Aug. 26, 1969 R. W. BEART 3,463,535

CAN CARRIER

Filed Oct. 12, 1967 2 Sheets-Sheet 1

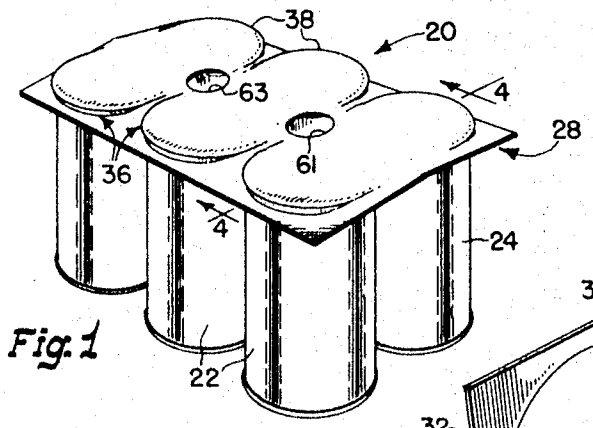

Fig. 1

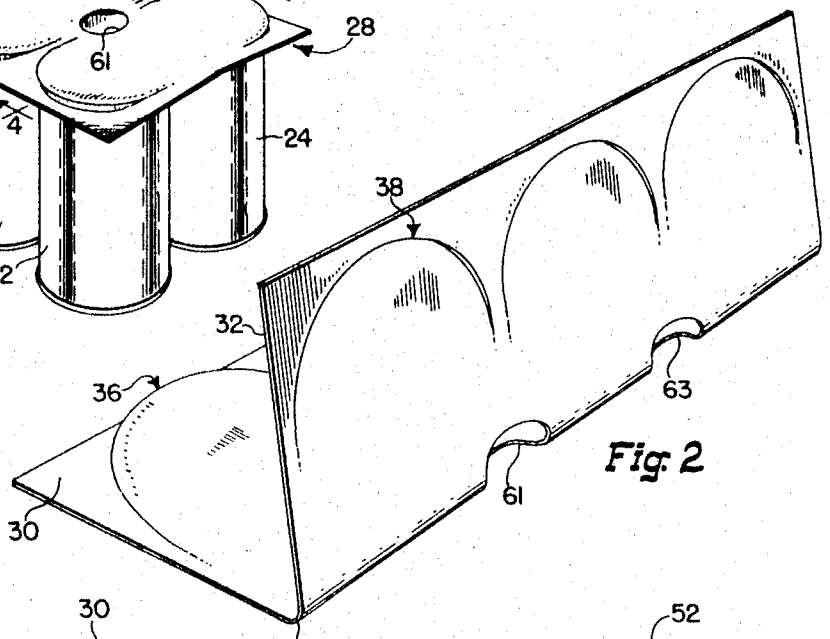

Fig. 2

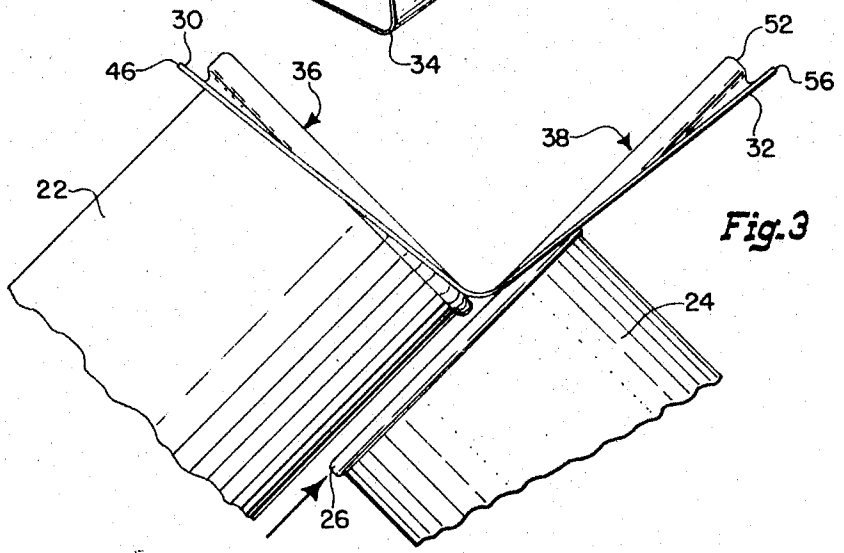

Fig. 3

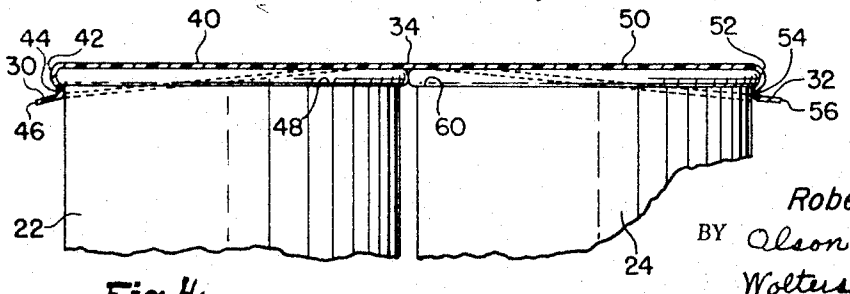

Fig. 4

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Aug. 26, 1969 R. W. BEART 3,463,535

