Oct. 25, 1966 J. C. SPERY 3,281,180

CONTAINER CARRIER

Filed March 24, 1964 2 Sheets-Sheet 1

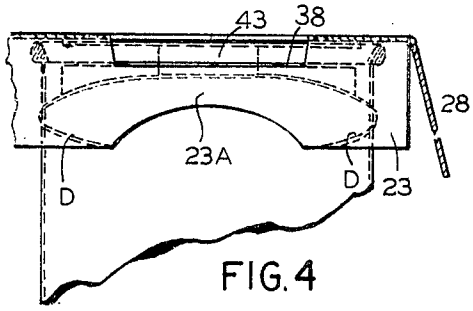


FIG. 4

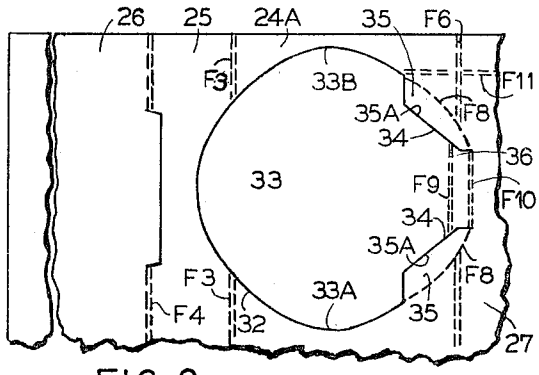


FIG. 2

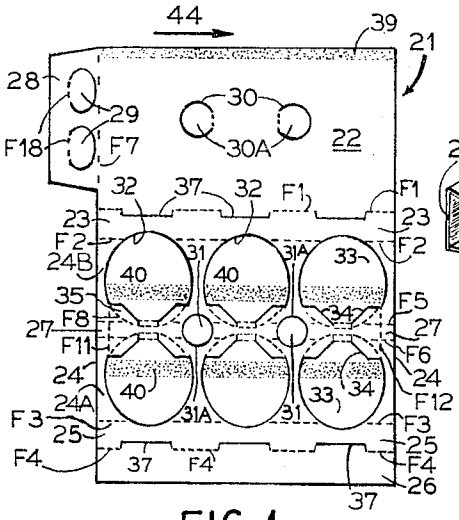


FIG. 1

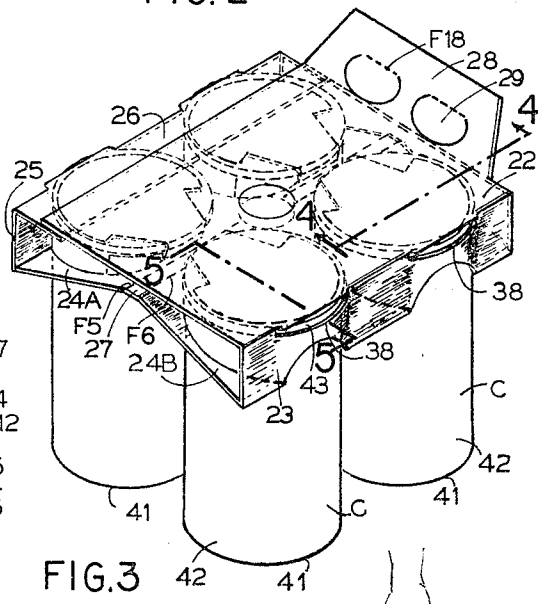


FIG. 3

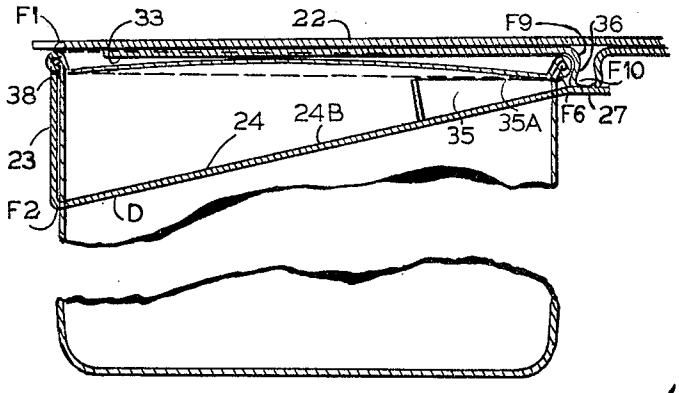


FIG. 5

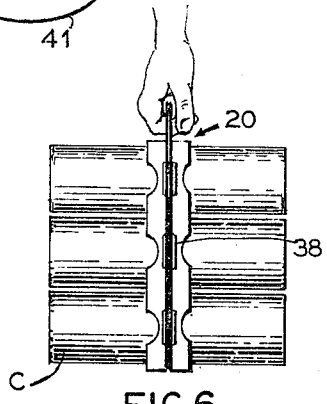


FIG. 6

INVENTOR.
Joseph C. Spery
BY
Irving Seidman
ATTORNEY

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CONTAINER CARRIER

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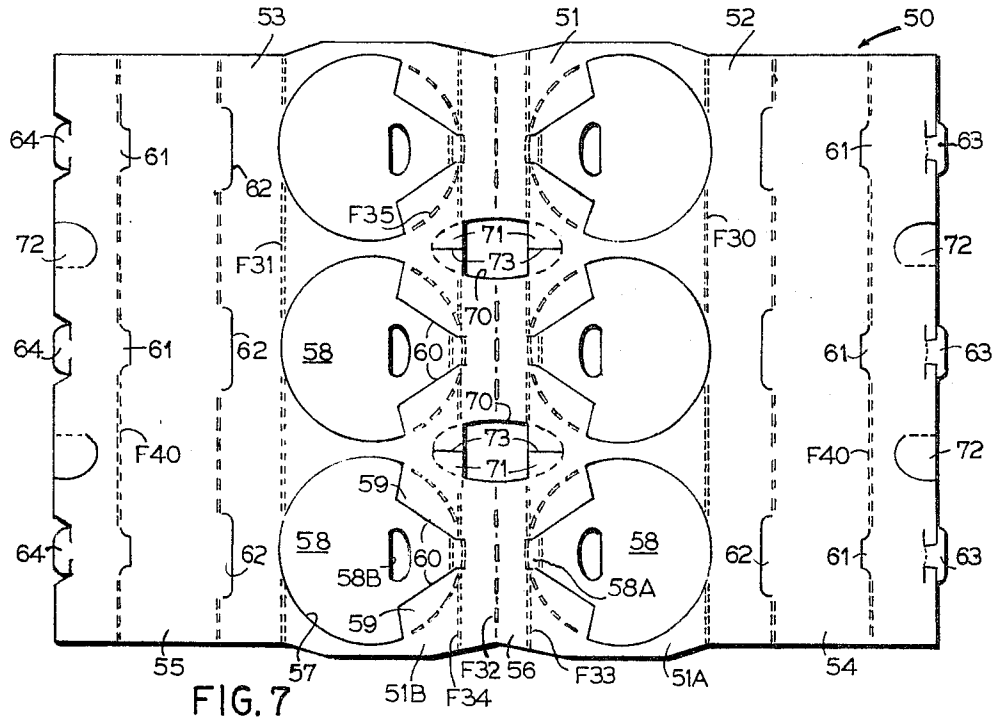


