

March 19, 1968

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3,374,028

CONTAINER CARRIER

Filed April 27, 1967

Fig. 1

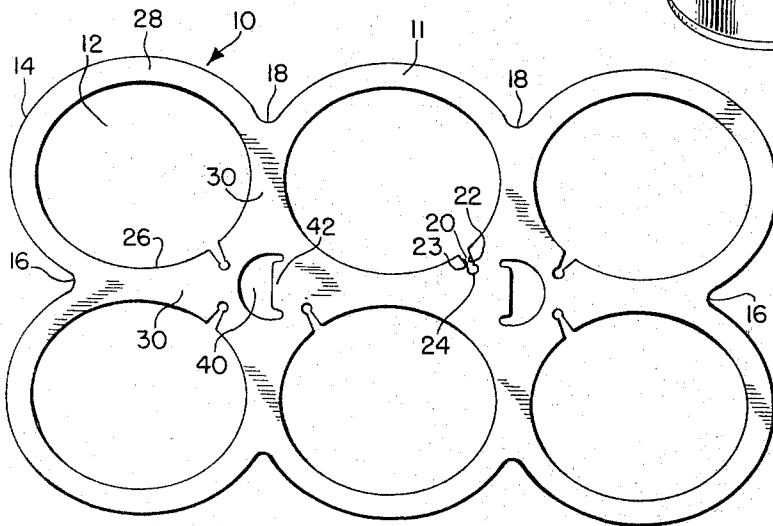
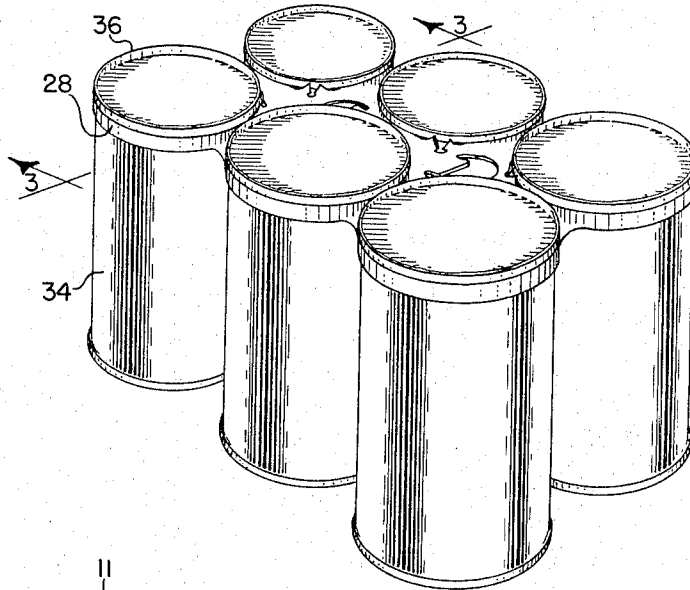


Fig. 2

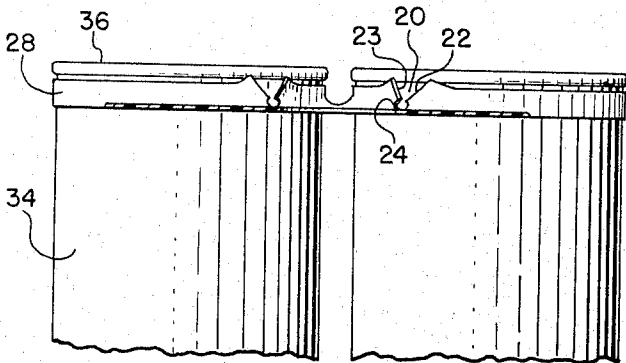


Fig. 3

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3,374,028

CONTAINER CARRIER

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 Filed Apr. 27, 1967, Ser. No. 634,255
 4 Claims. (Cl. 294—87.2)

ABSTRACT OF THE DISCLOSURE

Container carrier formed of plastic sheet material having a plurality of apertures therein for receiving and holding peripheral enlargements at one end of a plurality of containers. The plastic material has at least one notch projecting into the body thereof from each of the apertures. The notches serve to facilitate the initial attachment of the carrier to the plurality of containers and also permit the easy removal of containers from the carrier.

Background of the invention

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.

