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(54) **CONTAINER WITH PLASTIC HANDLE**

BEHÄLTER MIT KUNSTSTOFFGRIFF

RÉCIPIENT AVEC POIGNÉE EN PLASTIQUE

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Description

TECHNICAL FIELD

[0001] This disclosure relates generally to plastic structures, and more particularly to a handle system for a container.

STATEMENT REGARDING PRIORITY

[0002] This application claims the priority to US non-provisional patent application number 13/221,056 filed on August 30, 2011, and US provisional patent application number 61/674,142, filed July 20, 2012.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] The present handle system will be explained, by way of example only, with reference to certain embodiments and the attached figures, in which:

FIG. 1 is a plan view of the front side of one embodiment of a handle of the present invention;
 FIG. 2 is a side view of the handle of FIG. 1;
 FIG. 3 is a plan view of the front side of a cap of the handle of FIG. 1;
 FIG. 4 is a side view of the cap of FIG. 3;
 FIG. 5 is a plan view of the back side of the cap of FIG. 3;
 FIG. 6 is a cross section of the cap of FIG. 3;
 FIG. 7 is a side view a container comprising an embodiment of a bracket of the present handle system;
 FIG. 8 is a detailed view of the bracket of FIG. 7;
 FIG. 9 is a vertical sectional view of the bracket of FIG. 7;
 FIG. 10 is a horizontal sectional view of the bracket of FIG. 7;
 FIG. 11 is a perspective view of the handle inserted into the slots on the brackets in a horizontal position; and
 Fig. 12 is a perspective view of the handle inserted into the slots on the brackets in an upright position.

DETAILED DESCRIPTION

[0004] US 3 469 728 A describes a handle device for a plastic jug. The document describes a container including tab members to which a handle is attached. The handle is made of a durable plastic material. The handle has a u-shaped body section with resilient ends extending therefrom. The resilient ends are capable of being bent and twisted in relationship to the body section. When it is desired to carry the container a user grips a central portion of the handle. The resilient ends bend to enable the body section to swing upwardly from its normally horizontal position.

[0005] US2005/0133521 A1 discloses a moulded plastic lifting bail for attachment to a moulded plastic container

by means of attachment structures provided at the opposite longitudinal ends of the bail. The attachment structures permit the bail to be rotated relative to the container so as to move between an upright lifting position and a laid over storage position. First and second flanges are moulded onto an end of attachment structure cylinders such that, when the cylinders are forced into and through a narrowed opening of a bail slot provided on the container, the segmented flanges lie on the interior of the receiver structure, while the attachment portion of the bail to the cylinder lies outside the bail receiver. In this arrangement, a bail can be rotated within the receiver structure between an insertable position and a folded position without fear of disassembly or disattachment from the container. The cylinder of the attachment structure described rotates smoothly within a key-hole shaped slot and the flanges prevent inadvertent disengagement. The present invention provides a container according to claim 1.

[0006] A plastic system is provided for securely attaching a movable plastic handle to a plastic container including, without limitation, a paint can. The container may be cylindrical or any other shape suitable for a particular application. The plastic in one embodiment may be polypropylene and the components described herein are formed by injection molding.

[0007] In one embodiment, as shown in FIGS. 1-2, 8, 11-12, the system comprises a handle 1 that attaches to a pair of brackets 10 on the container 8. More particularly, the handle 1, which may be of unitary construction and made of plastic, comprises a strap 3 with tabs 2, 4 projecting from the strap near either end. As shown in FIGS. 7-12, the brackets 10 are affixed to the exterior of the container 8 preferably opposite one another and comprise a slot 11. As described in more detail below, the tab and slot are sized and shaped to allow the tab to pass with force through the slot in one orientation, but to interlock such that the tab cannot be removed from the slot in all other orientations, including when the handle 1 is in use in an upright position and bearing the load of the container 8.

[0008] Referring to FIGS. 1-6, the handle 1 comprises the strap 3 with tabs 2, 4 projecting from the strap 3 near either end. In the embodiment shown, each end of the strap 3 has a cap 5, 6 in which the tabs 2, 4 are located. In another embodiment, the ends of the strap 3 do not terminate in caps and the tabs 2, 4 project from the body of the strap itself. The handle 1 is preferably symmetrical, with one end being a mirror image of the other, and therefore will be described with respect to one end only. It should be understood that such description is applicable to the corresponding features on the other end as well.