FIG. 7

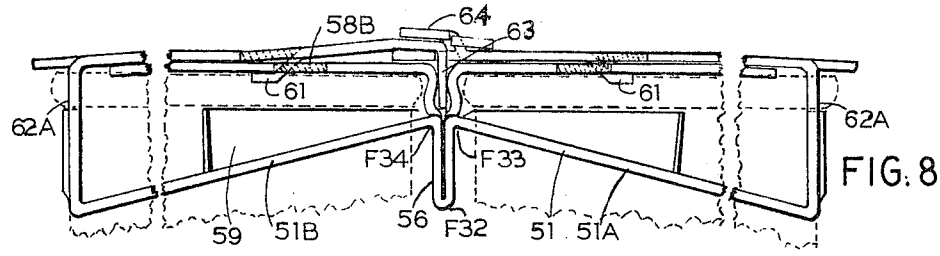


FIG. 8

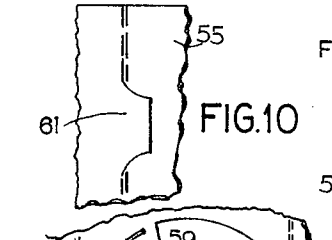


FIG. 10

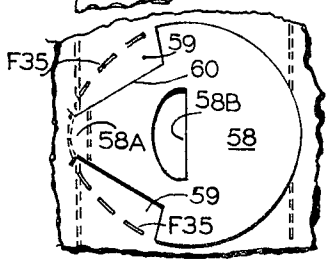


FIG. 9

FIG. 11

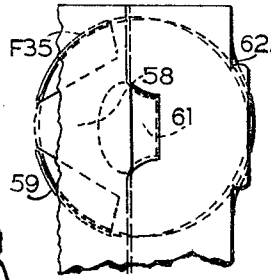


FIG. 12

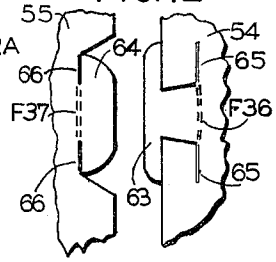
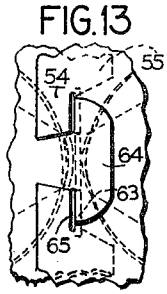


FIG. 13



INVENTOR.

Joseph C. Spery

BY Irving Seidman

ATTORNEY

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3,281,180

CONTAINER CARRIER

Joseph C. Spery, 527 Madison Ave., Room 1002, New York, N.Y.

Filed Mar. 24, 1964, Ser. No. 354,419
24 Claims. (Cl. 294—87.2)

This invention relates in general to a container carrier, and more specifically to an improved carrier adapted to be fitted over the upper end portions of several containers for positively retaining the same in a readily portable multiple pack in which the entire tops of the respective containers are protected.

In the strong competitive efforts of modern mass marketing of canned goods or the like, much emphasis and reliance is placed on the value of packaging such goods in carriers. The factors which are taken into consideration are the manufacturing costs of the carriers, ease of packaging the goods within such carriers, their sales appeal, their convenience to the consuming public, their durability, and the available space provided thereon for advertising and promoting of the products packaged therein.

Heretofore, various and numerous methods, materials and devices have been employed in the multiple packaging of canned goods as for example, beer, sodas and containers of other commestible products. One of the most widely used carriers is the familiar wrapper type carrier for containing six containers or cans of beverages or other products. Numerous variations of such six pack wrappers are known. However, each of the known wrapper carrier constructions have been designed to enwrap or accommodate the entire or substantially the entire can or container, requiring the utilization of a relatively large amount of wrapper material, e.g. paperboard. Also, the known wrapper type carriers are specifically constructed and arranged for the packaging of a conventional can structure formed top and bottom chime portions. For this reason, the known six-packs or carriers require various constructions of cooperating can retaining means for positioning and retaining the top and bottom portions of the cans within the top and bottom panels of the known wrapper type carriers.

Recent inovations have resulted in container constructions, which have proved advantageous to the manufacturer as well as the consumer and has left much to be desired from the known wrapper carrier constructions. The recent inovations which are revolutionizing the canning or container art include a two piece can construction in which the bottom and body portion of the cans are integrally formed with the top only secured to the body by the well known beaded or can chimed construction. Thus the bottom chime of the old can construction, which was as essential for rendering many of the known wrapper carriers operatable, is now completely eliminated from new can constructions. Therefore, insofar as these cans are concerned, the known wrapper type carrier cannot be satisfactorially utilized therefor.

Also, the easy open, pop top, cans which constitute another recent inovation present problems heretofore not previously encountered in the carrier or packaging art. With the advent of the quick or easy opening can top, a considerable amount of waste and spoilage of the canned contents have resulted from the mischevious or inadvertent popping or opening of such cans in the retail outlets by children or careless persons. Such damage occurred because many of the known carrier constructions exposed either all or portions of such can tops, thus exposing the easy open tops to a temptation which mischevious children find hard to resist.

Also a common expedient inherent in containers, in which beverages, such as beer or soda are sold, is that they are also used as the vessel from which the product

is consumed. With the advent of the easy open tab closure for such containers, the use of the container as the drinking vessel is even more encouraged. However, the construction of many carriers and the condition of storage in many of the retail outlets from which such products are sold are not conducive to sanitation. For this reason, the carriers in which the tops of the containers are exposed cause dirt, dust and other harmful foreign matter thereon to collect or accumulate thereon. The sanitary conditions become even more aggravated in the event animals are permitted to roam the storage area of such retail outlets, as is common in many such outlets. Consequently, drinking from a can or container so exposed to contamination can be deleterious to one's health and to one's enjoyment of the drink contained therein.

Therefore, an object of this invention is to provide an improved container carrier which is adapted to be fitted to the upper ends of the container only, and which will protect the entire top portions of the respective containers from the unsanitary conditions of storage, and from physical tampering by mischevious or careless persons.

Another object is to provide an improved carrier which is specifically constructed and arranged to conveniently hold either the conventional three piece, two chime can constructions and/or the two piece one chime can construction.

Still another object is to provide a carrier that is most economical in its use of material with respect to the number of cans contained therein.

Still another object is to provide an improved can carrier in which one or more of the containers can be removed therefrom without destroying the continuity of the pack or of the remaining cans retained therein.

Still another object is to provide a carrier which is specifically constructed and arranged to enhance the filling of the same at the high speeds required by present day production technique.

Still another object is to provide a can carrier construction which permits straight line loading of the same in a relatively simple and fascile manner.

Still another object is to provide a carrier which is fitted to the top portions of a plurality of containers leaving a substantial lower portion of the respective containers exposed for inspection or for cooling.

Still another object is to provide a carrier construction that can be readily adapted for holding therein any desired number of containers.

