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2,936,070

CAN CARRIER

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Fig. 1.

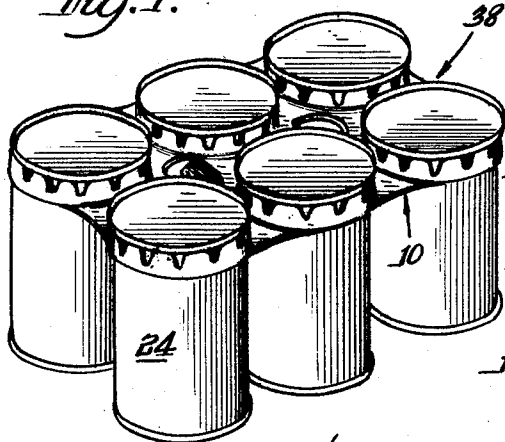


Fig. 2.

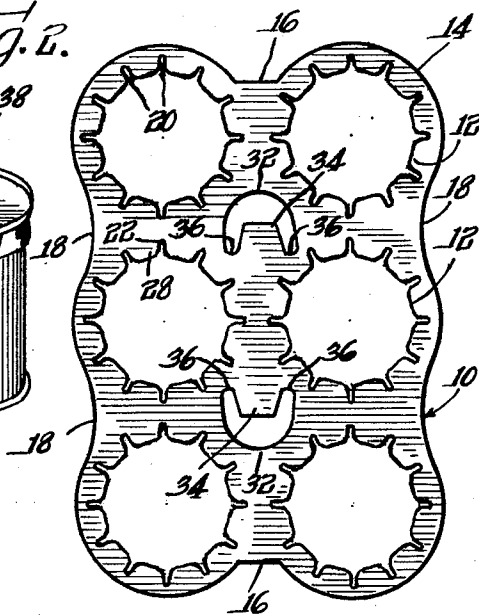


Fig. 4.

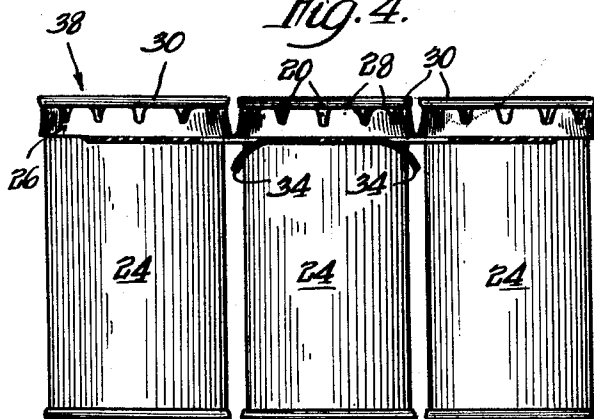


Fig. 3.

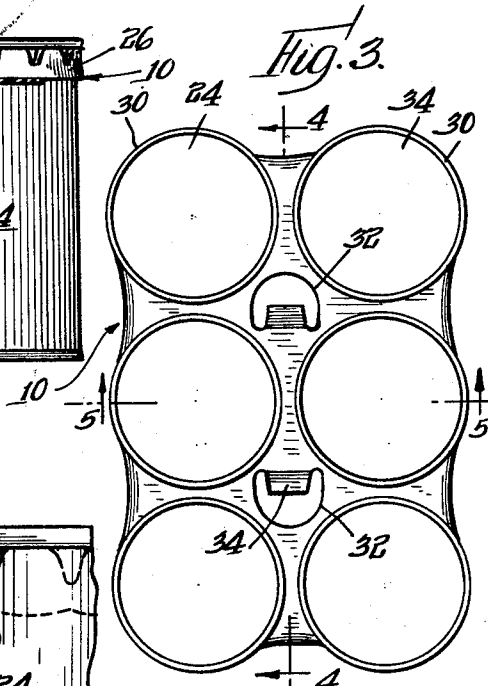
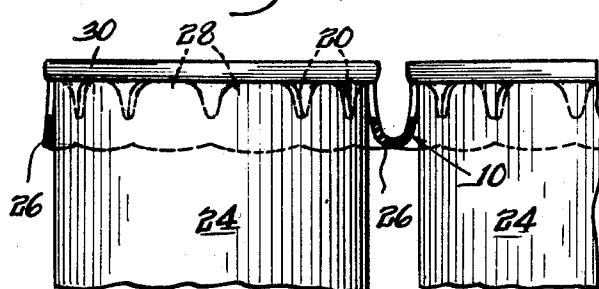


Fig. 5.



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## CAN CARRIER

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6 Claims. (Cl. 206—65)

This invention is concerned generally with a package or article carrier, and more particularly with a receptacle for holding and carrying cans or the like.

