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3,229,892

CARRIER FOR SINGLE CHIME CANS

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2 Sheets-Sheet 1

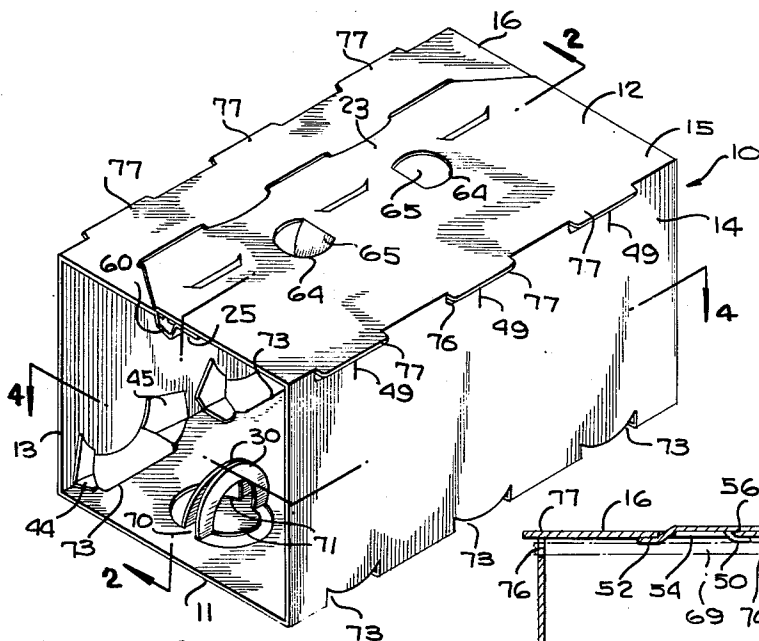


Fig. 1

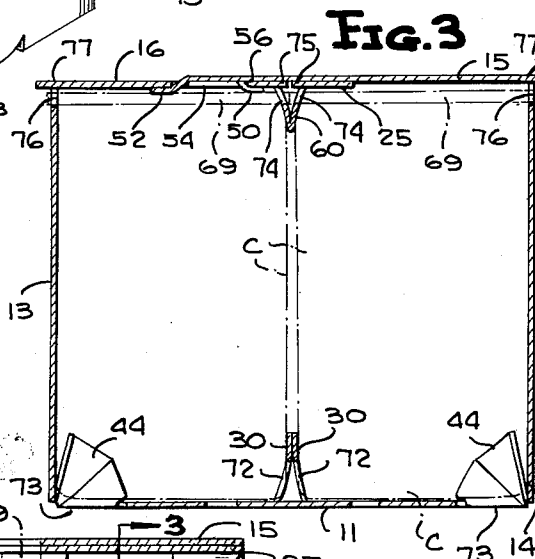


Fig. 3

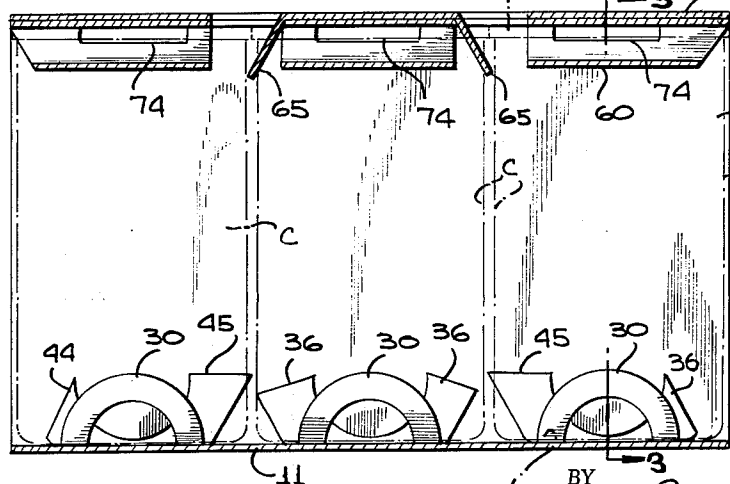


Fig. 2

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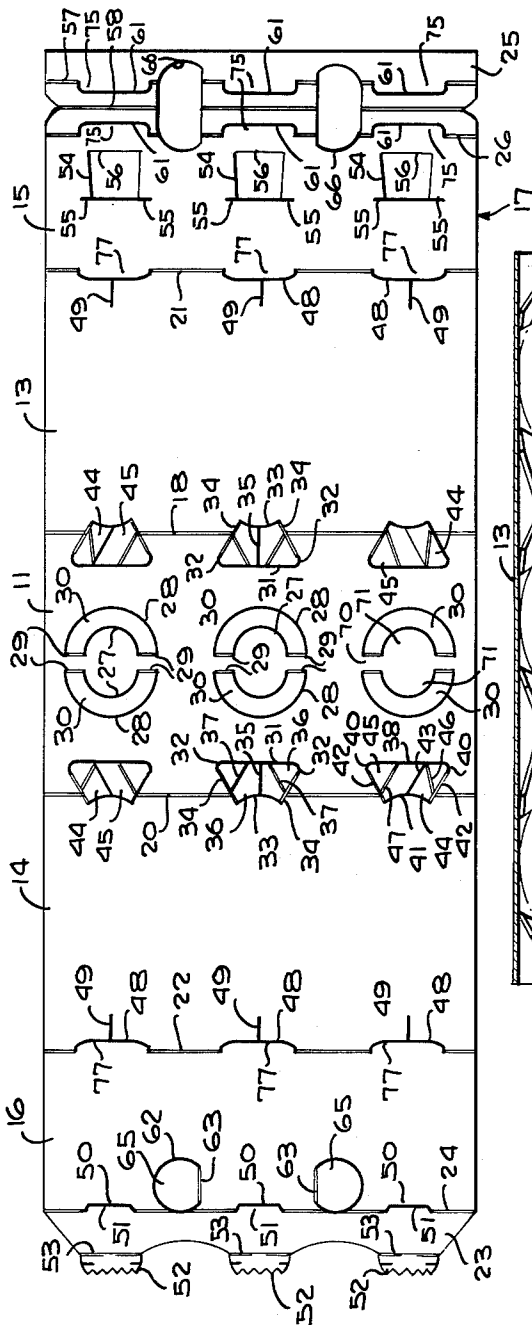


FIG. 5

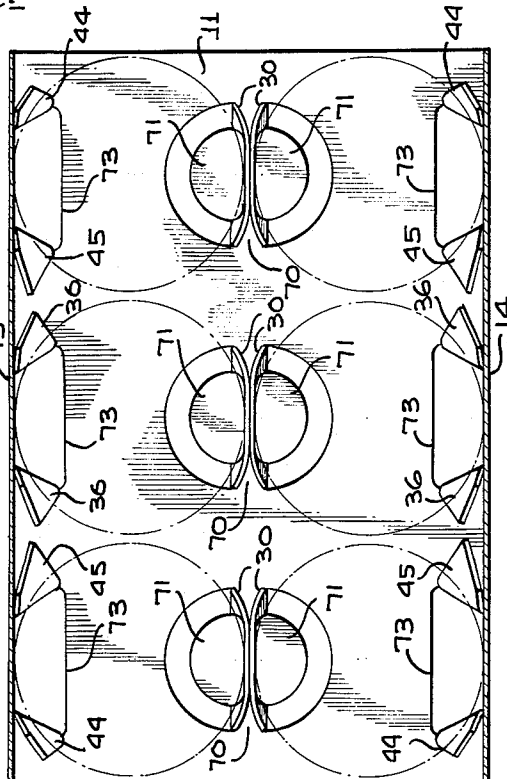


FIG. 4

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CARRIER FOR SINGLE CHIME CANS

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8 Claims. (Cl. 229—40)

This invention relates in general to new and useful improvements in carriers for cans, and more particularly to a novel can carrier which is particularly adapted for holding cans each having a chime at one end only thereof.

In the usual can carrier of the wrap-around type, the various panels of the can carrier are so formed to provide an interlock with the cans disposed therein to prevent the relative shifting of the cans within the carrier and the accidental movement of the cans out of the open ends of the carrier. The customary can is provided with chimes at the opposite ends thereof formed by the seams between the can ends and the can bodies. The customary can carrier has suitable openings or other means for interlocking with the chimes.