The foregoing objects and other features and advantages are attained by an improved carrier construction which is formed of a blank of foldable sheet material. It is particularly constructed and arranged so as to be fitted or secured to the tops of several containers only. The carrier comprises a top and bottom panel interconnected by end panels with means for securing the panels in the folded position thereof. Can flaps are blanked out of the bottom panel to define opposed openings sized to accommodate the body circumference of a chimed end can or container to be received therein. The respective flaps are hingedly connected in back to back relationship to a central panel portion of the bottom panel. Means are provided for retaining or securing the can flaps in underlying relationship to the top panel of the carrier. Retaining means are provided for positively retaining the tops of the respective containers within the carrier and against the undersurface of the top panel. The can retaining means comprise can retaining tabs blanked out of the plane of the respective can flaps and which are disposed on either side of the hinged connection thereof, each of the can retaining tabs being folded upwardly and inwardly of the carrier along a foldline disposed coincidental with the outline of the associated opening. The respective retaining tabs are provided with a straight edge

along the free end thereof, and which in the operative position thereof are adapted to wedge a can chime between its free edge and the top panel. Cooperatively associated with the can retaining tab is a slot formed along the foldline adjacent the ends of the top panel and which accommodate a circumferential portion of the can chime disposed opposite the chime portion secured by the retaining tabs.

A feature of this invention resides in the provision of a carrier constructed to be fitted to the tops of several cans or containers with means for positively retaining therein the beaded or chime portion of the cam.

Another feature resides in the provision that a minimum amount of paperboard is required for packaging relatively large numbers of containers.

Still another feature resides in a cam carrier having a novel can retaining means for positive retention of the cans therein, and yet render the cans readily removable therefrom without destroying either the continuity of the carrier or of the remaining containers therein.

Another feature of this invention resides in the provision that the same carrier may be interchangeably used for packaging either long or short containers or cans so long as these are common in circumference.

Other features and advantages will become more readily apparent when considered in view of the specification and drawings in which,

FIGURE 1 is an expanded plan view of the preform blank of sheet material from which the improved carrier for holder six containers is formed in accordance with this invention.

FIGURE 2 illustrates an enlarged detail plan view of a fragmentary part of the blank construction of FIG. 1 to better illustrate the container retaining elements.

FIGURE 3 is a perspective view of an assembled blank construction of FIG. 1, but sized to show how the construction can be readily adapted to hold four cans only.

FIGURE 4 is a fragmentary end elevation view of the assembled carrier.

FIGURE 5 is a sectional view taken along line 5—5 of FIG. 3.

FIGURE 6 is an elevation end view showing how two assembled can carriers of six can capacity, formed of a blank as illustrated in FIG. 1, may be carried simultaneously in one hand in back to back relationship to enhance the portage of 12 cans.

FIGURE 7 is an expanded plan view of a modified blank construction.

FIGURE 8 is an end view of the assembled carrier construction formed from the blank of FIG. 7.

FIGURE 9 illustrates an enlarged detail plan view of a part of the blank construction of FIG. 7 to show details of the flap constructions.

FIGURE 10 is an enlarged plan view of another fragmentary portion of the blank construction of FIG. 7.

FIGURE 11 illustrates a fragmentary plan view of the assembled carrier formed from the blank of FIG. 7.

FIGURE 12 is a detail plan view illustrating the cooperating interlocking tab construction for maintaining the blank of FIG. 7 in the folded position.

FIGURE 13 illustrates a fragmentary plan view of the interlocking tabs in the operative position thereof.

In the drawings there is shown the improved container carrier **20** of the instant invention. As shown, the container carrier **20** is constructed and arranged so that it can be readily fitted over only the upper end portion of several cans or containers C for retaining the same in a readily portable multiple container pack. Means as will be hereinafter described are provided for positively securing each of the containers C within the carrier so formed. The instant carrier **20** is particularly adapted for the packaging of a plurality of cans or containers in which such products as beer, soda and other comestible products or the like are sold. As it will be readily apparent hereinafter, the carrier may be sized and constructed to accommodate any number and/or size of containers.

FIG. 1 of the drawing illustrates the expanded blank **21** from which the carrier **20** of this invention may be formed, and its construction is arranged to accommodate six containers. FIG. 3 illustrates the assembled arrangement of the blank adapted to accommodate four containers. Thus it will be apparent that the structure of the blank can be readily adapted to any desired number of containers.

In accordance with this invention, the carrier is formed from a single preformed blank of sheet material, and it is constructed and arranged so that several of such preformed blanks can be die cut or blanked from a large sheet of stock material to effect the greatest economic use of the stock material. This is attained for the reason that the blank construction **21** is substantially rectangular in outline, a shape of which can be nested so that the maximum number of preformed blanks can be blanked from a sheet of stock material with a minimum of waste. The blank **21** may be formed of any suitable foldable stock material as for example, cardboard, paperboard, plastic and the like and the respective blanks are preformed and die cut so as to permit an assembled carrier to be readily constructed therefrom.

The blank, as seen in FIG. 1, from which the carrier is formed comprises a top panel **22**, a relatively narrow end panel **23**, a bottom panel **24**, a second relatively narrow end panel **25**, and a top sub-panel **26** serially connected in end to end relationship. Each of the respective panels are successively connected to one another along hinging foldlines which extends transversely of the blank. More specifically, the top panel **22** is hingedly connected along the upper edge of one end panel **23** along a transversely extending foldline F1. The end panel **23** in turn is hingedly connected relative to the bottom panel **24** along foldine F2. The second end panel **25** is hingedly connected along the other end of the bottom panel **24** along a foldline F3, and the top sub-panel **26** is hingedly connected or foldable about the upper end of end panel **25** along a foldline F4.

In accordance with this invention, the bottom panel **24** is provided with a transversely extending relatively narrow central fold **27**, defined by a pair of transversely spaced foldlines F5 and F6, to divide or partition the bottom panel **24** into two half segments **24A**, **24B**. The arrangement of the blank **21** is such that the width of the bottom panel **24** is greater than the top of the carrier, so that the bottom half segments **24A**, **24B** are angularly disposed in the assembled position of the blank.

An optional handle panel **28** may be connected to the top panel **22** about a foldline F7 extending along one edge thereof. Accordingly, the handle panel **28** may be provided with a pair of elliptical finger holes defined by flaps **29** which are cut out of the plane thereof and which are hingedly connected along a fold or crease line F18. However, in the interest of broad economy, the handle panel **28** may be omitted from the blank construction. In this event the finger openings by which the assembled carrier may be readily carried are formed as finger cut outs **30**, die cut out of the plane of the top forming panel, as shown in FIG. 1. Because of the relative short height of the respective end panels **23**, **25**, a pair of aligned finger openings **31** are also provided in the bottom panel **24** as shown in FIG. 1. Thus, in its assembled position, the carrier can be readily carried simply by inserting one's fingers through the aligned openings **30**, **31** formed in the top and bottom panel.

