(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
28 June 2012 (28.06.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/087682 A1

(51) International Patent Classification:
E03C 1/18 (2006.01) *E03C 1/33* (2006.01)

(21) International Application Number:
PCT/US2011/064707

(22) International Filing Date:
13 December 2011 (13.12.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/426,905 23 December 2010 (23.12.2010) US
13/009,627 19 January 2011 (19.01.2011) US

(71) Applicant *(for all designated States except US)*: **KOHLER CO.** [US/US]; 444 Highland Drive, Kohler, Wisconsin 53044 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **EILMUS, Niels J.** [US/US]; 715 Union Avenue, Sheboygan, Wisconsin 53081 (US). **MILLER, Jason R.** [US/US]; 687 River Oaks Drive, Sheboygan Falls, Wisconsin 53085 (US).

(74) Agents: **SPROW, Marcus W.** et al.; 500 Woodward Avenue, Suite 2700, Detroit, Michigan 48226 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report (Art. 21(3))*

(54) **Title**: SINK WITH IMPROVED RIM FEATURES

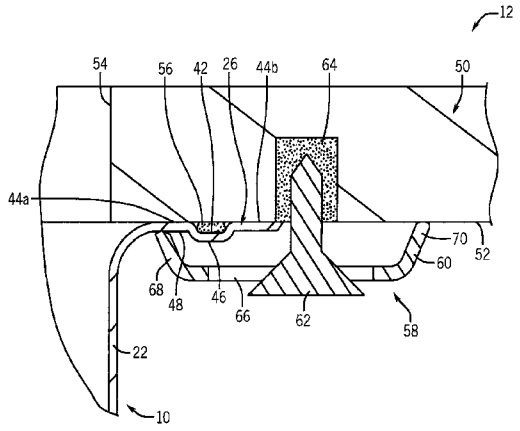

FIG. 9

(57) **Abstract**: A sink (10) mountable to an underside of a countertop, an assembly including this sink, a method installing this sink, and a method of manufacturing this sink are disclosed. The sink includes at least one basin (16) with a mounting rim (26) extending outwardly from an upper portion of the basin. The mounting rim includes a channel (42) recessed relative to an upper surface of the mounting rim. Among other things, this channel may strengthen and inhibit warping of the mounting rim as well as be configured to neatly receive a sealant during installation.

WO 2012/087682 A1

SINK WITH IMPROVED RIM FEATURES

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority to and the benefit of the following applications, the entire disclosures of which are incorporation herein by reference: U.S. Provisional Patent Application No. 61/426,905, filed on December 23, 2010, and U.S. Patent Application No. 13/009,627, filed on January 19, 2011.

BACKGROUND

[0002] This disclosure relates to sinks. More particularly, this disclosure relates to under countertop mountable sinks.

SUMMARY

[0003] A sink mountable to an underside of a countertop, an assembly including this sink, a method of installing this sink, and a method of manufacturing this sink are disclosed. The sink includes at least one basin with a mounting rim extending outwardly from an upper portion of the basin. The mounting rim includes a channel recessed relative to an upper surface of the mounting rim.

[0004] Among other things, this channel may strengthen and inhibit warping of the mounting rim as well as be configured to neatly receive a sealant, such as silicone caulk, during installation. The presence of the channel can strengthen and inhibit warping of the mounting rim in comparison to a similar sink lacking this channel. The improved planarity of the mounting rim facilitates convenient and hassle-free installation of the sink.

[0005] The channel may be upwardly facing and disposed between the upper portion of the basin and the outer periphery of the mounting rim. A section of the upper surface of the mounting rim between the upper portion of the basin and the channel may be substantially co-planar with a section of the upper surface of the mounting rim between the channel and the outer periphery. As will be described in more detail below, these co-planar sections may be contacted to the underside of the countertop

during installation so that the channel is centrally recessed and located between the sections.

[0006] In some forms the channel may form a closed loop around the basin, while in other forms the channel may extend only partially around the basin.

[0007] A lower surface of the mounting rim may further include a protrusion protruding downwardly there from. This protrusion may be disposed beneath the channel and may be formed simultaneously with the channel, as will be described in further detail with respect to the method of making the sink. This protrusion may be configured to assist in locating one or more mounting elements that support the sink with respect to the countertop.

[0008] The mounting rim may further include a faucet deck disposed between an upper portion of the basin and an outer periphery of the mounting rim. This faucet deck may be configured for mounting a faucet or other water fixtures thereon and the channel may inhibit warping of the faucet deck. Accordingly, the channel may extend at least along the portion of the mounting rim between the faucet deck and the outer periphery of the mounting rim.

[0009] A sink of this type may be mounted to an underside of a countertop to form an assembly. In the assembly, the channel may face the underside of the countertop and a sealant may be disposed in the channel to form a seal between the mounting rim and the underside of the countertop. Because the channel can increase the strength and reduce the warping of the mounting rim, the sections of the upper surface of the mounting rim that contact the underside of the countertop are more likely to be flush over the area of contact. Accordingly, it is less likely that mounting elements will need to force a warped upper surface of the mounting rim to be flat so that the surface contacts the underside of the countertop.

[0010] The assembly may also include one or more mounting elements that support the sink with respect to the countertop. If a lower surface of the mounting rim further

includes a protrusion and the mounting element includes a hooked end, then the protrusion may locate the hooked end between an upper portion of the basin and the protrusion. This can effectively "fence in" or locate the sink with respect to the mounting element.

[0011] A related method of installing a sink of this kind to an underside of a countertop is also disclosed. According to the method, a sink of the type above is provided and the mounting rim of the sink is positioned such that the mounting rim contacts the underside of the countertop.

[0012] A sealant may be placed in the channel before contacting the mounting rim of the sink to the underside of the countertop. This sealant may form a seal between the mounting rim and the underside of the countertop.

[0013] If a lower surface of the mounting rim includes a protrusion, then one or more mounting element may be used to mount the sink to the countertop such that the protrusion locates the mounting element. As mentioned above, the protrusion may fence in or locate a hooked end of the mounting element(s) between the upper portion of the mounting rim and the protrusion.

[0014] A method of manufacturing a sink configured to be mounted to the underside of a countertop is also disclosed. The method includes drawing a stainless steel sheet to form at least one basin with a mounting rim extending outwardly from an upper portion of the basin. The mounting rim is also formed to create a channel recessed relative to an upper surface of the mounting rim.

[0015] The steps of drawing the stainless steel sheet and forming the mounting rim may occur simultaneously or sequentially.