CAN CARRIER

Filed Oct. 12, 1967 2 Sheets-Sheet 2

Fig. 5

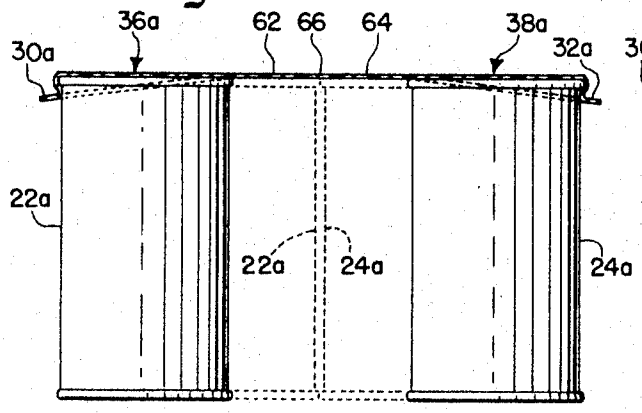


Fig. 6

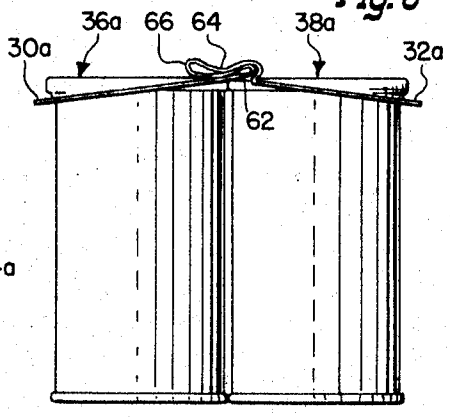


Fig. 7

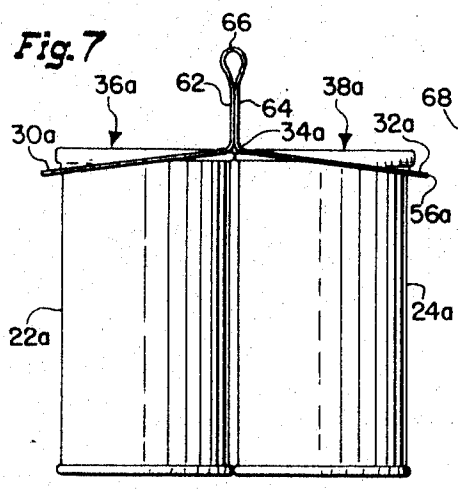


Fig. 8

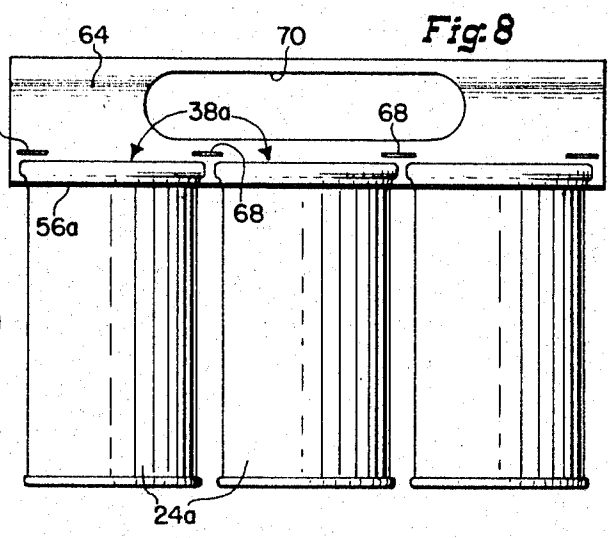


Fig. 9

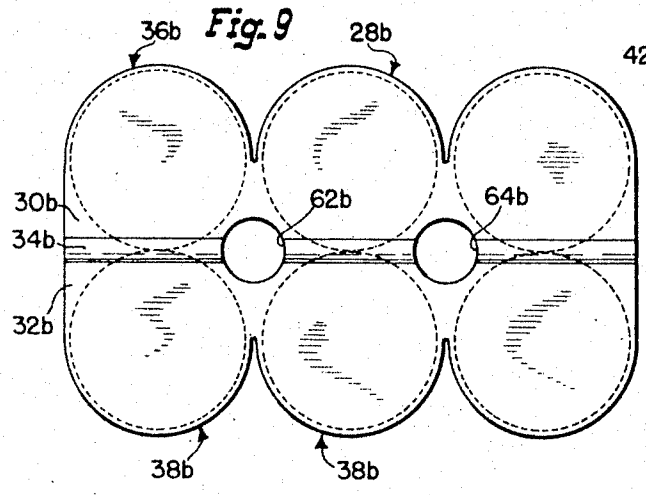
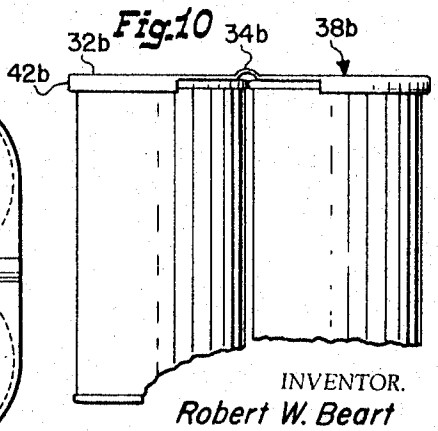


Fig. 10



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CAN CARRIER

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Int. Cl. B65d 61/00

U.S. Cl. 294—87.28 10 Claims

ABSTRACT OF THE DISCLOSURE

There is disclosed a can carrier comprising a plastic sheet having two rows of can bead engaging pocket means depending therefrom. Each of the pocket means is adapted to encircle at least 180° of the cam rims and has an open side through which the can rims may be inserted and removed. The open side of the pocket means in each row faces inwardly or toward the pocket means of the other row. The carrier is constructed so that it may be folded or manipulated for permitting insertion of the cans in one row without interfering with the cans in the other row.

The present invention relates to a novel carrier device, and more specifically to a novel device especially suitable for carrying containers such as cans.

It is an important object of the present invention to provide a novel carrier device including pocket means adapted to receive and interengage with rims of cans and the like and constructed for permitting easy insertion and removal of the cans with respect to the pocket means.

A more specific object of the present invention is to provide a novel carrier device having a plurality of adjacently disposed pocket means for receiving and retaining ends of containers such as cans and constructed so that each can prevents another from being inadvertently disconnected from its pocket means.

A further object of the present invention is to provide a novel carrier device of the above-described type having a plurality of container receiving pocket means with open sides through which containers may be inserted or removed facing toward each other, which carrier is constructed so that it is adapted to be manipulated for permitting assembly or disassembly of the containers from the pocket means without interfering with each other while at the same time the containers serve to retain each other in their respective pocket means when the carrier device and the containers are in a fully assembled condition.

