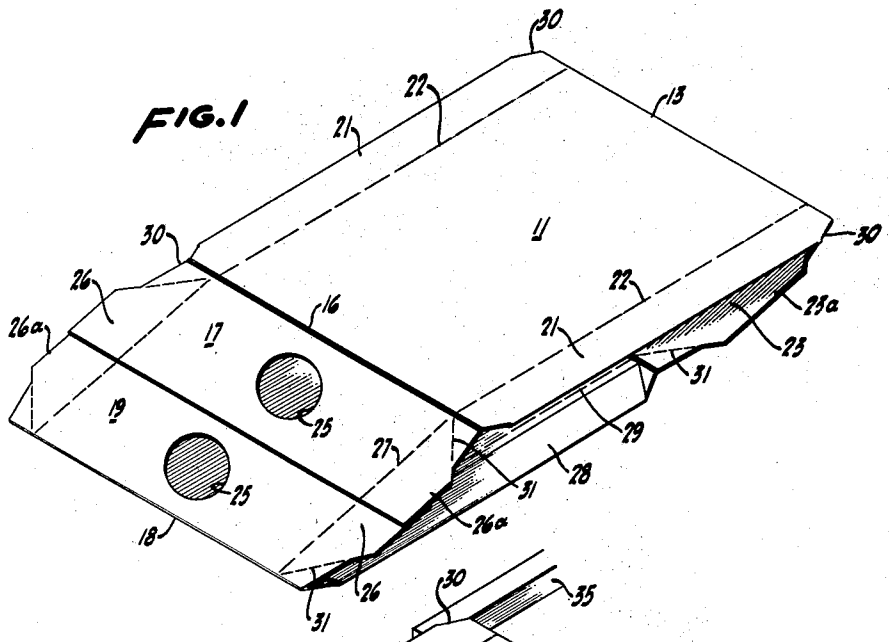
April 5, 1960 L. McGIHON 2,931,490

CARTON PACKAGE

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FIG. 1



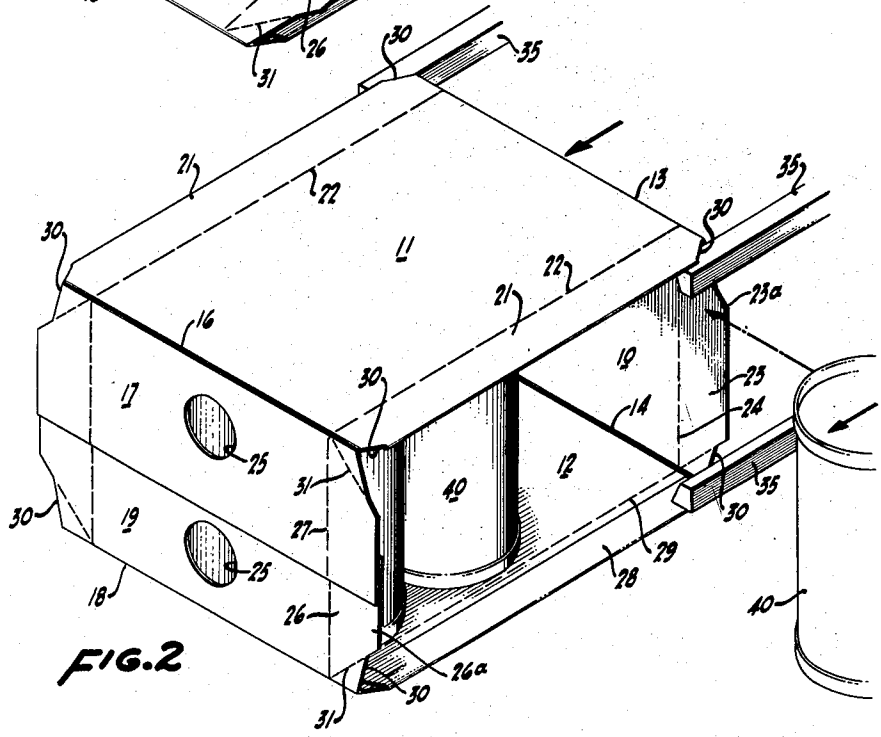


FIG. 2

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FIG. 5

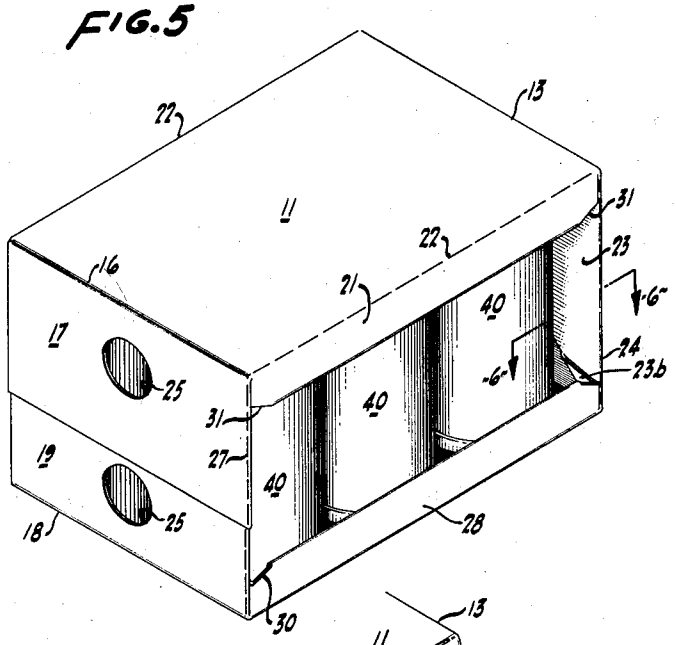
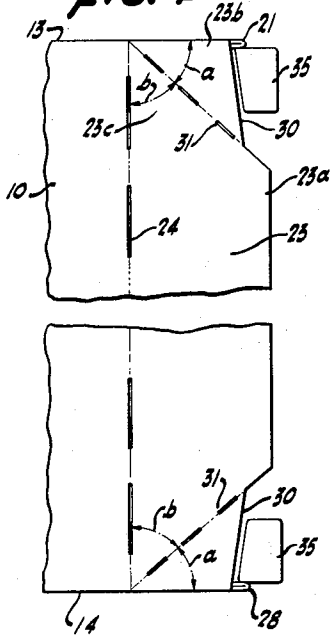


FIG. 4



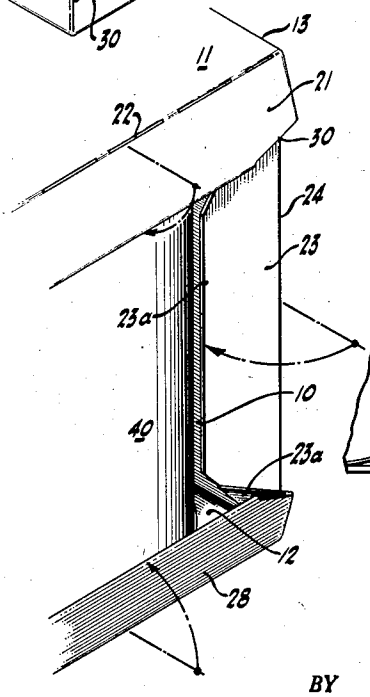
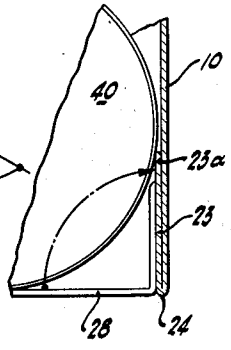