[0016] As mentioned above, forming the channel may inhibit the warping of co-planar sections of the upper surface of the mounting rim between the upper portion of the basin and the channel and between the channel and the outer periphery. During installation, these co-planar sections will be contacted the underside of the countertop

and so ensuring the planarity helps to ensure robust installation.

[0017] The step of forming the mounting rim may further include creating a protrusion that protrudes downwardly from a lower surface of the mounting rim. In one form, the protrusion is disposed beneath the channel.

[0018] The sink may have large corner radii to accommodate improved flow of material during the drawing step, thereby permitting multiple basins to be drawn simultaneously.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. 1 is a top, front, side view of an exemplary embodiment of a sink of FIG. 1;

[0020] FIG. 2 is a top plan view of the sink of FIG. 1;

[0021] FIG. 3 is a front elevation view of the sink of FIG. 1; and

[0022] FIG. 4 is a right side elevation view of the sink of FIG. 1;

[0023] FIG. 5 is a detailed sectional view taken through the region defined by line 5-5 of FIG. 4;

[0024] FIG. 6 is a top, front, side view of an assembly including the exemplary embodiment of the sink from FIG. 1;

[0025] FIG. 7 is a top plan view of the assembly of FIG. 6;

[0026] FIG. 8 is a cross-sectional view taken through line 8-8 of FIG. 7; and

[0027] FIG. 9 is a detailed sectional view of the region defined by line 9-9 of FIG. 8.

DETAILED DESCRIPTION

[0028] Referring generally to the FIGURES, an exemplary embodiment of an under countertop mountable sink 10 and an assembly 12 incorporating the sink 10 are illustrated. Among other benefits, forming features in the mounting rim of the sink may strengthen and inhibit warping of the mounting rim. The improved planarity of the mounting rim and any associated faucet deck facilitates the convenient and hassle-free installation of the sink and any plumbing fixtures. Further, the formed features in the rim may also provide a channel configured to neatly receive a sealant, such as silicone caulk, during installation and a protrusion that can be used to locate the sink upon installation. These and other benefits are found in the disclosed structure.

[0029] Referring first to FIGS. 1 through 5, the sink 10, according to one exemplary embodiment, includes a left side basin 14 and a right side basin 16. At the bottom of each of the left and right side basins 14 and 16, there are drain openings 18 and 20, respectively, which can be connected to outlet plumbing (not shown). Walls 22 extend generally upwardly from the drain openings 18 and 20 to define the shape of the two basins 14 and 16. As shown, the two basins 14 and 16 are disposed adjacent to one another (e.g., next to one another) and are separated by a centrally located saddle 24.

[0030] Dual basin sinks are particular useful in a kitchen because each basin can be dedicated to a different purpose. For example, one of the basins can be dedicated to washing dishes, while the other basin can be dedicated to rinsing dishes. According to other exemplary embodiments, however, an under-countertop sink could have a different number, size, and/or shape of basins and/or be used in a different environment. For example, in a bathroom or lavatory, it may be preferable that the sink only have a single basin.

[0031] In the exemplary embodiment shown in FIGS. 1 through 5, at an upper end of the sink 10, a mounting rim 26 extends outwardly from the walls 22 that define the basins 14 and 16. The mounting rim 26 is shown as a flange that generally

horizontally extends away from the basins 14 and 16; however, in other exemplary embodiments, the mounting rim 26 may not be a flange.

[0032] Additionally, there is an integrated faucet deck / platform 28 disposed between upper portion of the basins 14 and 16 and an outer periphery 30 of the mounting rim 26. In the exemplary embodiment shown, the faucet deck 28 is primarily located rearwards of the right side basin 16 which is smaller than left side basin 14.

[0033] The faucet deck 28 includes pre-formed holes 32 and 34 suitable for installing a faucet, sprayer, or other water controls and can accommodate a water supply conduit. By including these holes in the faucet deck 28 itself, the difficulty of locating, aligning, and drilling faucet holes in a countertop at the site of installation can be avoided.

[0034] The pre-formed holes 32 and 34 may receive a faucet and/or sprayer (not shown) that is positionable over the basins 14 and 16 to supply water. The faucet head may be capable of swinging such that the faucet head is positionable over either one of the basins or neither of the basins. In this way, water could be supplied to either basin and, further, the faucet head can be cleared from an area above a selected basin so as to provide clearance for the insertion of large objects (such as for example, a large pot) into the selected basin.

[0035] Although the faucet deck 28 is shown as part of the sink 10 in the illustrated exemplary embodiment, in other embodiments, there may be no faucet deck or the faucet deck may be differently positioned relative to the basin or basins. For example, as illustrated, the faucet deck 28 is generally co-planar with the mounting rim 26 (except for the portion of the mounting rim 26 including the channel and protrusion, as will be described in more detail below); however, it is also contemplated that the faucet deck 28 could be downwardly offset from the plane of the mounting rim 26 or angled in part or in whole to avoid the collection of water at the mounting rim 26.

[0036] Turning again to the mounting rim 26 and with specific reference to the detail of FIG. 5, the mounting rim 26 extends generally horizontally away from the basin(s) and includes multiple sections or segments. These sections include an inner section 36 proximate the basin side, an outer section 38 proximate the outer periphery 30, and a central section 40 disposed between the inner section 36 and the outer section 38. In the exemplary embodiment shown, the mounting rim 26 is of substantially constant thickness and the central section 40 has been downwardly formed (e.g., pressed, stamped, drawn, etc.) to define a channel 42 recessed relative to an upper surface 44 of the mounting rim 26 and a protrusion 46 protruding downwardly from a lower surface 48 of the mounting rim 26.

[0037] Accordingly, the channel 42 and protrusion 46 are generally disposed between the upper portion of the basin(s) 14 and 16 and the outer periphery 30 of the mounting rim 26. Further, in the form shown, the channel 42 is generally disposed outward of the faucet deck 28, so that the faucet deck 28 may be accessible when the sink 10 is installed.

[0038] In the exemplary embodiment, the sections of the upper surface 44 on either side of the channel 42 (i.e., inward and outward of the channel 42) are both configured to contact a generally planar underside of a countertop and to be substantially flush there with. To help to ensure good contact is made between the upper surface 44 of the mounting rim 26 and the underside of the countertop, a first section 44a of the upper surface 44 of the mounting rim 26 between the upper portion of the basin(s) 14 and 16 and the channel 42 (which generally corresponds to the part of the upper surface 44 of the inner section 36) is substantially co-planar with a second section 44b of the upper surface 44 of the mounting rim 26 between the channel 42 and the outer periphery 30 (which generally corresponds to a part of the upper surface 44 of the outer section 38). The channel 42 is disposed between these sections 44a and 44b of the upper surface 44 and is recessed there from.

