June 1, 1965 R. A. ENGLANDER ETAL 3,186,587

ARTICLE CARRIER

Original Filed July 2, 1962 3 Sheets-Sheet 1

FIG. 1

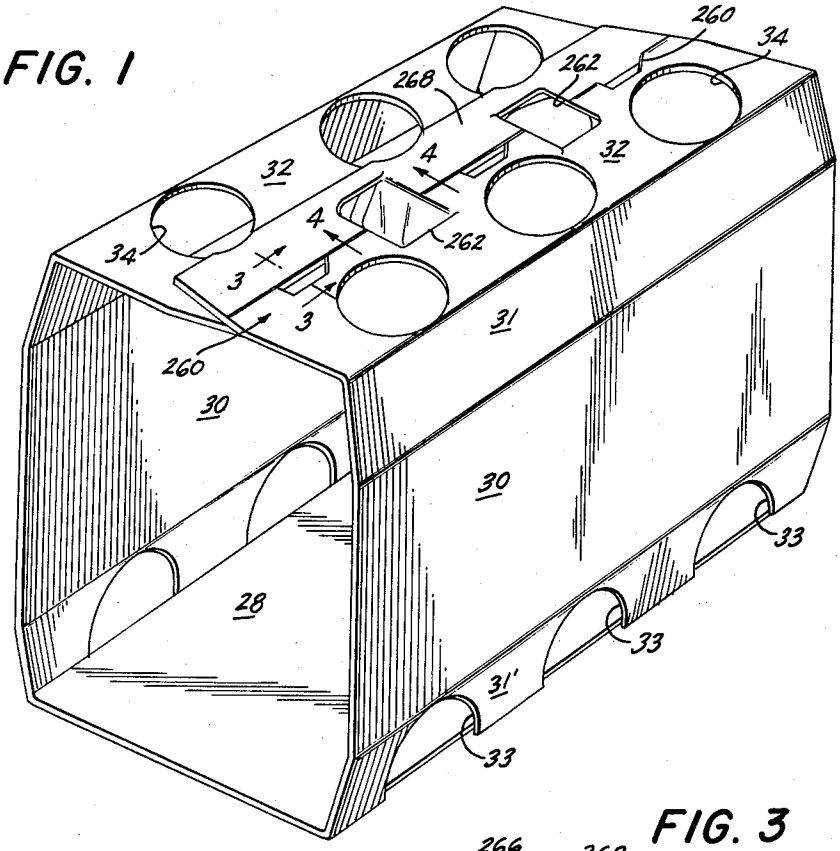


FIG. 3

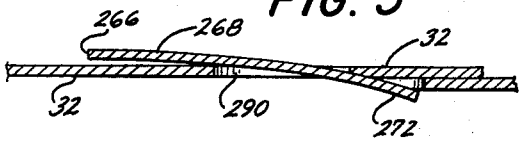


FIG. 2

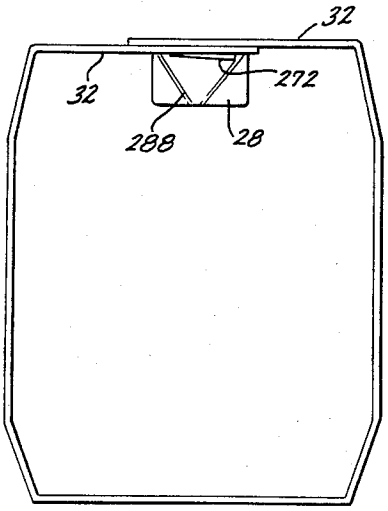
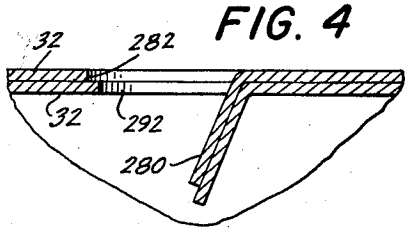


