

April 10, 1951

E. R. STEPHAN
CONTAINER

2,548,130

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2 Sheets-Sheet 1

Fig. 1.

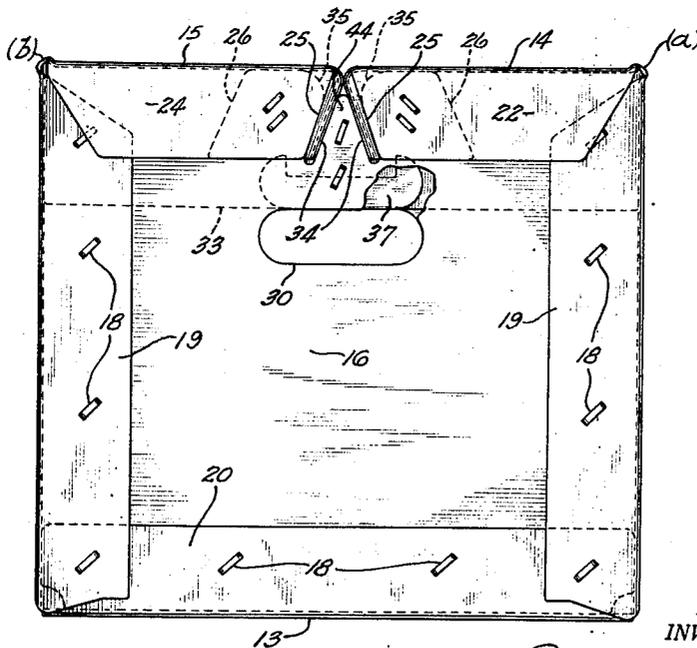
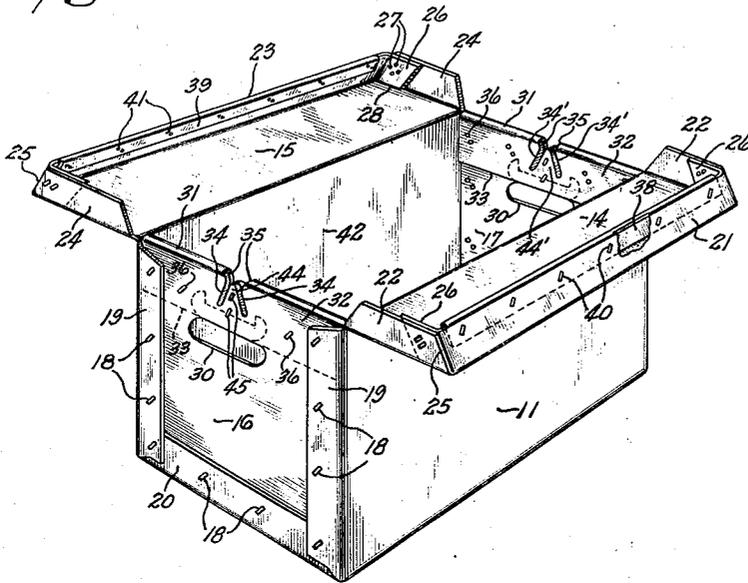


Fig. 2.

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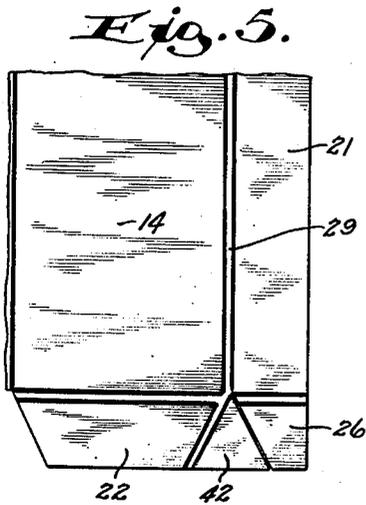
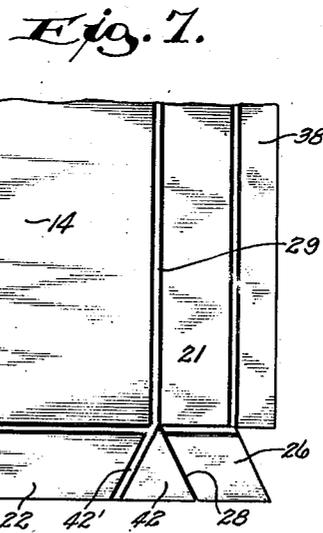
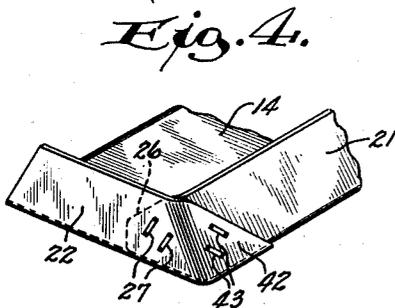
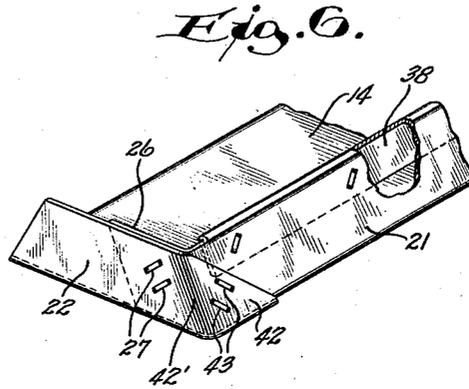
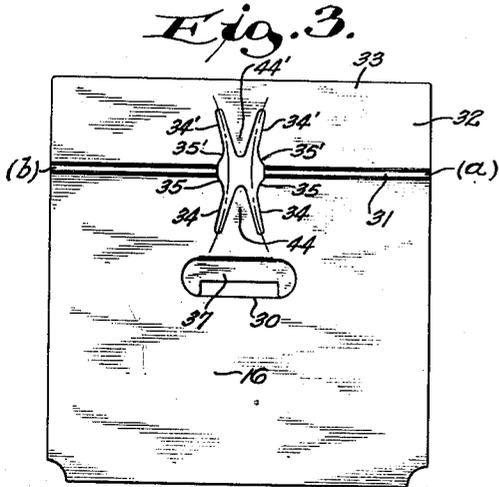
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UNITED STATES PATENT OFFICE