In accordance with this invention, the bottom panel **24** has formed therein a plurality of elipsoidal apertures or openings **32**, which are defined by a can flap **33** blanked out of the plane thereof. As shown in FIG. 1, the respective apertures or openings **32** are disposed in a row in each of the respective bottom half sections **24A**, **24B**. The can flaps **33** blanked from the plane of the bottom panel to define the openings are defined by a die cut

which extends about a major portion of the flap circumference. Complementing the die cut line to define the major peripheral portion of the aperture 32 and of the flap 33 blanked therefrom are opposed die cuts 34 to define a pair of can retaining tabs 35 blanked from the plane of the flap 33.

As best seen in FIG. 2, the flap 33 is thus provided with a portion 36 disposed between the can retaining tabs 35 by which it is hingedly connected to the central fold 27 of the bottom panel 24. The arrangement is such that the can retaining tabs 35 blanked out of the plane of the respective can flaps 33 are connected to the bottom panel 24 along respective foldlines F8 which are coincidental with a circumferential portion of the aperture 32 extending to either side of the hinged portion 36 of the can flaps 33. Thus as is readily noted in FIG. 2, the respective can retaining tabs 35 are defined by a foldline F8 which is curvilinear and substantially coincidental with the periphery of the elipsoidal opening and by straight edge 35A. In the operative position, the respective tabs 35 are folded out of the plane of the blank. The size of the elipsoidal openings 32 so formed is such that each will accommodate or embrace the circumferential body portion of a container C adapted to be retained by the carrier. Because of the elipsoidal shape of the aperture 32, the arrangement is such that one end of the elipsoidal aperture 32 along its major axis is extended into the adjacent end panel 23, 25, as best seen in FIG. 2.

As shown in FIG. 1, the apertures 32 formed in the respective half sections 24A, 24B are arranged in opposed relationship with one another so that the respective can flap 33 blanked therefrom are hingedly connected to the central fold 27 in back to back relationship.

Opposed the outer end portion of each of the respective apertures 32 in the expanded position of the blank is a shallow U shaped die cut 37, formed adjacent the respective foldlines F1, F4 connecting the respective end panels 23, 25 to their adjacently connected top panel or sub-panel. The arrangement is such that in the folded position of the blank as is evident in FIGS. 3 and 5, the shallow U shaped die cuts 37 formed along the respective foldlines F1, F4 define a slotted opening 38 which is adapted to receive the beaded portion of a can or container C.

In the assembled position of the blank, one end panel 25 is folded substantially normal to its adjacent top sub-panel 26 along foldline F4. The bottom panel 24 is folded relative to the end panel 25 along foldline F3 disposed therebetween, and the other end panel 23 is folded relative to the other end of the bottom panel 24 along its foldline F2. The top panel 22 in turn is folded along foldline F1 so as to be disposed into overlapping relationship with the free edge of the top sub-panel 26, as it is readily noted in FIG. 3. To maintain the respective panels in their folded position, a suitable fastening means is provided to secure the top panel 22 and top sub-panel 26 in overlapping relationship. In the illustrated embodiment, a strip 39 of pressure sensitive adhesive or the like is positioned adjacent the free edge of the top panel 22. The arrangement is such that merely by the application of pressure and/or heat, the respective ends of the top panel 22 and underlying sub-panel 26 are adhesively secured to maintain the blank in its folded position.

In accordance with this invention, the bottom panel 24 is proportioned so that the respective half sections 24A, 24B thereof, in the folded position of the blank, are inclined upwardly and inwardly from the respective end panels 23, 25 to the central fold 27. Accordingly the blank in the folded position thereof is fitted to the top portions of the containers only. The containers are positively retained within the folded carrier simply by causing the upper portion of the respective cans C to be inserted into the respective elipsoidal openings 32 provided in the room panel therefor. In doing so, it will be apparent that the respective can flaps 33 hingedly connected to the central fold 27 are displaced upwardly out of the plane of the respective bottom half section so that in the assembled position, the top of the respective cans are disposed in abutting relationship to the top of the carrier with the can flaps 33 interposed therebetween. The arrangement is such that the hinged portion 36 of the respective can flaps 37 are folded along foldlines F9 and F10 to conform to the contour of the beaded portion of the can thereat, as shown in FIG. 5. In forcing the tops of the can or containers up through the apertures 32 provided therefor, the can retaining tabs 35 are displaced or folded out of the plane of their respective blanks and inwardly of the carrier as shown in FIGS. 3 and 5. The arrangement is such that the respective can retaining tabs 35, because of the curvilinear foldline F8 are arranged to conform with a circumferential portion of the can body with the free edge 35A of the tab 35 in its operative position, being arranged to underlie or engage the undersurface of the can bead. In the arrangement described, the can chime or bead is wedged tightly between the free edge of the retaining tabs and the top of the carrier. The opposed chime or bear portion of the can is adapted to be received in the slotted opening 38 formed along the upper edge portion of the opposed end panels 23, 25. Thus in the assembled position of the carrier, the respective cans are positively retained within their respective openings by the co-action between the cooperating can tabs 35 and the corresponding die cut or slotted opening 38 formed opposite thereto along the upper foldlines of the respective end portions.

To maintain the bottom panel 24 and the top panel 22 relative to each other, in the folded or loaded position of the carrier, means are provided for securing the respective can flaps 33 to the upper portion of the carrier. In this manner the weight of the cans can be counteracted. In the illustrated embodiment, the means for securing the can flaps 33 to the upper portion of the carrier comprise an adhesive strip 40 which may be either formed on the can flap or on the undersurface of the top. In this manner, the bottom panel sections 24A, 24B are maintained in fixed relationship to the top panel in the folded position of the blank, and thereby prevent any looseness which would cause the cans to be readily separated therefrom. With the cans C in place, the can retaining tabs 35 and cooperating slots 38 co-act to positively maintain the can in position within the folded carrier. Also it is to be readily noted that the individual cans can be readily removed from the carrier with the application of but only a slight force in such a manner that the continuity of the pack and/or of the remaining cans therein is not disturbed or broken.

A feature of this invention resides in the provision that the instant pack is readily adapted for use in forming multiple pack arrangements of the newest present day can constructions in which the bottom wall 41 of the can C is formed as an integral part of the circumferential wall portion 42 of the body. Such cans, because of their single bead construction 43 at one end only, can thus be readily adapted to be carried in the carrier 20 of the instant invention since the carrier is constructed and aranged so that only the upper, beaded end portion of the can is required to be positively retained within the carrier of the instant construction.

With the optional handle flap 28 attached to the end portion of the carrier, as shown in FIGS. 1 and 3, it will become apparent that two such can packs can be readily carried with one hand in back to back relationship in the manner illustrated in FIG. 6. Thus the construction is such that a maximum number of cans can be carried in a minimum of ease.