FIG. 4



INVENTORS
ROBERT A. ENGLANDER
CARL R. CATO

BY

James and Franklin

ATTORNEYS

June 1, 1965 R. A. ENGLANDER ETAL 3,186,587

ARTICLE CARRIER

Original Filed July 2, 1962 3 Sheets-Sheet 2

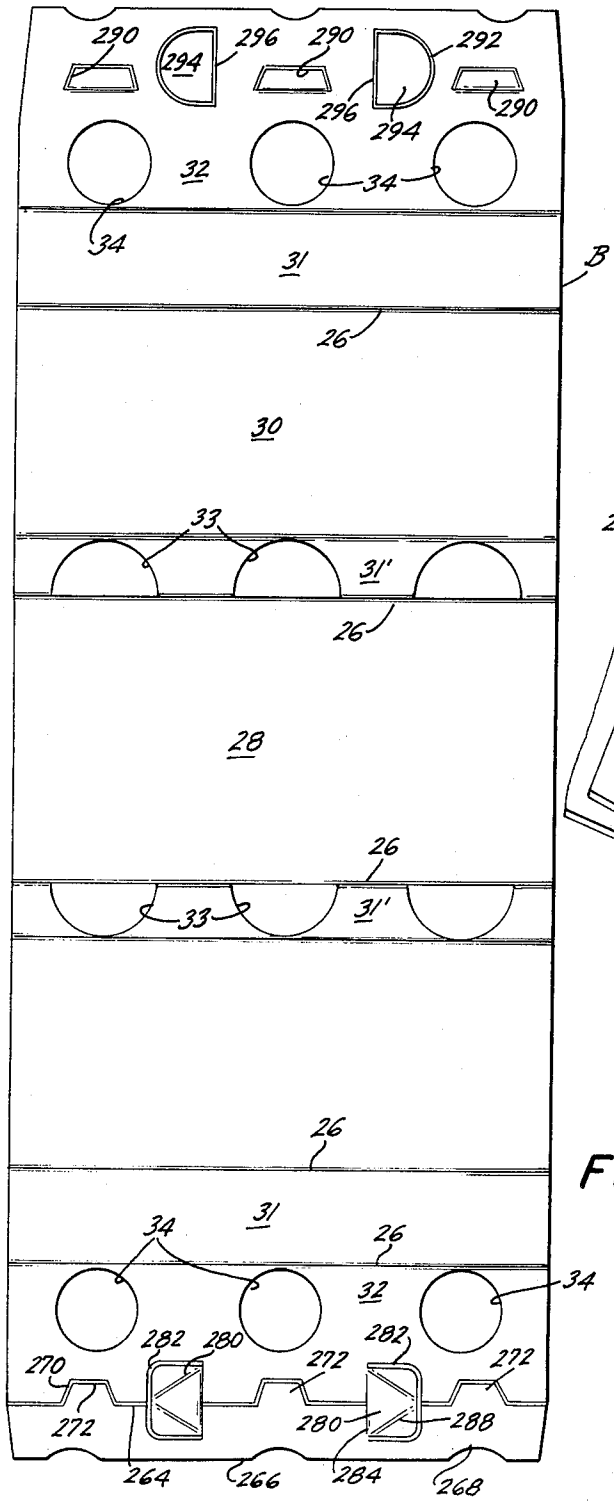


FIG. 5

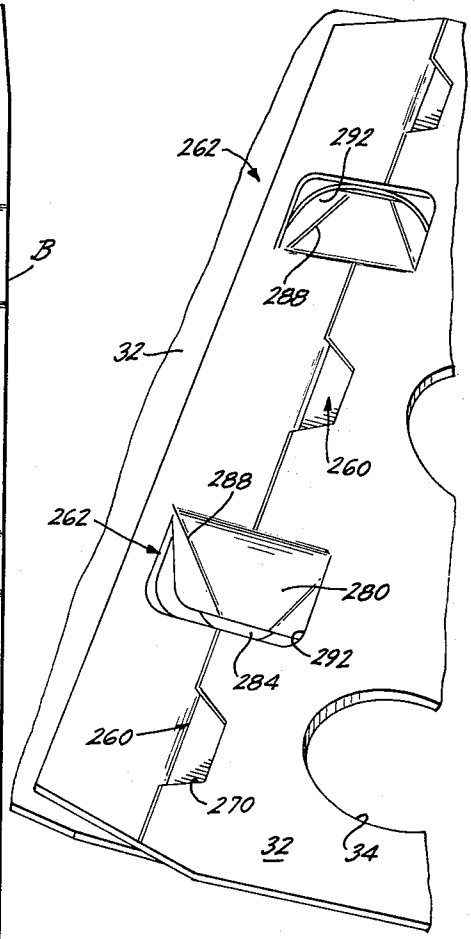