It is common practice to package beverages, such as beer and soda pop in cans. In most such instances, a plurality of such beverage cans, conveniently six in number, is supplied in a receptacle or carrier for home consumption. A plurality of units of six or so cans generally is shipped in a large carton, and this carton is broken open at a retail outlet for sale of the units to the ultimate consumer. There also appears to be a trend to package other foodstuffs with several cans held together by a receptacle or carrier.

As pointed out in my copending patent application for "Can Carrier Device," Ser. No. 642,081, filed February 25, 1957, now abandoned, the pasteboard containers and metal clips previously used for assembling cans have not proved entirely satisfactory for a variety of reasons. Accordingly, my aforesaid application discloses an improved carrier or receptacle comprising a plastic sheet having apertures therein dimensioned to form upwardly turned lips beneath the beads of cans. The plastic container carrier or receptacle holds the cans aggressively against downward withdrawal, yet allows them to be withdrawn upwardly with relative ease. The present invention represents an improvement over the carrier set forth in said application.

It is an object of this invention to provide an improved plastic carrier providing a gripping section or area that will not twist or bend away from the bead of the can regardless of the manner in which the can is twisted or bent.

Another object of this invention is to provide a plastic carrier which can be assembled with cans with much greater facility than any similar carrier heretofore known, and which resists retrograde withdrawal to a much greater extent than any heretofore known.

More particularly, it is an object of this invention to provide a plastic can carrier wherein a band of plastic is stretched about the can, and resilient, flexible fingers extend upwardly therefrom and seat beneath the can bead.

Other and further objects and advantages of the present invention will be apparent from the following description when taken in connection with the accompanying drawing wherein:

Fig. 1 is a perspective view of a unit of six cans held together by a device or carrier in accordance with the principles of this invention;

Fig. 2 is a plan view of the device or carrier before assembly with any cans;

Fig. 3 is a top view of the device as assembled with the cans to be carried thereby;

Fig. 4 is a longitudinal sectional view taken substantially along the line 4—4 in Fig. 3; and

Fig. 5 is a fragmentary cross-sectional view taken substantially along the line 5—5 in Fig. 3.

Referring now in greater particularity to the drawings, a receptacle or retainer in accordance with the prin-

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ciples of this invention comprises a flat sheet of plastic material, and is hereinafter identified by the numeral 10. The sheet is provided with a plurality of spaced apertures 12, preferably six in number. These apertures are substantially smaller than the diameter of a can with which the device is to be assembled, and the container device is made of a plastic material which is resilient, flexible, and elastic, and which will not readily tear. Polyethylene is a preferred example, but other functionally similar materials are satisfactory. The retainer 10 preferably is stamped from an elongated strip in a suitable punch press, and the scrap formed by punching the apertures 12, and by rounding off the corners at 14 and indenting between the apertures as at 16 and 18, and from other apertures to be disclosed is readily processed for further use. However, it has been found that certain advantages can be obtained by molding the retainer, as hereinafter will be pointed out.

The periphery of each of the apertures 12 is of an undulating configuration providing a plurality of radial slots 20 having rounded corners concave tip fingers 28 therebetween. The tips lie on a circle, whereby the apertures are generally circular. The rounded corners provide for improved stress distribution in the plastic and avoid sharp corners that might tend to start tears. The slots 20 are not mere knife cuts or slits, as in certain pasteboard carriers of the prior art, but are of finite widths and have the roots formed as radii 22. Substantial stretching force is imposed on the plastic at the roots of the slots, and there would be a substantial danger that the slots would tear, thereby causing the cans to be released, if the slots were mere slits having sharp roots or terminations.

In accordance with the principles of this invention, the root circle, namely the circle concentric with each of the apertures 12 and on which the roots of the slots of that circle lie, is of slightly smaller diameter than the diameter of the cans with which the carrier is to be associated. Hence, when the carrier is pushed down over the tops of the cans, shown at 24 in Figs. 1, 3 and 4, the material at the roots of the slots is deformed upwardly into a more or less frustoconical, almost cylindrical conformation as indicated at 26. The fingers 28 defined by the slots 20 extend up from the tops of the sections 26 in close conformation with the surface of the cans, and abut beneath the beads 30 at the upper ends of the cans.

Due to the fact that the root diameter is less than the diameter of the cans, a considerable stretching force is applied to the plastic material in the vicinity of the roots in stretching the material into the frustoconical, almost cylindrical conformation shown and described. The importance of providing slots of finite thickness and with radii at the terminations thereof accordingly will be appreciated. With the cans in place, the carrier forms a circumferentially continuous engagement with each can, presenting a stretched band of plastic, and has upstanding fingers thereon locking beneath the can bead. Twisting or bending of the band does not bend the fingers away from the bead, and hence it is practically impossible to pull the can from the retainer by simply moving the cans down. However, the cans readily can be assembled with the container by moving them up relative to the container, and subsequently can be removed from the container by continuing the upward movement of the cans relative to the container.