An important consideration of the can blank construction 21, herein described, is the ease with which it can be preformed, and by which it can be readily assembled or folded to the containers C adapted to be contained

therein. In a loading operation, a quantity of the blanks in their expanded form, as shown in FIG. 1, are placed or stacked in the hopper or magazine of a suitable filling machine. The blanks are then individually removed and conveyed during a packaging operation in the direction in which the cans to be packaged are traveling, e.g. as indicated by an arrow 44 in FIG. 1, with the inner surface of the carrier facing upwardly, as shown therein. The blank 21 is then gripped firmly by suitable machine means to provide for positive movement of the blank as it is carried along over the tops of the cans moving in rows synchronizedly with the movement of the blank. The arrangement is such that the can rows are moving with the blank so that the opposed rows of moving cans are located at a position below the side panels 23, 25 of the expanded blank. As the blank and cans are thus moving synchronizedly in a line, a machine means is used to grip the blank in the vicinity of the central fold 27 defined in the bottom panel. At a given position along the movement of the blank and of the can rows in line therewith, the cans to be loaded are then directed transversely of their line of travel and inwardly toward the center of the blank causing the individual cans to be packaged to enter from the apertures formed in the respective bottom sections of the blank from the sides thereof. In doing so, the cans cause the can flaps 33 to be displaced out of the plane of the blank. Also the cans engage the respective retaining tabs 35 so that they are also folded out of the plane of the blank and normal thereto for engaging the under portion of the beaded can. As the respective cans C are moved into their respective elliptical apertures 32, defined in the blank, a co-action occurs with a machine means pressing downwardly on the side panels 23, 25 of the blank so as to have the bottom panel sections force down over the tops of the cans causing the same to enter into their respective aperture. This action causes the bottom panel sections 24A, 24B to bend downward slightly on an angle on lines F5 and F6 as shown in FIGS. 3 and 5, thereby seating the elliptical edge of the respective apertures against the circumferential portion of the can body. The can flaps thus displaced are then folded over the top of the cans along foldlines F9 and F10, and are secured, as for example, by means of an adhesive strip 40 to the undersurface of the carrier top.

The side panels 23, 25 are then folded so as to abut against the can bodies as shown in FIG. 5 along the respective foldlines F2 and F3. The top sub-panel 26 and the top panel 22 are then each respectively folded over the can flaps 33 of the respective can rows about the respective foldlines F4, F1 so that the free end of the top panel 22 is disposed in overlying relationship to the free end of the top sub-panel 26 with the adhesive strip 39 therebetween positively securing their adjacent portions in assembled position.

Referring to FIG. 2, which shows in detail an enlarged plan view of the blank layout of a single can retaining portion of the carrier, it is to be noted that in a filling operation, the can C as it is moved into the flat carrier blank 21 can easily pass into the opening 32 defined by the elliptical cut out because the distance from 33A to 33B is slightly greater than the diameter of the can bead or chime. As the can is passed through this elliptical aperture 32, the can flap 33 is forced out of the plane of the blank in folding on its crease line F9, F10. Further inward movement of the can toward the central fold 27 of the bottom panel 24 causes the can retaining tabs 35 defined by the die cut lines 34 to bend upwardly on the curved crease lines F8 at its hinged portions. The curvilinear crease lines F8 cause the respective tabs 35 to be actuated and to conform closely with a strong holding pressure against the periphery of the can body with the straight free edge 35A thereof firmly and in positive vertical holding position under the lower edge of the can chime as shown in FIGS. 4 and 5. The can flap 33, when folded on lines F9 and F10, over the can top as described, lock the can chime by compression against the can retaining flaps 35 thereby insuring positive seating against lateral or downward displacement of the can.

Crease lines F11 and F12 are provided to relieve stresses on the central fold 27 of the bottom panel so as to preclude forces which might rupture the material. When the cans have been firmly seated against the respective can flaps 33, a co-action occurs as the bottom panel 24 is drawn snugly against the can body at points D. (See FIGS. 4 and 5.) The downward force exerted on the panel 24B assures tight adherence of the edge of panel 24A against the can body. This force is increased and retained by folding the end panel 23 on foldline F2 so as to tightly embrace the can body with the narrow portion 23A of the end panel 23, as shown in FIG. 4, allowing the chime 43 of the can C to protrude through the slotted opening 38 defined by die cuts 37 when the top main panel is folded on its foldline. This action locks the can at many different points to correlate the overall design of the invention for maximum strength. If desired, finger holes, adapted for carrying the carrier wrapper are provided in the top panel, and they are arranged to correspond with die cut holes formed in the bottom panel. The finger hole 30 in the top panel is defined by a die cut flap blanked therefrom. The bottom panel is provided with quarter slits 31A adjacent the respective finger apertures 31 to receive the finger flap 30A when it is bent inwardly while carrying the container.

In the event that the optional panel flap 28 is used, it may be folded downwardly along its respective foldline for shipping convenience and/or for advertising purposes.

As shown in FIG. 5, two carriers constructed as herein described, may be readily carried in convenient back to back relationship with one hand.

FIGS. 7 through 13 illustrate a modified form of the invention. In this form of the invention, the blank 50 from which the carrier is formed is defined by a bottom panel portion 51 which has hingedly connected to each longitudinal portion thereof a relatively narrow end panel 52, 53 foldable about respective foldlines F30 and F31. Integrally connected and folded to the opposite edge of the respective end panels 52, 53 is a top panel section 54 and 55 respectively.

In this form of the invention, the bottom panel 51 is provided intermediate the width thereof with a central panel 56 which is adapted to be reversely folded outwardly of the container along a central foldline F32. As seen in FIG. 8, the connected half bottom panel sections 51A, 51B defined by the central fold 56 are reversely folded so as to incline downwardly and outwardly from the upper edge portions of the reverse central fold 56 along foldlines F33 and F34 in the folded position of the blank. In this form of the invention, each of the respective bottom half sections 51A, 51B has formed therein a plurality of ellipsoidal apertures 57 sized for receiving the circumferential wall portion of a container C as hereinbefore described, with the can flaps 58 blanked therefrom defined by a die cut line. Also, as hereinbefore described, can retaining tabs 59 are blanked out of the plane of the respective can flaps 58 by a die cut line 60 so that the respective can retaining tabs 59 are hingedly connected to the respective bottom panel sections along curvilinear foldline F35 which forms a continuation or extension of the outline defining the elliptical apertures 57 adjacent the hinged connection 53A of the can flap 58.

In this form of the invention, the respective can flaps 58 have formed in the plane thereof a cut out portion 58B to define a retaining notch, which as will hereinafter be described, is cooperatively associated with a can flap retaining tab 61 blanked in the plane of the respective top panel sections 54, 55.

Each of the side panels 52, 53 opposite the free end of the respective can flaps 58 are provided with die cut portions 62 to define in the folded position of the blank,

a slotted opening 62A adapted for receiving the marginal portion of a can bead or chime as hereinbefore described.

The respective free ends or adjacent end portions of the respective top panel sections 54, 55 are provided with complementary interlocking means by which the respective top panels 54, 55 are secured in the folded position of the blank.

As shown, one of the top panels 55 is provided with a substantially T shaped locking tab 64 formed in the plane thereof. The free edge of the other top panel section 54 is provided with a complementary T shaped tab 63 which is adapted to be folded inwardly and normal to the plane of its top panel section 54 in the operative position thereof as is best seen in FIGS. 8 and 13.

