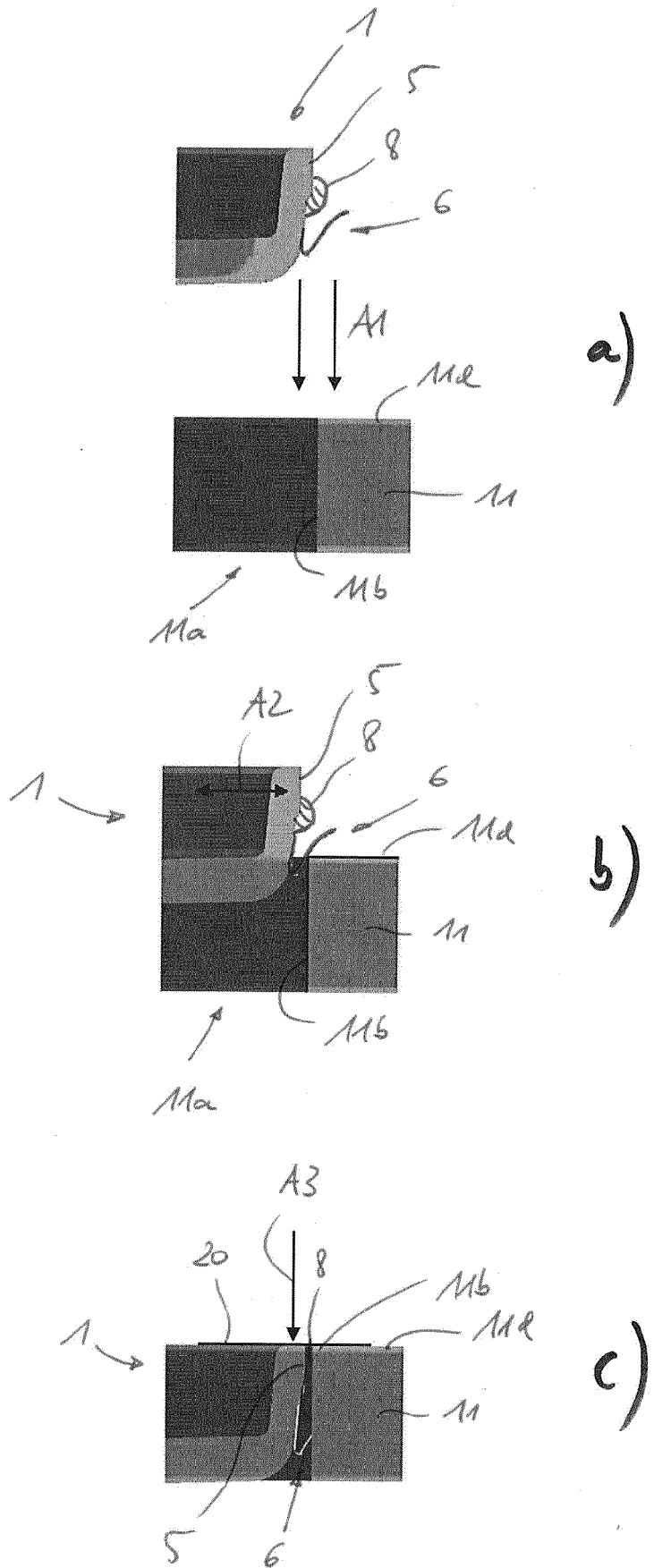


Fig. 2

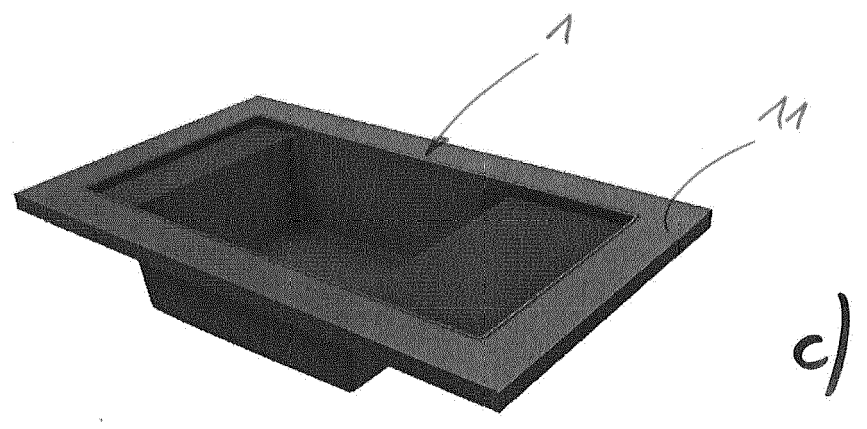
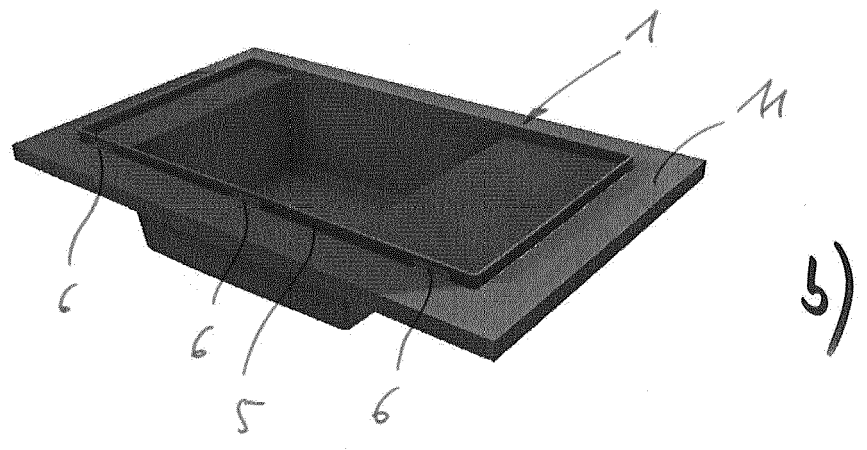
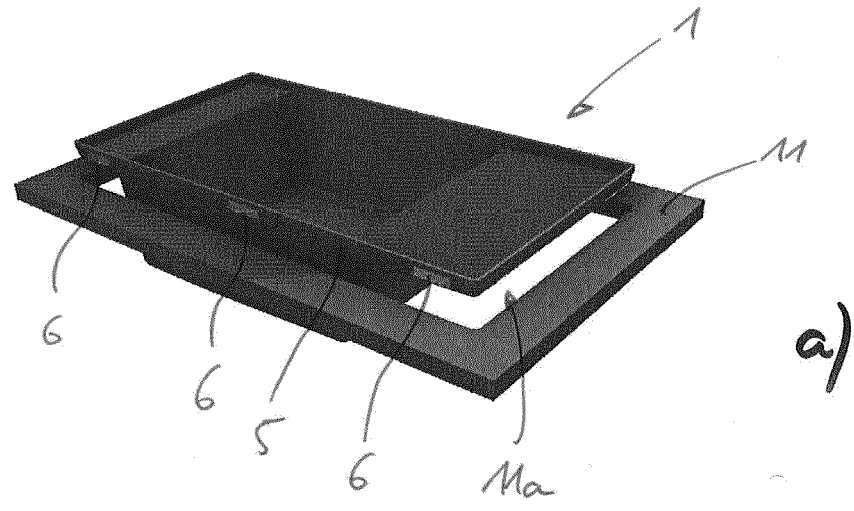


