Dec. 23, 1958 E. F. REPKING ET AL 2,865,554

ONE-PIECE BEVERAGE SHIPPING CASE

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FIG. 1.

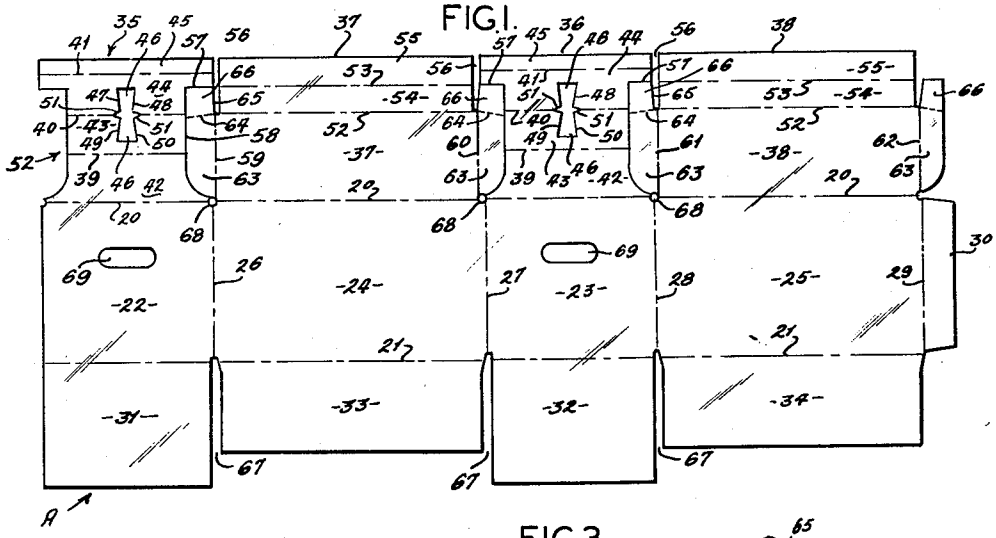


FIG. 2.

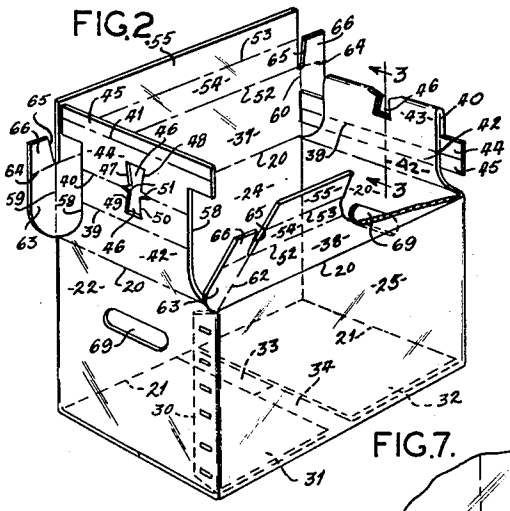


FIG. 3.

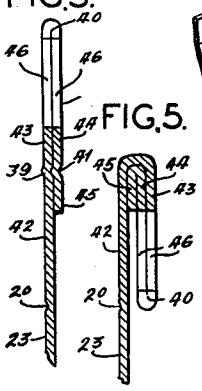


FIG. 5.

FIG. 4.

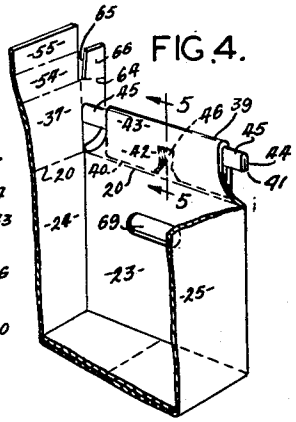


FIG. 6.

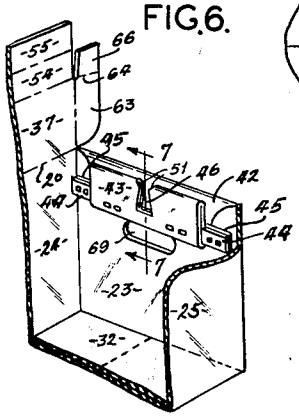


FIG. 7.