FIG. 3

FIG. 6



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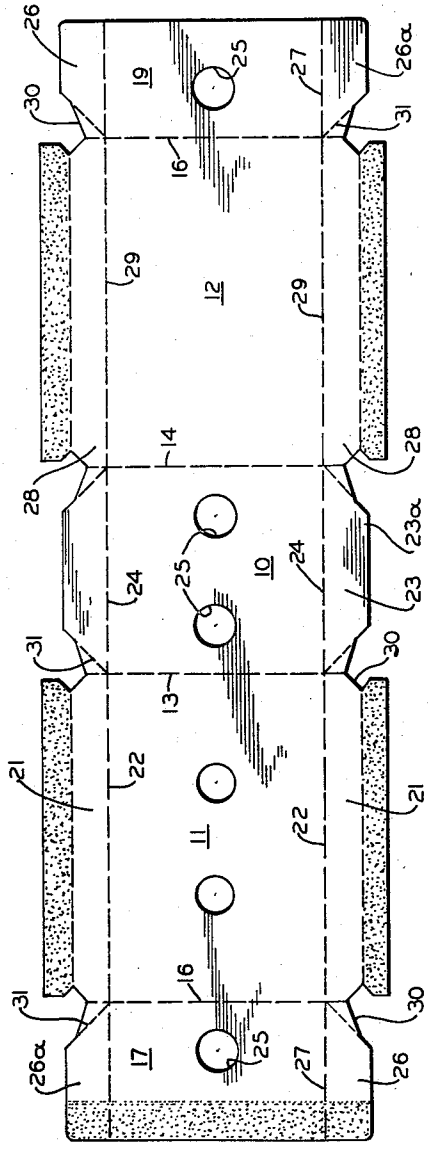


FIG_7

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United States Patent Office

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2,931,490

CARTON PACKAGE

Leonard McGihon, San Leandro, Calif., assignor, by mesne asisgnments, to Alexander Donald, doing business as King Sales & Engineering Co.

