United States Patent [19]

Camp

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[54] **HANDLE CLAMP**

[76] Inventor: **Nat Camp,** 395 Westchester Avenue, Port Chester, N.Y.

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[52] **U.S. Cl.**.....**16/125,** 220/94
[51] **Int. Cl.**.....**A47b 95/02**
[58] **Field of Search**.....220/94 X; 190/57, 190/58; 229/52 A, 52 AC; 16/114, 125, 110

[56] **References Cited**

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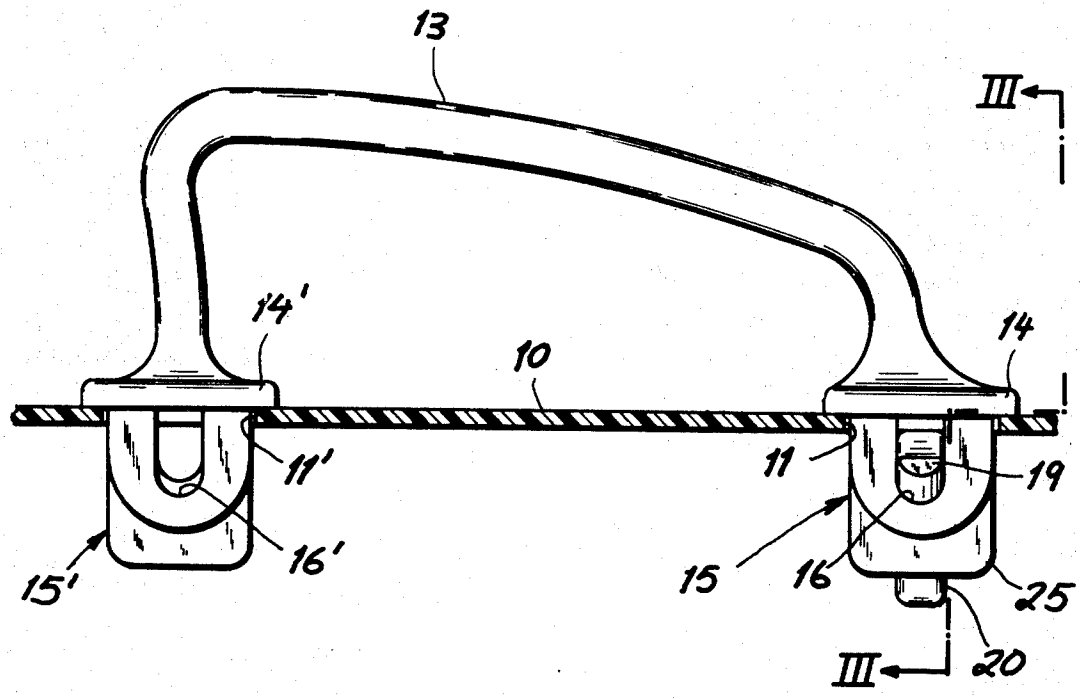
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Primary Examiner—Francis K. Zugel
Assistant Examiner—Doris L. Troutman
Attorney—Karl F. Ross

[57] **ABSTRACT**

A handle to be attached to a lid has a pair of lugs passing through respective slots in the lid, each lug having a bore which lies on the opposite side of the lid upon such insertion and which is formed with a sill rising toward the handle. A pair of generally boot-shaped clips, made like the handle of a resiliently deformable plastic material such as polypropylene, have pointed stems which fit into the bores of the lugs and are provided with reduced portions forming recesses into which the sills may snap when the stems are fully pushed into the bores, thereby interlockingly engaging the lugs and preventing their withdrawal.