[0039] The channel 42 of the formed central section 40 may be configured to receive a sealant, such as a silicone caulk, in addition to strengthening and preventing warping

of the mounting rim 26. Further, the formed central section 40 can promote the planarity of the faucet deck 28, which accommodates for installation of water fixtures directly to the sink 10 instead of the countertop.

[0040] In the exemplary embodiment shown, the channel 42 extends around the mounting rim 26, forming a closed loop around the basins 14 and 16. In other exemplary embodiments, however, the channel 42 may not be a closed loop, but rather may extend around only a portion of the mounting rim 26 and/or may be broken into a number of segments/portions. If a faucet deck 28 is present, then the channel 42 preferably extends at least along the portion of the mounting rim 26 between the faucet deck 28 and the outer periphery 30 of the mounting rim 26 to prevent any water that collects on the faucet deck 28 from leaking.

[0041] In the exemplary embodiment shown, the sink 10 is made of a metal such as, for example, an 18-gauge stainless steel which contains alloyed nickel additions and is formed using a deep drawing process. The drawing process may include one draw step or multiple draw steps in which, for example, the basins 14 and 16 are separately formed. In the exemplary embodiment illustrated, the sink 10 has large, generous corner radii which permits improved flow of material during the drawing process thereby potentially eliminating the need for additional draw steps (i.e., the sink might be drawn in a single draw step). If the radii were not as generous, then additional draw steps may be required.

[0042] Either after the drawing process used to form the basins or simultaneously with this drawing process, the channel 42 may be formed in the mounting rim 26 by press molding, drawing, stamping, or the like. In the exemplary embodiment shown, the mounting rim 26, which is otherwise generally planar, is deformed using by a pressing process to move the central section 40 downward between the inner section 36 and the outer section 38 to create the channel 42. As shown, the channel 42 is generally symmetric with two downwardly sloping walls meeting at a flat base wall. Although a specific channel geometry is depicted, the channel 42 could have other shapes, sizes, and/or configurations (e.g., the channel need not be symmetrical). For

example, the channel could include two generally vertical walls joined by a generally horizontal base wall or could be generally V-shaped or generally U-shaped.

[0043] As the mounting rim 26 may be relatively thin-walled, the formation of the channel 42 in the mounting rim 26 may simultaneously create the protrusion 46. In alternative embodiments, however, forming a channel may not result in a protrusion, but, rather, the channel may simply extend a distance downward relative to the upper surface of the mounting rim, with any lower surface of the mounting rim not being effected by the formation of the channel. This may be the case, for example, if the mounting rim is relatively thick.

[0044] Typically, when a sink of the type described is drawn without a channel, the mounting rim of the sink is, at least to some degree, warped as a result of the drawing process (e.g., because of the differential draw performed across various segments of the sink). Warping of the mounting rim significantly complicates installation of the sink because the mounting rim must then be forced to be flush with the underside of the countertop over its entire area during installation. To overcome warping (e.g., counteract, straighten out, etc.), the mounting rim is often secured to the countertop at a large number of locations and/or using a large number of mounting elements (e.g., by clips, etc.) which adds time and cost to the installation process.

[0045] Likewise, a faucet deck could also become warped as a result of the drawing process. If the faucet deck was warped, then the faucet deck would not be suitable for the mounting of a faucet and/or other water controls.

[0046] The inventors were surprised to find that by forming the channel 42 in mounting rim 26, the strength of the mounting rim 26 was significantly improved (e.g., the mounting rim 26 was generally stiffened) and warping of the mounting rim 26 and faucet deck 28 was significantly reduced, generally resulting in improved planarity/flatness of the first section 44a and the second section 44b of the upper surface 44.

[0047] Referring now to FIGS. 6 through 9, the exemplary sink assembly 12 is illustrated in which the sink 10 is mounted to a countertop 50. In particular, the sink 10 is mounted to an underside 52 of the countertop 50 such that a hole 54 in the countertop 50 provides access through the countertop 50 to the basins 14 and 16 and faucet deck 28 of the sink 10. Notably, unlike a top-side sink installation in which the sink is dropped in from the top and a rim of the sink obscures the cutout of the hole, the sink 10 is disposed and mounted substantially below the countertop 50.

[0048] During installation and with particular reference to FIG. 9, the channel 42 is configured to receive a sealant 56, such as, for example, a silicone caulk. Although the channel 42 is recessed relative to sections 44a and 44b of the upper surface 44 of the mounting rim 26, the sealant 56 can be initially received in the channel 42 in such a manner that a bead of the sealant 56 will initially extend past the upper surface 44 of the mounting rim 26.

[0049] The mounting rim 26 is then moved into contact with the underside 52 of the countertop 50 and the sealant 56, according to the exemplary embodiment shown, forms a seal between the countertop 50 and the mounting rim 26. As the sections 44a and 44b of the upper surface 44 of the mounting rim 26 are moved into contact with the underside 52 of the countertop 50, the sealant 56 may to some extent flow laterally (i.e., toward the basin(s) and/or toward the outer periphery 30 of the mounting rim 26) in the channel 42. According to some exemplary embodiments, the channel 42 may be configured to have a width sufficient to prevent the sealant 56 from oozing out from the channel 42, thereby maintaining a relatively clean-looking installation while simultaneously establishing a robust seal of sufficient area.

[0050] Once the sink 10 is positioned on the underside 52 of the countertop 50, a plurality of mounting elements 58 may be used to anchor and retain (e.g., mount, fasten, support, etc.) the sink 10 in place relative to the countertop 50. In the exemplary embodiment of the assembly 12 shown, there are five mounting elements 58 disposed at various locations about the mounting rim 26 of the sink 10. However,

it will be readily appreciated that other numbers of mounting elements 58 could be employed.

[0051] In the form shown, each mounting element 58 includes a mounting clip 60 which is fastened into the countertop 50 by driving a screw 62 into a deformable anchor 64 that is inserted into the underside 52 of the countertop 50. The body of the screw 62 passes through a slit 66 in the mounting clip 60 and the head of the screw 62 is of such a size that it catches on the sides of the mounting clip 60 as the screw 62 is tightened down. The mounting clip 60 is U-shaped and has two upwardly hooked ends including one hooked end that contacts the underside 52 of the countertop 50 (and is located generally outward of the sink 10) and a hooked end 68 that catches or engages the lower surface 48 of the mounting rim 26 of the sink 10.