This invention relates particularly to can carriers of the general type disclosed in U.S. Patents 2,874,835 and 2,936,070 assigned to the assignee of the present invention. Although the can carriers disclosed in the aforementioned patents perform perfectly satisfactorily, they engage and retain the cans so well that removing individual cans by pulling them downwardly from the carrier may be facilitated by this invention, when desired. In U.S. Patent 2,874,835, an embodiment of a carrier somewhat similar to that of the present invention is disclosed in FIGURES 22-26 and the disclosure of said patent is relied upon herein for a general description of the function and operation of the present invention except as it concerns the specific placement of notches or slits in the web adjacent the apertures. U.S. Patent 2,936,070 shows a can carrier formed of a length of punched plastic material wherein a plurality of slits or slots are placed in the web completely around each of the apertures. These slits or slots form a plurality of fingers which each assume an arcuate configuration in cross section as they engage the sidewall rim of a container and prevent its being pulled downwardly out of the carrier.

Summary of the invention

With the use of plastic container carriers increasing due to their simplicity, effectiveness, and economy, it would seem to be desirable that certain of them be made and designed in such a manner that they will maintain a firm support of the containers even when subjected to abuse, be simple to apply to the containers by a food processor, for example, and yet may be removed by the end user with facility.

It is, therefore, a primary object of this invention to provide a container carrier to which the containers may be readily applied, yet easily removed when desired.

It is another object of this invention to provide a container carrier which can be quickly and reliably assembled to containers even though the carrier web varies in aperture to aperture dimension from the most desirable size from an engineering standpoint.

The present invention relates to an article carrier formed from a sheet of apertured plastic material which has at least one notch extending from each aperture into a portion of the carrier body. By forming the notches in regions of low stress rather than around the entire circumference of the apertures it is possible to achieve a carrier which

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will support containers substantially as well as unnotched carriers presently on the market.

A principal advantage of the invention is that it permits the containers to be more readily removed from the carrier by a downward and outward pulling action.

An additional advantage of the improved carrier is that it is easier to assemble to a plurality of containers than presently available unnotched carriers. This improvement results from the presence of the notches which increase the effective size of the apertures and thus makes the relative position of the containers relative to the carrier during assembly less critical. This latter feature would enable an assembly machine to handle carrier webs having a larger degree of dimensional variation than presently can be tolerated and would also render such a machine less subject to jamming when working with webs which vary from the most desirable dimension.

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of a preferred embodiment thereof, as illustrated in the accompanying drawings.

Brief description of the drawing

FIG. 1 is a perspective view of a container carrier embodying the present invention wherein the carrier is shown in assembled relationship with a plurality of containers.

FIG. 2 is a top plan view of the carrier.

FIG. 3 is a side elevational view taken on lines 3—3 of FIG. 1.

Description of the preferred embodiment

Referring now to the drawings, one embodiment of the invention will be described as applied to a plurality of beverage cans having beaded top portions. The carrier 10 is formed of a flat sheet of plastic material 11. The sheet 11 is resilient, flexible and elastic. It is provided with a plurality of spaced apertures 12, preferably six in number, for supporting an equal number of cans. These apertures are substantially smaller than the diameter of a can with which the device is to be assembled and must therefore be enlarged during assembly and stretched over the can bead. Since the apparatus for assembly is well known and forms no part of the present invention, it will not be described.

Although polyethylene is a preferred example of a suitable carrier material which is quite resistant to tearing, other functionally similar materials would also be satisfactory. A series of carrier elements 10 may be punched or otherwise formed from an elongated web or strip in a suitable apparatus (not shown). The strip is then continuously fed to an assembly apparatus. The scrap formed by punching out the apertures 12, rounding off the corners at 14, and indenting between the apertures as at 16 and 18, is readily reprocessed for further use. Although the carrier is preferably made by being stamped or cut from sheet material, it can also be manufactured by other means, such as molding.

Formed in the central portion of the carrier 10 adjacent each of the apertures 12 is at least one notch or slot 20 having a pair of side edges 22, 23 and a curved end portion 24. Although the notches 20 serve to interrupt the otherwise continuous edge 26 of the aperture, they do not substantially weaken the carrier 10 after it is assembled to a plurality of cans as shown in FIG. 1. Strength is maintained since the notches 20 are located in the interior regions 30 of the web and spaced from the outer band portions 28 of the carrier. The interior regions 30 are not subjected to the large stress forces which exist in the narrow band portions since they are much wider and are stretched less. They can therefore be notched without materially increasing the possibility that the web

would be torn. By providing rounded end portions 24 at the bottoms of the notches of a dimension larger than the bottom of the notch it is possible for a relatively large force to be applied between the side edges 22, 23 without starting a tear since the rounded ends will suitably distribute the stresses to the material surrounding them.