A further specific object of the present invention is to provide a novel carrier device of the above-described type which may be simply and economically manufactured from sheet material.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

FIG. 1 is a perspective view showing a package incorporating a plurality of containers or cans and a carrier device constructed in accordance with features of the present invention;

FIG. 2 is an enlarged perpective view showing the carrier device of FIG. 1 in a folded condition so that it is adapted to receive a plurality of cans;

FIG. 3 is an end view showing the manner in which the carrier device may be manipulated for permitting assembly or removal of cans with respect thereto;

FIG. 4 is an enlarged fragmentary partial sectional view taken generally along line 4—4 in FIG. 1;

FIG. 5 is a partial sectional view somewhat similar to FIG. 4 but showing a carrier incorporating a modified form of the present invention in a partially completed condition;

FIG. 6 is an end view of a finished package incorporating the carrier device of FIG. 5;

FIG. 7 is an end view similar to FIG. 6 and further showing the manner in which a portion of the carrier device may be positioned for serving as a handle;

FIG. 8 is a side elevational view of the package shown in FIG. 7;

FIG. 9 is a plan view of a package incorporating a carrier device constructed in accordance with a further modified form of the present invention; and

FIG. 10 is an end view of the package shown in FIG. 9.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a package **20** incorporating features of the present invention is shown in FIG. 1. This package comprises pairs of adjacent and preferably substantially abutting cans **22** and **24** which are of known construction including end rims or beads **26**. The cans are retained in the package by a carrier device which is constructed as described in detail below. While the package has been disclosed for the purpose of illustrating the present invention as including six cans, it is to be understood that the number of pairs of cans in the package may be increased or decreased and the carrier device **28** will be accordingly modified.

