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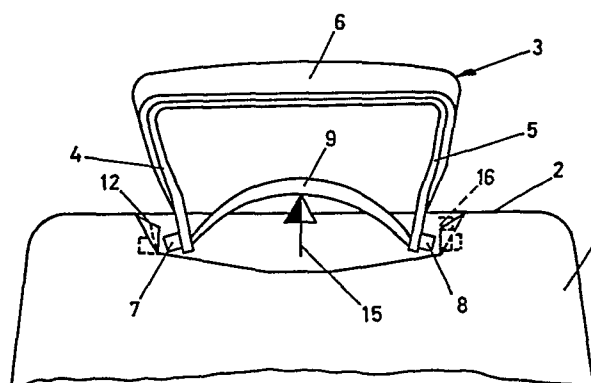
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⑤④ **Pivotal handle for a thin plastic container.**

⑤⑦ A container (1) on the top surface (2) thereof is provided with a pivotally mounted carrying handle (3) consisting of a bail with an outwardly projecting stud at the end of each leg (4, 5) of the bail. The studs (7, 8) are mounted in cavities (10) in the container that serve as bearings for the studs. Between the ends of the legs (4, 5), an outwardly curving, pliable, pivotal or detachable brace (9) is provided, whose length defines the correct distance between the studs (7, 8) for engagement with the cavities (10). The part of the container's top surface which lies between the cavities consists of a channel (17) of semicircular cross sectional configuration which supports the brace (9) and handle in various pivotal positions.



The present invention relates to a plastic container provided with a pivotal carrying handle at the top, consisting of a bail having an outwardly projecting stud at the end of each leg of the bail, the studs being mounted in cavities in the container that serve as bearings.

A number of embodiments of containers of this type are known in the prior art. These are normally quality containers, and the carrying handles are most often made of metal. Containers of this type, owing to their robustness and the labor-intensive mounting of the handle, are relatively expensive and are intended for particular uses.

For packaging applications, it has become common to utilize numerous kinds of containers that are produced by blow molding or vacuum molding of thin plastic material. These containers are inexpensive to manufacture, but owing to the special method by which they are produced there are fairly specific limitations on their shape. One of these limitations is that the can's carrying handle must be produced along the dividing line between the mold halves. The handle on these containers thus lies in the same plane as the pouring spout, which results in an awkward placement of the hand during pouring. Since the containers in question are usually 25 to 30-liter cans, the inconvenient placement of the handle constitutes a considerable drawback. It has therefore long been a goal of both user and manufacturer to produce a cheap blow- or vacuum-molded, thin-walled plastic container with a handle extending transversely of the can and preferably also hinged to the can.

It is not a problem per se to provide a thin-walled can with a pivotal handle. However, certain requirements must be satisfied for this solution to be acceptable. In the first place, the handle must be able to be provided at an acceptable cost. This means that the handle must be simple to mount, and preferably, that the mounting can be done

mechanically. Secondly, the handle must be of a strong enough construction to support the rather substantial weight of the can contents, yet this reinforcement must be provided in a simple and inexpensive manner.

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A handle satisfying these requirements is obtained in accordance with the invention, by means of these characterizing features: that between the ends of the legs of the bail that forms the carrying handle, an outwardly-curved, pliable
10 brace is provided whose length defines the optimum distance between the studs for correct engagement with the cavities, and that the portion of the can's top surface lying between the cavities consists of a channel of semicircular cross sectional configuration for supporting the brace in various
15 pivotal positions. In a preferred embodiment, the brace is disposed between the studs, i.e., on an extension of the studs' axis.

A preferred embodiment is characterized in that the bail,
20 studs and brace are molded in one piece of plastic material, and that the brace is formed with an outwardly curved configuration.

A further feature is that the channel-shaped portion of the
25 can's top surface is reinforced in relation to the remainder of the top surface.

To facilitate mechanical mounting of the handle, it is a feature of the invention that two guide surfaces, converging
30 toward each cavity, are formed in the container.

The invention will be described in greater detail in the following with reference to the accompanying drawings, which show a preferred embodiment of the invention.

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Figure 1 shows the top of a plastic container seen from one end thereof, with the handle mounted on the container.

Figure 2 shows the container seen from the same end during mounting of the handle, and

Figure 3 shows the container and handle seen from one side.