FIG. 6

INVENTORS
ROBERT A. ENGLANDER
CARL R. CATO

BY James and Franklin
ATTORNEYS

June 1, 1965 R. A. ENGLANDER ETAL 3,186,587

ARTICLE CARRIER

Original Filed July 2, 1962 3 Sheets-Sheet 3

FIG. 7

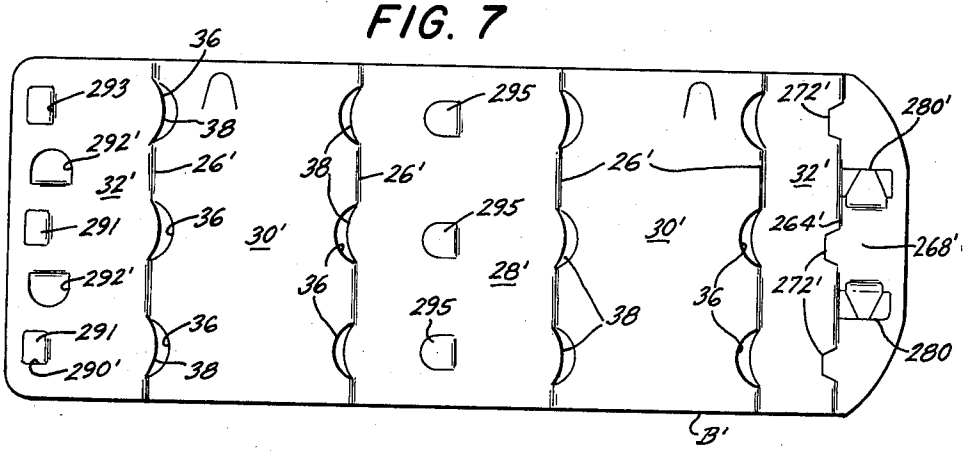
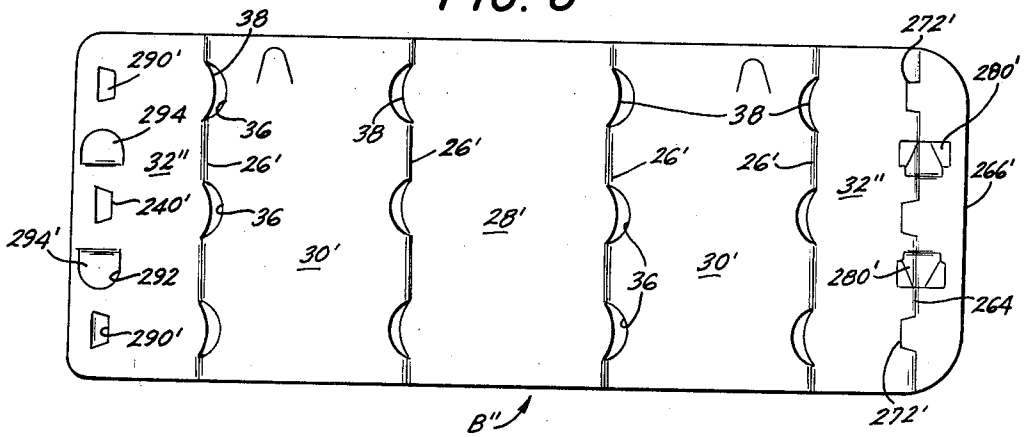