[0009] The strap 3 is sufficiently long with respect to the container to form an arc above it, when the tabs are attached to the brackets, preferably with sufficient clearance between strap 3 and the top of the container for a person to grasp the handle without interference from the top of the container. The strap 3 may include a grip 7

near its center, on the side of the strap that will face the container when attached, for comfort and security of the user.

[0010] The tab 2 comprises a three-dimensional head B that tapers from a broader base F to a narrower top A. In one embodiment the head B is attached to the strap 3 or cap 5 by a post C. The cross section of the head B of the tab 2 may be of any shape that allows its insertion into the slot 11 of the bracket 10 in one orientation and which becomes interlocked with the bracket 10 at any other orientation, including without limitation an oval, rectangle or spheroid. This generally requires the cross section to have major and minor axes, with the major axis being longer than the minor axis. Thus, the shapes described below are in all respects illustrative.

[0011] In one embodiment, the head B is a cone or preferably a frustum. The frustum may be regular or irregular and the cross section defining its base may be any shape which generally has a major axis longer than a minor axis including, for example, a rectangle, an oval, squoval or a spheroid. The head B comprises a top A, opposing minor axis surfaces D defining the head's thickness in the direction of the minor axis, connected by opposing major axis surfaces E defining its width in the direction of the major axis. In one embodiment, the surfaces E of the head B taper from the broader base F to the narrower top A. As shown in FIG. 3, the thickness of the frustum need not be uniform from bottom to top and, in a preferred embodiment the thickness progressively decreases near the top A. In one embodiment, the cross section of the head B is rectangular and, in another embodiment, the shorter sides of the rectangle (in the direction of the minor axis) are convex. In one embodiment the major axis surfaces E may be convex or arcuate. In the embodiment shown in FIGS. 4, 6 the head B is of uniform cross section for some distance from the base F. In a preferred embodiment, the minor axis surfaces D may be convex, such that the cross section at the base F of the frustum is a rectangle with rounded corners and approaches a circle at the top A. This shape reduces deformation of the head B as it is inserted into the slot 11 of the bracket. The post C of the tab 2 may be substantially narrower than the width of the base F of the head B, and, in one embodiment, is circular in cross section. The tab 2 may be solid and of unitary construction with the cap 5.

[0012] The cap 5 is preferably integral with the strap 3. The cap 5 is sized and shaped to fit around - but move freely over - the bracket 10 on the container 8, when the handle 1 is attached to it. In the embodiment shown, the cap 5 comprises a floor 13 with two linear open sides between two opposing sidewalls 12, which may be defined by segments of a circle. When laid flat, the plane of the floor 13 may be substantially parallel with that of the strap 3 and offset from it by the height of the sidewall 12. The tab 2 may project perpendicularly from the floor 13 and is preferably located on the floor in the center of the circle defining the sidewalls 12. As shown, the height

of the tab 2 may be the same as that of the sidewalls. The floor 13 may include cutouts or voids around the post C of the tab 2, as shown in FIGS. 4-6.

[0013] As shown in FIGS. 7-12, the brackets 10 are fixed to the outside surface of the container 8, and in some embodiments are molded integrally as part of the container. Another bracket (shown in FIGS. 11-12) is also fixed to the container, and in some embodiments is opposite the first bracket. Where the container is a cylinder, the brackets should be diametrically opposed. The bracket 10 may be of any shape and construction sufficient to space the slot 11 from the outside surface of the container 8 by a distance at least slightly larger than the height of the head B of the tab 2.

[0014] As noted above, the head B of the tab 2 and the slot 11 are sized and shaped to allow the head B in one position to be inserted into the slot 11, but some force should be required to insert the head B into the slot 11. In one embodiment, at least ten pounds of force is required to insert the head B into the slot 11. The slot 11 may be of any shape, but as with the cross section of the head B, the slot 11 should have a major axis defining its longest dimension and a minor axis defining its shortest dimension, with the major axis typically longer than the minor axis. Such shapes include an oval, squoval, rectangle or a spheroid. In the embodiment shown in FIG. 7, the slot 11 is a rectangle with rounded corners. In some embodiments, the thickness of the head B is slightly narrower than the minor axis of the slot 11, and the width of the head B at its base is slightly larger than the major axis of the slot 11, which requires force to insert the head B through the slot 11. In another embodiment, the thickness of the head B is slightly larger than the minor axis of the slot.