2,548,130

CONTAINER

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11 Claims. (Cl. 229—23)

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This invention relates to improvements in containers, and more particularly to containers adapted for the transportation and handling of bottled or canned beverages such as beer.

Containers formed of fiberboard have in recent years, because of their relatively inexpensive nature and lightness in weight, become increasingly popular for use as beverage cases in lieu of the wooden boxes formerly employed. Two types of fiberboard containers are commonly used. One type, the single shipment variety, is formed of relatively light weight fiberboard and is of a very inexpensive nature. The other type, with which the present invention is concerned, must be constructed to stand up satisfactorily when re-used seven or eight times.

Containers of this latter variety usually include a pair of complementary flanged cover members foldable toward one another over the top of the case and having flanges which are adapted to engage vertical slots extending downwardly from the upper edges of the end walls. Containers of this type, however, have caused considerable difficulty in the bottling plants and breweries because the cover flanges when moving through an arc to closing position do not readily enter the vertical end wall slots and there is, therefore, difficulty in effecting quick closing. Such closing, however, must be performed rapidly, and without interruption, either by hand or by machine, in order to keep up with the moving conveyor line on which the filled cases are being carried.

It is, therefore, a general object of the present invention to provide an improved fiberboard container which is constructed in a novel manner to facilitate closing of the covers and insure that the cover flanges move easily into the end wall slots during such closing movement.

A more specific object of the invention is to provide a container as above described wherein each end wall has two slots extending downwardly from its upper edge with the slots diverging downwardly in inverted V-formation, and wherein the longitudinal flange of each cover member is at an oblique angle to match the angle of the slot which it is adapted to enter, said angle being approximately in the arc of movement of the cover member flange when the cover is being moved on its hinge.

A further object of the invention is to provide an improved container of the class described which is constructed in a novel manner to produce increased rigidity in all directions whereby the box will withstand the usual rough handling,

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will withstand pressures applied to two diagonally opposite corners, and will withstand pressures resulting from stacking a number of the filled containers, one on another.

A further object of the invention is to provide a container wherein the covers and end walls cooperate with each other to produce a bracing effect against both inward and outward strains when the covers are closed.

A still further object of the invention is to provide a construction as above described wherein the material in the region of the hand holes is reinforced to resist tearing when the containers are picked up by the hand hole at one end only.

With the above and other objects in view, the invention consists of the improved container, and all its parts and combinations, as set forth in the claims, and all equivalents thereof.

In the accompanying drawings, illustrating several embodiments of the preferred form of the invention in which the same reference numerals designate the same parts in all of the views:

Fig. 1 is a perspective view of the container with the cover sections open;

Fig. 2 is an end view with the covers closed, part of the material being broken away adjacent the hand hole;

Fig. 3 is a plan view of one of the cut and scored end wall blanks before folding;

Fig. 4 is a fragmentary perspective view showing a corner of one of the open cover sections illustrating a modification;

Fig. 5 is a fragmentary view illustrating the cut and scored blank used to provide the type of cover flange corner illustrated in Fig. 4;

Fig. 6 is a fragmentary perspective view similar to Fig. 4, showing another modification; and

Fig. 7 is a fragmentary plan view of a blank to illustrate the cut and scored blank for forming the cover flange constructions of Fig. 6.

Referring more particularly to the drawings, the box illustrated is of the "Bliss" type, but features of the invention are obviously applicable for use in other types of boxes.