FIG. 8



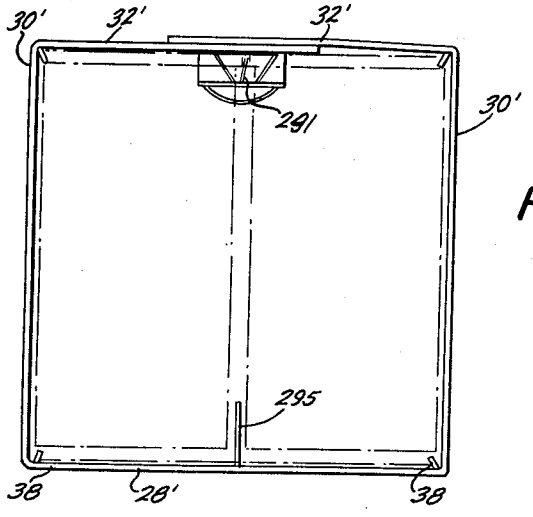


FIG. 9

INVENTORS
ROBERT A. ENGLANDER
CARL R. CATO

BY Cairns and Franklin
ATTORNEYS

United States Patent Office

3,186,587

Patented June 1, 1965

3,186,587

ARTICLE CARRIER

Robert A. Englander and Carl P. Cato, Lynchburg, Va., assignors to Dacam Corporation, Lynchburg, Va., a corporation of Virginia

Original application July 2, 1962, Ser. No. 206,974. Divided and this application May 1, 1963, Ser. No. 277,301

9 Claims. (Cl. 220—115)

This application is a division of our previously filed application Seriol No. 206,974 filed July 2, 1962, now Patent No. 3,111,797, entitled "Article Carrier, Method and Apparatus for Erecting Same."

The present invention relates generally to the packaging of similar-shaped articles such as cans or bottles into paperboard carriers or cartons, and more particularly, to a carrier or carton adapted for such use.

Throughout the specification and drawings, and claims, the articles being packaged are referred to generally as bottles or cans. However, the principles of the invention may be applicable to packaging articles other than bottles or cans. Any article which is generally elongated and which has at least one flat end upon which it can stand upright may be packaged by the method and apparatus of the present invention. The article may be cylindrical, square, rectangular or any of a various number of shapes.

The most popular means of packaging bottles and cans is a carrier made from a single piece of material such as paperboard or the like, the carrier being generally rectangular in shape, folded about the articles, and having its ends secured to each other to form a tubular or sleeve type container. Sleeve-type paperboard carriers provide convenient means for carrying small groups of cans or bottles, for example, six, eight, or twelve, the cans or bottles being disposed within the carrier to prevent accidental displacement through the open ends of the carrier. The reference to "sleeve-type" or "tubular-type" carrier throughout the specification and claims is intended to cover those carriers which wrap around a group of articles and which have their ends either open, closed or partially closed. If the ends of the erected carrier are closed or partially closed, then, of course, the carrier blank will be provided with suitable panels for accomplishing the same.

The most convenient means heretofore used for securing the ends of the carrier when it is erected about the articles was by gluing the end panels to each other. However, bottles and cans containing soft drinks or beer, at the time of packaging, usually have a wet exterior as they are received at the packaging apparatus immediately after their filling, closing, and washing. The moisture on the exterior of the bottles or cans oftentimes prevents the adhesive from properly setting, and thus the end panels would pull apart under the load of the contents of the package. Even if such bottles or cans are dry at the time of packaging, the carrier package is often refrigerated and when removed to room temperature, condensation forms on the exterior of the bottles or cans and is absorbed by the carrier and especially its glued joint. This latter condition also oftentimes causes failure of the joint especially when customer is carrying a package from the store. Other difficulties were encountered in the erection of cartons utilizing adhesive for securing the closures, such difficulties occurring in the erection apparatus between the glue-application station and the compression station especially when there was a temporary shut-down of feed of packaged articles thereto.

While gluing as a means of securing end panels is still used, the industry has been making an effort to develop

glueless cartons or carriers, the cartons or carriers having their end panels locked by purely mechanical means. In some instances, staples have been applied through overlapping end panels but this has proved unsatisfactory and costly from the standpoint of the necessity of utilizing additional packaging equipment for applying the staples as well as a difficulty for the customers to open the cartons. Efforts were also made to secure the end panels of the blank together by punching tongues out of one end panel and pushing the same through openings in the other end panel. However, such prior constructions did not prove entirely satisfactory as they could not assume the load of the articles carried, and oftentimes it was necessary to use auxiliary securing devices such as glue or staples.

A prime object of the present invention is to provide a sleeve-type paperboard carrier structure wherein the end panels of the carrier structure are adapted to be overlapped and preliminarily secured together to prevent movement of the panels in the plane of overlap while providing proper tension about the articles packaged, the panels further being provided with a secondary locking means to prevent the panels from separating in a plane transverse to the plane of overlap.