[0015] The head B is of unitary construction and is solid, *i.e.*, of one piece. It is inserted through the slot 11 by centering the tab 2 over the slot 11 with the long axes of the head B and slot 11 aligned. The head B may then be pushed through the slot 11. After the head B of the tab 2 is inserted through the slot 11, the post C may rotate freely in the slot 11, with the base of the head B bearing against the inside of the slot 11 keeping the handle 1 connected to the container 8 when the handle is in use, for example as in FIG. 12 when the handle is in an upright position. In the embodiment shown, the long axis of the head B of the tab 2 (*i.e.*, its width at the base) is oriented parallel to the longitudinal axis of the strap 3. The long axis of the slot 11 is parallel to the base of the container 8. Therefore, the handle 1 must be parallel to the base of the container 8 for the head B of the tab 2 to be inserted into the slot 11 as shown in FIG. 11. When the handle 1 is in any other orientation, for example an upright position (Fig. 12) or a resting position against either side of the container, the handle 1 is irremovably connected to the container 8 by the interlocking of the tab 2 and slot 11.

Claims**1.** A container (8) comprising

- a. a plastic handle (1) comprising a strap (3) having two ends, a first tab (2) located near one end of the strap and a second tab (4) located near the other end of the strap (3), each of the tabs being of unitary construction and having in cross section a major axis and a minor axis, and
- b. a first and a second slot (11) on opposite sides of the container (8), each of the slots having a major axis slightly smaller than the major axis of the tabs (2, 4), and a minor axis slightly smaller than the minor axis of the tabs (2, 4),

so that when the major axis of each of the tabs (2, 4) is aligned with the major axis of each of the slots (11) the tabs (2, 4) can be inserted into or removed from the slots (11) and the handle can pivot when the tabs are inserted into the slots (11), wherein the shape of the slots (11) is selected from the group consisting of a rectangle with rounded corners, an oval, a squoval, a spheroid and a rectangle.

- 2.** The container as in claim 1, wherein the first and second tabs (2, 4) are in the shape of a frustum.
- 3.** The container as in claim 2, wherein the frustum is rectangular.
- 4.** The container as in claim 3, wherein the rectangular frustum's shorter sides are convex.
- 5.** The container as in claim 1, wherein the first and second tabs (2, 4) extend perpendicularly from the strap (3).
- 6.** The container as in claim 1, wherein the first and second tabs (2, 4) further comprise a post (C) integral to the strap (3), a head (B) integral to the post (C), the head (B) narrowing from a base to a top.
- 7.** The container as in claim 6, wherein the posts rotate when the handle pivots.
- 8.** The container as in claim 1, wherein the handle can pivot to any position between an upright or resting position against either side of the container.
- 9.** The container as in claim 1, further comprising a first cap (5) integral with the first tab (2) and a second cap (6) integral with the second tab (4), one of the caps (5, 6) being located near each end of the strap (3).
- 10.** The container as in claim 9, the first and second caps (5, 6) further comprising a first sidewall (12) integral

with one of the ends of the strap (3) and a floor (13) integral with the first sidewall (12) and a second sidewall (12) integral with the floor..

- 11.** The container as in claim 9, wherein the first and second tabs (2, 4) further comprise a post (C), said post (C) extending from and integral with the floor (13) of the cap (5, 6).
- 12.** The container as in claim 1, further comprising a first and a second bracket (10), said brackets being integral with the side of the container (8) and positioned opposite one another, each said bracket (10) comprising one of said slots (11).
- 13.** The container as in claim 1, wherein the tabs (2, 4) are firmly secured in the slots (11).

20 Patentansprüche**1.** Behälter (8), der Folgendes umfasst

- a. einen Kunststoffgriff (1), der einen Gurt (3), der zwei Enden aufweist, umfasst, einen ersten Dorn (2), der sich nahe eines Endes des Gurts befindet, und einen zweiten Dorn (4), der sich nahe des anderen Endes des Gurts (3) befindet, wobei jeder der Dorne einheitliche Bauweise aufweist und im Querschnitt eine Hauptachse und eine Nebenachse aufweist, und
- b. einen ersten und einen zweiten Schlitz (11) auf entgegengesetzten Seiten des Behälters (8), wobei jeder der Schlitze eine Hauptachse aufweist, die leicht kleiner ist als die Hauptachse der Dorne (2, 4), und eine Nebenachse, die leicht kleiner ist als die Nebenachse der Dorne (2, 4),

so dass, wenn die Hauptachse jeder der Dorne (2, 4) mit der Hauptachse jedes der Schlitze (11) ausgerichtet ist, die Dorne (2, 4) in die Schlitze (11) eingesetzt und aus ihnen entfernt werden können, und der Griff schwenken kann, wenn die Dorne in die Schlitze (11) eingefügt sind, wobei die Form der Schlitze (11) aus der Gruppe ausgewählt ist, die aus einem Rechteck mit gerundeten Ecken, einem Oval, einem Squoval, einem Sphäroid und einem Rechteck besteht.