In this embodiment, the carrier device **28** is formed from a single initially flat sheet of suitable material such as plastic. The sheet is formed so as to provide a pair of longitudinally extending generally planar web or body sections **30** and **32** articulated to each other along longitudinally extending center line **34**. The section **30** is formed with pocket means **36** for receiving each of the cans **22** and the section **32** is similarly formed with a plurality of pocket means **38** for receiving the cans **24**.

As shown in the drawings, each of the pocket means **36** has a top panel **40** of planar formation and adapted to completely traverse the upper end of a can **22**. A substantially semicircular generally axially extending wall **42** extends downwardly from the top panel **40** and merges with an inturned shoulder portion **44** which in turn joins the generally planar body section **30**. The radius of the internal surface of the wall **42** is substantially the same as the radius of the can rim or bead **26** while the minimum radius of the shoulder **44** is slightly less and similar to the outside radius of the can body. Thus, the wall **42** which has a maximum axial extent similar so that of the can rim or bead **26** is adapted to snugly embrace the bead and the shoulder **44** is adapted to engage beneath the bead for retaining the can in assembled relationship with the carrier.

As previously indicated, the wall **42** is substantally semicircular and is preferably formed for embracing and snugly engaging substantially at least 180° of a can rim. The shoulder **44** is formed with a similar circumferential extent. It is to be noted however, that the plane of the body section or web **30** is inclined upwardly from the outer longitudinal margin **46** of the body section toward the hinge line **34** and relative to the substantially horizontal plane of the top panel **40** as shown best in FIGS. 3 and 4. The arrangement is such that the body section or web **30** progressively traverses and reduces the wall **42** and merges with the top panel **40** adjacent the center line **34**. As a result, the pocket means **36** has an open side or mouth **48** facing inwardly or, in other words, away from the outer longitudinal edge **46** of the carrier. A can rim is adapted to be inserted into and removed from the pocket **36** through the mouth **48** as will be hereinafter described.

Each pocket means **38** is identical to but oppositely disposed with respect to the pocket means **36**. Thus, each pocket means **38** has a top panel **50**, substantially semicircular wall **52** and shoulder **54** corresponding to the pocket means portions **40**, **42** and **44** described above. Furthermore, the body or web section **32** is inclined upwardly from its longitudinally extending outer margin **56** for traversing the wall **52** and merging with the top panel **50** and providing the pocket **38** with an inwardly facing open mouth **60**.

In order to assemble the cans with the carrier device **28** during a packaging operation, the cans are first inserted into the pocket means at one side of the carrier and then into the pocket means at the opposite side of the carrier. For example, the carrier device may be folded along the line **34** as shown in FIG. 2 or 3 whereupon the rims of the cans **22** may be easily inserted through the open mouths **48** and into the pocket means **36** without interference from the remainder of the carrier. After the assembly of the cans **22** has been completed, the cans **24** may be inserted into the pocket means **38** as shown in FIG. 3 since the angular relationship between the body sections **30** and **32** is such that the open mouths **60** of the pocket means **38** face longitudinally of the assembled cans **22** rather than transversely thereof. This permits the cans **24** to be inserted without interfering with the cans **22**.

When all the cans **22** and **24** have been assembled as described, the carrier body sections **30** and **32** are relatively pivoted about the hinge line **34** to the position shown in FIG. 4. In this position, adjacent cans **22** and **24** abut each other in the manner shown so that each is effectively locked within its own pocket means and prevented from sliding out through the mouths **48** and **60**. In order to remove the cans from the package, the process is reversed. In other words, the carrier is folded along the line **34** until the cans may be slipped out of their respective pockets without interfering with the adjacent cans.

In the embodiment shown, the carrier **28** is provided with handle means in the form of a pair of finger openings **61** and **63** located essentially between the innermost pair of cans and the opposite end pair of cans. It is contemplated that other types of handle devices may be formed in or connected to the carrier **28**.