Still another object of the present invention is to provide a carrier blank arrangement having a minimum waste in manufacture, and yet provided with a closure which is extremely durable when the carrier is erected and used, and capable of easy opening by the user.

Ancillary to the preceding object it is a further object to provide a carrier blank capable of being erected as a sleeve-type carrier about a group of bottles or cans, the carrier blank being provided with a glueless closure which is extremely strong yet capable of being easily opened by the consumer and reclosed if necessary.

Still another object of the present invention is to provide a carrier made from a paperboard blank or the like, the carrier having a closure which also functions as a finger hole and thus insures no inadvertent separation of the closure during transfer of the carrier with its packaged articles.

A further object of the present invention is to provide a carrier blank having a novel interlocking closure in its overlapping end panels, the closure also providing means of separating articles from one another.

These and other objects and advantages of the present invention will appear more fully in the following specification, claims and drawings in which:

FIGURE 1 is a perspective view illustrating one form of carrier of the present invention;

FIGURE 2 is an end elevational view of the carrier of FIGURE 1, looking into the open end of the same;

FIGURE 3 is a sectional view taken substantially on the line 3—3, of FIGURE 1;

FIGURE 4 is a sectional view taken substantially on line 4—4 of FIGURE 1;

FIGURE 5 is a plan view of the paperboard carrier blank from which the carrier of FIGURE 1 is erected;

FIGURE 6 is a fragmentary perspective view illustrating the interlocking of the overlapping closure panels of the improved carrier;

FIGURE 7 is a plan view of a blank for a modified form of carrier in which the articles packaged are cans and in which the cans are separated by suitable separator tabs;

FIGURE 8 is a plan view of a blank for a still further-modified form of carrier, the carrier erected from the blank of FIGURE 8 being also utilized for packaging cans; and

FIGURE 9 illustrates the end view of a carrier made from the blank of FIGURE 7.

The paperboard carrier or carton of the present invention includes an improved and novel glueless closure means for securing the overlapping end panels of the carrier to each other.

Referring now to FIGURES 1 through 6 inclusive, the carrier or carton of the present invention there illustrated is adapted for packaging articles such as bottles. The carrier is made from a substantially rectangular paperboard blank provided with the score lines 26 spaced apart proportionately to define the bottom panel 28, side panels 30, and overlapping end panels 32, The end panels 32 are provided with the circular cutouts or openings 34 through which the necks of the bottles extend, whereas the side panels 30 are provided with the cutouts 33 through which a portion of the base of the bottles extend.

The novel closure for the end panels 32 includes a first closure means generally indicated by the numeral 260 which is used to preliminarily interlock the overlapping end panels together to prevent their separation in the plane of overlap and a second closure means generally indicated by the numeral 262 which interlocks the end panels 32 together against movement apart in a direction transverse to the plane of overlap. The second closure means 262 also provides finger holes by which the package can be carried.

In more detail, the end panel 32 which is to be the outermost end panel of the package when the end panels are overlapped, is provided with a score line 264 spaced from, and extending parallel to its free edge 266. The portion of the end panel 232 outwardly of the score line will be defined as a flap 268 for the purpose of this description. Cut lines 270 are provided in the end panel 32 inwardly of the flap 268 and define tabs 272 extending from the flap in a direction away from the free edge 266 and towards the score 26 between the particular end panel and its adjoining side panel 30. The tabs 272 interrupt the score line 264 at longitudinally-spaced points of the same.

The outermost end panel 32 of the overlapping end panels 32 is also provided with a second series of tabs 280 defined by cut lines 282 and score lines 284 extending transversely of, and intersecting the score line 264. The tabs 280 are each further provided with a pair of converging score lines 288 which start at the ends of the score lines 284 and extend toward the free edge of the tab.

Referring now to the end panel 32 which is to be the innermost end panel of the overlapping end panels 32, a plurality of cutouts 290 are provided to define openings for receiving the tabs 272, The cutouts 290 are suitably spaced apart and, with respect to the tabs 272, so that when the panels are overlapped and the tabs 272 are inserted through the cutouts 290, the base of the tabs engages the edges of the cutouts 290 nearest to the free edge of the panel. In addition to the cutouts 290, the innermost panel 32 is provided with a plurality of substantially semi-circular cutouts 292 which define tabs 294 articulated to the panel by score lines 296. It will be appreciated that the tabs 294 extend in the same direction as the tabs 280 and are spaced apart from each other a distance so that they may receive the respective tabs 280.