Fig. 3

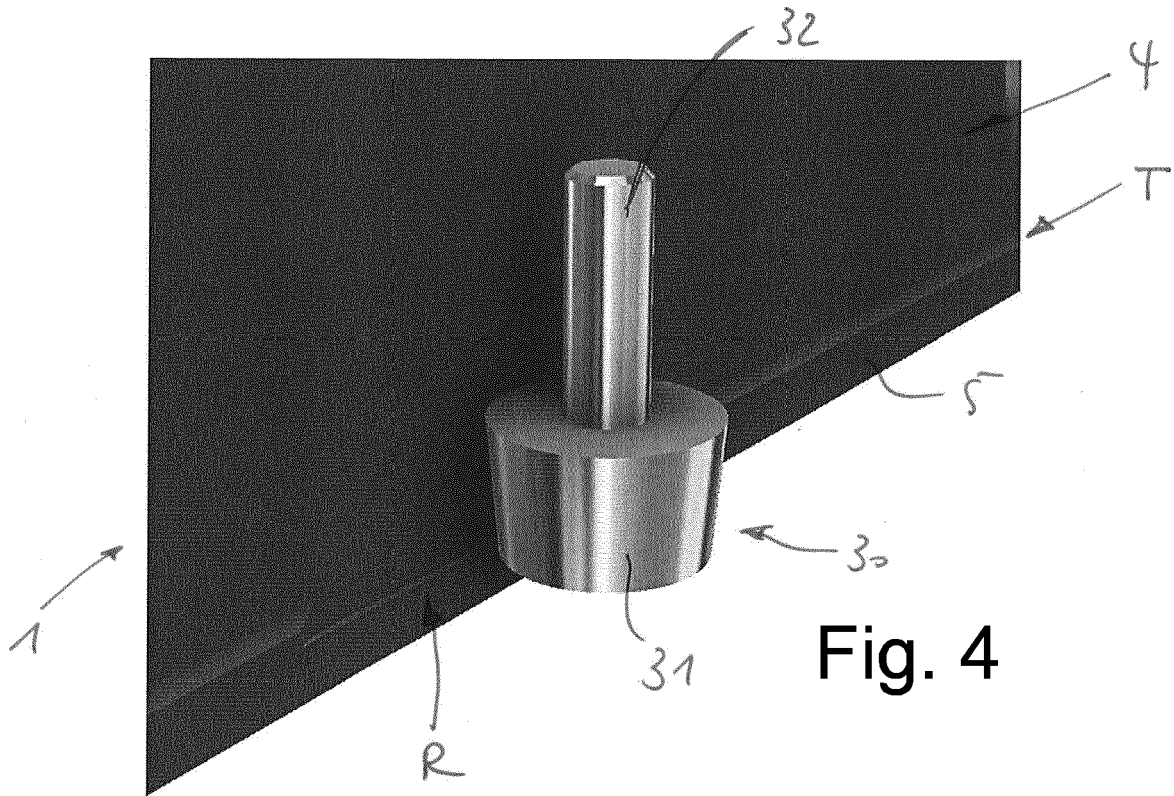


Fig. 4

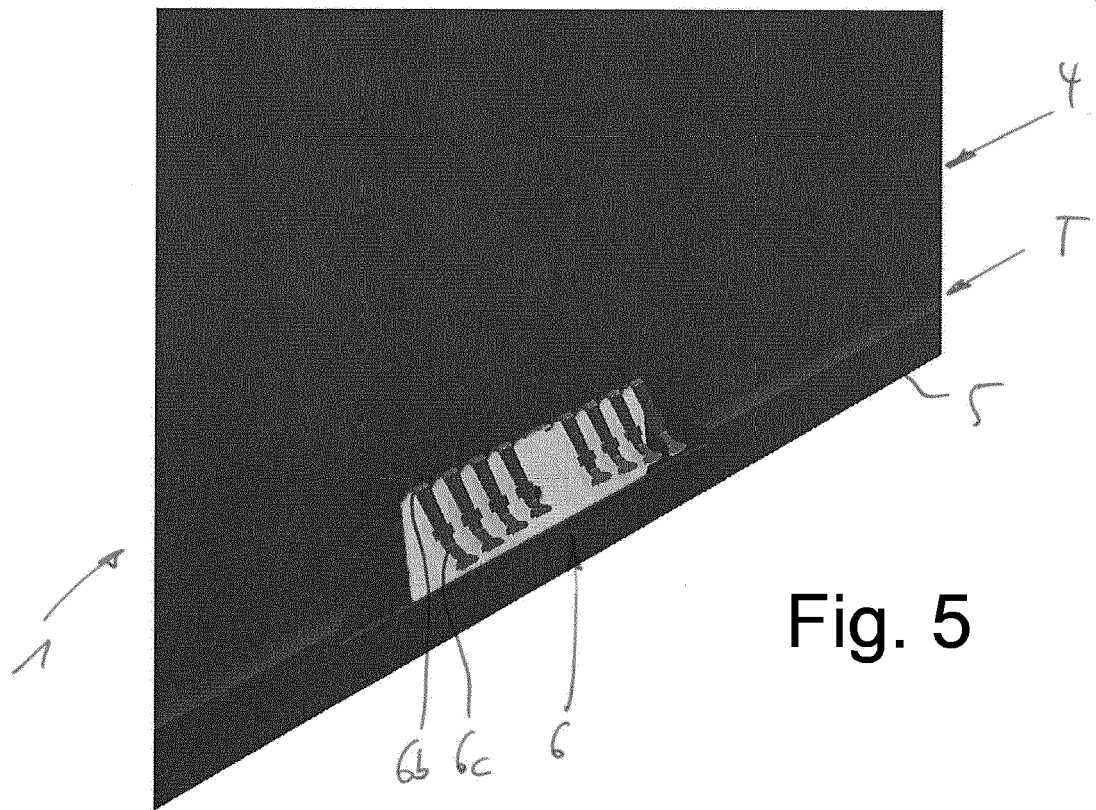


Fig. 5

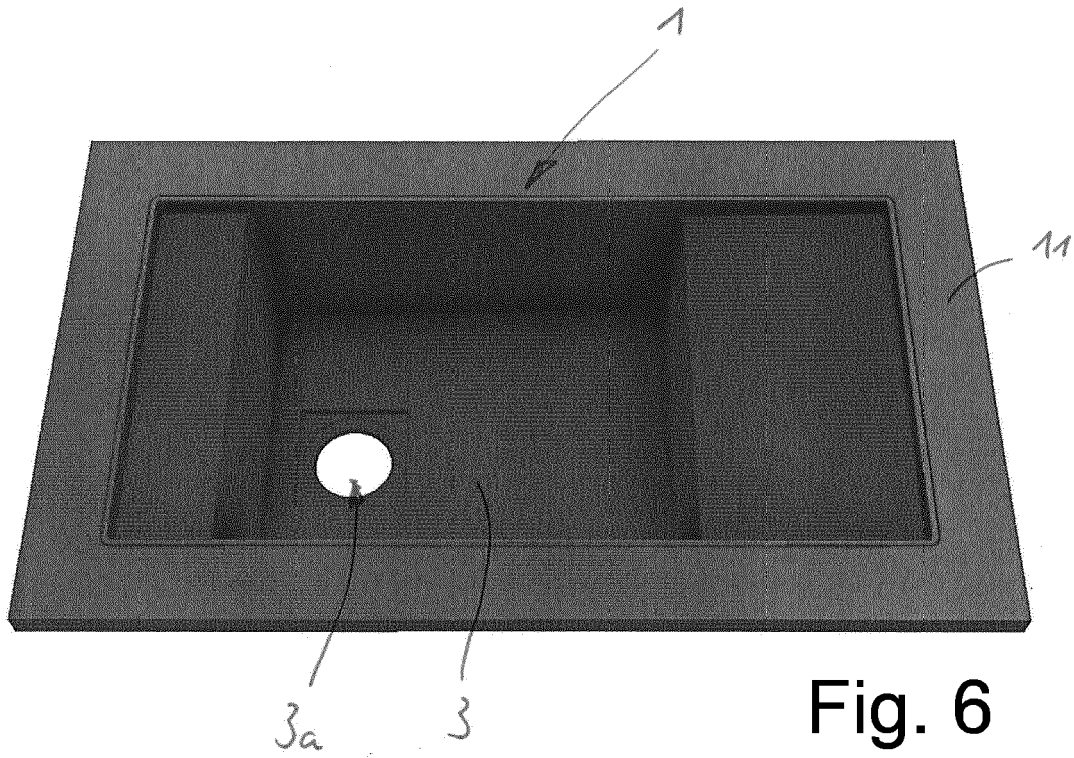


Fig. 6

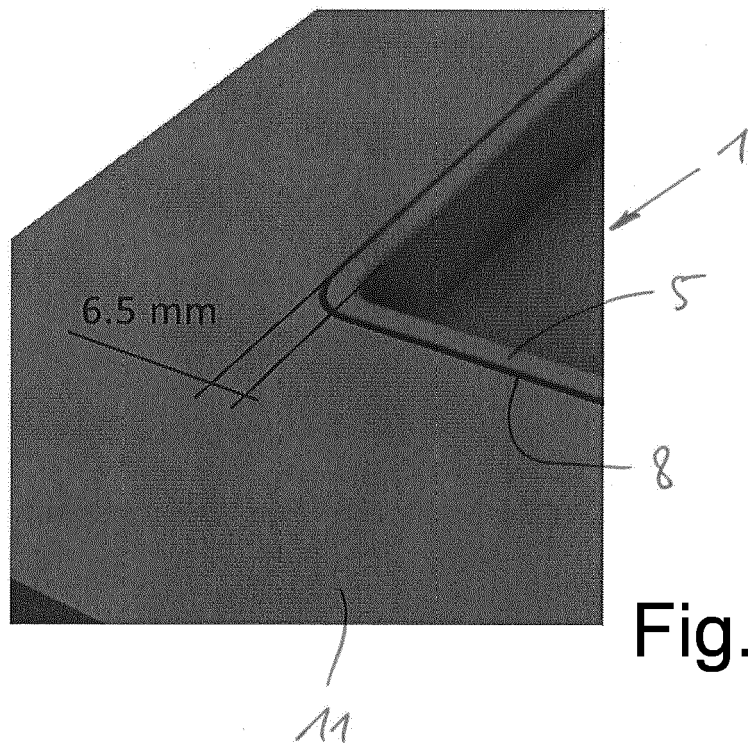


Fig. 7

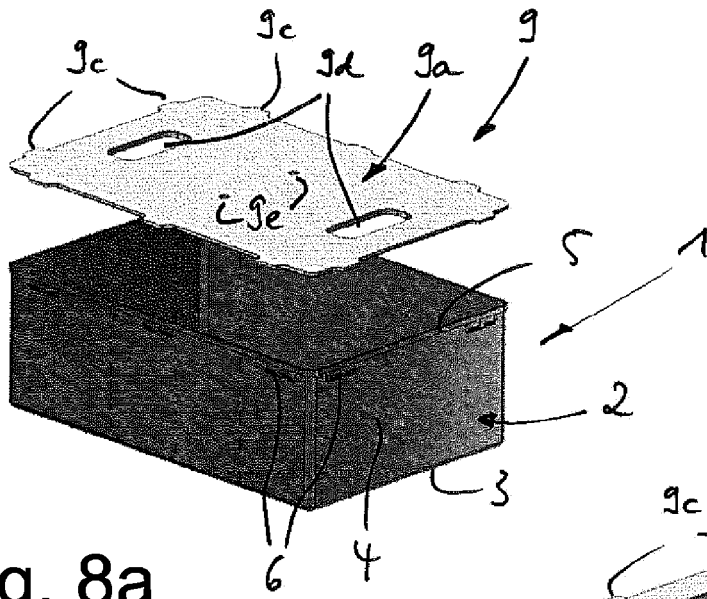


Fig. 8a

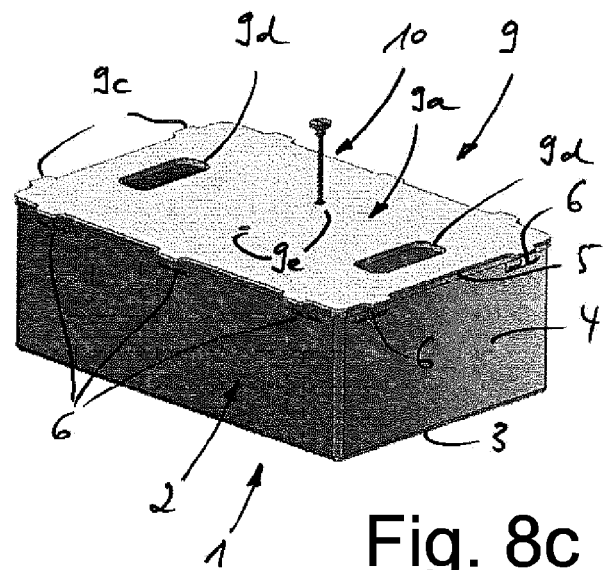