- 2.** Behälter nach Anspruch 1, wobei der erste und der zweite Dorn (2, 4) die Form eines Kegelstumpfs aufweisen.
- 3.** Behälter nach Anspruch 2, wobei der Kegelstumpf rechteckig ist.
- 4.** Behälter nach Anspruch 3, wobei die kürzeren Sei-

ten des rechteckigen Kegelstumpfs konvex sind.

5. Behälter nach Anspruch 1, wobei sich der erste und der zweite Dorn (2, 4) senkrecht von dem Gurt (3) erstrecken. 5
6. Behälter nach Anspruch 1, wobei der erste und der zweite Dorn (2, 4) weiter einen Ständer (C) integral mit dem Gurt (3), einen Kopf (B) integral mit dem Ständer (C) umfassen, wobei der Kopf (B) von einer Basis zu einer Oberseite schmaler wird. 10
7. Behälter nach Anspruch 6, wobei die Ständer drehen, wenn der Griff schwenkt. 15
8. Behälter nach Anspruch 1, wobei der Griff zu jeder Position zwischen einer aufrechten oder gegen beide Seiten des Behälters ruhenden Positionen schwenken kann. 20
9. Behälter nach Anspruch 1, der weiter eine erste Kappe (5) integral mit dem ersten Dorn (2), und eine zweite Kappe (6) integral mit dem zweiten Dorn (4) umfasst, wobei eine der Kappen (5, 6) nahe jedem Ende des Gurts (3) liegt. 25
10. Behälter nach Anspruch 9, wobei die erste und die zweite Kappe (5, 6) weiter eine erste Seitenwand (12) integral mit einem der Enden des Gurts (3) und einen Boden (13) integral mit der ersten Seitenwand (12) sowie eine zweite Seitenwand (12) integral mit dem Boden umfassen. 30
11. Behälter nach Anspruch 9, wobei der erste und der zweite Dorn (2, 4) weiter einen Ständer (C) umfassen, wobei sich der Ständer (C) von und integral mit dem Boden (13) der Kappe (5, 6) erstreckt. 35
12. Behälter nach Anspruch 1, der weiter einen ersten und einen zweiten Träger (10) umfasst, wobei die Träger mit der Seite des Behälters (8) integral und einander entgegengesetzt positioniert sind, wobei jeder Träger (10) einen der Schlitze (11) umfasst. 40
13. Behälter nach Anspruch 1, wobei die Dorne (2, 4) fest in den Schlitzen (11) befestigt sind. 45

Revendications

1. Récipient (8) comprenant 50
 - a. une poignée en plastique (1) comprenant une bande (3) présentant deux extrémités, une première languette (2) située près d'une extrémité de la bande et une seconde languette (4) située près de l'autre extrémité de la bande (3), chacune des languettes étant de construction uni-

taire et présentant en section transversale un axe majeur et un axe mineur, et

b. une première et une seconde fente (11) sur des côtés opposés du récipient (8), chacune des fentes présentant un axe majeur légèrement inférieur à l'axe majeur des languettes (2, 4), et un axe mineur légèrement inférieur à l'axe mineur des languettes (2, 4),

de sorte que lorsque l'axe majeur de chacune des languettes (2, 4) est alignée sur l'axe majeur de chacune des fentes (11) les languettes (2, 4) puissent être insérées dans ou retirées des fentes (11) et la poignée puisse pivoter lorsque les languettes sont insérées dans les fentes (11), dans lequel la forme des fentes (11) est sélectionnée à partir du groupe constitué par un rectangle avec des coins arrondis, un ovale, un ovale carré, un sphéroïde et un rectangle.