7 Claims, 4 Drawing Figures



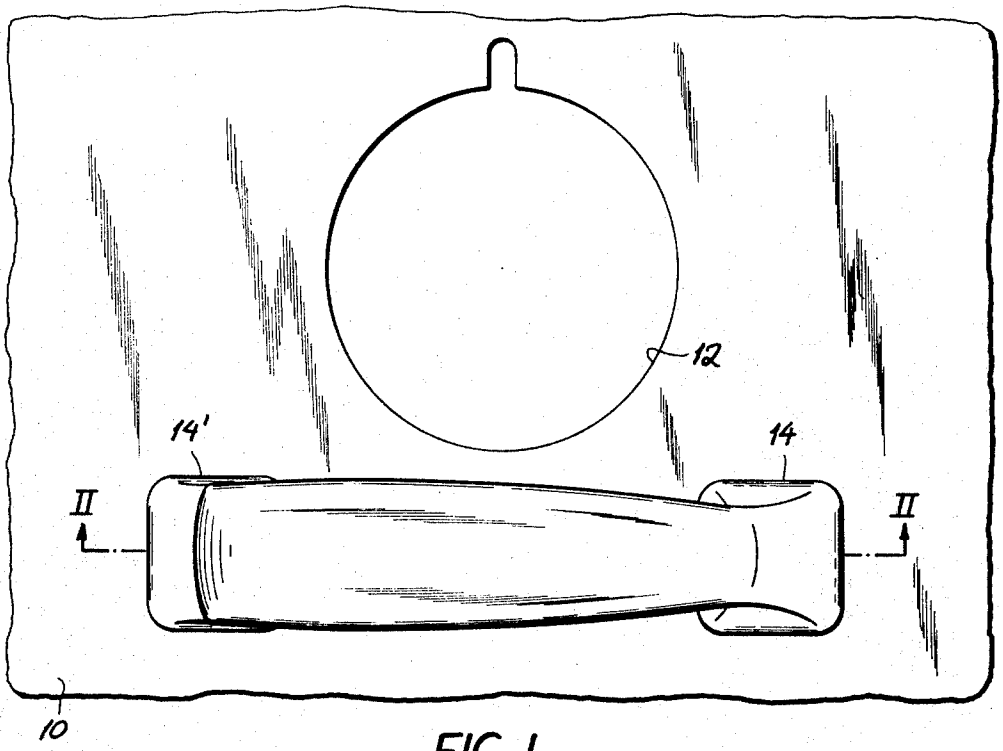


FIG. 1

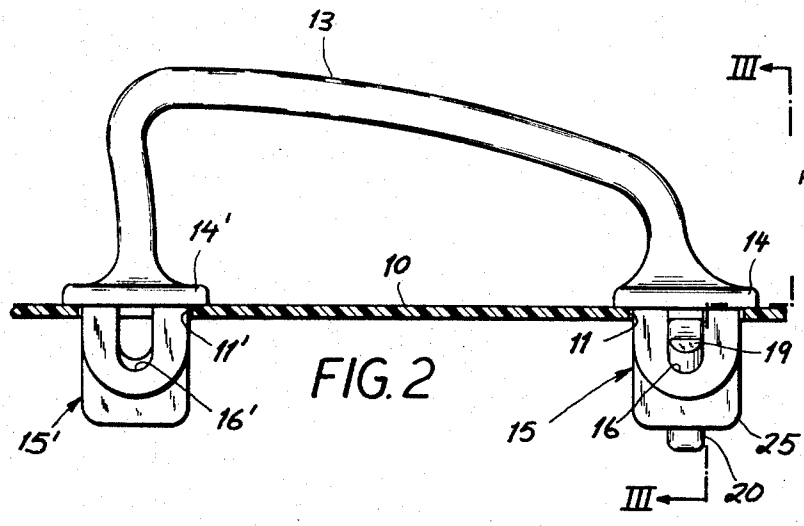
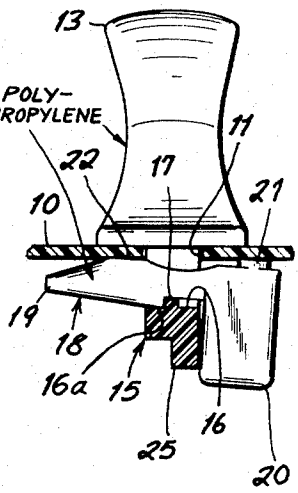


FIG. 2

FIG. 3



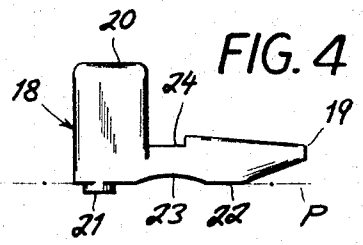


FIG. 4

Nat Camp
INVENTOR.

BY

Karl F. Ross
Attorney

HANDLE CLAMP

My present invention relates to an assembly for permanently fastening an attachment, such as a handle, to a lid, panel, partition or other generally flat structure of limited thickness hereinafter referred to as a wall member.

The general object of this invention is to provide simple means for quickly fastening such an attachment to a wall member, accessible from both sides, in a manner preventing subsequent spontaneous or nondestructive voluntary detachment.

A more particular object is to provide a fastener of this character adapted to be installed with a simple movement of the fingers, thus at a location of limited accessibility such as on the inside of a container wall provided with an opening just large enough to permit the insertion of one's hand.

I have found, in accordance with this invention, that the foregoing objects can be realized with the aid of a latch element of resiliently deformable material having a stem with a pointed end receivable in a bore of a lug, integral with the handle or other attachment to be secured, which passes through a slot in the wall member so that the aforesaid bore lies on the side remote from the attachment; an inner peripheral surface of the bore is formed with a sill which rises therefrom toward the attachment and is lockingly engageable by a reduced portion of the latch stem adjacent a blunt end thereof. Thus, pressure exerted upon the blunt end, e.g. with the tip of one finger, suffices to lock the attachment in position by irreversibly letting the locking element snap into engagement with the lug. In the case of a handle or other attachment to be fastened to the wall member at two points, two such latch elements will be used to engage a pair of lugs passing through respective slots.

Advantageously, pursuant to a more specific feature of my invention, each latch element is in the form of a generally boot-shaped clip with an instep in the region of the sill-engaging recess, this instep being flanked by a sole and a heel bearing upon the wall member on opposite sides of the slot. The boot shank, representing the blunt end of the clip, may come to rest against a resilient outer rib of the coacting lug which urges the heel in line with that shank into firm contact with the wall member.