Fig. 8c

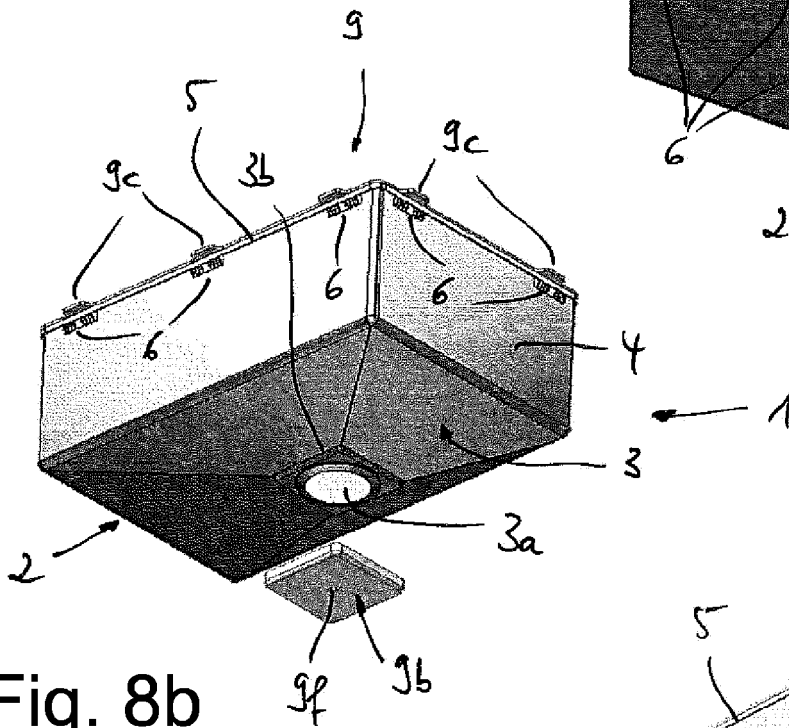


Fig. 8b

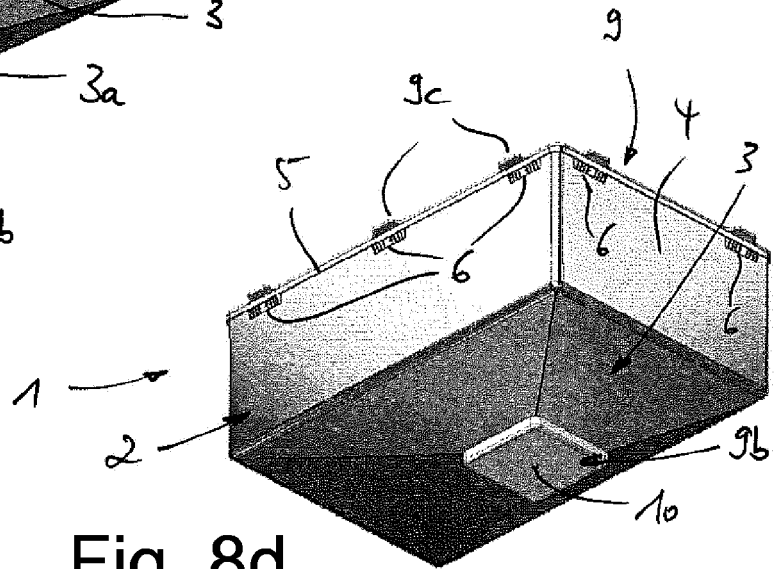


Fig. 8d

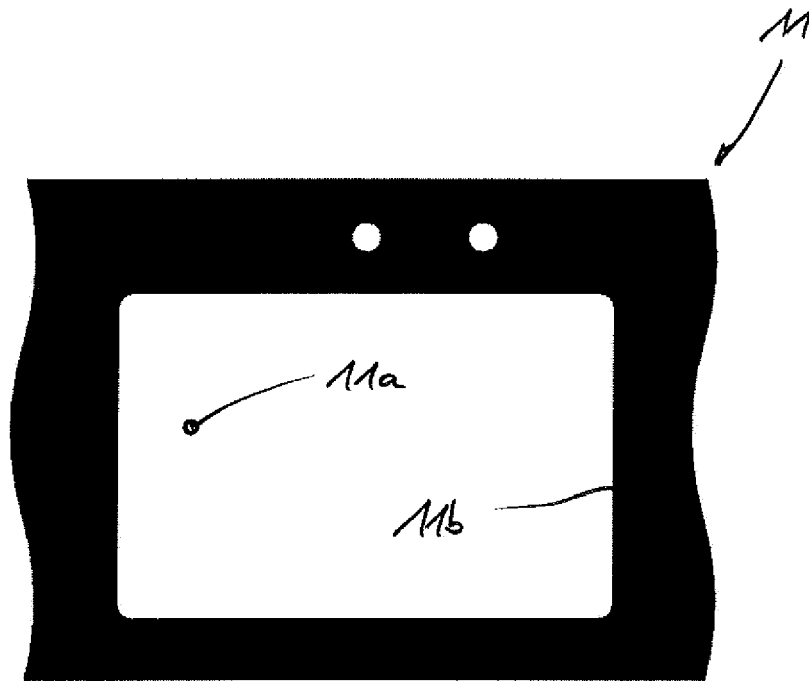


Fig. 9

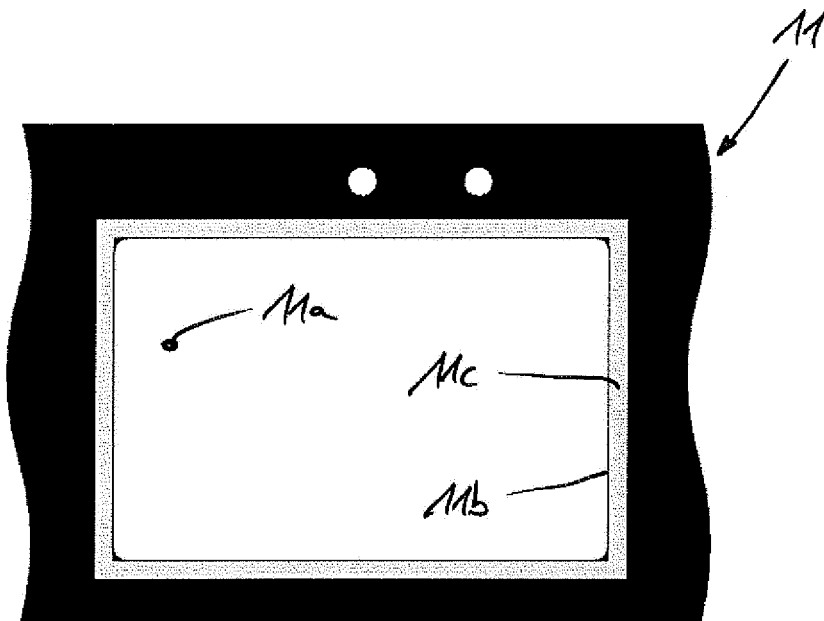


Fig. 10

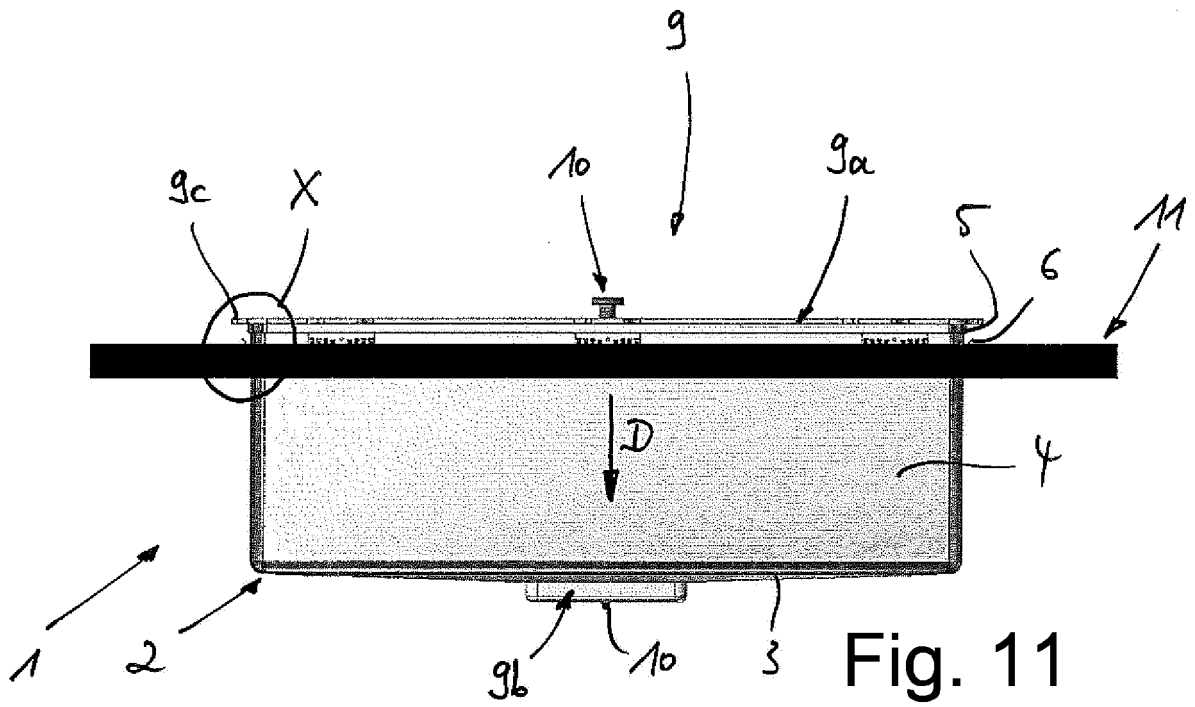


Fig. 11