Although the can carriers presently in existence have to a great degree satisfied the requirements as to the interlocking of the cans therewith, such can carriers are not suitable for receiving cans having chimes at one end only thereof. Although it has been customary to form cans with ends seamed to opposite ends of a can body, at the present time, there are being commercially produced cans wherein the bottom and body thereof are formed in one piece, and a top or second can end is secured thereto in a conventional seaming operation. Thus, these cans have smooth lower ends and chimes at the upper ends only. Since the cans do not have chimes at the opposite ends thereof, it will be readily apparent that existing can carriers cannot provide the necessary interlock with the smooth end of such a can.

It is therefore the primary object of this invention to provide a novel can carrier of the wrap-around type which is provided with means for suitably engaging and forming an interlock with a can of the type wherein one end of the can smoothly merges into the can body without the usual projecting chime.

Another object of this invention is to provide in a can carrier, a panel for opposing ends of cans carried by the can carrier, the panel having pairs of opposed tabs with the tabs of each pair having terminal fold lines disposed in adjacent spaced relation whereby the tabs of each pair of tabs may be folded to positions projecting into the carrier in converging relation, and each of the tabs having an opening therein for receiving a can body wall portion to provide an interlock between each tab and an associated can.

Another object of this invention is to provide a novel can carrier for receiving and forming interlocks with cans of the type having one end movably converging into the can body and the opposite end secured thereto by a seam which forms a projecting chime, the can carrier being adapted to receive the cans in two rows and there being provided means on the can carrier for forming interlocks with both the smooth end of each can and the end of each can having the projecting chime.

Another object of this invention is to provide in a can carrier a panel arrangement which includes a panel for engaging ends of cans and two side panels, the panel for engaging the ends of cans having pairs of tabs projecting therefrom into the interior of the carrier, with the tabs of each pair being disposed in inwardly converging relation, each of the tabs having an opening formed therein for receiving an end portion of a can whereby each tab assumes a position slightly wrapped around the can body to form an interlock therewith,

and there being provided at the intersections of the first-mentioned panel and the side panels openings transversely aligned with the pairs of tabs for receiving end portions of cans disposed in diametrically opposite relation to those end portions engaged by the tabs whereby cans having ends engaged with the one panel and disposed between the side panels are firmly interlocked with the three panels.

Another object of this invention is to provide a can carrier for holding in interlocked relation a plurality of cans disposed in two rows wherein the cans each has one smooth end portion wherein the can body is smoothly joined to the associated can end without the usual projecting chime, and the opposite end of each of the cans is provided with an end secured thereto by means of a seam to provide a projecting chime, the can carrier enclosing two opposed panels for engaging opposite ends of the cans, and two side panels for connecting together the opposed panels, one of the opposed panels and adjacent portions of the side panels having means thereon forming interlocks with the smooth end portions of the cans, and the other of the panels being formed by two panel portions having overlapping and interconnected parts, one of the panel portions being provided with an inwardly projecting folded rib having suitable openings therein for engaging diametrically opposed chimes of cans, and there being provided at the intersections of the panel portions and the side panels openings for receiving remote portions of the chimes whereby cans are securely interlocked with and within the can carrier.

A still further object of this invention is to provide in a can carrier, a panel for opposing ends of cans and two side panels connected to opposite edges of the can end opposing panels, the can end opposing panel being adapted to engage ends of cans arranged in two rows wherein the cans have the ends thereof smoothly converging into the can body so as to be free of radial projections, the can end opposing panel having generally C-shaped tabs arranged in pairs and converging inwardly for wrapping slightly around and forming interlocks with the smooth end portions of the can body, and there being provided at the intersections of the can end opposing panel and the side panels openings for receiving outer portions of the cans, the material removed in the forming of the openings being reversely folded and being disposed along the lines of intersection between the can end opposing panel and the side panels and serving both to reinforce the panels and to engage around the peripheries of the cans to further form interlocks therewith.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawing.

In the drawing:

FIGURE 1 is a perspective view of an erected can carrier in accordance with this invention, the can carrier being shown free of cans for purposes of clarity.