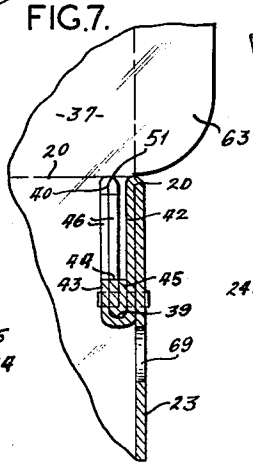
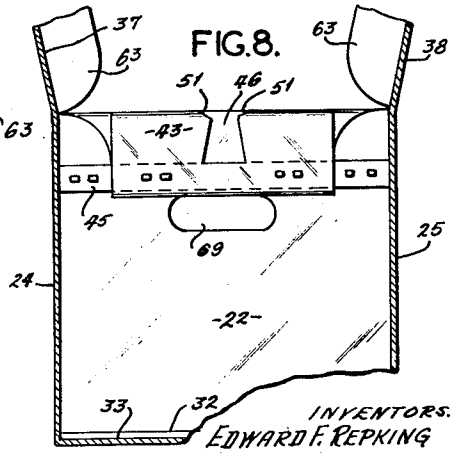


FIG. 8.



INVENTORS.
EDWARD F. REPKING
HOWARD D. WILLETT

By Spilbam Tyle
ATTORNEY

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FIG. 9.

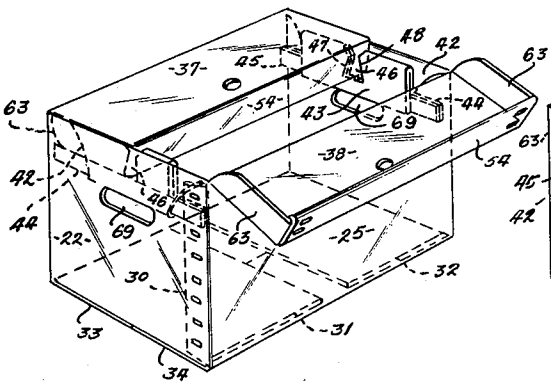


FIG. 10.

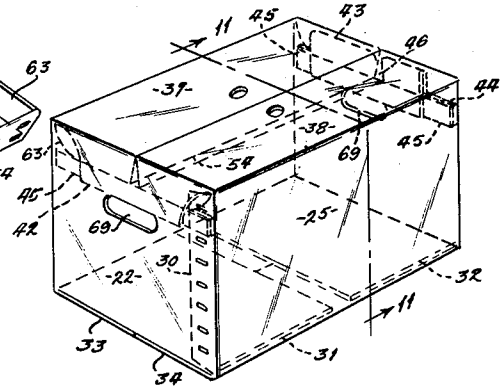


FIG. 11.

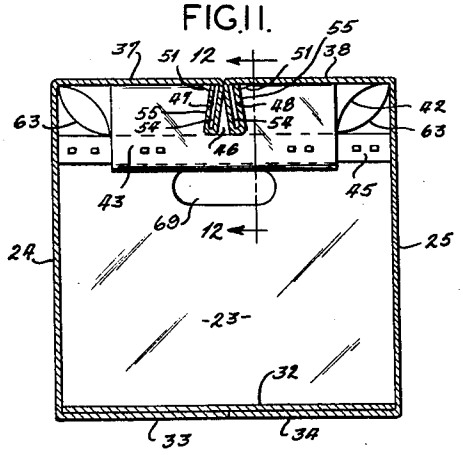


FIG. 12.

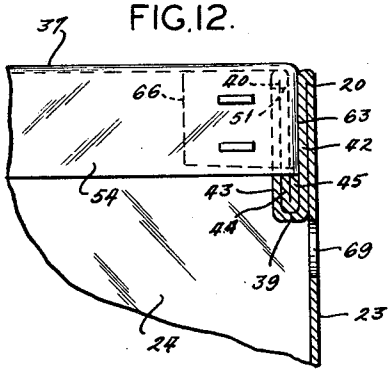


FIG. 13.

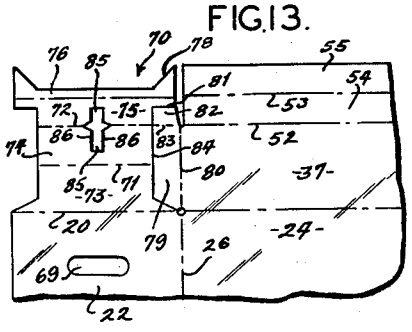
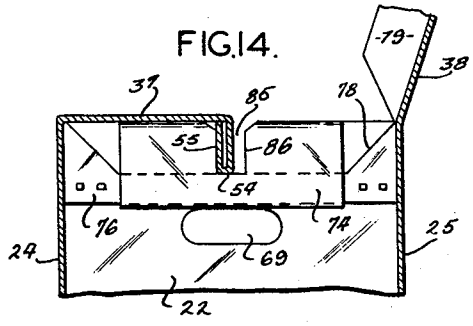


FIG. 14.