The invention will be described in detail hereinafter with reference to the accompanying drawing in which:

FIG. 1 is a top plan view of an assembly embodying the invention, including a container lid with a handle attached thereto;

FIG. 2 is a cross-sectional view taken on the line II — II of FIG. 1;

FIG. 3 is a cross-sectional view taken on the line III — III of FIG. 2; and

FIG. 4 is a side-elevational view of a latch element forming part of the assembly of FIGS. 1 - 3.

In FIGS. 1 – 3 I have shown a container lid **10** formed with a pair of aligned slots **11**, **11'** and with a large opening **12**, normally serving for the filling or emptying of the container, giving access to the underside of the lid; the hole **12** may be closed by a plug not illustrated. Lid **10** may consist of plastic sheet material, as shown, but could also be metallic.

A handle **13**, of resiliently deformable plastic material such as polypropylene, has two bases **14**, **14'** resting flat against the top surface of lid **10** in the region of slots **11** and **11'**, these bases being integral with a pair of lugs **15**, **15'** which pass through the slots and are provided with bores **16**, **16'** emerging from the underside of the lid upon insertion of the lugs into the slots. Since the two lugs are identical, only lug **15** will be described in greater detail below.

As best seen in FIG. **3**, the bore **16** of lug **15** is formed along its inner wall surface with an upstanding sill **17** lying substantially in a central plane of the lug. A generally boot-shaped clip **18** of the same or similar thermoplastic material, shown by itself in FIG. **4**, has a pointed tip **19** for easy insertion into the bore **16** by a user reaching through the hole **12** to fasten the handle **13** in position. The shank portion **20** of the boot terminates in a reduced heel **21** which is separated from its sole **22** by an instep **23** bounded (in the upright view of the boot, FIG. **4**) by a gently curved lower edge and by a sharply stepped upper edge forming a recess **24**. Upon insertion of the stem of clip **18** into the bore **16** of lug **15** by a movement from right to left as viewed in FIG. **3**, the instep portion **23** is resiliently deformed until the sill **16** engages in the undercut **24** whereupon the instep **23** snaps back into its normal position, with the heel **21** and the sole **22** now bearing upon the underside of lid **10** at opposite sides of slot **11**. Owing to the fact that the heel projects beyond a plane P which is perpendicular to the shank **20** and tangent to the sole **22**, the shank **20** is deflected toward the lug **15** into a slightly tilted position in which it rests against and deforms an outer rib **25** of the lug whose resiliency presses the heel **21** firmly onto the lid **10**; rib **25** is formed by a step in the median plane registering with sill **17**.

The joint thus formed between the lid **10** and the handle **13** at its base **14** cannot be broken by finger pressure alone though the parts, of course, could be separated by the use of tools which generally would destroy the clip **18** and/or the lug **15**.

Upon insertion of a second, identical clip into lug **15'**, handle **13** is firmly anchored to the wall member **10**.

It will be noted that, with the sill **17** snapped into the recess **24** of the clip **18**, an enlarged part of that clip immediately to the left of that recess (FIG. **3**) is in firm contact with the wall of bore **16** next to the sill, this wall forming a land **16a** wider than the recess **24**; the flat shape of this enlarged part, together with that of sole **22**, helps prevent any rotation of the clip relative to the bore.

I claim:

1. In a structure including a wall member accessible from two sides and provided with at least one throughgoing hole, the combination therewith of:

an attachment for said wall member provided with a base larger than said hole carrying a lug insertable into said hole, said lug upon such insertion having a part projecting from said hole on the side remote from said base, said part being formed with a transverse bore having an inner peripheral surface with a sill rising therefrom toward said attachment; and

a latch element of resiliently deformable material having a stem with a pointed end receivable in said

bore and with a blunt end larger than said bore clamping said wall member between itself and said base upon introduction of said shank into said bore, said stem having a reduced portion adjacent said blunt end formed with a recess lockingly engageable by said sill upon such introduction for holding said element in position, said sill being flanked by a land wider than said recess.

2. The combination defined in claim 1 wherein said latch element consists of elastomeric material.

3. The combination defined in claim 2 wherein said elastomeric material is polypropylene.

4. The combination defined in claim 1 wherein said attachment is a handle with two extremities provided each with a base carrying a lug insertable into a respective hole of said wall member, said latch element being duplicated for engagement with both said lugs.

5. The combination defined in claim 1 wherein said latch element is generally boot-shaped, said reduced portion being located at the instep of the boot.

6. The combination defined in claim 5 wherein said latch element is formed with a sole and a heel bearing upon said wall member on opposite sides of said hole said heel being an extension of the boot shank projecting beyond a plane perpendicular to said shank and tangent to said sole.

7. The combination defined in claim 6 wherein said lug consists of elastomeric material and is provided with a resilient outer rib bearing upon the top of said boot shank for urging said heel into firm contact with said wall member.

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