2. Récipient selon la revendication 1, dans lequel les première et seconde languettes (2, 4) sont sous la forme d'un tronc. 25
3. Récipient selon la revendication 2, dans lequel le tronc est rectangulaire.
4. Récipient selon la revendication 3, dans lequel les côtés plus courts du tronc rectangulaire sont convexes.
5. Récipient selon la revendication 1, dans lequel les première et seconde languettes (2, 4) s'étendent perpendiculairement de la bande (3).
6. Récipient selon la revendication 1, dans lequel les première et seconde languettes (2, 4) comprennent en outre un montant (C) d'un seul tenant avec la bande (3), une tête (B) d'un seul tenant avec le montant (C), la tête (B) se rétrécissant d'une base à un dessus.
7. Récipient selon la revendication 6, dans lequel les montants tournent lorsque la poignée pivote.
8. Récipient selon la revendication 1, dans lequel la poignée peut pivoter vers une quelconque position entre une position verticale ou de repos contre chaque côté du récipient.
9. Récipient selon la revendication 1, comprenant en outre un premier couvercle (5) d'un seul tenant avec la première languette (2) et un second couvercle (6) d'un seul tenant avec la seconde languette (4), un des couvercles (5, 6) étant situé près de chaque extrémité de la bande (3).
10. Récipient selon la revendication 9, les premier et se-

cond couvercles (5, 6) comprenant en outre une première paroi latérale (12) d'un seul tenant avec une des extrémités de la bande (3) et un plancher (13) d'un seul tenant avec la première paroi latérale (12) et une seconde paroi latérale (12) d'un seul tenant avec le plancher. 5

11. Récipient selon la revendication 9, dans lequel les première et seconde languettes (2, 4) comprennent en outre un montant (C), ledit montant (C) s'étendant depuis et d'un seul tenant avec le plancher (13) du couvercle (5, 6). 10

12. Récipient selon la revendication 1, comprenant en outre un premier et un second support (10), lesdits supports étant d'un seul tenant avec le côté du récipient (8) et positionnés de manière opposée l'un à l'autre, chaque dit support (10) comprenant une desdites fentes (11). 15