INVENTORS:
EDWARD F. REPKING
HOWARD D. WILLETT

By William Taye
ATTORNEY.

United States Patent Office

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ONE-PIECE BEVERAGE SHIPPING CASE

Edward F. Repking, Glasgow, Mo., and Howard D. Willett, Alton, Ill., assignors, by mesne assignments, to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada

Application February 7, 1955, Serial No. 486,396

4 Claims. (Cl. 229—44)

The invention relates to a device applicable to fibreboard containers having hinged half cover panels which combines a reinforcement to the end panels and means for releasably locking the covers of the containers in the closed position thereof.

More specifically, the invention provides split cover, paperboard shipping containers with means for releasably locking the covers in their closed position and reinforcing the end panels of the container, comprising the combination of reinforcing flaps integral with the upper edge of the end panels, folded about a plurality of spaced scores parallel with the flap hinge score to form an upwardly opening channel on the upper margin of the inner face of the end panels. A downwardly extending slot is cut in the inner wall of the channel at its median width, and each cover member has side and end flanges folded angularly downwardly and secured together in substantially right angular relation to each other by tabs on the outer margins of the side flanges folded inwardly and attached to the end margin of the end flanges. As the cover members are swung downwardly in unison, the end flanges snap into the channel slot and releasably lock the covers in their closed position by the frictional engagement of the end margins of the end flanges with each other and with the side boundaries of the slot in the channel, while the side flanges of the covers are enclosed within the channel on the inner face of the end panels.

When containers employing the invention are constructed of solid fibreboard, the angular relation of the cover flanges to the covers and the shape of the slots in the inner walls of the upwardly opening channels preferably are modified to position the end flanges at an angle slightly less than 90° to the covers and provide a very slight clearance between the outer edges of the end cover flanges throughout the cycle of swinging the covers downwardly into closed position. The side boundaries of the slots in the inner channel wall are flared downwardly at an angle to the horizontal upper edge of the end panels corresponding to the angle of the cover flanges to the cover members. These modifications prevent the possibility of the outer edge of one of the covers engaging the outer edge of the other cover should they be swung downwardly into closed position independently and out of step with each other. The modified construction of the container also adapts it to assembly line loading wherein the covers are closed by automatic devices.

The reinforcing and locking device of the invention is especially desirable for use with containers for shipping bottled beverages of all kinds such as, for example, 24 12 ounce bottles of beer. The containers may be formed from a one-piece blank and are highly economical in the use of fiberboard material. They may be preassembled by the manufacturer including the reinforcing and cover locking feature provided on the inner face of the end panels and shipped in knocked-down form to the user. All that is required of the user is to open up the container into rectangular form, fold and secure the bottom flaps together and secure the side and end cover flanges together by means of the side flange tabs. In the closed position of the cover, the entire exterior of the container is completely free of obstructions, overhanging flaps and the like, thus providing a streamlined design having maximum surface available for printing purposes. When the container is closed, the cover members and end walls are firmly braced against deflection in all horizontal directions and weaving of the structure is substantially eliminated.

A primary object of the invention is to provide a split cover container suitable for shipping bottled beverages and the like with means positioned on the interior face of the upper margin of the end walls for releasably locking the cover panels in closed position and reinforcing the upper portion of the end panels.

Another object is to provide a one-piece split cover shipping container having smooth, unobstructed exterior walls and corners with flanges on the end and side edges of the cover panels folded angularly downwardly and secured together in fixed right angular relation to each other by a tab extending from the inner side edge of the side flanges. In the closed position of the covers, the side flanges thereof are frictionally enclosed in an upwardly opening channel member positioned on the interior face of the upper margin of the end panel, while the end flanges extend into and are releasably locked in downwardly flaring notches formed on the inner wall of the upwardly opening channels at the mid width thereof.

Still another object is to provide a one-piece split cover container adapted for shipping bottled beverages and the like, the outer walls of the container being entirely free of obstructions and the cover panels being locked in closed position by the end margins of end flanges thereon engaging the side boundaries of a downwardly flaring slot formed in the inner wall of an upwardly opening channel and reinforcing member positioned on the inner face of the upper margins of the end panels, the side flanges on the cover members being frictionally enclosed in the end panel channel.