When the carrier is to be wrapped around a set of bottles or the like the flap 268 is folded along the score line 264 as the particular end panel 32 is being folded with respect to its side panel 30 so that tabs 272 extend out of the plane of the panel 32 as the panel is being over-lapped with respect to the other, or lowermost, panel 32. The tabs 272 are extended through openings provided by the cutouts 290, and then the flap 268 is folded back to its original planar position so that the tabs 272 hook about the edges of the openings and draw the end panels toward each other to provide proper tensioning of the enveloped carrier blank about the articles. When this has been accomplished, the end panels 32 cannot be moved from the plane of overlap and, thus, are properly positioned for application of the second closure means 262.

The second closure means 262 is formed when the tabs 280 are pushed through the openings made by the pushing of the tabs 294 out of the cutouts 292. To provide the second closure with sufficient strength to prevent inadvertent opening of the package, or pulling apart of the two panels 32 in a direction transverse to the plane of overlap, the tabs 280 are made larger than the tabs 294 and also have a generally rectangular configuration rather than a semi-circular configuration. By providing the converging score lines 288 on the tabs 280, the tabs may be easily pushed through the smaller openings made by the cutouts 292 when the panels are interlocked together.

The closure defined by the closure means 260 and 262 may be opened without destroying the package by a positive pull upwardly on the flap 268. The score lines on the tabs 280 give the tab sufficient flexibility to be disengaged by such positive action, but have sufficient rigidity to normally hold the end panels 32 together when the package is being transported. Since the closure is not destroyed, the customer can re-use the carrier by hand closing the same if so desired.

Referring now to FIGURES 7 and 9, the carrier blank B' disclosed therein is especially adapted for packaging cans. As described heretofore, the blank B' is provided with novel means for securing the cans to the side panels when the blank is open. The carrier blank B' is also provided with a similar first closure means 260 and second closure means 262 to that described with respect to carrier B. The first closure means 260 is identical with that previously described with respect to the carrier blank B, in that the outermost panel 32' is provided with a score line 264' parallel to its free edge 266', and a plurality of tabs 272' interrupt the same at spaced longitudinal points therealong. The other end panel 32' is provided with the cutouts or openings 290', which in this case define separation tabs 291 in the panels which are adapted to be pivoted downward along the score lines 293 when the tabs 272' are inserted therein. The tabs 291 extend down between the adjacent rows of cans and separate the upper ends of two side-by-side cans from each other. The bottom panel may be provided with tabs 295 which can be struck out of the same and extend upwardly between the base ends of side-by-side cans. The closure 262' includes tabs 280 in the outermost of the panels 32', the tabs 280' being positioned outwardly of the score line 264' and solely within the flap 268' rather than intersecting the same score line. The tabs 280', which are larger than the openings 292' provided in the other panel 32', are adapted to be received in the same in an identical manner to that described with the carrier blank B.

The carrier blank B'' in FIGURE 8 is substantially identical to that disclosed in FIGURE 7, except that the separator tabs in the bottom panel 28' are omitted, as well as the tabs 291 in the innermost overlapping panel 32''. The cutouts 290' in this form of the invention merely are openings. The second closure means contains tabs 280' which are identically arranged to the tabs 280 of carrier B as well as openings 292' defined by tabs 294'.

It will be noted that the shape of the tabs 280' in FIGURES 7 and 8 is somewhat differnt from that of the tabs 280 in the prior figures, in that those portions of the tabs 280' to either side of the converging score lines thereon have a length somewhat less than that of the overall length of the tabs 280', the small cut-back areas thus defined being adapted to more securely lock the flaps 280' in position when they have been pushed through the openings 292'.

In the embodiments of FIGS. 7–9 crescent-shaped cutouts 36 are provided in each of the side panels 30', there being a plurality of pairs of opposed crescent-shaped cutouts 36 in each side panel 30'. The crescent-shaped

cutouts 36 have their tips terminating at or adjacent the foldlines 39 for the respective end panel 30' and define tabs 38 which extend from the bottom panel 28' and end panels 32' which interrupt the foldlines. Oppositely disposed pairs of tabs 38, as defined by the pairs of crescent-shaped cutouts 36, are adapted to be received within the chines at the opposite end of a can to retain the can on the flat blank B' as the blank is being erected into a carrier.