Referring more specifically to FIG. 12, the cooperating interlocking means 63, 64 for securing the top panels 54, 55, respectively in the folded position thereof comprises a T shaped winged locking tab 63 hingedly connected to the adjacent top panel section 54 along a foldline F36. Extending to either side of the foldline F36 is a die cut 65. Accordingly, tab 63, formed along free edge of top panel section 54 is adapted to be folded inwardly and normal to its connected panel 54 along a foldline F36 as seen in FIG. 8. A complementary tab 64 is connected to the other top panel 55, and it is folded outwardly along foldline F37. Extended to either side of foldline F37 is a die cut 66. The arrangement is such that the cross head or wings lock tab 64 is retained interlocking relationship with complementary tab construction 63, as seen in FIGS. 8 and 13 in the folded position of the blank.

In the expanded blank 50 as shown in FIG. 7, means are provided for facilitating the carrying of the carrier in the folded positon thereof. As shown, these means are formed by providing substantially rectangular cut out apertures 70 formed in the central fold 56 of the bottom panel 51, and extending to either side of the respective apertures 70 are die cuts to define quarter flaps 71. Thus in the folded position of the blank, the quarter flaps 71 can be folded inwardly of the carrier to define a finger opening. Cooperatively associated with the finger openings so formed in the bottom panel are a finger flap 72 defined by cut out formed in each free end of the respective top panel section 54, 55. The arrangement is such that in the interlocking position of the respective top panels, the finger flaps cooperate to define a finger opening in the top panel. Thus when the carrier is to be grasped, one needs only to insert his fingers into the opening defined by the respective finger hole flaps 72. In doing so, the finger flaps 72 defining the finger opening in the top panel are pressed inwardly against the quarter flap sections 71 which are defined by the opposed slits 73 formed in the central panel 56 or reverse fold of the carrier. The arrangement being such that the finger flaps 72 of the top panel will be retained by the quarter slits 71 of the lower aligned finger openings.

In the assembled position of the blank as best seen in FIG. 8, the central panel 56 of the bottom panel is reversely folded along its central foldline F32 in back to back relationship so as to define a longitudinally extending ridge which extends transversely of the carrier. The respective half bottom panel sections 51A, 51B are then folded downwardly and outwardly with respect to the central reverse fold. Each of the respective side panel 52, 53 are then folded upwardly with respect to their adjacent half bottom sections as seen in FIG. 8. The respective top panel half sections 54, 55 connected to the upper end of the respective end panels 52, 53 are then folded over onto one another as evident in FIG. 8. To maintain the respective panels in the folded position thereof, the interlocking tabs 63, 64 of the respective top panel sections are inter-engaged as seen in FIG. 13. The arrangement is such that the tab 64 of the complementary locking means is folded along F37 inwardly of the carrier so as to be disposed between the hinged connection 58A of the opposed can retaining flaps 58 in the operative position. See FIG. 8. If desired the tab 64 may be adhesively secured between hinged connection 58A to positively secure tab 64 in the folded position and thereby strength the carrier. As shown, the complementary notch 58B formed in the respective can flaps 58 and the flap retaining tab 61 formed in the adjacent top panel sections co-act so that the retaining flap 61 may be inserted into the notch 58B of the can flap 58 to positively retain the can flap 58 against the upper surface adjacent its top panel section. See FIG. 11.

The carrier of FIGS. 7 to 13 differ from that of FIGS. 1 to 6 in that a reinforcing rib, defined by a reverse fold 56 extends intermediate the length of the bottom panel 51 is provided to further strengthen the carrier. Also the blank of FIGS. 7 to 13 differs in that complementary interlocking means 63, 64; 58A, 61 are employed instead of the pressure sensitive adhesive means for securing the top panels 54, 55 in folded position of the carrier and for securing the respective can flaps 58 to the respective top panel in the assembled position thereof respectively. In the embodiment of FIGS. 7 to 13, the cans C are retained within the carrier in a manner similar to that hereinbefore described, that is, the can retaining tabs 59 are folded inwardly of the carrier so as to wedge between the free end of the respective can retaining tabs 59 and the top of the carrier the can chime or bead as is clearly evident in FIGS. 8. The opposed circumferential portions of the bead is arranged so as to extend in the slotted opening 62A provided in the respective ends 52, 53 of the carrier 50 by the die cut 62 formed along the foldline connecting the respective top sections 54, 55 to the end panels 52, 53 of the blank.

In operation, the blank of FIG. 7 is assembled to the containers in very much in the same manner as that described with respect to the assembling of the blank of FIG. 1. The blank construction of FIG. 7 differs in operation from that hereinbefore described essentially in the performing of the central reverse fold 56 as the blank is positioned over the tops of the cans traveling in a row beneath the wrapper blank. Suitable machine elements may be provided for automatically preforming the central fold 56 as the blank is positioned over the top of the cans. The respective cans adapted to be moved into the apertures 57 provided therefor in the respective half bottom sections 51A, 51B of the blank of FIG. 7 occurs in a manner as hereinbefore described. That is, the cans are moved transversely toward the centerline of the blank from either side thereof to displace the can flap 58 from the plane of its respective bottom section 51A, 51B and for causing the can retaining tabs 59 to be displaced out of the plane of its respective blank so as to engage the under portion of the can chimes, as the blank 50 is forced onto the upper ends of the several cans. The side panels 52, 53 are then folded relative to their respective bottom sections 51A, 51B along the respective foldlines and the top panels formed over onto the ends of the respective can flaps 58. In doing so, the respective top panels 54, 55 are flexed along a foldline F40 formed therein for permitting the flap retaining tabs 61 blanked therein to engage into the complementary cut out notch 58B formed in the respective can flaps 58 as the top panels are folded over onto the respective can flaps. Thus the interengagement of the flap containing tabs 61 with the notches 58B of the can flaps 58 positively retain the respective can flaps flush against the undersurface of the respective top panels sections as is shown in FIG. 8.

The last step in the operation is for the locking tabs 63, 64 to inter-engage to maintain the blank in the folded position thereof. It will thus be apparent that in this form of the invention, each of the cans are positively retained within their respective apertures 57 in a manner hereinbefore described, and the entire pack can is assembled and interlocked with readily releasable interlocking means 63, 64. It will be apparent that as the complementary locking tab 64 of the top panel 55 is folded

normal to its respective top panel section, it is interposed between the hinged connections 58A of the opposed back to back can flaps 58.

While the instant invention has been described with reference to several embodiments thereof, it will be readily understood that variations and modifications may be made without departing from the spirit or scope of the instant invention.

What is claimed is:

1. A container carrier comprising,
(a) a blank of foldable sheet material having spaced transversely extending foldlines to define a top panel forming a protective cover adapted to overlie the tops of the containers of said carrier, an end panel, a bottom panel spaced from said top panel, and a second end panel,
(b) means for securing said blank in the folded position thereof,
(c) said bottom panel having a flap blanked therefrom to define an opening formed therein sized for receiving the circumference of a container having a beaded end portion,
(d) said flap being hingedly connected to said bottom panel,
(e) means for securing said flap to the top panel,
(f) and container retaining means blanked from said bottom panel and connected to said bottom panel adjacent said opening,
(g) said retaining means including opposed tabs being foldable out of the plane of said bottom panel about respective foldlines coincidental with a circumferential portion of said opening whereby an edge portion of said tabs engages the beaded end portion of the container,
(h) and means defining a slot along the foldline hingedly connecting said top panel to an end panel for receiving a circumferential beaded end portion of said container to cooperate with said retaining means for securing the upper end of a container therebetween.