Other objects and advantages of the invention will be apparent to those skilled in the art upon a clear and complete understanding of the construction of the improved shipping container.

The invention also consists in the parts and in the arrangements and combination of parts hereinafter described and claimed. The accompanying drawings form part of this specification and like numerals and symbols therein refer to like parts wherever they occur.

Fig. 1 is a plan view of the blank from which the container of a preferred form of the invention is assembled;

Fig. 2 is a perspective view of the container partially assembled;

Fig. 3 is a vertical, sectional view of the container taken in the direction of the arrows 3—3 of Fig. 2;

Fig. 4 is a perspective view of one end of the container with the end panel flaps partially assembled;

Fig. 5 is a vertical, sectional view of the container taken in the directions of the arrows 5—5 of Fig. 4;

Fig. 6 is a perspective view of one end of the container with the end reinforcing and locking flap completely assembled;

Fig. 7 is a vertical, sectional view through an end panel of the container taken in the direction of the arrows 7—7 of Fig. 6;

Fig. 8 is a vertical, sectional view of one end of the container showing the end panel reinforcing flap in completely assembled form;

Fig. 9 is a perspective view of the assembled container with one of the half covers extended;

Fig. 10 is a perspective view of the completely assembled container with the cover closed;

Fig. 11 is a vertical, sectional view through the container of Fig. 10 in the direction of the arrows 11—11;

Fig. 12 is a vertical, sectional view through the end of the container of Fig. 11 in the direction of the arrows showing the cover flanges enclosed in the assembled end panel flaps;

Fig. 13 is a plan view of the blank of a modified form of the end panel reinforcement flap; and

Fig. 14 is a vertical, sectional view showing an assembled modified form of the end panel flap.

The blank from which a preferred form of the invention is formed is shown at A, Fig. 1. A longitudinal score 20 defines the upper edges of end panels 22 and 23, side panels 24 and 25, and the inner edges of top end panel flaps 35 and 36 and top side panel flaps 37 and 38. A longitudinal score 21, parallel to the score 20, defines the lower edges of the end panels 22 and 23 and the side panels 24 and 25, also the inner edges of bottom flaps 31 and 32 of the end panels 22 and 23 and the inner edges of bottom flaps 33 and 34 of the side panels 24 and 25. Vertical scores 26, 27, 28 and 29 define the side edges of end panels 22 and 23 and side panels 24 and 25, the score 29 providing the hinge line for sealing flap 30.

The top end panel flaps 35 and 36 are scored longitudinally at 39 and 40, dividing the panel into an inner section 42, an intermediate section 43 and an outer section 44. The outer portion of section 44 extends substantially the full width of the end panel and is divided longitudinally into approximately equal portions by a cut score 41. A slot 46 with outwardly flaring boundaries 47 and 48 is positioned midway the width of section 44 extending outwardly from the score 40. The intermediate section has a matching cutout extending inwardly from score 40 with inwardly flaring boundaries 49 and 50, so that when the intermediate and outer portions are folded in flatwise relation to each other, as will be described hereinafter, the slots 46 will be in registering relation as shown in Figs. 2 and 6. V-shaped notches 51 are formed in the boundaries of the cutouts at and adjacent to the longitudinal score 40 to provide a beveled entrance into the slots 46 in the fully assembled position of the end panel flaps 35 and 36, as best shown in Fig. 6.

The side panel flaps 37 and 38 are scored longitudinally at 52 and 53, defining end flanges 54 and reinforcing strips 55 respectively. Slots 56, extending inwardly from the top edge of the blank A to the longitudinal score 52, separate the outer portion of section 44 of the end panel flaps 35 and 36 from the side panel strips 55. They also separate side panel flanges 54 from side 65 of tab 66, hinged to side panel flange 63.

The side flanges 63 are hinged to each side edge of panels 37 and 38 along transverse scores 59, 60, 61 and 62 respectively, which extend from the base of slots 56 to the longitudinal score 20. Longitudinal slits 57 define the outer side edge of flaps 63, while the end edge of these flaps are defined by slits 58 which extend right angularly downwardly from the inner terminus of slit 57, thence flaring inwardly to the juncture of score 20 with the transverse scores 59, 60, 61 and 62 respectively. Small openings 68, formed at these junctures, provide folding clearance for the adjacent parts.