[0052] As screw 62 is tightened down, the hooked end 68 is drawn into engagement with the lower surface 48 of the mounting rim 26 and, in particular, to a portion of the lower surface 48 disposed between the upper portion of the basin(s) and the protrusion 46. According, the protrusion 46 is configured to help locate (e.g., by fencing in) the hooked end 68 of the mounting clip 60. This, in part, helps to roughly locate the sink 10 relative to the countertop 50, even prior to fully clamping down the mounting clips 60.

[0053] Notably, as best seen in FIG. 7, only five mounting elements 58 are used to secure the sink 10 in place. If the channel 42 was not formed in the mounting rim 26, then the mounting rim 26 may be comparatively more warped and therefore require significantly more mounting elements to secure the sink 10 to the countertop 50.

[0054] Accordingly, a sink is provided with a number of benefits relating to its fabrication and installation. Among other things, the mounting rim and any faucet deck of the sink exhibit exceptional strength and planarity for a drawn sink. As warping is avoided, fewer mounting elements need to be used to ensure that the sink is flush with the underside of the countertop and that features along the mounting rim, such as the faucet deck, are also sufficiently planar to support water fixtures or the

like. This means that the holes for the water fixtures can be pre-formed in the sink itself and do not need to be drilled in the countertop at the site of installation.

[0055] Moreover, the forming step which is used to strengthen the rim creates a channel and a protrusion. The channel can advantageously receive and neatly contain a sealant and the protrusion can advantageously be used locate or "fence" in the sink during installation.

[0056] It should be noted that the term "exemplary" as used herein to describe various embodiments is intended to indicate that such embodiments are possible examples, representations, and/or illustrations of possible embodiments (and such term is not intended to connote that such embodiments are necessarily extraordinary or superlative examples).

[0057] The terms "coupled," "connected," and the like as used herein mean the joining of two members directly or indirectly to one another. Such joining may be stationary (e.g., permanent) or moveable (e.g., removable or releasable). Such joining may be achieved with the two members or the two members and any additional intermediate members being integrally formed as a single unitary body with one another or with the two members or the two members and any additional intermediate members being attached to one another.

[0058] It should be noted that the orientation of various elements may differ according to other exemplary embodiments, and that such variations are intended to be encompassed by the present disclosure.

[0059] It is also important to note that the construction and arrangement of the sink and sink assembly as shown in the various exemplary embodiments is illustrative only. Although only a few embodiments of the present inventions have been described in detail in this disclosure, those skilled in the art who review this disclosure will readily appreciate that many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of

parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter disclosed herein. For example, elements shown as integrally formed may be constructed of multiple parts or elements, the position of elements may be reversed or otherwise varied, and the nature or number of discrete elements or positions may be altered or varied. Accordingly, all such modifications are intended to be included within the scope of the present invention as defined in the appended claims. The order or sequence of any process or method steps may be varied or re-sequenced according to alternative embodiments. Other substitutions, modifications, changes and omissions may be made in the design, operating conditions and arrangement of the various exemplary embodiments without departing from the scope of the present inventions.

CLAIMS

1. A sink mountable to an underside of a counter, the sink comprising:

at least one basin; and

a rim extending generally outwardly from an upper boundary of the basin and including at least one channel recessed relative to an upper surface of the rim.

2. The sink of claim 1, wherein the sink is a drawn, stainless steel sink.

3. The sink of claim 1, wherein the channel is integrally formed in the rim.

4. The sink of claim 1, wherein the rim further includes a mounting portion, the channel being formed in the mounting portion.

5. The sink of claim 1, wherein the channel forms a closed loop around the at least one basin.

6. The sink of claim 1, wherein the channel extends only partially around the basin.

7. The sink of claim 1, wherein the channel is a plurality of channels that extend along portions of the mounting portion of the rim.

8. The sink of claim 1, wherein the rim further includes a faucet deck disposed generally between a portion of the upper boundary of the at least one basin and an outer periphery of the rim, the channel extending at least along a portion of the mounting portion of the rim generally corresponding to the faucet deck.

9. The sink of claim 1, wherein the rim further includes an upper surface, and wherein a first portion of the upper surface of the rim at the mounting portion generally exterior to the channel is substantially coplanar with a second portion of the upper surface of the rim at the mounting portion generally interior to the channel.

10. The sink of claim 1, wherein a protrusion extends generally

downwardly from an underside surface of the rim, the protrusion being generally beneath the channel.

11. An assembly comprising:
a counter having an underside; and
the sink of claim 1 mounted to the underside of the counter.

12. The assembly of claim 11 wherein a sealant is disposed in the channel, the sealant helping to form a seal between the rim and the underside of the counter.

13. The assembly of claim 11, wherein the rim further includes a protrusion extending generally downward from an underside surface of the rim, at least one mounting element that helps support the sink with respect to the counter being positioned at least partially over the protrusion and generally below the channel.

14. A method of installing a sink to an underside of a counter, the method comprising:
providing a sink including:
at least one basin; and
a rim extending generally outward from an upper boundary of the at least one basin, the rim including:
an upper surface;
a mounting portion; and
at least one channel recessed relative to a portion of the upper surface generally corresponding to the mounting portion of the rim; and
positioning the sink such that the mounting portion of the rim substantially contacts the underside of the counter.

15. The method of claim 14, further comprising the steps of:
placing a sealant in the channel before positioning the sink such that the mounting portion of the rim substantially contacts the underside of the counter; and

using one or more mounting elements to help support the sink relative the counter, wherein the at least some mounting elements include a first end in contact with the underside of the counter and a second end in contact with the underside of the rim at a location generally interior relative to the channel.