It is thus seen that the objects and advantages of the present invention have been fully and effectively accomplished by the described carrier illustrated in the drawings. The carrier of the present invention is susceptible to some modifications without departing from the spirit and principles of the invention involved. It is to be understood that this invention is useful in connection with articles of various shapes in addition to conventional cans, bottles, etc., notably, lamp bulbs, golf balls, articles of china and plastic which have bottoms and side walls of various curved and other contours.

Therefore, the terminology used in the specification and the illustrations in the drawings, are for the purpose of description, and not limitation, the scope of the invention being defined in the claims.

We claim:

1. A sleeve-type carrier for a group of similar shaped articles, said carrier being made from a paperboard or the like blank, and having overlapping end panels, the outermost of said overlapping panels having a longitudinally extending fold line, a cutout in said outermost overlapping panel defining a tab interrupting the longitudinal fold line and extending away from the longitudinal edge of the outermost overlapping panel, a cutout in the innermost of said overlapping end panels and defining an opening arranged to receive said tab to prevent movement of the overlapping panels outwardly of each other in the plane of overlap, a second cutout in the outermost of said overlapping end panels, said second cutout defining a second tab facing transversely of said first tab, and a second cutout in said innermost panel and defining an opening for receiving said second tab, said second tab having a maximum width greater than the width of the portion of the opening into which it is received and which is engaged thereby, said second tab having converging foldlines thereon whereby it may flex as it is pushed through the opening.

2. A paperboard blank for forming a sleeve-type carrier to package a group of articles, said blank having an elongated rectangular form with a plurality of transverse score lines therein proportionately spaced apart for defining panels to at least partially envelop articles to be packaged, said plurality of panels including a pair of oppositely disposed end panels of a size to partially overlap and form a composite wall of the package, one of said end panels having a fold line extending parallel to its free edge and located within the overlap of the end panels when the carrier is erected, a tab in said last-mentioned panel interrupting the fold line therein and extending in a direction away from the free edge thereof, a second tab in said last-mentioned end panel extending in a direction transverse of said first tab, the other of said end panels having a first opening therein adapted to be engaged by said first tab and a second opening through which said second tab is adapted to extend and lock said panels together, said second tab having a maximum width greater than the width of the portion of the opening in the other panel through which it extends and which is engaged thereby, said second tab in said last-mentioned end panel extending across said foldline in said panel which extends parallel to the free edge of said panel.

3. A sleeve-type carrier for a group of similar shaped articles, said carrier being made from a paperboard or the like blank and having overlapping end panels, means to secure said overlapping end panels to each other, said means including a first means defined by integrally formed portions of said panels to secure said end panels against movement outwardly of each other in the plane of overlap and second means defined by other integrally formed portions of said panels to interlock said end panels against movement away from each other in a direction substantially transverse to the plane of overlap, said second means including cutouts in the outermost overlapping panel defining locking tabs foldable on axes transverse of the longitudinal edge of the outermost end panel, and cutouts defining openings in the innermost panel arranged to receive said tabs, said locking tabs having a size greater than the size of the openings in said innermost panel, said locking tabs having converging fold lines thereon wherby portions of the tab can be flexed when the locking tabs are pushed through the openings in the innermost panel.

4. A paperboard blank for forming a sleeve-type carrier to package a group of articles, said blank having an elongated rectangular form with a plurality of transverse score lines therein proportionately spaced apart for defining panels to at least partially envelop articles to be packaged, said plurality of panels including a pair of oppositely disposed end panels of a size to partially overlap and form a composite wall of the package, one of said end panels having a fold line extending parallel to its free edge and located within the overlap of the end panels when the carrier is erected, a tab in said last-mentioned panel interrupting the fold line therein and extending in a direction away from the free edge thereof, a second tab in said last-mentioned end panel extending in a direction transverse of said first tab, the other of said end panels having a first opening therein adapted to be engaged by said first tab and a second opening through which said second tab is adapted to extend and lock said panels together, said second tab having a maximum width greater than the width of the portion of the opening in the other panel through which it extends and which is engaged thereby, said second tab in said last-mentioned end panel extending across said foldline in said panel which extends parallel to the free edge of said panel, said second tab having a root portion upon which it folds inwardly and having a pair of scorelines converging toward each other from said root portion.

