June 25, 1963 C. E. REYNOLDS 3,095,137

CONTAINER WITH COVER FLANGE AND METHOD OF FORMING

Filed Aug. 11, 1961

Fig. 1

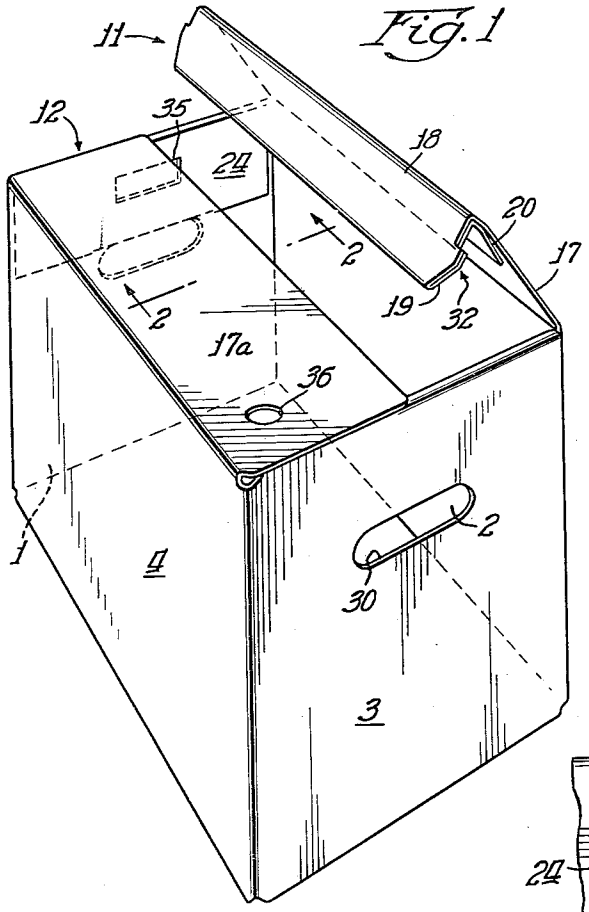


Fig. 3

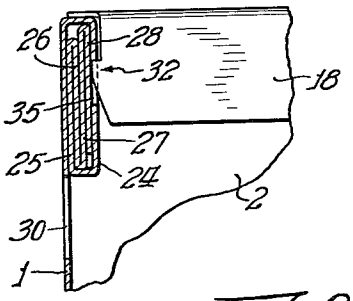


Fig. 2

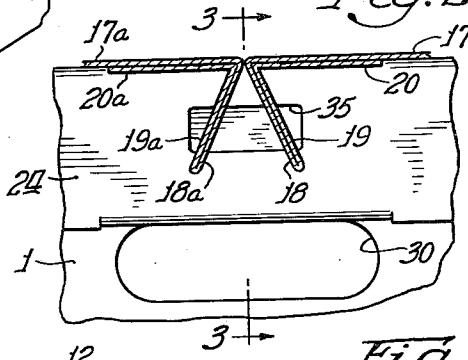


Fig. 4

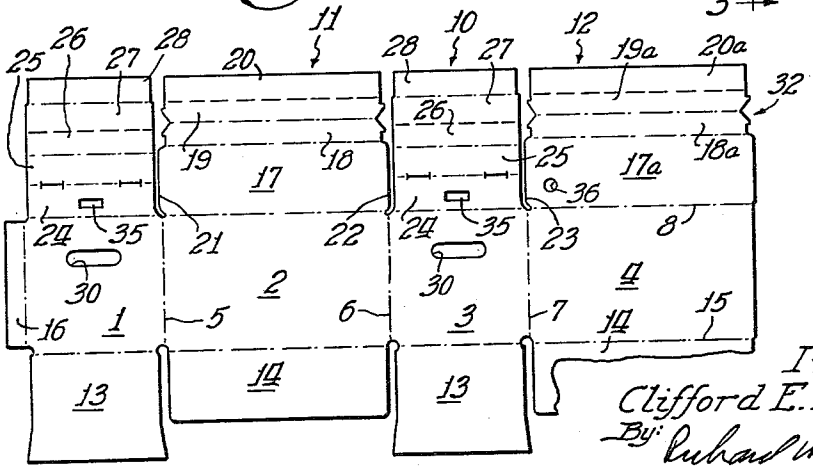
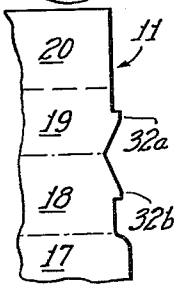