Application January 8, 1954, Serial No. 402,872

1 Claim. (Cl. 206—65)

The present invention relates to rectangular cartons of the type having open sides after packing and providing a view of the containers therein, and is concerned more particularly with improved carton construction of this character having an improved side flap or panel portion construction, which also facilitates the handling of the cartons in automatic erecting and filling or packing operations.

It is a general object of the invention to provide a carton affording a view of the contents, such as cans or other containers, wherein the carton is provided with certain structural features adapting it for opening or erecting from a collapsed condition, which also adapt the carton to different can heights, which adapt the carton to be held open for entering of the cans, which will enable closing of the carton about the contents without a gluing operation, and which provides for a tighter and more compact carton when filled and closed.

Other objects and advantages of the invention will be apparent from the following description of a preferred embodiment of the invention taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of the carton in semi-finished condition, as delivered from the manufacturer, ready for the placing of containers therein, the view showing the carton in perspective in partially open condition.

Figure 2 is a perspective view of the carton after it has been fully erected as the containers are being placed therein, but prior to the closing of the carton.

Figure 3 is a fragmentary perspective view of the carton after partial closing thereof just preliminary to the final closing operation.

Figure 4 is a fragmentary elevational view showing the carton when fully erected and open, ready for filling with cans, and illustrating schematically the means for holding the carton open.

Figure 5 is a perspective view of the entire carton showing the carton in the finished packed condition with the containers thenein and the carton fully closed.

Figure 6 is fragmentary, sectional view taken in a plane indicated by the line 6—6 in Figure 5.

Figure 7 is a plan view of the carton blank.

This application is a continuation-in-part of my copending application Serial No. 391,917, filed November 13, 1953, now abandoned.

In the packing of containers filled with products, for example, beer cans, and in packing such cans in one style of carton, it is customary to provide side openings in the carton through which the contents can be viewed. This type of carton has met wide consumer acceptance, and heretofore it has been the practice in filling the carton to adhesively secure certain portions of the carton to other portions thereof to provide the final erected and filled package. Where gluing is effected as a part of the filling and closing operation, such cartons must be held for a period of time to allow the glue to set, and this holding required relatively expensive units.

The instant invention is designed to provide a carton of the above character which does not require any gluing in the final closing operation, and which can be easily erected from a flat collapsed condition to an open condition in the carton filling and closing operation. The carton of the instant invention is also designed to propide for easy holding of the carton in fully erected and open position for the insertion of cans therein, and also provides for closing to a desirable compact condition.

To accomplish these ends, the carton is formed with side flaps along the side and end edges of the carton which side flaps are of different width to present projecting side flap portions which are offset in the collapsed condition of the carton for engagement from above or below by suitable automatic means to effect the erecting of a carton. Also, the end flaps of the carton are notched or recessed at their corners so as to provide clearance for flap holding members to engage underneath the top side flap portion and above the bottom side flap portion. Also, the corner folds are provided with specially located bend lines to provide a tighter corner fold.

Referring to Figures 1 and 2, the carton is constructed symmetrically with respect to an end panel **10** and has respective top and bottom panels **11** and **12** secured to the end panel **10** by score lines or bend lines **13** and **14**. The top panel **11** is connected by a bend line **16** to an end panel portion **17** and the bottom panel **12** is similarly connected by a bend or score line **18** to an end panel portion **19**. The end panel portions **17** and **19** are overlapped and adhesively secured together as a part of the carton manufacturing operation. Continuous side flaps are attached to the respective panels of the carton including respective opposite side flaps **21** connected by respective score lines **22** to the panel **11**, respective side flaps **23** connected to the end panel **10** by score or bend lines **24**, and similar side flaps **26** on end panel portions **17** and **19** connected to such end panel portions by score lines **27**. The score lines **13**, **14**, **16** and **18** are continued through the side flaps to form hinge lines therebetween. Suitable finger holes **25** are provided in an end panel.

The bottom panel **12** also has side flaps **28** at either side thereof connected thereto by score lines **29**. At the respective corners where the side flaps **21**, **23**, **26** and **28** are joined, a V-shaped cut-away **30** is provided so that when the carton is erected as seen, for example, in Figures 2 and 5, clearance is provided by the recessed end portions of the respective end panel portions **23** and **26** so that with the carton travelling longitudinally a rail **35** may travel beneath each upper side flap **21** and similar rails may travel above the lower side flap portions **28** so as to positively hold the carton in erected and open position for insertion of containers after the cartons have traveled over the respective rails **35** leaving an unobstructed full side opening for insertion of the cans **40**. The side flaps **21** and **28** are similar, but opposite to each other and perform a container retaining function as seen in Figure 5 in the closed condition of the carton, while the side panel portions **23** and **26** on the respective end panels of the carton are tucked in and form carton retaining flaps which are folded behind the adjacent container flat against the adjacent end panel, and are retained in position by the containers.