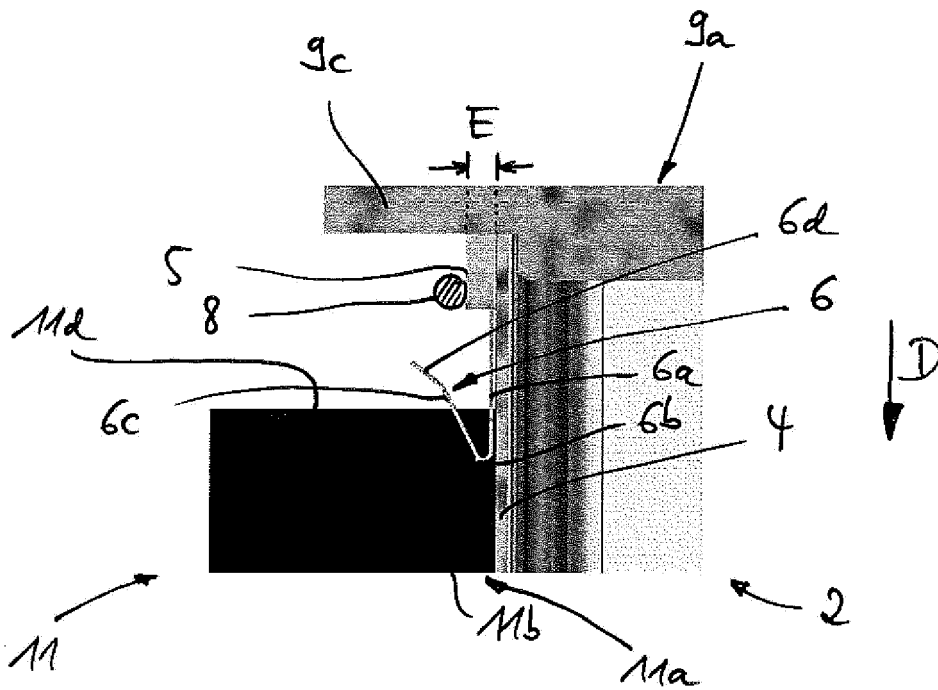


Fig. 12

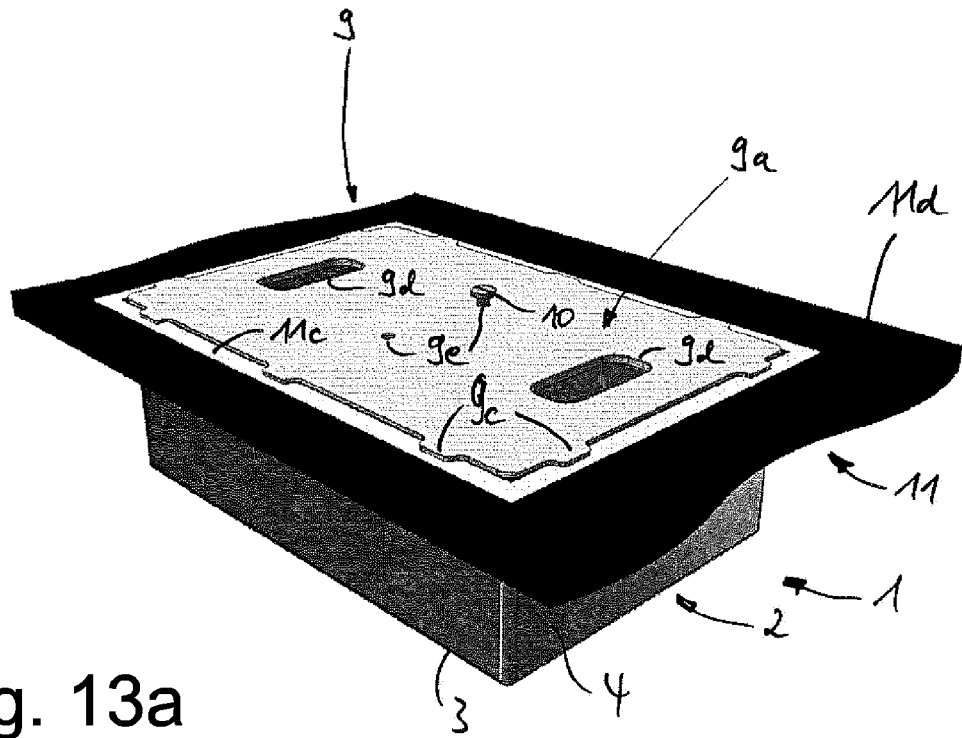


Fig. 13a

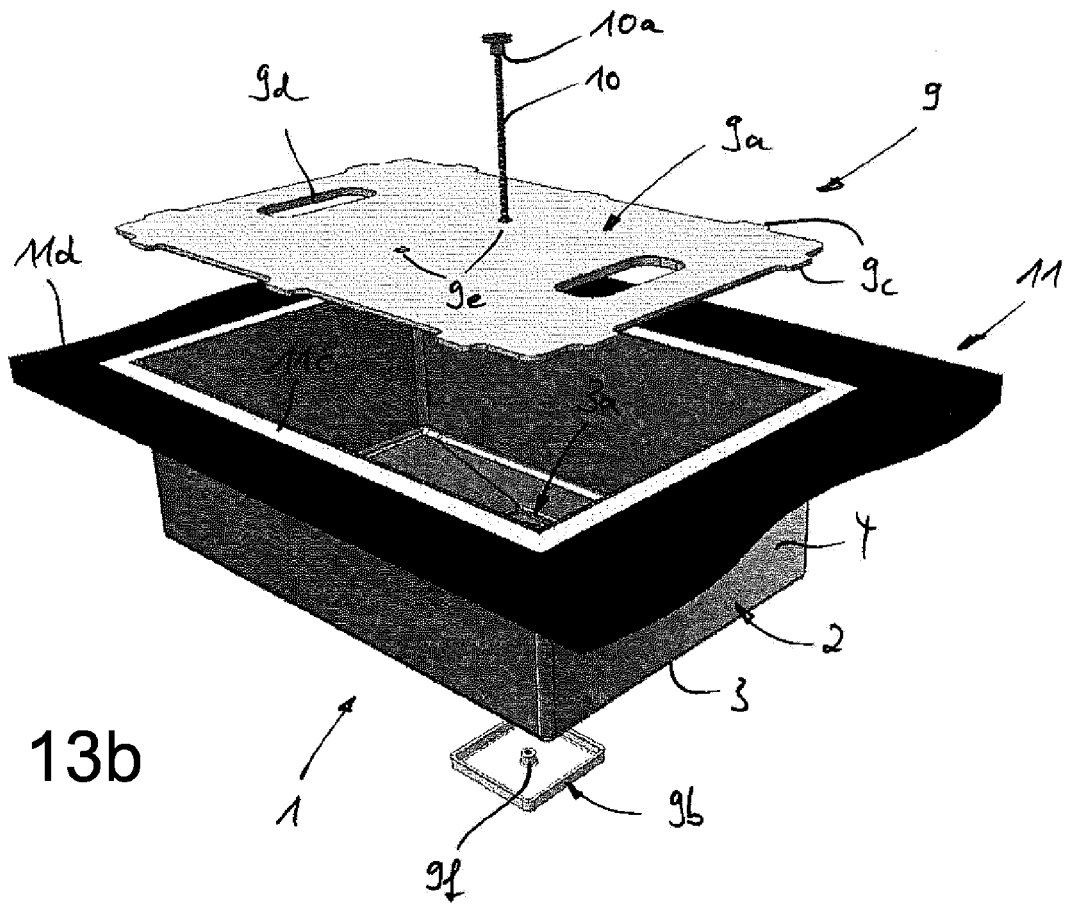
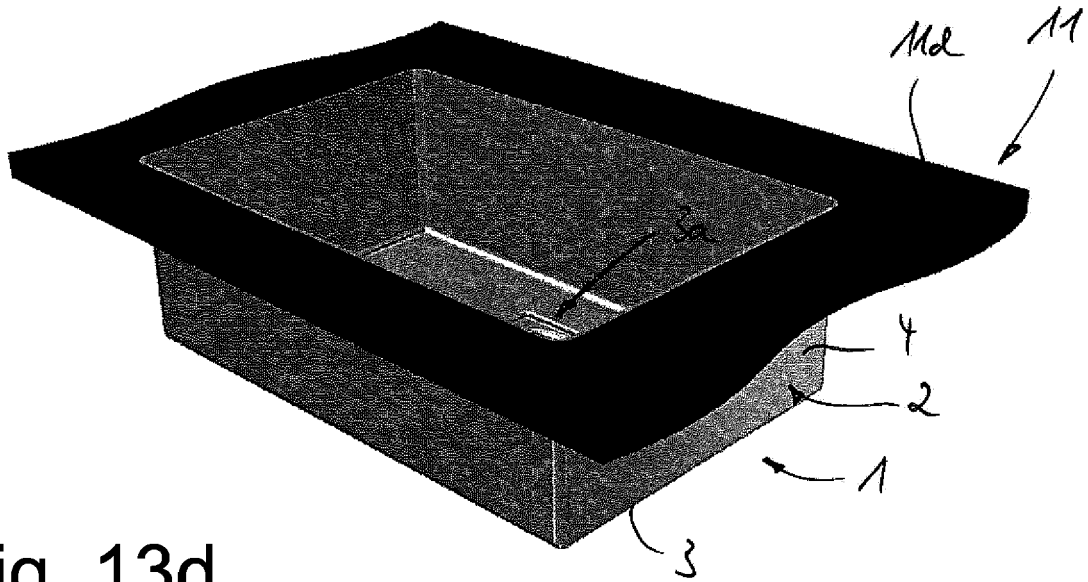
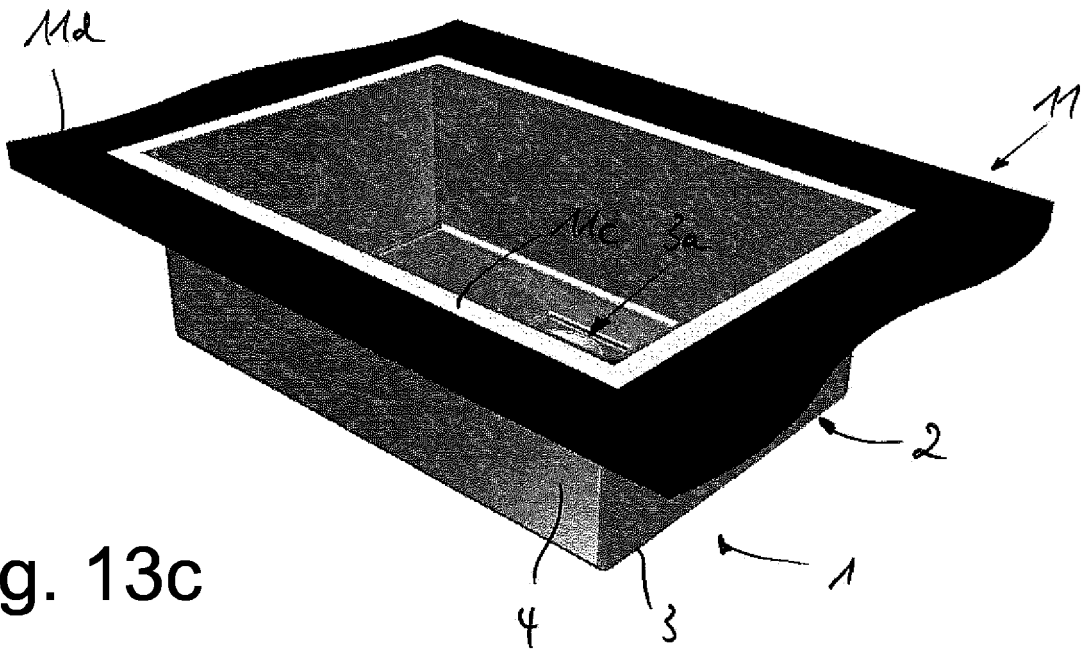


Fig. 13b





EUROPEAN SEARCH REPORT

Application Number
EP 17 17 4293

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	CH 704 123 A2 (SUTER INOX AG [CH]) 31 May 2012 (2012-05-31) * the whole document * -----	1-18	INV. E03C1/33
Y	EP 1 772 566 A2 (NIRO PLAN AG [CH]) 11 April 2007 (2007-04-11) * the whole document * -----	1-7	
Y	DE 44 39 906 C1 (BLANCO GMBH & CO KG [DE]) 30 November 1995 (1995-11-30) * column 5 - column 6; figures 1,5,6 * -----	1-18	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
Place of search		Date of completion of the search	Examiner
Munich		28 November 2017	Horst, Werner
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04/C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 17 17 4293

5 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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-11-2017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CH 704123	A2	31-05-2012	NONE
EP 1772566	A2	11-04-2007	CN 1965725 A 23-05-2007 DE 102005047841 A1 19-04-2007 EP 1772566 A2 11-04-2007 US 2007151019 A1 05-07-2007
DE 4439906	C1	30-11-1995	CA 2161830 A1 09-05-1996 DE 4439906 C1 30-11-1995 FR 2729169 A1 12-07-1996 GB 2294877 A 15-05-1996 GR 950100402 A 31-07-1996 IT T0950900 A1 08-05-1996 US 5664265 A 09-09-1997