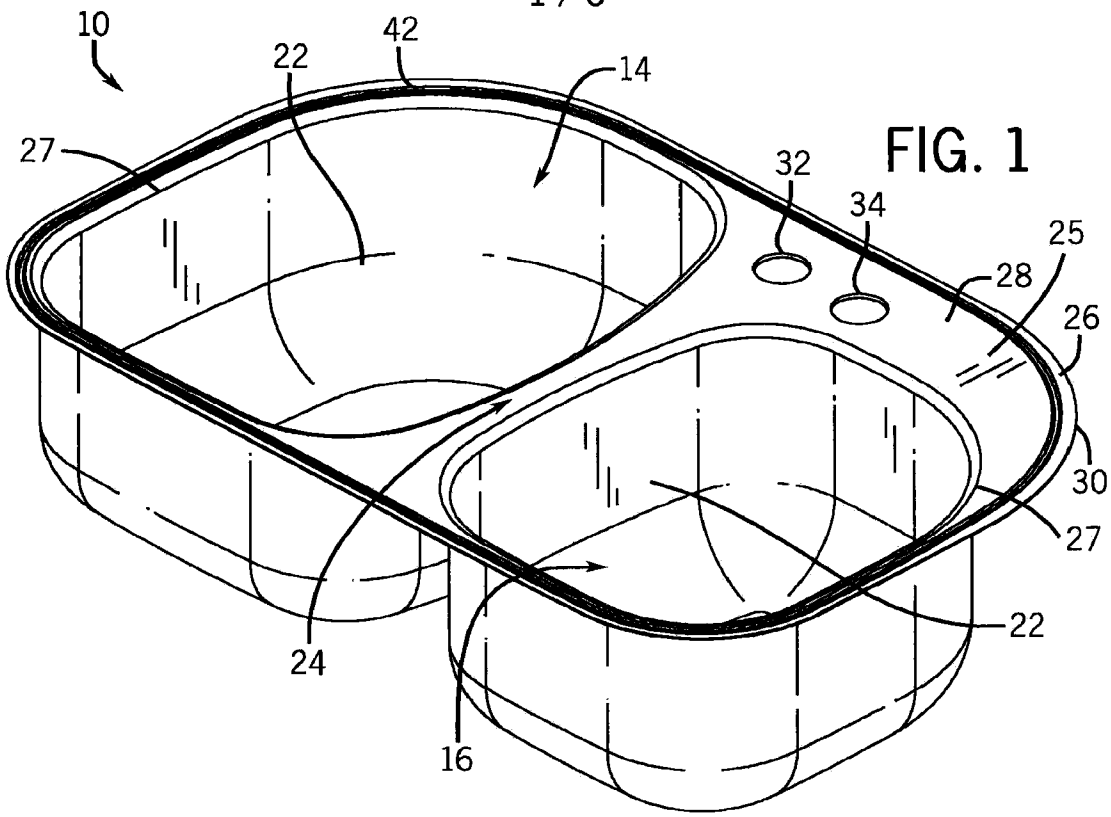
10
22
42
14
27
32
34
25
28
26
30
27
22
24
16

FIG. 1

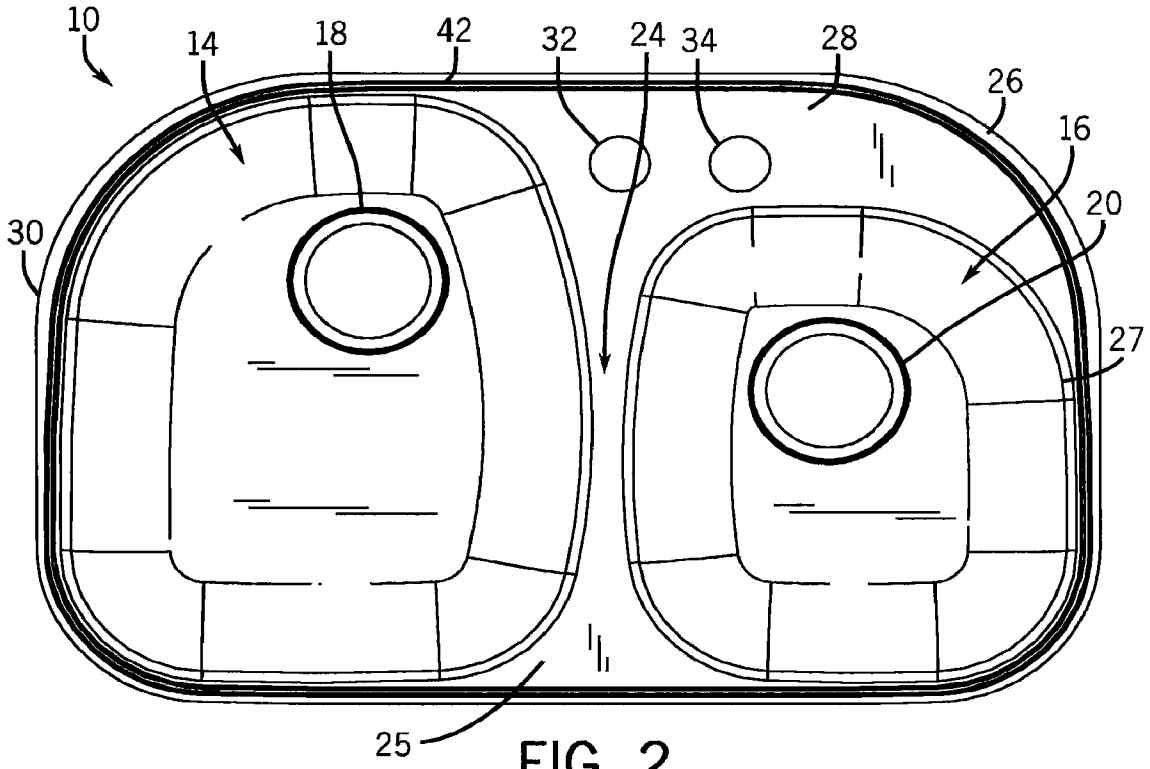
10
14
18
42
32
24
34
28
26
16
20
30
27
25