FIGURE 2 is a longitudinal vertical sectional view taken along the line 2—2 of FIGURE 1, and shows further the constructional details of the can carrier, cans being shown in the can carrier by phantom lines.

FIGURE 3 is a transverse vertical sectional view taken along the line 3—3 of FIGURE 2 and shows other specific details of the can carrier, with the cans being shown in position within the can carrier by phantom lines.

FIGURE 4 is a horizontal sectional view taken along the line 4—4 of FIGURE 1, and shows the specific details of construction of the lower portion of the can carrier for engaging the smooth end portions of cans and forming interlocks therewith.

FIGURE 5 is a plan view on a reduced scale showing the blank from which the can carrier is formed.

Referring now to the drawing in detail, it will be seen that there is illustrated in FIGURE 1 a can carrier formed in accordance with this invention, the can carrier being generally referred to by the numeral 10. The can carrier 10 is of the wrap-around type and includes a pair of opposed panels 11 and 12 which are adapted to engage ends of acns. The panels 11 and 12 are connected together by side panels 13 and 14. The side panels 13 and 14 are identical. On the other hand, the opposed panels 11 and 12 differ in construction.

It is pointed out at this time that the panel 11 is the bottom panel of the can carrier 10, whereas the panel 12 is the top panel. The panel 12 is formed of a pair of panel portions 15 and 16 which have parts thereof disposed in overlapping and interlocked relation, whereby the can carrier 10 may be formed from a flat blank and wrapped around cans disposed in rows. The can carrier 10, as illustrated in the drawings, holds six cans. However, the number of cans could be varied by increasing or decreasing the length of the can carrier 10.

The structure of the can carrier 10 may be best understood by reference to the details of construction of the blank from which it is formed. Accordingly, reference is now made to FIGURE 5 wherein there is illustrated the blank, which is generally referred to by the numeral 17. The blank 17 is formed preferably of a suitable paperboard, and is generally rectangular in outline.

It is to be noted that the panel 11 is disposed centrally of the blank 17 and is separated from the side panels 13 and 14 by transverse fold lines 18 and 20. The side panel 13 is separated from the panel portion 15 by means of a transverse fold line 21, and the side panel 14 is separated from the panel portion 16 by a transverse fold line 22.

The blank 17 terminates at the left end thereof, as viewed in FIGURE 5, in a full width flap 23 which is connected to the panel portion 16 along a transverse fold line 24. The blank 17 terminates at the right end thereof, as viewed in FIGURE 5, in a full width flap 25 which is connected to the panel portion 15 along a transverse fold line 26.

It is to be noted that the panel 11 has formed therein pairs of cuts which are spaced in accordance with the centers of cans to be carried by the carrier 10. These cuts include a pair of opposed small diameter semicircular or generally C-shaped cuts 27 and a pair of like opposed larger diameter semicircular or C-shaped cuts 28 which are disposed concentric with respect to the cuts 27. The ends of the cuts 27 and 28 terminate in short, transversely extending fold lines 29 with each fold line 29 extending between an end of a cut 27 and an end of a cut 28. The cuts 27, together with the cuts 28 and the four fold lines 29, define two opposed, generally C-shaped tabs 30 which are adapted to be folded out of the plane of the panel 11 along the fold lines 29.

The central portion of the panel 11 is provided with a pair of transversely extending straight line cuts 31 which are centered relative to the central tabs 30 and which are disposed adjacent to the fold lines 18 and 20. Each cut 31 of the panel 11. It is to be noted that the cuts 33 are panels 13 and 14 is provided with an arcuate cut 33 which is centered with respect to the associated straight line cut 31 of the panel 11. It is to be noted that the cuts 33 are disposed concavely with respect to the cuts 31 and are disposed immediately adjacent respective ones of the fold lines 18 and 20. The cuts 32 and 33 have adjacent ends thereof connected together by means of diagonally disposed fold lines 34. At this time, it is pointed out that the fold lines 18 and 20 do not extend continuously across the blank 17, but terminate at the fold lines 34.