Fig. 5



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CONTAINER WITH COVER FLANGE AND METHOD OF FORMING

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The present invention relates to paperboard containers and more particularly to containers formed from relatively heavy paperboard and having hinged covers provided with depending flanges.

Among the objects of the invention are to provide a form of container especially suited for transportation of bottled beverages, having hinged covers of sturdy construction formed with reinforcing flanges on their meeting edges to afford good stacking properties; and to provide a form of depending, reinforcing flange on the cover members which will form a stiff and sturdy edge without leaving open channels or other openings within which dirt or insects may collect.

Another object of the invention is to provide a cover flange construction of the type above referred to which is permanently held at an angle of somewhat less than 90° to the under face of the cover, so that the two hinged covers may be closed without substantial interference with each other as would be the case if the flanges were arranged at right angles to the covers.

Another object of the invention is to provide an improved double-cover container which may be formed from a single blank of foldable paperboard and which includes depending reinforced flanges on the covers and reinforced end walls provided with locking elements for engagement with locking elements on the depending flanges.

A further object of the invention is to provide a reinforced end wall construction for the upper portions of the container end walls, combined with effective releasable locking means by which the cover flanges may be easily locked in closed position and readily unlocked when it is desired to raise the covers.

A still further object of the invention is to provide a novel method of positioning a depending flange on a container cover which is reinforced to give rigidity of construction, which is held at an angle, without end support, so as to avoid interference between the adjacent flanges of the hinged covers, and which does not include open channels or other open crevices within which dirt or insects may collect.

Additional and more specific objects and advantages of the present invention will become apparent as the description proceeds.

In the drawings:

FIG. 1 is a perspective view of a container made in accordance with the invention;

FIG. 2 is a fragmentary sectional view, taken along line 2—2 of FIG. 1, with both cover panels in closed position;

FIG. 3 is a fragmentary sectional sectional view, taken along line 3—3 of FIG. 2, showing the locking construction for the covers;

FIG. 4 is a plan view of a preferred form of blank from which the container may be made; and

FIG. 5 is a fragmentary detail view showing the locking parts on the panels which form the depending cover flange.

The container is well adapted for production from a single blank of foldable paperboard and, when employed for transportation of bottled beverages and other relatively heavy contents, the container is preferably made from solid fibreboard. As shown in FIG. 4, the blank is suitably cut and scored to form end and side walls 1, 2, 3 and 4 arranged in series and defined from each other by fold lines 5, 6 and 7. At the upper edges of the side and end walls along score line 8 are provided flaps 9 and 10 forming end wall reinforcing structure, and other flaps 11 and 12 forming the covers and cover reinforcing flanges. On the lower edges of the side and end walls are flaps 13, 13 and 14, 14, hinged along score line 15. These flaps are suitably folded into overlapping relation and secured to form the bottom of the container. In setting up the container an attaching flap 16 on end wall 1 is suitably secured to the free edge of side wall 4.

Flaps 11 and 12, which may be substantially identical, are scored along parallel lines to form cover panels, 17, 17*a* pairs of narrow flange-forming panels 18, 19 and 18*a*, 19*a* and anchoring panels 20, 20*a*. The cover panels are preferably of equal width to meet substantially centrally of the top of the container.