FIG. 2

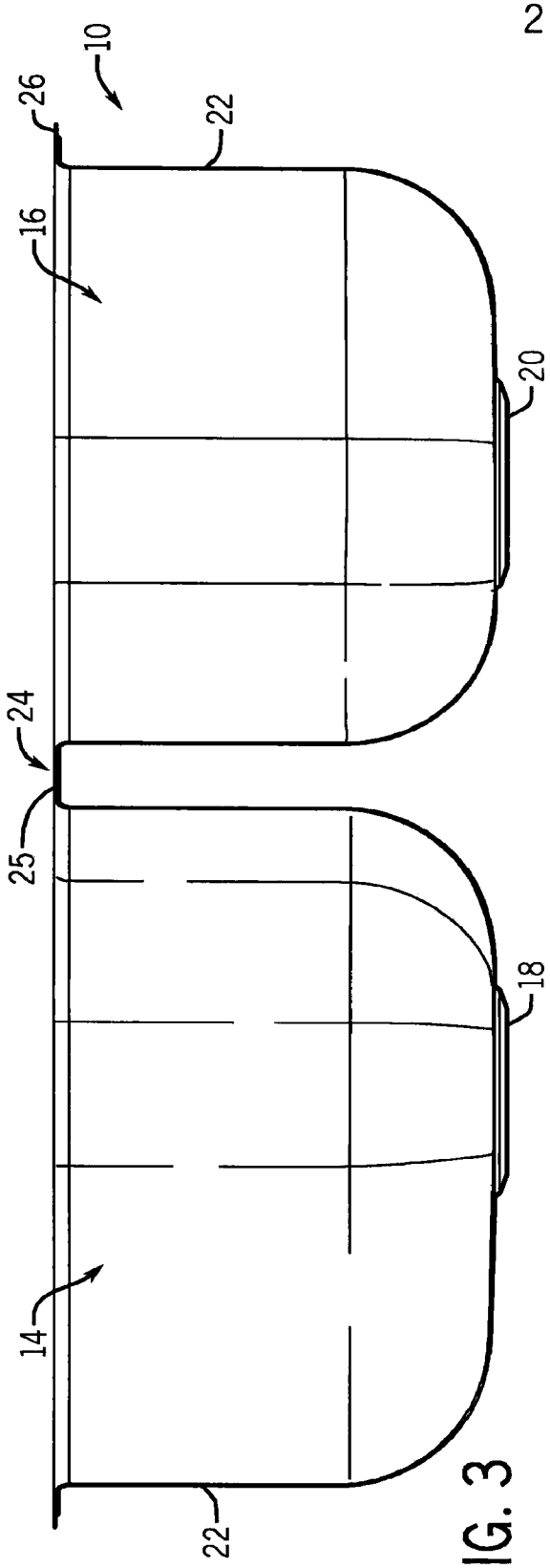

FIG. 3

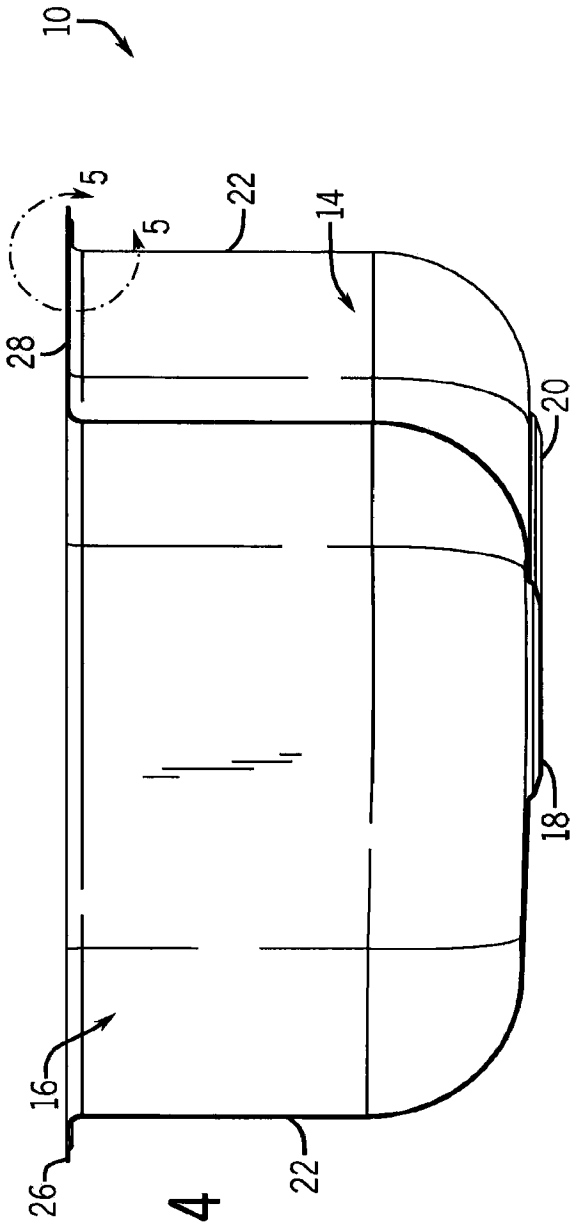

FIG. 4

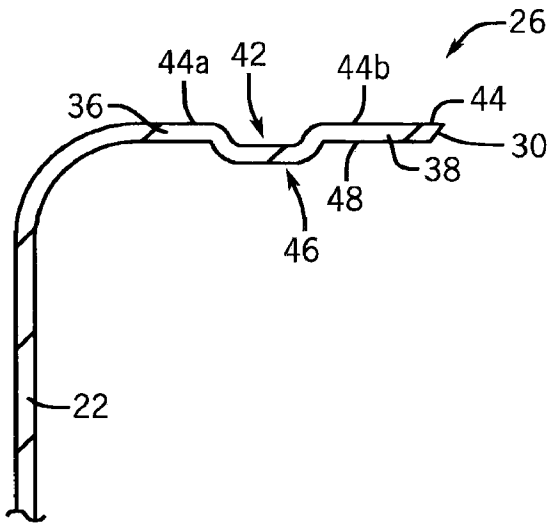

FIG. 5

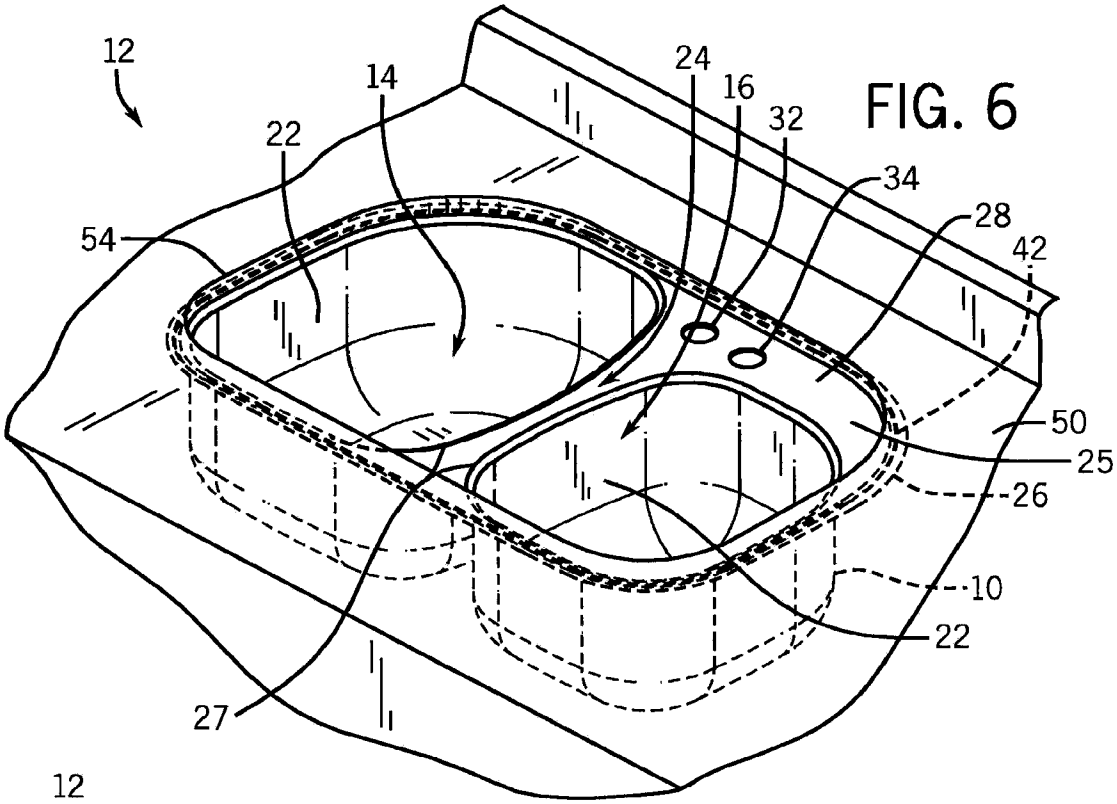