The blank 17 is further provided with a longitudinal cut 35 which extends between each cut 31 and the associated cut 33. The cuts 31, 32, 33 and 35, together with the fold lines 34, define a pair of flaps 36 which are sym-

metrically arranged about the cut 35. Each of the flaps 36 is provided with a fold line 37 which is in the same angular relation to the associated fold line 34 as is the fold line 18 and fold line 20. It is to be noted that each fold line 37 terminates at one end in the cut 31 and at the opposite end at the intersection of the respective fold line 34 with the respective one of the fold lines 18 and 20. In this manner, when the individual flap 36 is folded out of the plane of the blank 17, the fold line 37 thereof will be aligned with a respective one of the fold lines 18 and 20.

Outer portions of each panel 11 are provided with straight line, transversely extending cuts 38 which correspond to the cuts 31. The cuts 38 are longitudinally aligned, that is, transversely of the panel 11 with respective pairs of the outer ones of the tabs 30. Each of the cuts 38 terminates at the ends thereof in arcuate cuts 40. The panels 13 and 14 are provided with arcuate cuts 41 which are centered with respect to the cuts 38 and correspond to the cuts 33. Diagonal fold lines 42 extend between the ends of the cuts 40 and 41. It is to be noted that the fold lines 42 intersect the fold lines 18 and 20, with the fold lines 18 and 20 being interrupted between adjacent ones of the fold lines 42.

A cut 43 extends between each of the cuts 38 and 41, with the cut 43 being disposed substantially parallel to the one of the fold lines 42 of each pair of fold lines 42 which is disposed closest to the outer edge of the blank 17. The cuts 38, 40, 41 and 43, together with the fold lines 42, define an outer flap 44 and an inner flap 45 with the outer flap 44 being smaller than the inner flap 45 due to the proximity of the outer flaps 44 to the edge of the blank 17.

The flap 44 is provided with a fold line 46 which extends generally from the cut 38 to the respective fold line 42 at the intersection thereof with a respective one of the fold lines 18 and 20. The angular relationship of the fold line 46 with respect to the fold line 42 is such that when the flap 44 is folded along the fold line 42, the fold line 46 will become aligned with the respective one of the fold lines 18 and 20.

Each flap 45 is also provided with a fold line 47 which is disposed substantially parallel to the cut 43 and which extends between the cut 48 and the respective one of the fold lines 42. The fold line 47 intersects the corresponding fold line 42 at the intersection thereof with a respective one of the fold lines 18 and 42. The fold line 42 intersects the angle defined by the fold line 47 and a respective one of the fold lines 18 and 20 so that when the flap 45 is folded along the respective fold line 42, the fold line 47 thereof is aligned with the respective one of the fold lines 18 and 20.

The purpose of the flaps 36, 44 and 45 will be described in detail hereinafter.

The fold lines 21 and 22 are interrupted by generally C-shaped cuts 48 formed in the panels 13 and 14 and terminating along the lines of the fold lines 22. Each of the C-shaped cuts 48 has associated therewith a cut 49 which is a straight line cut extending generally longitudinally of the blank 17 and intersecting the associated cut 48 at the center thereof. The cuts 49 are formed in the panels 13 and 14 and are disposed along the center lines of cans disposed in the carrier 10 formed from the blank 17.

The fold line 24 is interrupted by generally C-shaped cuts 50 disposed at the center spacing of the cans. The C-shaped cuts 50 define locking tabs 51 which are integrally formed on the flap 23.

The extreme end of the flap 23 is of a generally scalloped construction, with the flap 23 terminating in three transversely spaced locking tabs 52 which are aligned with the locking tabs 50. Each locking tab 52 is connected to the main portion of the flap 23 along a transverse fold line 53.

The panel portion 15 is provided in alignment with the centers of the can positions with slightly tapered, gener-

5

ally rectangular openings 54. The cut line defining the side of each opening 54 adjacent the fold line 21 is extended to define short cut lines 55 on each side of each of the openings 54 at one end thereof. Each opening 54 also has a wall 56 disposed remote from the fold line 21. The purpose of this wall 56 will be described hereinafter.