As shown in FIG. 1, the ends of the cover panels extend somewhat beyond the ends of the side walls so that they will rest upon the upper edges of the end walls. This result is obtained by forming slots in the blank 21, 22 and 23. These slots are offset outwardly of the cover panels and toward the flaps 9 and 10 on the end walls, as shown in FIG. 4.

The flaps 9 and 10 on the end walls are scored along parallel lines to form a plurality of narrow panels 24, 25, 26, 27 and 28 which are folded and secured together in any desired manner, as shown in FIG. 3. The widths of the panels 26, 27 and 28 are suitably selected so that these panels may be enclosed between panels 24 and 25. The scores between panel 24 and its attached end wall, between panels 24 and 25, and panels 25 and 26 may be wide or double scores to enable the parts to be assembled properly.

A finger opening 30 is cut in each end wall and the lower edge of each group of assembled narrow panels 24 to 28 is aligned with the upper edge of each finger opening. Thus, the assembled narrow panels both reinforce the upper portions of the end walls and serve load bearing means for carrying the containers by hand.

In order to assure good closing of the covers without a tendency for the flanges to interfere with each other, the pair of flange-forming panels 18, 19 and 18*a*, 19*a* are secured so that the flange formed by each set of panels will extend downwardly at an angle of somewhat less than 90° with respect to the under surface of the attached cover panel. For this purpose the inner panels 19 and 19*a* are formed of a width slightly less than the effective width of the other panel measured on the side of the outer panel with which the inner panel is in contact. The length of the inner panel is such that the fold between the inner panel and its attached anchoring panel will fit snugly into the angle between the outer panel and its attached cover panel. The parts are

preferably secured together by means of adhesive, but other means, such as stapling, may be employed. The inner and outer panels are folded one against the other and the composite flange is then brought to the desired angle. While the parts of the flange are firmly held, the anchoring panel is brought snugly against the under surface of the cover and the fold between the anchoring panel and inner panel of the flange is pressed closely into the fold between the outer panel and the cover. The parts are secured together while so held. As soon as the parts are fully secured they are then released from their holding means and the flange will remain at an inwardly inclined angle of less than 90°.

In the present instance both cover flanges are formed with locking means at their ends which engage cooperating locking means on the container end walls. As best shown in FIGS. 1, 3 and 5, the ends of panels **18**, **19** and **18***a*, **19***a* are cut to provide similar locking projections which, when brought together, form a composite locking element **32**, the separate parts being indicated at **32***a* and **32***b* in FIG. 5. As shown in FIGS. 1 and 3, the lower parts of the locking projections are inclined inwardly away from the end walls to facilitate downward movement of the flanges when closing the covers. Above the locking projection the panels are cut so as to fit easily between the reinforcing parts on the upper edges of the end walls.

For the purpose of engaging the flat abutment surface of the locking projection **32**, cooperating edges are provided on the exposed panels **24**, **24**. While these edges may be separate, it is preferred for the sake of simplicity of production, to provide the locking edge by die-cutting a single opening in each panel **24**, indicated at **35**. The upper edge of the die-cut opening provides the locking surface under which the locking projections **32** on each flange may engage.

It is desirable to space the locking projections below the cover panels so that their vertical distance from the lower surface of the cover panel is approximately that of the spacing between the upper edge of opening **35** and the upper edge of the end wall upon which the projecting portions of the cover come to rest. See FIG. 3. By this arrangement downward pressure on the closed covers applied in the area of the ends of the flanges will assure that the locking projections will snap beneath the upper edge of opening **35**. By employing relatively stiff solid fibreboard, the resiliency of the board will tend to hold the locking parts in firmly engaged condition.