13. Récipient selon la revendication 1, dans lequel les languettes (2, 4) sont fixées fermement dans les fentes (11). 20

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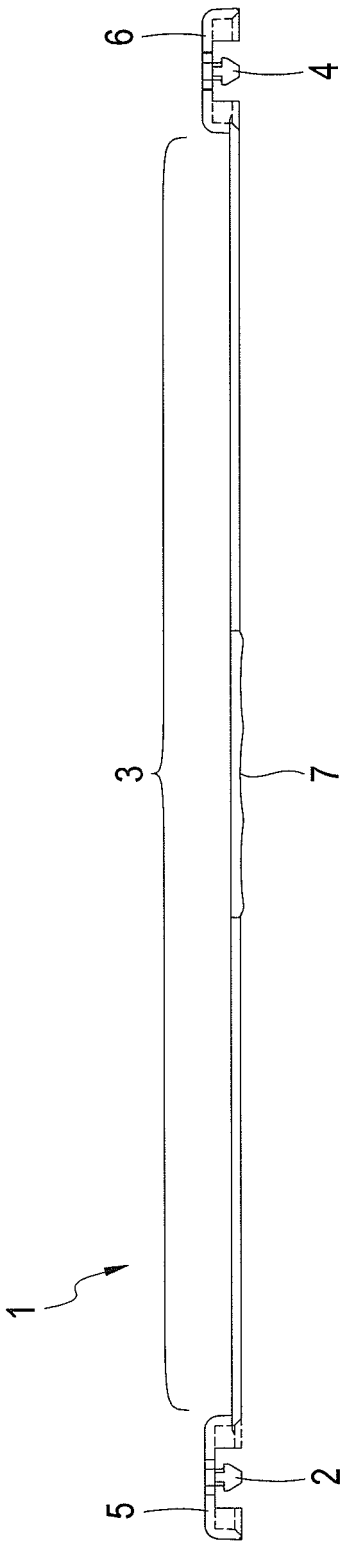
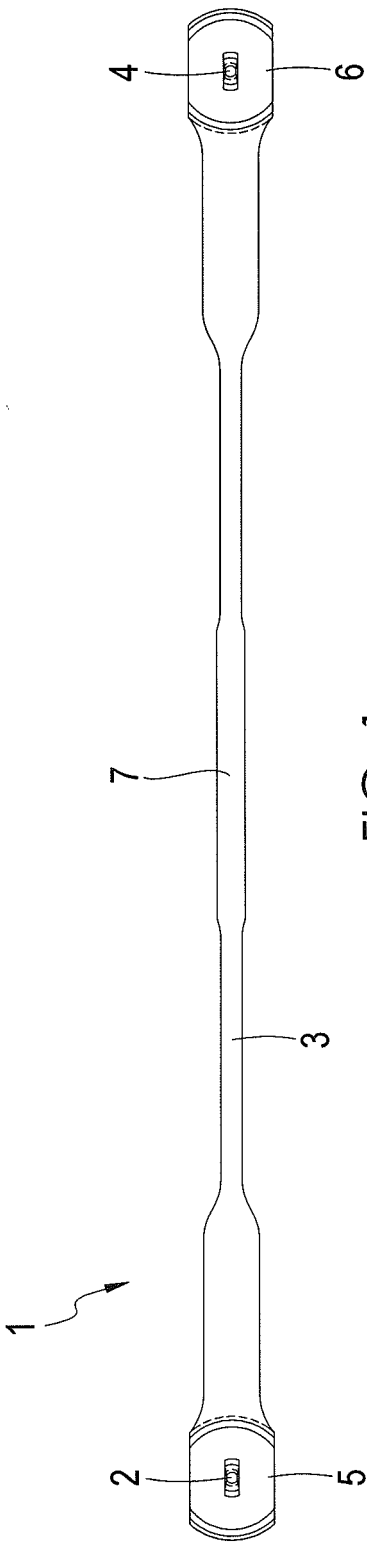