5. A paperboard blank for forming a sleeve-type carrier to package a group of cans having chined ends, said blank having a elongated rectangular form with a plurality of transverse score lines therein proportionately spaced apart for defining panels to at least partially envelop articles to be packaged, said plurality of panels including a pair of oppositely disposed end panels of a size to partially overlap and form a composite wall of the package, one of said end panels having a fold line extending parallel to its free edge and located within the overlap of the end panels when the carrier is erected, a tab in said last-mentioned panel interrupting the fold line therein and extending in a direction away from the free edge thereof, a second tab in said last-mentioned end panel extending in a direction transverse of said first tab, the other of said end panels having a first opening therein adapted to be engaged by said first tab and a second opening through which said second tab is adapted to extend and lock said panels together, said second tab having a maximum width greater than the width of the portion of the opening in the other panel through which it extends and which is engaged thereby, said second tab in said last-mentioned end panel extending across said fold line in said panel which extends parallel to the free edge of said panel, wherein at least one panel defined by a pair of score lines and intermediate the end panels is provided with at least a pair of oppositely disposed crescent-shaped openings having edge portions of different radius of curvatures, each crescent-shaped opening having tips originating in the fold for the panel and

the edge having the smaller radius of curvature defining an arcuate-shaped tab extending from the next adjacent panel which interrupts the fold line, the arcuate-shaped tabs of said pair of crescent-shaped openings opposing each other and arranged to engage inside the chined ends of a can and supporting the same on the panel prior to the erection of the carrier blank.

6. A sleeve-type carrier for a group of cans having chined ends, said carrier being made form a paperboard or the like blank and having overlapping end panels, means to secure said overlapping end panels to each other, said means including a first means defined by integrally formed portions of said panels to secure said end panels against movement outwardly of each other in the plane of overlap and second means defined by other integrally formed portions of said panels to interlock said end panels against movement away from each other in a direction substantially transverse to the plane of overlap, said second means including cutouts in the outermost overlapping panel defining locking tabs foldable on axes transverse of the longitudinal edge of the outermost end panel, and cutouts defining openings in the innermost panel arranged to receive said tabs, said locking tabs having a size greater than the size of the openings in said innermost panel, said locking tabs having converging fold lines thereon whereby portions of the tab can be flexed when the locking tabs are pushed through the openings in the innermost panel, wherein at least one panel defined by a pair of score lines and intermediate the end panels is provided with at least a pair of oppositely disposed crescent-shaped openings having edge portions of different radius of curvatures, each crescent-shaped opening having tips originating in the fold for the panel and the edge having the smaller radius of curvature defining an arcuate-shaped tab extending from the next adjacent panel which interrupts the fold line, the arcuate-shaped tabs of said pair of crescent-shaped openings opposing each other and arranged to engage inside the chined ends of a can and support the same on the panel prior to the erection of the carrier blank.

7. The paperboard blank of claim 4, wherein said root portion of said second tab has a width less than the maximum width of said second tab.

8. The sleeve-type carrier of claim 1, wherein said second cutout in the outermost of said overlapping end panels, and hence the tab defined thereby, extends across said longitudinally extending foldline in said outermost panel.

9. The paperboard blank of claim 4, wherein said root portion of said second tab has a width less than the maximum width of said second tab, and wherein said second tab extends across said foldline in said last-mentioned panel which extends parallel to the free edge of said panel.

References Cited by the Examiner

UNITED STATES PATENTS

2,349,707	5/44	D'Esposito	229—39
2,786,572	3/52	Gentry	206—65
2,922,561	1/60	Currivan	206—65 X
2,990,997	7/61	Wiess	206—65 X
3,006,530	10/61	Forrer	206—65 X
3,128,034	4/64	Weiss	229—40
3,129,843	4/64	Weiss	220—112
3,142,378	7/64	Lengsfield.	

FOREIGN PATENTS

217,575	3/58	Australia.
398,044	9/33	Great Britain.

FRANKLIN T. GARRETT, *Primary Examiner.*