When the carrier 10 is assembled to a plurality of cans 34 as shown in FIG. 1 each aperture 12 must be expanded considerably so that it may be forced over the end of the can and firmly engage the sidewall of the can as well as the underside of its head or lip which comprises a peripheral enlargement at the end thereof. Since at least the outer band portions 28 of the carrier are moved to a position at right angles to their original position shown in FIG. 2 during their assembly to the cans, it is obvious, since the bands are parallel to the axis of the aperture, that the inner edge portions 26 of the apertures 12 must be stretched or expanded to a dimension approximately equal to the dimension of the outer edge thereof.

To facilitate the carrying of the combined assembly of carrier and cans shown in FIG. 1, a pair of finger engageable openings or apertures 40 are provided in the interior web portion 30. These handle means can be a separate device if desired. By forming one edge of the apertures 40 with a tab 42 the carrier with the cans held therein may be easily carried by a user placing his thumb in one aperture 40 and a finger in the other aperture. When engaged by a user's fingers, the tabs 42 will fold under so as to provide a comfortable grip. The tabs also help relieve any stress concentrations which take place during carrying and thus prevent tearing in the region of the finger openings.

The slots or notches 20 are placed in the interior portion of the web 30 in locations which will permit the carrier to hold the cans 34 firmly without danger of tearing taking place in the region of the slots 20. If the slots were placed in the outer band portion 28 of the carrier they would reduce the effective width of the bands and thus their ability to withstand tearing when stretched. By placing the slots 20 in the interior portions 30 of the web 11 it is possible to locate them so that the ability of the carrier to resist stress and tearing at the location of the slots is no less than at any point on the periphery of the band 28. Since the maximum stress in the carrier is at the outer band and there is relatively little stress at any interior portion 30 other than immediately adjacent the finger tabs 42, the slots for the end rows of apertures can extend quite close to the openings 40 without causing excessive stress concentrations.

In FIG. 3 it can be observed that the ends of the slots 20 are spaced considerably further apart than in FIG. 2. This is because of the stretching which takes place during assembly of the carrier 10 to the containers 34. Because of the presence of the slots, the effective interior diameter of the apertures 12 for a predetermined amount of stretching is much greater than if no slots were present. By having a large interior diameter the apertures do not have to be as accurately located relative to each other and to the assembly machine which assembles the carriers to the containers as is necessary with unnotched carriers. By making the dimensions less critical, it is possible to utilize carrier stock which has greater dimensional tolerances or variations than would be acceptable for unnotched carrier stock. Furthermore, for the same tolerance range the notched carrier is far less likely to jam when applied to the spreading jaws and pins on the assembly (equipment during assembly) than conventional unnotched carriers.

The presence of the slots or notches 20 not only enables the carrier to be more easily assembled to the containers 34 but it also permits an individual container to be removed from its assembled relationship with the carrier

by the user grabbing hold of the lower half of the container and pulling it downwardly and outwardly. Such outward movement will cause the sides of the slot 20 to spread apart from the position they are in when the containers are being carried and thus release the hold of the band 28 on the upper lip 36 of the can, permitting the can to be easily removed. While one slot for each aperture has been shown, it is possible to use more than one as long as the slots are in the interior of the web rather than in the outer bands.

While the invention has particularly been shown and described with reference to a preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a resilient, deformable, plastic carrier member for retaining a plurality of containers or the like having peripheral enlargements at one end in side-by-side substantially abutting and parallel relation, the improvement wherein said carrier member comprises a substantially unsupported sheet of plastic material having at least four adjacent apertures therein, each of said at least four apertures being separated from the others of said at least four apertures by a first interior web portion of said sheet, at least two slots formed in said first interior web portion and communicating with at least two of said apertures, said slots extending from said apertures so as to be generally directed toward a diagonally opposed aperture, each of said apertures having a peripheral measurement less than the periphery of a corresponding container to be retained thereby, the material defining the edges of said at least two apertures being circumferentially continuous and uninterrupted except for said slots formed in said first interior web portion, said edge defining material comprising relatively narrow bands which surround said apertures except where the apertures are joined to each other by the relatively wider first interior web portion, 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 bands embracing and resiliently gripping said containers beneath said peripheral enlargements, and handle means associated with said sheet of plastic material for permitting said carrier to be carried.

2. The improvement as set forth in claim 1 wherein the end of each of said slots is rounded.

3. The improvement as set forth in claim 1 wherein each of said slots consists of a V-shaped notch terminating in a circular opening which is wider than the portion of the notch adjoining it.

4. The improvement as set forth in claim 1 wherein said carrier includes six apertures intended for association with containers, said apertures being arranged in two parallel columns of three apertures each, said handle means comprising a pair of finger engageable openings formed between said columns and adjacent rows of said apertures, and at least one slot communicating with each of said apertures and extending generally radially therefrom in the vicinity of one of said finger openings.

References Cited

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