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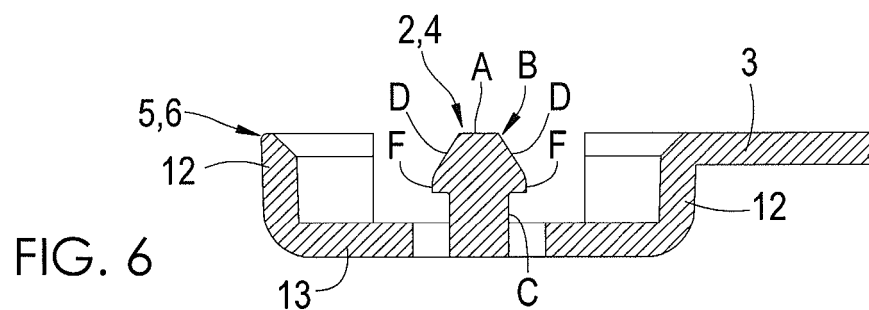
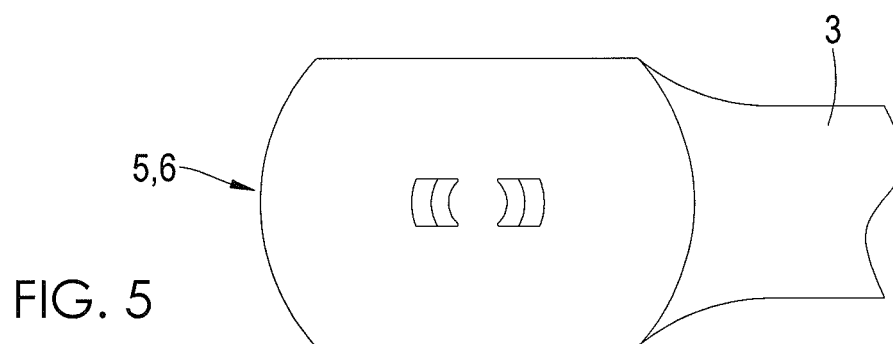
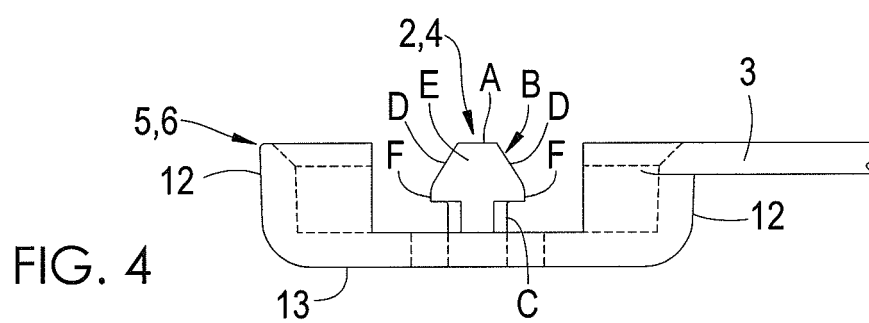
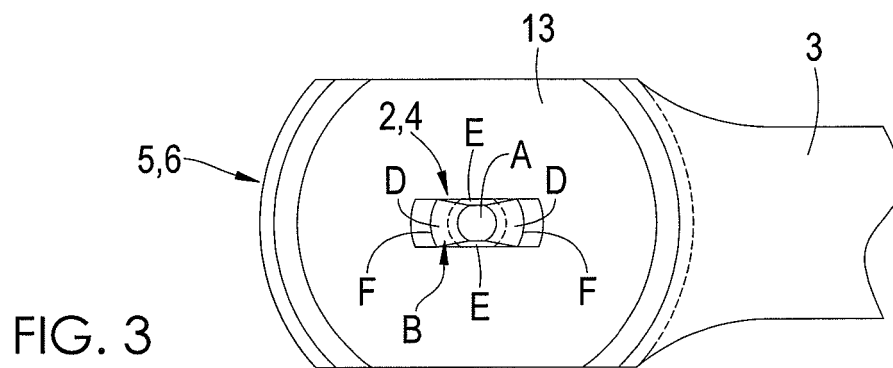
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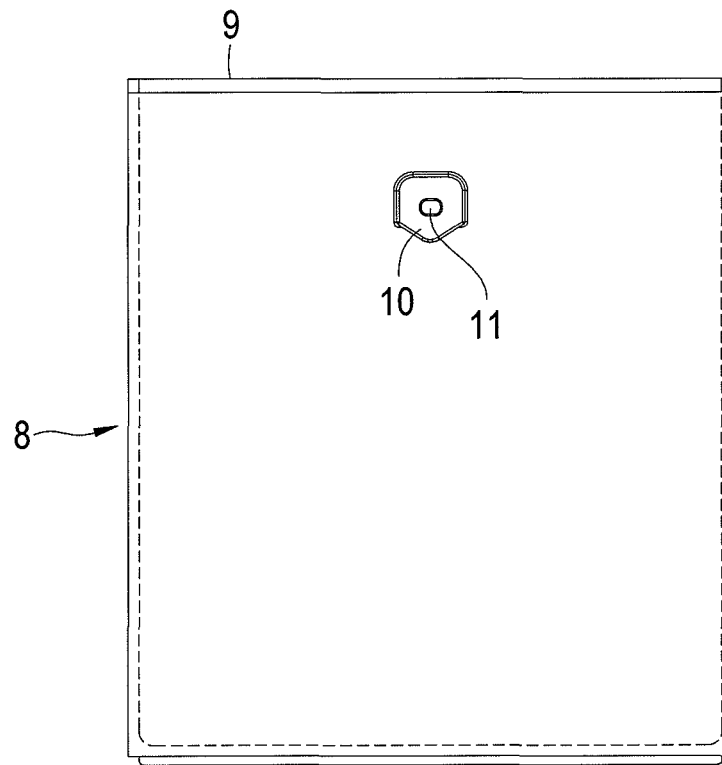