FIGS. 5–8 show a modified form of the present invention which is similar to the structure described above as indicated by the application of identical reference numerals with the suffix *a* added to corresponding elements. In this embodiment, the carrier is initially formed as shown in FIG. 5 so that its opposite body or web sections **30***a* and **32***a* respectively merge with longitudinally extending central sections **62** and **64** joining each other along a central bend or fold line **66**. The sections **62** and **64** have a combined width similar to the diameter of the cans. This arrangement enables the cans to be inserted into the pocket means at both sides of the carrier without interfering with each other while the carrier is in the substantially flat or horizontal position shown in FIG. 5.

After the cans have been inserted into the pockets **36***a* and **38***a*, the sections **62** and **64** are folded together and the cans **22***a* and **24***a* are moved together as shown in FIGS. 6–8. Then the central sections **62** and **64** are secured to each other by staples **68** or other suitable fastening means such as adhesive and the like whereby the central sections **62** and **64** combine together to provide an upstanding handle. If desired, a finger opening **70** may be formed in this handle.

In order to remove the can from the carrier of FIGS. 5–8, the same procedure described above may be followed and the carrier body or web sections **30***a* and **32***a* may be pivoted relative to each other around the junction **34***a* between the intermediate sections **62** and **64** and the body or web sections **30***a* and **32***a*. Alternatively, the fastening devices **68** could be withdrawn to permit the carrier to be spread apart to the position shown in FIG. 5 for enabling the cans to be removed.

FIGS. 9 and 10 show another embodiment of the present invention incorporating features of the structures described above as indicated by the application of identical reference numerals with the suffix *b* added to corresponding elements. In this embodiment, it is contemplated that the carrier **28***b* is formed from a relatively rigid material such as an injection molded plastic instead of a thin flexible sheet. In order to permit the opposite sides of the carrier device to be relatively pivoted for assembly or removal of the cans, the carrier **28***b* is formed with a relatively thin and flexible longitudinally extending hinge section **34***b*. As shown in the drawings, this hinge section has an arcuate transverse cross-section and extends between and joins the opposite body portions **30***b* and **32***b*.

While preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed.

The invention is claimed as follows:

1. A carrier for a plurality of containers each having a longitudinal axis and circumferential end rims, comprising first and second adjacent and oppositely positioned pocket means for receiving and retaining the ends of the containers, said pocket means defined by portions for interengaging and retaining said rims and which are adapted adjacently to overlie container ends and circumferentially to embrace and underlie at least 180° of the complementary container rims, said pocket means each including a laterally opening mouth into which an end rim may be inserted and removed laterally, said oppositely positioned mouths being disposed in facing relationship when the axes of containers associated therewith are in substantial parallelism, and means flexibly joining the portions defining said pocket means for movement between a first position in which the containers may be shifted laterally within said pocket means and a second position in which said containers are retained in substantial parallelism within their respective pocket means.

2. A carrier, as defined in claim **1**, wherein said pocket joining means comprises a hinge for facilitating relative movement between said first and second positions.

3. A carrier, as defined in claim **2**, formed from flexible sheet material, said pocket joining means comprising an integral junction between a first portion of the sheet material containing said first pocket means and a second portion of the sheet material containing said second pocket means.

4. A carrier, as defined in claim **2**, formed from sheet material and wherein said sheet material includes intermediate upstanding sections between and joined to first and second portions respectively containing said first and second pocket means and providing handle means for said carrier.

5. A carrier, as defined in claim **2**, wherein said pocket means are relatively rigid and said last named means joining said pocket means comprises a relatively thin flexible hinge section integrally joining said pocket means.

6. A carrier, as defined in claim **1**, wherein each of said pocket means is defined by a top panel for overlying a container, substantially semicircular wall means depending from said top panel, and shoulder means extending inwardly from said wall means for engaging beneath the rims of the containers.

7. A carrier, as defined in claim **6**, wherein the lower margins of said wall means are inclined from the outermost margins of the carrier upwardly toward said top panels and means is provided for joining the oppositely disposed top panels of the pocket means.

8. A carrier, as defined in claim **6**, adapted to be assembled with a plurality of pairs of said containers arranged in a pattern having adjacent rows of containers, said carrier including a plurality of said first pocket means arranged in a first row and a plurality of said second pocket means arranged in a second row.

9. A carrier, as defined in claim **8**, formed of flexible sheet material and including a first generally planar web

portion extending between and joining said first pocket means and a second generally planar web portion extending between and joining said second pocket means.

10. A package comprising a carrier as defined in claim **9**, and a plurality of cans having radially extending end rims respectively received and retained in said first and second pocket means, the rims of the cans in said first pocket means being disposed in substantially abutting relationship with the rims of the cans in said second pocket means.

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