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The container 1, which is a thin-walled plastic can produced by blow molding or vacuum molding, has a pivotal handle 3 on the top surface thereof. The handle consists of a bail with two legs 4,5 and a web 6 connecting the two legs. At the
10 lower end of each leg 4,5, oppositely projecting studs 7,8 are provided. Extending between the lower ends of the legs 4,5 is an outwardly curved brace 9. The bail 3, studs 7,8 and brace 9 are preferably molded in one piece of pliable plastic. The ends of the brace 9 are connected to the bail
15 legs at the centerline for the studs 7,8.

The studs 7,8 of the carrying handle are mounted in cavities 10 at two opposing ends of a countersunk portion 11 in the top surface 2 of the can. Formed at the side walls of the
20 countersunk portion 11 adjacent to the cavities 10 is a knob-like protuberance 12 with a guide groove 13 having two guide surfaces 14 that converge from the top of the knob toward the cavity. These guide surfaces will facilitate the insertion of the stud into the cavity. As seen in
25 Figure 1, in which the handle 3 is shown in its natural, mounted position, the length of the brace 9 defines the correct position of engagement for the studs 7,8 in the cavities 10.

30 When the handle is to be mounted, the brace 9 is pressed forcefully upwardly in the direction of the arrow 15, which draws the legs of the bail toward each other until the studs 7,8 are positioned at the entrance to the cavities 10. In Figure 2, the legs of the bail are shown exaggeratedly
35 forced together for purposes of illustration. Actually, the studs do not need to be pulled in farther than the position shown by the dotted lines at 16 in Figure 2. In this

position the studs will be guided by the above-mentioned guide surfaces 14 on the knobs 12, so that they will easily snap into the cavities. When the studs 7,8 have been brought into position just outside the cavities 10, the force being
5 exerted in the direction of the arrow 15 is released and the brace 9 will reassume its original position as shown in Figure 1, and the studs 7,8 will be urged into the cavities.

When the can is carried by the handle 3, the person inserting
10 his hand underneath the web 6 of the bail, an inwardly directed component of force will arise which will urge the legs of the bail 4,5 toward each other, therefore seeking to draw the studs 7,8 out of the cavities 10. The brace 9 will counteract this effect, but since the container contents
15 (in, say, a 25-30 liter can) may be fairly heavy, and the brace is pliable, the brace will have a tendency to bend outwardly even more. therefore, a channel-shaped recess 17 extending in the direction of the handle is formed in the top surface of the container. The channel has a semi-
20 circular internal surface, against which the underside of the brace lies. The underside of the brace has a curved shape corresponding to the arch-shaped configuration of the channel. As seen in Figure 3, the container can be reinforced at the channel 17 to withstand the pressure from the
25 brace 9. The center of the cavities 10 coincides with the center of the channel, and the underside of the brace 9 will therefore rest against the bottom of the channel no matter what the angular position of the handle. As seen especially in Figure 3, the handle 3 is arranged with its
30 plane disposed transversely of a line extending from the pouring spout 18 through the container.

The invention is not restricted to the exemplary embodiment described and illustrated in the specification. Thus, the
35 reinforcing brace need not be pliable, as recited in the description and shown in the drawings, but can be detachable at one end thereof, e.g. detachable at the leg 4 and

fixed at the other leg 5. Since the plastic is pliable, the brace 9 can be bent aside to permit the studs 7 and 8 to be inserted into the cavities, then bent back into the position shown in Figure 1. The detachable end of the brace 9 at the
5 leg 4 could for example be provided with a stud that engages with a recess in the leg 4. The brace 9 could also be detachable at both ends from the legs 4 and 5, being provided with studs at both ends for engagement with recesses in the legs 4 and 5.

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Patent Claims

1. A container (1) which on the top surface (2) thereof is provided with a pivotally mounted carrying handle (3) consisting of a bail having an outwardly projecting stud at the end of each leg (4,5) of the bail, said studs (7,8) being mounted in cavities (10) in the container that serve as bearings for the studs, characterized in that between the ends of the legs (4,5), an outwardly curving, pliable, pivotal or detachable brace (9) is provided, whose length defines the correct distance between the studs (7,8) for engagement with the cavities (10), and in that the portion of the container's top surface (2) situated between the cavities (10) consists of a channel (17) of semicircular cross sectional configuration which supports the brace (9) and handle in various pivotal positions.

2. A container according to claim 1, characterized in that the brace is situated between the studs (7,8).

3. A container according to claims 1 or 2, characterized in that the bail (3), studs (7,8) and brace (9) are molded in one piece of plastic material, and that the brace (9) is formed with an outwardly curving, arched configuration.

4. A container according to one or more of the preceding claims, characterized in that the channel-shaped portion (17) of the container's top surface is reinforced in relation to the rest of the top surface.