FIG. 7

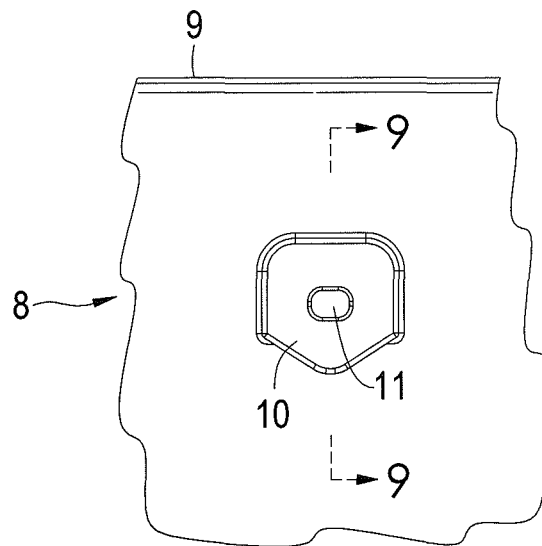


FIG. 8

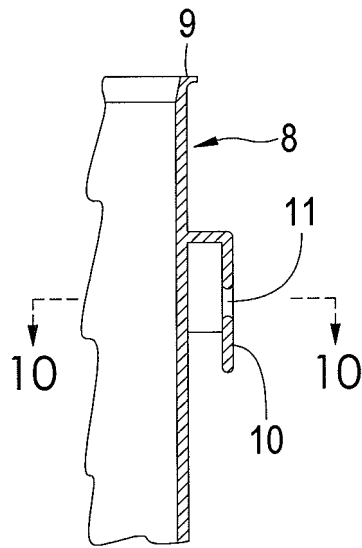


FIG. 9

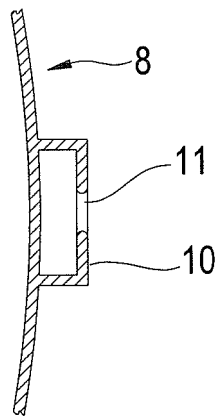


FIG. 10

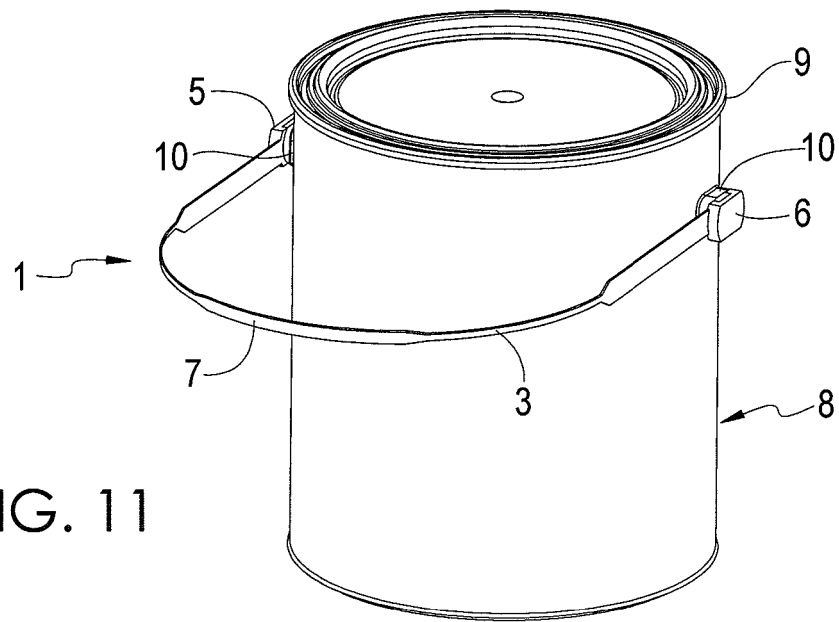


FIG. 11

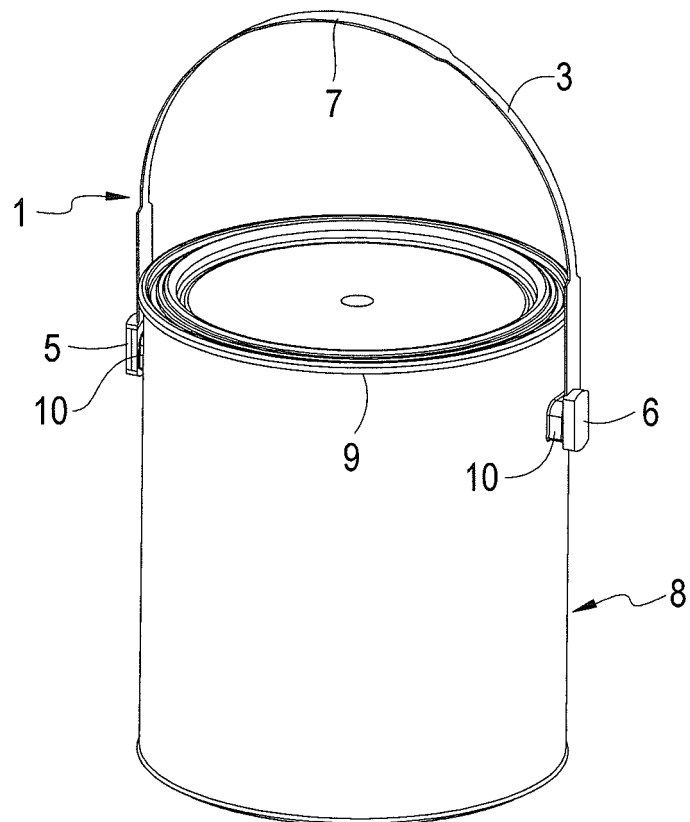


FIG. 12

REFERENCES CITED IN THE DESCRIPTION

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