12
14
22
24
16
32
34
28
42
54
50
25
26
10
22
27

FIG. 6

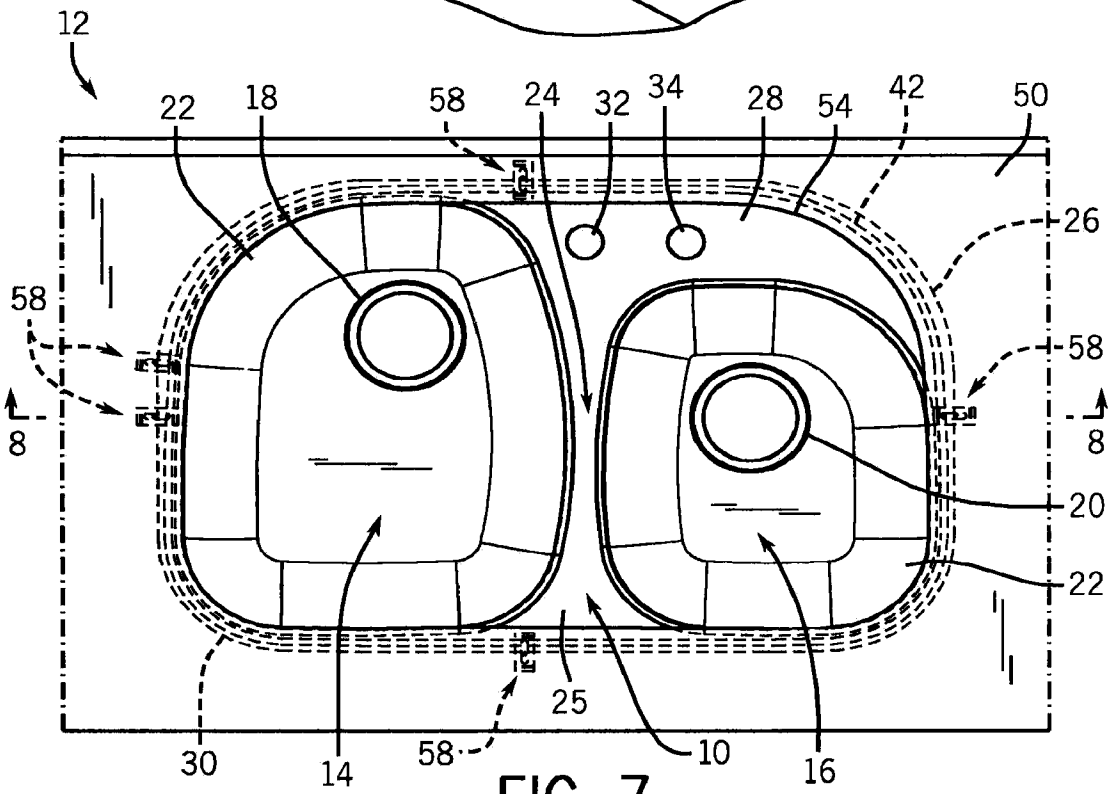
12
22
18
58
24
32
34
28
54
42
50
26
58
58
8
8
20
22
25
30
14
58
10
16