When it is desired to release the locks and raise the covers, this may be easily done by insertion of the fingers within the carrying opening **30** on one end of the container and pulling outward and by lifting the cover at that end at the same time. A die-cut finger opening, such as indicated at **36**, may be formed in one or both covers to facilitate raising the cover. After the lock is released at one end no particular effort will be required to release the lock at the other end due to the flexibility of the cover. An outward pull at the opening **30** will displace or slightly deflect the end wall sufficiently to displace the locking edge on the end wall from engagement with the flat surface of the locking projection **32** on the depending flange. When the covers are forced down, the inclined edges of the locking projections will tend to displace the end wall reinforcing member outward or there will be a certain amount of distortion momentarily produced in the flange, or a combination of both effects. Then, as soon as the projection **32** snaps under the upper edge of the opening **35**, the parts tend to return to their original condition to keep the locking parts in engagement.

From the foregoing it is apparent that the present invention provides a sturdy container construction that may be fabricated from a one-piece blank of substantially rectangular shape to minimize waste. By forming cover flanges of parts arranged in close contact and by inclining the flanges to avoid interference in closing, there is not only provided a strong and easy to handle cover construction, affording good stacking qualities and resistance to rough handling, but, as well, the cover construction eliminates open channels or crevices which could harbor insects or within which dirt can accumulate. The container thus is highly advantageous for use as a multi-trip, returnable container for bottled beverages.

By the construction and method pursuant to which the depending flanges on the cover are held at an inclination to avoid undue interference when closing the covers, it is unnecessary to provide end flanges on the cover to assure that the center flanges will maintain their desired inclination. This is quite an advantage, particularly in a one-piece blank construction, due to the fact that stock that would be required for cover end flanges would necessitate employing a substantial part of the stock that is utilized in the present construction to provide an effective end wall reinforcement.

While the present description sets forth a preferred embodiment of the invention, various changes may be made without departing from the spirit of the invention, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. A container formed from relatively thick, foldable paperboard, comprising end and side walls, cover panels hinged to the top edges of the side walls, each cover panel having a dimension at right angles to its hinge to adapt it to extend substantially half-way across the top of the container, depending flanges on the meeting edges of the cover panels, each flange comprising an elongated outer panel integrally joined along a fold line to the outer edge of the cover and an elongated inner panel integrally joined along a fold line to the free edge of the outer panel, the end edges of said flange panels terminating adjacent the ends of the cover panel and being free of connection with the cover panel, such inner and outer panels being arranged to be secured together in facing relation and in depending relation to the cover, an anchoring panel integrally joined along a fold line to the free edge of the inner panel, the effective width of the inner panel being slightly less than the width of the outer panel measured on its side facing the outer panel, the inner panel being folded flat against and firmly secured by adhesive to the outer panel, and the anchoring panel being firmly secured by adhesive to the under face of the cover with the angle between the anchoring panel and inner panel closely received within the angle formed between the outer panel and the cover, whereby the flanges on the covers are each rigidly held at an angle of less than 90° with respect to the under surface of the attached cover.

2. A method of forming a depending flange on the free edge of a hinged cover of a paperboard container of the type in which two hinged covers are employed having dimensions, whereby the free edges of the covers substantially meet across the top of the container when in closed position, the flange on the cover having elongated outer and inner panels integrally attached to the cover and to each other along parallel fold lines, there being no connection between the end edges of the flange panels and the cover panel, the inner panel having an effective width slightly less than the width of the outer panel measured on its side facing the outer panel, and the inner panel having an anchoring panel integrally joined along a fold line to its free edge, such method comprising applying adhesive to one of the meeting surfaces of the inner and outer flange panels, folding the inner flange panel against the outer flange panel, bringing the double-thickness flange, formed by the two

contacting panels, inwardly toward the cover hinge at an angle of substantially less than 90° to the cover panel and holding the flange at such angle, applying adhesive to one of the meeting surfaces of the anchoring panel and under side of the cover, pressing the fold between the inner panel and the anchoring panel closely into the fold formed between the outer panel and cover, pressing the anchoring panel firmly against the under

surface of the cover, and continuing to hold such parts in the positions stated until they are fully secured.

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