The flap 25 is provided with a transverse fold line 57 which corresponds to the fold line 26. The flap 25 also has a fold line 58 disposed intermediate the fold lines 26 and 57. The fold lines 26, 57 and 58 permit the bending or folding of the flap 25 so as to define a generally V-shaped rib 60, as is best shown in FIGURE 3 of the drawing.

The fold lines 26 and 57 are interrupted by generally C-shaped cuts 61 disposed in back-to-back relation. The purpose of the cuts 61 is to define openings, to be described later, in the rib 60 for the reception of projections of cans to provide interlocks between the cans and the rib 60.

The panel portion 16 is provided with generally circular cuts 62 which terminate along opposed fold lines 63. The purpose of the cuts 62 and the fold lines 63 is to define finger receiving openings 64 (FIGURE 1) to facilitate the carrying of the can carrier 10. The cuts 62 and the fold lines 63 define tabs 65 which project down into the interior of the can carrier 10 between adjacent cans, as is generally shown in FIGURE 1.

In order to provide clearance for the tabs 65, the flap 25 is provided with elongated openings 66 which extend transversely of the fold lines 57 and 58. The openings 66 are foreshortened when the flap 25 is folded to define the rib 60.

Referring now to FIGURES 2 and 3 in particular, it will be seen that there are illustrated in phantom lines cans C for which the can carrier 10 is particularly adapted. Each can C includes a can body 67 of a cylindrical conformation which has the lower end thereof closed by an integral bottom end 68. The upper end of the can body 67 is closed by a conventional can end which is secured thereto by means of a customary seam to define a peripheral projection or chime 69. The cans C are disposed in two rows, and the blank 17 is wrapped thereabout to define the can carrier 10 with the two rows of cans C interlocked within the can carrier 10.

Referring now to FIGURES 1, 3 and 4 in particular, it will be seen that in the formation of the can carrier 10 from the blank 17 and the interlocking of cans therewith, the tabs 30 are folded out of the plane of the panel 11 and into the interior of the can carrier 10 in upwardly converging relation. When the tabs 30 are folded out of the plane of the panel 11, there remains between the ends of the tabs 30 a connecting strap 70 having integral projections 71 which extend to opposite sides thereof, the outlines of the projections 71 corresponding to the shape of the opening 72 in each of the tabs 30.

When the side panels 13 and 14 are disposed generally at right angles to the plane of the panel 11, and the flaps 36, 44 and 45 are folded to the positions best shown in FIGURES 2 and 4, openings 73 are formed along the lines of intersection between the panels 13 and 14 with the panel 11. As the blank 17 is engaged with the cans C, the pairs of tabs 30 pass up between adjacent ones of the cans C, and the tabs 30 are deformed, as is best shown in FIGURE 4, so that there is a seating of the lower portion of the can body 67 within the opening 72 of the tab 30. In this manner, the cans C are interlocked with the tabs 30. By the same token, the lower outer portions of the cans C generally pass through the openings 73 and an interlock is formed. Further, the flaps 36, 44 and 45 snugly engage outer portions of the cans C, due to the positions of the flaps shown in FIGURE 4 and thereby provide an adequate interlock with the cans.

When the panel portions 15 and 16 are folded into overlying relation with respect to the upper end of the cans,

6

the rib 60 is forced down between adjacent cans and the chimes 69 of the cans project into openings 74 in opposite sides of the rib 60 when tab 75 defined by the C-shaped cut 61 remains in the plane of the flap 25. Also, as the side panels 13 and 14 are brought together, outer portions of the chimes 69 pass through openings 76 formed in the upper parts of the side panels 13 and 14 due to the fact that tabs 77, defined by the C-shaped cuts 48, remain integral with the panel portions 15 and 16 and lie in the plane thereof, as is best shown in FIGURES 1 and 3. In this manner, the chimes 69 of the cans C become interlocked with both the rib 60 and the side panels 13 and 14.

As the panel portions 15 and 16 are brought together, the locking tabs 50 are passed through the openings 54 and engage behind the walls 56. Then, the locking tabs 52 are passed down through the openings 54 with the extreme outer portions of the locking tabs 52 being engaged in openings defined by the cuts 55 to completely lock the panel portions 15 and 16 together.