Tabs 66 on the end of the flanges 63 are foldable about hinge scores 64, positioned at an angle slightly less than 90° in relation to the vertical scores 59, 60, 61 and 62 respectively. The lower boundary of slots 56, which define the edges 65 of tabs 66, converge sufficiently to form a 90° angle between the free edges 65 of tabs 66 and the hinge scores 64.

Slots 67 extend from the lower edge of blank A upwardly very slightly beyond longitudinal score 21 in coplanar relation to the transverse scores 26, 27, 28 and 29. These slots separate the bottom closure flaps 31 and 32 of the end panels 22 and 23 respectively and the bottom closure flap 33 and 34 of the side panels 24 and 25 respectively. Handholes 69 are provided in the upper portions of end panels 22 and 23.

The blank A may be conveniently assembled by folding the outer sections 44 of the top end panel flaps 35 and 36 downwardly flatwise about scores 40 against the outer face of the intermediate sections 43 as shown in one of the end views of the container in Fig. 2 and in the vertical sectional view of Fig. 3 taken in the direction of the arrows 3—3 of Fig. 2. The spacing flanges 45 are then reversely folded against the inner face of the outer section 44 and cut scores 41 as shown in Fig. 4, and secured thereto by glue, staples or other suitable means.

The juxtaposed intermediate and outer sections 43 and 44 respectively are then folded downwardly about score 39 against the outer face of the inner section 42 with the spacing flanges 45 interposed therebetween as clearly shown in Fig. 4 and in the vertical sectional view of Fig. 5 taken in the direction of the arrows 5—5 of Fig. 4.

A fragmentary plan view of the blank for a modified form of the end panel construction is shown in Fig. 13. Flap 70, hinged to the upper end of end panel 22, is scored transversely at 71 and 72 to define an inner foldable section 73, an intermediate section 74 and an outer foldable section 75. A spacing flange 76 on the upper edge of section 75 is defined by cut score 77. The sides of flange 76 have outwardly extending, triangular, peaked portions 78. A side flange 79 is hinged to the cover members 37 by score 80. A slit 81 defines the outer edge of a tab 82 which is hinged to flange 79 at 83. The outer side edge of tab 82 and flange 79 are defined by a slit 84 extending right angularly from the slit 81 downwardly, thence diagonally to the junction of scores 20, 26 and 80.

The folded portions of the flaps 35 and 36 are next reversely folded inwardly and downwardly about the score 20 until section 42 is in flatwise contact with the inner face of the upper portion of the end panel, preferably with the fold of the sections 42 and 43 about the score 39 positioned and secured in substantial alignment with the upper boundary of handholes 69, as illustrated in Figs. 6 and 7. It will be noted that the sections 42 and 44 are now in parallel relation to the plane of the end panel and to each other, separated by the spacing and reinforcing flange 45, and forming an upwardly opening channel for receiving the side flanges 63 of the covers in the closed position thereof as shown in Figs. 6 and 9.

The two ply inner wall of the upwardly opening channel formed by the juxtaposed sections 43 and 44 has the slot 46 cut at its mid width extending downwardly to approximately the level of the upper edge of the folded spacing flange 45. The side boundaries of the slots flare downwardly at angles slightly less than 90° to the folded upper edge of sections 43 and 44, the side flanges of the cover members in their closed position, as will be more fully described hereinafter. The spacing flange 45, extending across the upper portion of the end panels 22 and 23 together with the folded sections 42, 43 and 44 form a strong reinforcement to the upper portion of the end panels above the upper boundary of the handholes.

Upon the completion of the folding and securing of the end panel flaps, as described, the blank A is folded about the transverse score 27 to superpose the end panel 22 and side panel 24 flatwise over end panel 23 and side panel 24 respectively. The sealing flap 30 is then attached to the outer free edge of panel 22 by staples, glue or other suitable means. In this knocked-down position, the container may be stored or shipped to the user or loading point. At the point of use, the knocked-down structure is opened into rectangular form and the bottom flaps 31, 32, 33 and 34 are folded inwardly in the customary manner and secured together to form the bottom panel of the container. The reinforcing strips 55, at-

tached to the flanges 54 on the longitudinal edges of the cover members 37 and 38, are reversely folded into flatwise relation with the inner face of the flanges 54 and secured in that position. The end flanges 54 and side flanges 63 are then folded angularly downward. The tabs 66 are next folded inwardly about hinge score 64 and interposed and secured in flatwise relation between the end margins of the reinforcing strips 55 and end flanges 54 by staples, glue or other suitable means, as illustrated in Figs. 9, 10 and 11.