In addition to the parts heretofore noted, the plastic retainer 10 is provided with a pair of apertures 32 along the longitudinal center line. The portions of the apertures relatively adjacent the opposite ends are semicircular in nature, whereby to afford even stress distribution and the absence of any sharp corners where tears might start. At the opposite ends integral tongues 34

extend into the apertures and are joined to the edges of the apertures by relatively small radii 36. As may be seen in Fig. 4, the tongues are flexed down below the plane of the carrier or receptacle, and the entire unit 38 comprising the carrier and cans may be lifted simply by inserting the thumb and a finger through the apertures and bending the tongues back toward the center of the unit. As will be apparent, the tongues provide a comfortable grip for the fingers, and tend to double over to provide a double strength lifting section.

From the foregoing, it will be apparent that an improved carrier, device, or container for cans or the like has herein been presented. The container is simple and economical to fabricate, and can be assembled with cans with considerable facility, simply by stamping the carrier down over the proper number of cans. The cans simply cam into the apertures, deflecting the fingers 28 upwardly, and stretching the elastic material in the vicinity of the roots of the slots into a frustoconical, very nearly cylindrical configuration whereby the cans are gripped aggressively with the fingers abutting beneath the can beads. Twisting or bending of the material by moving the cans about has substantially no effect, since the fingers readily conform to the cans. Accordingly, it is practically impossible to pull the cans down through the retainer. However, it is a relatively simple manner to move the cans up through the container for separation of the cans from the container.

For convenience, the retainer may be stamped from sheet plastic. However, molding has the advantage of providing stronger slot roots and may thus be preferred in some instances.

The particular embodiment of the invention herein shown and described is for exemplary purposes only. Various changes in structure will no doubt occur to those skilled in the art, and are to be understood as forming a part of the invention insofar as they fall within the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A receptacle for retaining a plurality of containers or the like having annular enlargements at one end in side-by-side substantially abutting and parallel relation, comprising a substantially unsupported sheet of plastic material, said sheet of plastic material being resilient, deformable, and elastic and having a plurality of apertures therein, each of said apertures having a peripheral measurement less than the periphery of the corresponding container, the material at the edge of each aperture being circumferentially continuous and uninterrupted, said sheet of plastic material having a plurality of fingers extending radially inwardly from the edge of each aperture which constitutes the root circle of the fingers, the apertures in the sheet being intended for association with the containers whereby such containers can be inserted through said apertures from a given direction when the material adjacent said apertures is stretched and deformed to form circumferentially continuous lips embracing said containers beneath said annular enlargements and resiliently gripping said containers with the fingers flexed upwardly for substantially their entire length from the root circle to lock beneath said annular enlargements and with the material of the fingers adapted to conform

substantially to the adjacent external configuration of the containers associated therewith, and a handle associated with said sheet of plastic material for carrying said receptacle.

2. A receptacle as claimed in claim 1, wherein the sheet of plastic material is of generally rectangular configuration but having curved corners and reversely curved edges at the sides thereof providing a substantially uniform amount of material for the continuous lips when stretched into embracing relationship with the containers.

3. A receptacle as claimed in claim 1, wherein the sheet of plastic material includes a pair of spaced openings along the center thereof with fingers oppositely projecting into said openings and adapted to be engaged for lifting the receptacle.

4. A beverage or like unit comprising a plurality of containers having curvilinear cross sections and annular enlargements, and a sheet of substantially unsupported plastic material having a plurality of curvilinear apertures therein, said sheet of plastic material being resilient, deformable, and elastic and having a plurality of fingers extending radially inwardly from the edge of each aperture which constitutes the root circle of the fingers, the peripheral measurement of each aperture being less than that of the corresponding containers whereby the containers, inserted axially through said apertures, stretch and deform the material adjacent the apertures into the form of axially directed necks engaging said containers below said enlargements and resiliently gripping said containers to resist withdrawal thereof and with the fingers flexed upwardly for substantially their entire length from the root circle to lock beneath the annular enlargements and with the material of the fingers conforming substantially to the adjacent external configuration of the container associated therewith, said containers depending from said sheet of plastic material in side-by-side abutting relation whereby to reinforce one another upon carrying of the unit.

5. A beverage or like unit as claimed in claim 4, wherein the sheet of plastic material is of generally rectangular configuration but having curved corners and reversely curved edges at the sides thereof providing a substantially uniform amount of material for the axially directed necks when stretched into engagement with the containers.

6. A beverage or like unit as claimed in claim 4, wherein the sheet of plastic material includes a pair of spaced openings along the center thereof with fingers oppositely projecting into said openings and adapted to be engaged for lifting the unit.

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