2. The invention as defined in claim 1 wherein the opening formed in the bottom panel for receiving the container has an elliptical outlined.

3. The invention as defined in claim 1 wherein said retaining means are folded substantially normal to the plane of the panel from whence blanked in the operative position thereof.

4. The invention as defined in claim 1 wherein the flap is adhesively secured to the top panel.

5. The invention as defined in claim 1 wherein said means for securing said flap to the top panel includes complementary interlocking means formed on said top panel and flap.

6. The invention as defined in claim 1 and including,
(a) a handle forming panel hingedly connected about a foldline to one edge of said top panel.

7. A container carrier comprising,
(a) a blank of foldable sheet material having spaced transversely extending foldlines defining a top panel, an end panel, a bottom panel, and a second end panel connected in end to end relationship and foldable about said foldlines,
(b) means for securing said blank in the folded position thereof,
(c) a flap blanked from the bottom panel for defining a container opening sized for receiving the circumference of a beaded container to be received thereinto,
(d) means for hingedly connecting said flap to said bottom panel,
(e) and container retaining means blanked from said bottom panel and connected to said bottom panel adjacent either side of said flap hinging means,
(f) said retaining means being adapted to be foldable out of the plane of said bottom panel about respective foldlines coincidental with a circumferential portion of said opening which extends to either side of said hinged means,
(g) and means defining a slot along the foldline hingedly connecting said top panel to an end panel, said slot being adapted to receive a circumferential beaded portion of a container in the operative position of said blank.

8. A container carrier comprising,
(a) a blank of foldable sheet material having transversely extending foldlines defining a top panel, an end panel, a bottom panel, and a second end panel connected in end to end relationship and foldable about said foldlines,
(b) means defining a reverse fold extending longitudinally of said bottom panel intermediate the width thereof,
(c) means for securing said blank in the folded position thereof,
(d) a row of flaps blanked from the bottom panel on either side of said fold for defining parallel rows of container openings sized for receiving the circumference of a container to be received thereinto,
(e) means for hingedly connecting the respective flaps of each row in back to back relationship to said bottom panel,
(f) and container retaining means blanked from said bottom panel and connected to said bottom panel one either side of each of said flap hinging means,
(g) each of said retaining means being adapted to be foldable out of the plane of said bottom about respective foldlines coincidental with a circumferential portion of its associated opening,
(h) and means defining a corresponding slot opposite each of said retaining means along the foldline hingedly connecting said top panel to the end panels of each of said slots being adapted to receive a circumferential portion of a container in the operative position of said blank.

9. A container carrier adapted to be fitted over the upper ends only of a plurality of container for positively retaining the same in a readily portable multiple pack comprising,
(a) top panel,
(b) opposed depending end panels connected to the ends of said top panel,
(c) and a bottom panel connected between the ends of said end panels,
(d) said bottom panel including a reverse fold formed midway between said end panels to define a longitudinally extending reinforcing rib to divide said bottom panel into two half sections,
(e) said rib projecting outwardly of said carrier,
(f) said half sections defining an acute angle with the adjacent connected end panel,
(g) a row of container openings formed in each half section,
(h) said openings being sized to encircle the upper end of a container,
(i) and means for retaining the upper end of a container in each of said openings.

10. A can carrier for beaded end cams comprising,
(a) a blank of foldable sheet material having transversely extending foldlines to define a top panel adapted to form a protective cover overlying the top of a container in said carrier, an end panel, a bottom panel, and a second end panel,
(b) said bottom panel being formed with an opening therein sized to accommodate the circumference of a can to be retained by said carrier,
(c) means for positively retaining a beaded can within said opening in the folded position of said blank,
(d) said latter means including a pair of can retaining tabs blanked from said bottom panel and foldable out of the plane of said bottom panel for wedging the bead of said can between the edge of said tabs and

the overlying top panel of said blank, and a cooperating slot formed along the foldline connecting an end panel to a top panel, said slot being adapted to receive a circumferential beaded portion of said can in the operative position of said blank.

11. The invention as defined in claim **10** wherein,

(a) said can retainer tabs are hingedly connected to said bottom panel along a foldline coincidental with a circumferential portion of said opening,

(b) said tab having free edge portions thereof defined as a straight edge,

(c) and said tabs being adapted to be folded out of the plane of said bottom panel whereby the straight edge thereof engages a circumferential portion of the bead of said can in the operative position of said blank.

12. A blank construction for forming an improved can carrier adapted to be snapped over the upper end portions only of several cans for containing the same in a readily portable multiple can pack comprising,

(a) a blank of foldable sheet material having a plurality of transversely extending foldlines for defining a top panel, an end panel, a bottom panel, a second end panel, and a top sub-panel connected in end to end relationship and foldable relative to each other about said foldlines,

(b) means for connecting said top panel and top sub-panel in overlying relationship in the folded position of the blank,

(c) said bottom panel including longitudinally extending central fold for defining opposed bottom panel segments extending longitudinally of said blank between said central fold and the adjacent end panels,

(d) said bottom panel segments defining an acute angle with respect to its adjacent end panel in the folded position of said blank,

(e) a row of flaps blanked out of each of said bottom panel segments to define elliptical shape openings for accommodating the upper circumferential portion of a can,

(f) the flaps of the respective rows of flaps being hingedly connected in opposed back to back relationship to said central fold,

(g) means for securing each of said flaps in underlying relationship to the top panel of said carrier in the folded operative position thereof,

(h) can retaining tabs blanked from the area of each of said flaps, said tabs being disposed to either side of the hinged connections of said flaps,

(i) each of said can retaining tabs being foldable inwardly of said carrier about a curvillinear foldline coincidental with a circumferential portion of the respective openings extending to either side of the hinged connection of the respective flaps,

(j) each of said can retaining tabs having a straight edge portion along the free end thereof whereby in the folded operative position of said tabs, the straight edge portion thereof wedges the chime of a can between said straight edge portion and the top of the carrier,

(k) and means defining a cooperating slot along the foldlines hingedly connecting the respective end panels to their respective adjacent top and top sub-panels whereby an opposed circumferential chime portion of a can is received therein.

13. The invention as defined in claim **12** and including,

(a) a handle flap connected along a foldline to one edge of said top panel,

(b) means defining a finger hole blank from said handle flap.

14. A can carrier adapted to be fitted over the upper end portions only of several beaded end cans for containing the same in a readily portable multiple can pack comprising,

(a) opposed top and bottom panels, said top panel being adapted to overlie the tops of the cans adapted to be contained in said carrier to form a protective cover therefore and,

(b) end panels interconnecting said top and bottom panels,

(c) said end panels having a length which is less than the height of the cans adapted to be retained by said carrier,

(d) means defining openings in said bottom panel only for circumferentially receiving the upper end portions of the cans to be retained therein whereby the end of the can is disposed between the top and bottom panels,

(e) and means for positively retaining the upper end of said cans in position between said top and bottom panels within each of the respective openings whereby said top panel forms a protective cover for the entire top of the cans retained in said carrier.