From the foregoing description of the can carrier 10, the blank 17 from which it is formed, and the relationship of the can carrier with respect to the cans C, it will be readily apparent that although the cans C are provided with chimes at the upper ends only thereof, the cans are adequately interlocked with the can carrier 10 at both the upper and the lower ends of the cans. Further, the flaps 36, 44 and 45 also serve to reinforce the can carrier 10 at the intersections of the side panels 13 and 14 with the bottom panel 11 so as to prevent accidental tearing of the can carrier along the lines due to the pressure exerted thereon by the weight of the cans disposed therein. At the same time, the can carrier 10 is formable from a blank which is rectangular in outline and requires a minimum of material, thus making the can carrier economically feasible.

While only a preferred embodiment of the invention has been illustrated and described herein, it is to be understood that minor variations may be made in the can carrier and the blank from which it is formed within the spirit and scope of this invention, as defined in the appended claims.

I claim:

1. In a can carrier of the type particularly adapted for receiving and holding in fixed positions therein in two rows cans of the type having a smooth end portion as opposed to having a projection such as that formed by a can end seam, a first panel adapted to oppose ends of cans, side panels connected to said first panel along fold lines, said first panel having pairs of opposed tabs with the tabs of each pair having terminal fold lines disposed in adjacent spaced relation whereby the tabs of each pair of tabs may be folded to positions projecting into the carrier in converging relation, each of said tabs having an opening therein for receiving a can body wall portion to provide an interlock between each tab and an associated can, and openings in said first panel and said side panels in alignment with said pairs of tabs and traversing said fold lines for receiving portions of cans remote from said tabs and further interlocking cans with the can carrier, and flaps on opposite sides of each of said panel openings for interlocking engagement with cans, said flaps being connected to said first panel and one of said side panels and extending across the fold line therebetween to reinforce the connections between said first panel and said side panels adjacent the panel openings.

2. A can carrier for holding in fixed positions therein cans of the type including a body having a bottom end formed integrally therewith, whereby the can is free of lower projections, and a separate end seamed thereto to define an annular projecting chime at the upper end of the can body, said can carrier comprising a bottom panel, a top panel and side panels connecting together said top and bottom panels, integral first means carried by said bottom panel for interlocking with the smooth lower portions of cans, and integral second means on

7

said top panel for interlocking with can chimes, said first means including pairs of opposed tabs with the tabs of each pair having terminal fold lines disposed in adjacent spaced relation whereby the tabs of each pair of tabs may be folded to positions projecting in converging relation, and each of said tabs having an opening therein for receiving a can body wall portion to provide an interlock between each tab and an associated can.

3. The can carrier of claim 2 wherein said second means includes a depending rib having can chime receiving openings in opposite sides thereof.

4. The can carrier of claim 2 wherein said second means includes a depending rib having can chime receiving openings in opposite sides thereof, and each of said side panels having can retaining means opposing each of said first means and said second means.

5. The can carrier of claim 2 wherein said side panels are connected to said bottom panel along fold lines, openings in said bottom and side panels in alignment with said pairs of tabs and traversing said fold lines for receiving portions of cans remote from said tabs and further interlocking cans with the can carrier.

6. The can carrier of claim 2 wherein said side panels are connected to said bottom panel along fold lines, openings in said bottom and side panels in alignment with said pairs of tabs and traversing said fold lines for receiving portions of cans remote from said tabs and further interlocking cans with the can carrier, and flaps on opposite sides of each of said panel openings for interlocking engagement with cans.

8

7. A can carrier in accordance with claim 6 wherein each of said flaps is connected to said bottom panel and one of said side panels and extends across the fold line therebetween to reinforce the connections between said bottom panel and said side panels adjacent the panel openings.

8. In a container carrier of the type including a first panel for engaging an end of a container and a second panel for engaging a side wall of said container, said first and second panels being joined together along a first fold line, at least one opening formed in said panels and traversing said first fold line, and reinforcing means for preventing tearing of said carrier adjacent said opening along said first fold line, said reinforcing means being in the form of flaps struck from said first and second panels so as to form said opening therein, said flaps being hinged to and folded along second fold lines to overlie said first fold line at the ends thereof adjacent said opening.

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