FIG. 7

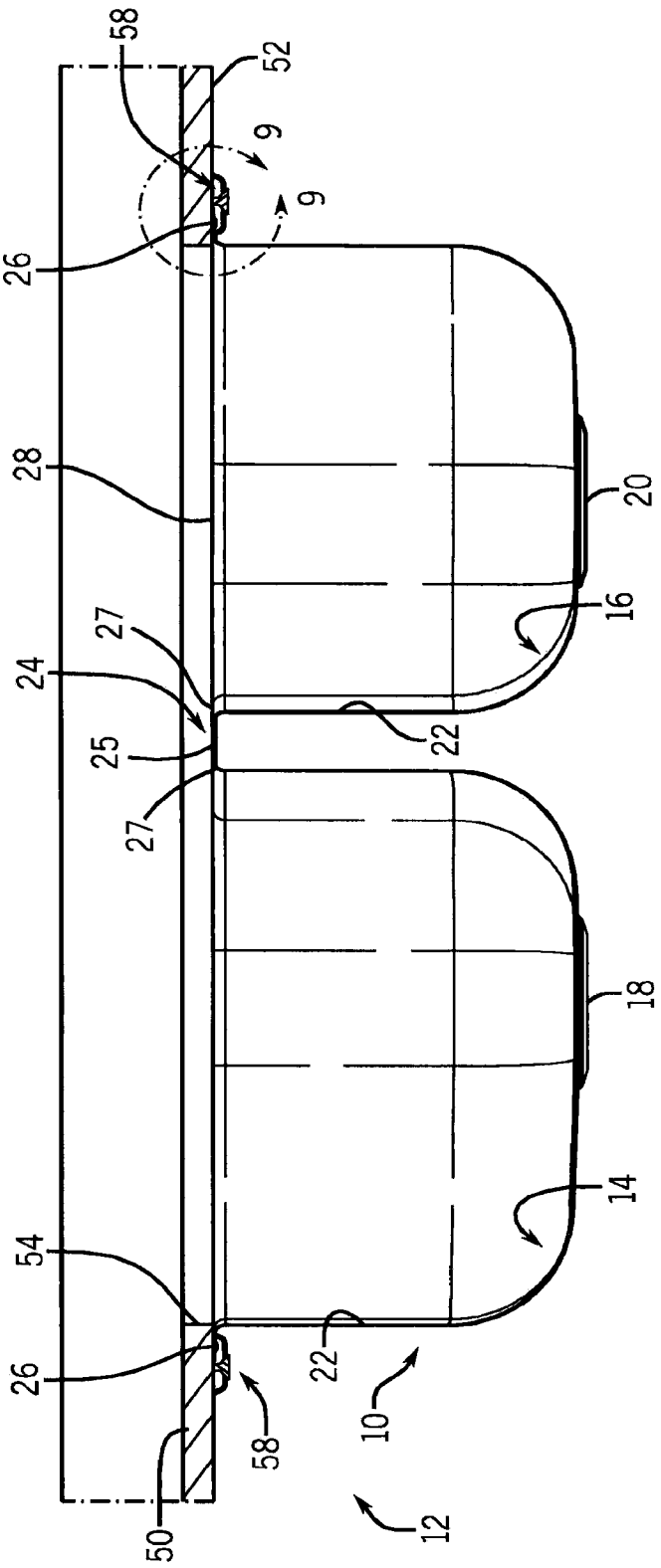

FIG. 8

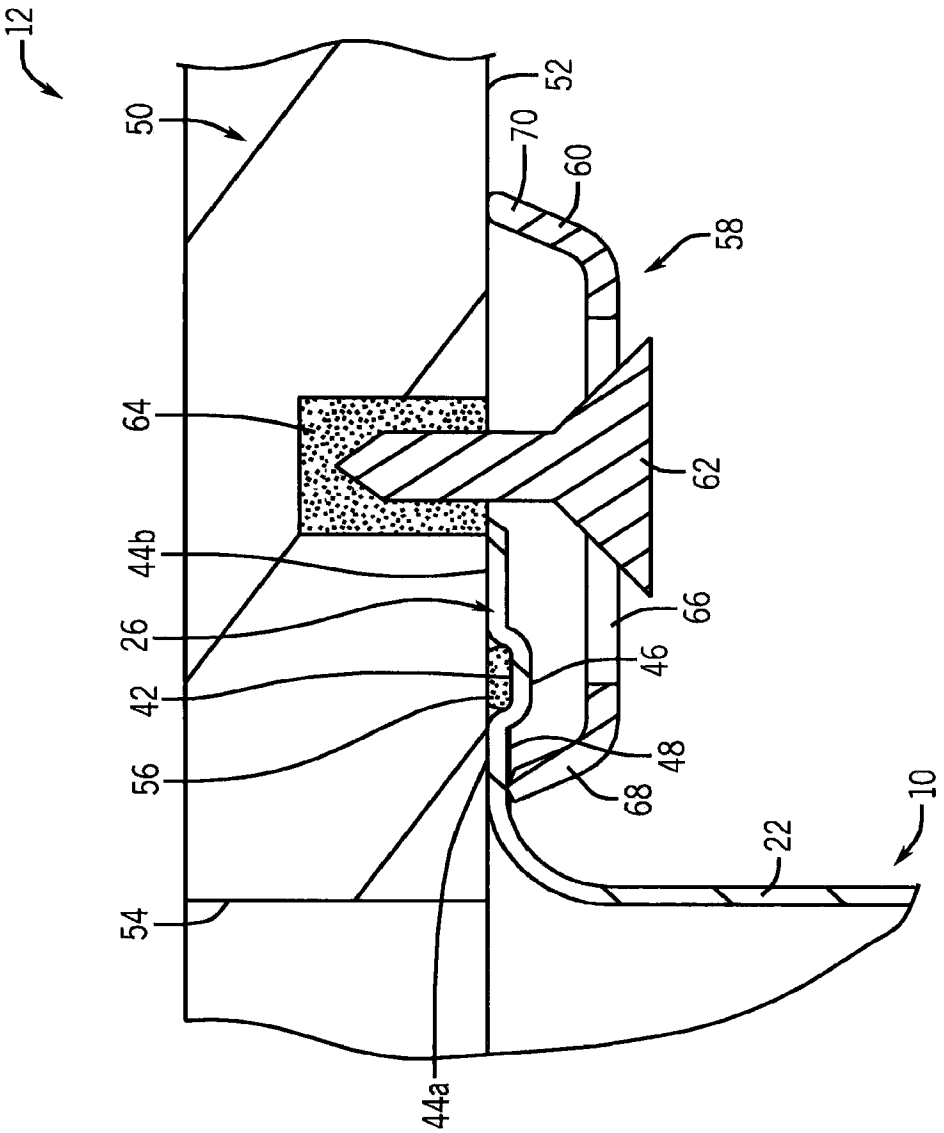

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/064707

A. CLASSIFICATION OF SUBJECT MATTER
INV. E03C1/18 E03C1/33
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E03C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	US 2 080 573 A (SERN MADSEN) 18 May 1937 (1937-05-18) the whole document	1,3-5, 9-12,14 2 6,7,13, 15
X A	US 3 034 146 A (ALBERT LYON GEORGE) 15 May 1962 (1962-05-15) the whole document	1,3-5, 8-11, 13-15 12
X	US 3 034 148 A (ALBERT LYON GEORGE) 15 May 1962 (1962-05-15) the whole document	1,3-5,8, 10,11, 13,14

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 March 2012	16/03/2012

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Leher, Valentina

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/064707

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 349 429 B1 (ZURBA PETER [CA] ET AL) 26 February 2002 (2002-02-26)	2
A	column 2, lines 34-38 -----	1,11,14
A	DE 20 2009 009704 U1 (CHEN YUE SHEU [TW]) 10 December 2009 (2009-12-10) figures 3,4,6,9 -----	1,14

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2011/064707

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2080573 A	18-05-1937	NONE	
US 3034146 A	15-05-1962	NONE	
US 3034148 A	15-05-1962	NONE	
US 6349429 B1	26-02-2002	NONE	
DE 202009009704 U1	10-12-2009	DE 202009009704 U1	10-12-2009
		TW M346616 U	11-12-2008
		US 2010017956 A1	28-01-2010