15. The invention as desgined in claim **14** wherein said retaining means comprises,

(a) can retaining tabs blanked out of the bottom panel and foldable inwardly of said carrier about a foldable coincidental with a curvilinear circumferential portion of the respective openings,

(b) and means defining an oppositely disposed slot formed along the respective foldlines hingedly connecting the end panels to said top panel,

(c) whereby said tabs wedge a circumferential portion of a can chime between the edges of said tabs and the top panel and an opposed circumferential portion of said can chime being received in the slot formed opposite said tabs.

16. The invention as defined in claim **15** wherein the free end of said tabs are each provided with a straight edge portion.

17. A can carrier adapted to be fitted over the upper end portions only of several beaded end cans for containing the same in a readily portable multiple can pack comprising,

(a) opposed top and bottom panels,

(b) means forming a reinforcing rib extending along said bottom panel,

(c) end panels interconnecting said top and bottom panels,

(d) means defining openings in said bottom panel for circumferentially receiving the upper end portions of the cans to be retained therein whereby the upper end of the can is disposed between said top and bottom panels so that said top panels forms a protective cover for the upper end portions of the can,

(e) and means for positively retaining the upper end of said cans in position within each of the respective openings whereby said top panel forms a protective cover completely overlying the top of the cans retained in said carrier.

18. An improved can carrier adapted to be fitted over the upper end portions only of several beaded end containers for positively retaining the same in a readily portable multiple container pack and in which the tops of the respective containers are protected comprising,

(a) a blank of foldable sheet material having a plurality of transversely extending foldlines defining,

(b) a top panel,

(c) an end panel connected to one edge of said top panel and folded substantially normal thereto about a foldline,

(d) a bottom panel,

(e) said bottom panel including a central fold and opposed bottom panel segments connected to either side of said central panel fold,

(f) one of said panel segments being connected to a foldline extending along the other edge of said end panel,

(g) a second end panel connected about a foldline extending along the free edge of said other bottom panel segment,

(h) and a top sub-panel connected to the other edge of said second panel,
(i) means for securing said top panel and top sub-panel in the folded position of said blank,
(j) said respective bottom panel segments being inclined upwardly and inwardly toward the central fold interconnected therebetween in the folded position of said blank,
(k) opposed flaps blanked out of the plane of the respective bottom panel segments to define an opening substantially elliptical in outline for approximating the circumference of a can adapted to be received thereinto,
(l) means hingedly connecting said flaps to the central fold in back to back relationship whereby said,
(m) flaps are displaced out of the plane of their respective bottom segments to underlie flush against the top panel in the operative position of the carrier,
(n) means for securing the respective flaps in underlying position relative to the top panels,
(o) means for positively retaining the upper beaded end portion of a can in each of the respective openings,
(p) said latter means including cooperating can tabs blanked out of the respective bottom segments to either side of said flap hinging means,
(q) and opposed slots formed along the foldlines connecting the end panels to their respective top panel and top sub-panel.

19. A carrier for beaded end containers comprising,
(a) a blank of foldable sheet material having transversely extending foldlines to define a top panel means, an end panel, a bottom panel and a second end panel,
(b) said bottom panel including a transversely extending central panel portion adapted to be reversely folded to define a ridge partitioning said bottom panel into two half sections,
(c) each of said half sections having a flap blanked therefrom to define an opening sized to accommodate the circumference of a container to be retained therein,
(d) means for hingedly connecting each of said flaps to said central panel portion in the folded position of said blank,
(e) cooperating means formed in said flap and top panel means for retaining said flaps against the undersurface of said top panel means in the folded position of said blank,
(f) means formed in said blank for positively retaining a beaded container within each of said openings in the folded position of the blank,
(g) and means for securing the blank in the folded position.

20. The invention as defined in claim **19** wherein said can retaining means includes,
(a) a pair of can retaining tabs blanked from said half sections and foldable along a circumferential portion of said openings for wedging the bead of said can between the edge of said tabs and the top panel means of said blank, and a cooperating slot formed along the foldline connecting the end panels to a top panel means, said slot adapted to receive a circumferential portion of the beaded portion of a contained in the operative position of said blank.

21. A carrier for beaded end containers comprising,
(a) a blank of foldable sheet material having a central panel portion adapted to be reversely folded to define a transversely extending folded ridge in the folded position of said blank,
(b) a bottom panel half section folded to either side of said ridge,
(c) an end panel hingedly connected to the outer edge portions of each half section,
(d) and a top panel section connected to the upper edge of each end panel,
(e) said top panel section having the free edge portions disposed in overlapping relationship in the folded position of said blank,
(f) complementary means formed in the overlapping edge portions of said top panel section for securing said blank in the folded position thereof,
(g) each of said bottom half sections having a flap blanked therefrom to define a container opening sized to accommodate the circumference of a container,
(h) means for hingedly connecting each of said flaps to said central panel portion,
(i) cooperating means formed in each of said flaps and adjacent top panel section for positively retaining said flap against the undersurface of its associated top panel section in the operative position thereof,
(j) and means formed in said blank for positively retaining the end of a beaded container with each of said openings.

22. The invention as defined in claim **21** wherein said retaining means comprises,
(a) retaining tabs blanked out of each bottom panel half sections and foldable inwardly of said carrier about a foldline coincidental with a curvilinear circumferential portion of the respective openings formed therein,
(b) and means defining an oppositely disposed slot formed along the respective foldlines hingedly connecting the end panels to its respective top panel section,
(c) whereby said tab wedges a circumferential portion of bead of container between the edge of said tab and the adjacent top panel section with an opposed circumferential portion of said can being received in the slot formed opposite said tab.

23. The invention as defined in claim **22** and including,
(a) means for defining finger holes formed in said top panel sections and ridge to facilitate portage of said carrier.

24. The invention as defined in claim **22** wherein said means for securing the top panel section in folded position includes,
(a) a winged locking tab blanked out of the edge portion of one of said top panel sections, and
(b) a cooperating slot blanked in the edge portion of the other top panel section whereby the winged locking tab is interlockingly engaged with the cooperating slot,
(c) and spacer tab blanks for said top section to define said slot being folded inwardly of said carrier so as to be disposed between the hinge means of said adjacent can flaps.

References Cited by the Examiner

UNITED STATES PATENTS

2,603,923	7/1952	Chidsey	224—45.2 X
2,737,326	2/1956	Toensmeier	294—87.2
2,764,284	9/1956	Arneson	206—65
2,965,410	12/1960	Hughes	294—87.2
3,123,213	3/1964	Kulig	206—65
3,140,008	7/1964	Spery	220—113

FOREIGN PATENTS

1,181,153	6/1959	France.
480,138	2/1928	Great Britain.
55,365	6/1935	Norway.

GERALD M. FORLENZA, *Primary Examiner.*

A. GRANT, G. F. ABRAHAM, *Assistant Examiners.*