The hereinbefore described configuration of tab 66, wherein the side 65 is in right angular relation to the fold line 64 defining the inner edge of the tab, including the angular relation of score 64 to the fold line 59 of the side flange 63, insures positioning the end flanges 54 at an angle slightly less than 90° to the covers with the end flanges 63 in substantially right angular relation to the covers when the tabs 66 are secured in interposed flatwise relation between the end margins of the flanges 54 and the reinforcing strips 55. The angles formed by the end flanges 54 with the cover panels 37 are substantially the same as the downwardly flaring boundaries 47 and 48 of the end channel slots 46, so that the end margins of the end flanges may be snapped into the slots 46 as best shown in Fig. 11, with the sides of the flanges in flatwise relation to the sides of the slots, thereby releasably locking the covers in the closed position.

In the modified form of the invention, illustrated in Figs. 13 and 14, the end panel flaps 70 are divided into inner, intermediate and outer sections 73, 74 and 75 respectively, and an outer spacing flange 76, corresponding and similar to the sections 42, 43 and 44 and flange 45 of the preferred form, hereinbefore described. The slots 85, however, have substantially straight boundaries 86 and the tab 82 is foldable about score 83 which is parallel to the hinge score 20. The flaps 70 may be folded in precisely the same manner, as hereinbefore described with respect to flaps 35 and 36 in a preferred form of the invention, to form an upwardly opening channel on the inner face of the end panel. The end flanges 54 of the covers and the reinforcing strips 55 are secured together in flatwise relation and folded downwardly and secured to the side flanges 79 by interposing the tab 82 between the end margins of the flanges 54 and the reinforcing strips 55. Both the end and side flanges of the covers will be in right angular relation thereto and to each other, and the end flanges 54, in the closed position of the covers, will be in frictional contact with the sides 86 of the slot 85, with the side flanges 79 enclosed in the channel portion of the reinforcement on the inner face of the end panel.

It is to be understood that the embodiments herein described are illustrative and not restrictive, and it is also to be understood that the invention may be susceptible of embodiment in other modified forms, and that all such modifications which are similar or equivalent hereto come equally within the scope of the claims next appearing.

What we claim is:

1. In a one-piece collapsible heavy duty paperboard container which is adapted for shipping in collapsed flat form, the said container comprising connected together opposed pairs of side and end panels with handholes in the end panels and bottom closure flaps integral with the side and end panels; split covers integral with the side panels with each cover having depending side and end flanges, each end panel having a reinforcing flap means hinged to its upper edge, the reinforcing flap means including a first portion thereof in engagement with an adjacent inner upper portion of each end panel, a second portion thereof extending upwardly from a lower fold line substantially in alignment with the upper edge of each handhole toward the said upper edge, a third portion thereof extending downwardly in engagement with the inner side of the second portion, a fourth portion of less height than either of the said portions positioned between adjacent lower portions of the first and third portions of the flap means, the second and third portions of the flap means each having an upwardly opening notch substantially intermediate of its ends, means fixedly positioning the said portions of the flap means relative to each other and to the respective end panels, the fourth portion effecting a spacing apart of upper opposed parts of the first and third portions of the flap means and thus forming therebetween an upwardly opening slot above the fourth portion, and the dimensions of the said slots and the notches being such as to receive and hold the said end flanges and opposed portions of the side flanges respectively of the split covers therein.

2. The container as defined in and by claim 1 wherein said first portion extends downwardly from an upper fold line in engagement with an adjacent inner upper portion of each end panel, and the said second portion extends upwardly and terminates substantially in the plane of the upper fold line.

3. The container as defined in and by claim 1 wherein said downwardly extending third portion is substantially coextensive in dimensions with and engaged by the inner side of the second portion, and the fourth portion extends upwardly from a fold line which defines it from the third portion.

4. The container as defined in and by claim 1 wherein the said first portion extends downwardly from an upper fold line in engagement with an adjacent inner upper portion of each end panel, the said second portion extends upwardly and terminates substantially in the plane of the upper fold line, the said downwardly extending third portion being substantially coextensive in dimensions with and engaged by the inner side of the second portion, and the said fourth portion extending upwardly from a fold line which defines it from the third portion.

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