In order to enable the folding of the continuous side flap portions, the respective side flaps **23** and **26** are provided with diagonal score or bend lines **31** at each end whereby a corner fold of the gusset type may be made at each corner. Preferably the diagonal score line **31** at each corner is located off of a center position to draw in the side flaps **21** and **28** to a more compact position and thereby reduce the tendency of these side

flaps to bulge slightly when in closed condition. In the present instance the diagonal score line is placed at about 4 degrees from the 45 degree angle position that would bisect the 90 degree angle between the bend lines **24** and **13**, for example, so that the flat portion **23***b* of the gusset fold between the bend lines **13** and **31** (defined by angle *a* in Figure 4) is shorter than the flap portion **23***c* contained between the bend lines **24** and **31** (shown by angle *b* in Figure 4). When the flap **23** is bent 180 degrees flat against the end panel **10**, the side flap **21** is bent slightly more than 90 degrees. This provides a more compact carton which handles more readily in automatic equipment and can be packed easily in groups in a larger shipping container.

It will be noted that the end side flaps **23** and **26** have central extensions **23***a* and **26***a* at each side which provide portions of greater lateral width than the side flaps **21** and **28** of the panels **11** and **12**. In a collapsed or semi-collapsed condition of the carton, the end side flaps **26** each have a projection **26***a* along the bottom portion of the carton and the side flaps **23** each have a projecting portion **23***a* underlying the carton which are offset from each other longitudinally of the carton in its collapsed condition. Each flap portion **26***a* can be engaged from below while each side flap **23***a* can be engaged from above to assist in erecting the carton and to make an initial bend at the various corner fold lines to help in carton opening.

Figure 2 shows the condition of the carton during the insertion of the containers therein, the number of containers being six in the present instance. The next operation in the closing of the carton is to bend the end side flaps **23** and **26** in, and the respective side flaps **21** and **28** down and up respectively, as indicated by the arrows in Figure 3, the side flaps **23** and **26** being thereby bent 90 degrees from the Figure 2 position to the position thereof shown in Figure 3. After the carton is conditioned as shown in Figure 3, the end side flaps **23** and **26** are pushed inward for another 90 degree bend in the direction of the arrow shown in Figure 3, and in Figure 6, to place the flap extensions **23***a* and **26***a* between one of the containers **40** and flat against the adjacent end panel **10**, **17** or **19**. Preferably the total length of an end flap **23**, including the extension **23***a* (and an end flap **26**, including the extension **26***a*) is such that it is less than one-quarter the width of the end panel **10** (or the end panel **17**) so that the end side flaps terminate short of the point of closest approach of the container to the end wall. Also, these end side flaps should be of sufficient length to overlap and to be locked in position by the adjacent container.

While I have shown and described a preferred embodiment of the invention, it will be apparent that the invention is capable of modification and variation from the form shown, so that its scope should be limited only by the scope of the claim appended hereto.

I claim:

In a carton and container package, said carton having respective top and bottom panels joined at one end by an end panel hinged thereto and having end panel portions at their other ends for securing together to form a second end panel, side flap portions along each of said panels and joined thereto by respective coplanar bend lines; adjacent ends of said side flap portions being integrally hinged to one another along a fold line extending at right angles to the bend lines; the ends of the flap portions of the end panels only having gusset folds; said carton with said panel portions secured together in an erected condition forming a rectangular receptacle open at both sides with the side flap portions extended in the respective planes of the respective top and bottom and end panels for introduction of containers, each of the side flap portions attached to an end panel having recesses at ends, each recess intersecting the adjacent fold line at a point spaced inwardly of the adjacent side flap portion, whereby in said erected and open condition the side flap portions attached to the top and bottom panels may be held in place to maintain the open condition of said side flap portions by a rail positioned in a recess and in flush engagement with said adjacent side flap portion; said carton in its erected and closed condition having containers therein with the ends of the containers substantially contacting said top and bottom panels and with the sides of certain containers substantially contacting said respective end panels; the side flap portions connected to said top and bottom panels being of different width than the side flap portions connected to said end panels and providing laterally offset projections on said side flap portions in the collapsed condition of the carton in which two of said panels form an upper layer and two of said panels form a lower layer, the wider of said side flap portions being disposed respectively in the upper and lower layers of said carton, and facilitating the handling of the carton in the erecting operation; in the erected and closed condition of the carton, the side flap portions connected to the top and bottom panels extending toward one another in a common plane at the open end and substantially contacting the sides of the container and side flap portions connected to said end panels lying inside of and flat against the end panels respectively and being held thereagainst by containers in the carton.

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