5. A container according to one or more of the preceding claims, characterized in that two guide surfaces (14) converging toward each cavity (10) are formed on the container.

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Fig. 1

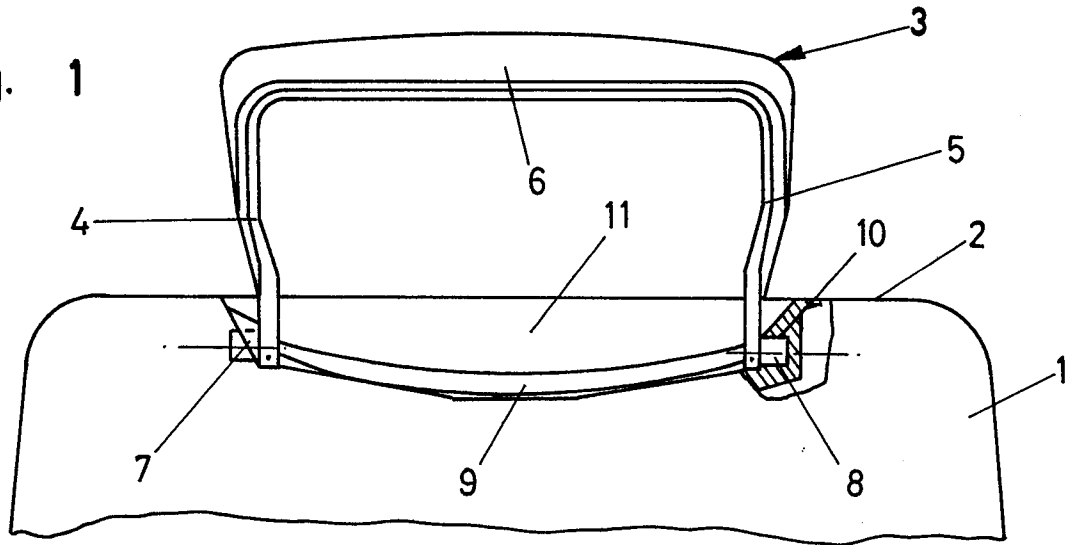


Fig. 2

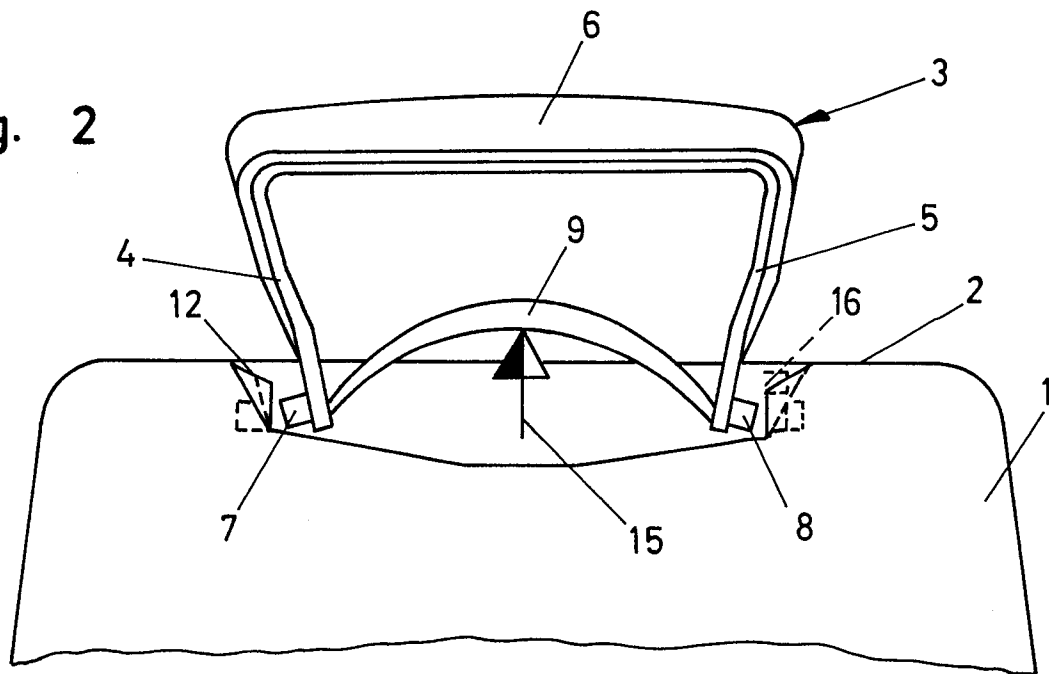


Fig. 3