The container comprises side walls 11 and 12 foldably connected to opposite edges of a bottom wall 13; cover sections 14 and 15 foldable toward one another from the upper edges of the side walls 11 and 12, and end walls 16 and 17 secured by metal stitching 18, or in any other suitable manner, to side wall stitching flaps 19 and bottom wall stitching flaps 20. The side walls, bottom wall, end walls and cover are preferably formed of solid fiberboard. They may, however,

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be formed of corrugated board or other suitable material of like nature.

The cover section 14 has its outer longitudinal edge formed with an angularly bent longitudinally extending flange 21 and has its end edges formed with end flanges 22. The cover section 15 has its outer longitudinal edge formed with a longitudinal flange 23 and has its end edges formed with end flanges 24. The ends of the end flanges 22 and 24, which are adjacent one another when the cover sections are closed, are cut off obliquely as at 25, and the ends of the longitudinal flanges are formed with right-angularly bent tongues 26 which are stitched to the end flanges as at 27.

By referring to Fig. 7, which illustrates a fragment of the blank for forming the cover of Fig. 1 (before the tongues 42 are cut off) and which also illustrates the blank for the modification of Fig. 6 wherein the tongues 42 are used, it is clear that in the blank the edges 28 of the tongues 27 are at an obtuse angle with respect to the score line 29 rather than in alignment therewith as is customary. With this arrangement, when the tongues 26 are folded to assembled position, as in Fig. 1, with the edges 28 resting against the under surface of the cover sections proper, the longitudinal flanges 21 and 23 are maintained at an oblique angle which matches the angles of the ends 25 of the end flanges.

Referring to Fig. 3, which illustrates one of the end member blanks, the two end members 16 and 17 being identical in construction, each end wall has a hand hole 30 and also has a line of scoring 31 which defines a downwardly foldable portion 32. The portion 32 is preferably of such depth when folded downwardly that the edge 33 substantially registers with the upper margin of the hand hole.

Midway between the sides of the blank are slots 34 which diverge downwardly in inverted V-formation. The upper outer margin of each slot angles outwardly as at 35. On the other side of the score line is an identical arrangement of slots which, however, are reversed in position so that when the portion 32 is folded downwardly its slot portions register perfectly with the slot portions of the end wall proper. The slots of the end wall portion 32 are designated by the same reference numerals primed as the slots in the end wall proper.

By referring to the arcuate dot and dash lines in Fig. 3, it is apparent that the slots 34 and 34' are approximately parts of arcs which are struck from the points (a) and (b) as centers.

Referring again to Figs. 1 and 2, the angles of disposition of the longitudinal cover section flanges 21 and 23 are the same as the angles of the slots 34 and 34'. In other words, the flanges 21 and 23 are disposed approximately in the arcs of hinging movement of the cover sections 14 and 15 and the angles 35 at the tops of the slots compensate for the fact that the flanges are not curved in cross-section.

When the end walls 16 and 17 are assembled in the container as in Figs. 1 and 2, the downwardly folded portions 32 are stitched in the positions illustrated by metal stitching 36. It is preferred to leave some of the material which has been cut from the hand holes attached to the upper margin of each hand hole as at 37 and to have this piece folded upwardly between the reinforcing layer 32 and the end wall proper. This provides an extra reinforcement for the upper margin of the hand hole.

In the form of the invention illustrated in Fig.

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1, the longitudinal cover flanges 21 and 23 are provided with integral reinforcing strips 38 and 39 which are folded over and stitched in position as at 40 and 41. These strips are formed without waste from blanks when the cover portions are shaped as shown in Fig. 7. In the form of the invention illustrated in Fig. 1, the triangular section of material 42 adjacent each cover end flange is cut off. However, in the modification of Fig. 6, this piece of material is left attached at the line 42' and may be bent around the ends of the cover flanges and stitched in position as at 43 to further reinforce the corners.

As another possible modification the blank may be formed as in Fig. 5 with the reinforcing strips 38 and 39 for the cover flanges omitted but with the triangular tongues utilized as in Fig. 4.

In use, when the cover sections 14 and 15 are closed, the ends of the longitudinal cover section flanges 21 and 23 are received in the respective downwardly extending diverging slots 34-34' of the end walls, as is illustrated in Fig. 2. The reinforcing strips 38 and 39, when used, are preferably cut off short at the ends so as not to enter the slots. When the triangular tongues 42, which are foldable around the cover end flanges 21 and 23 are employed, as in Fig. 4, these flanges are also received in the slots 34-34' when the cover sections are in closed position.

By having the angles of the cover flanges 21 and 23 and the angles of the slots 34 approximately in the arcs of swinging movement of the cover sections, there is no difficulty in causing the flanges to properly enter the slots when the covers are being moved quickly to closing position. Where the usual vertical slots are employed there is substantial interference with closing movement due to the fact that vertical slots are not in the arcs of closing movement. In order to further facilitate closing movement, the outer margins of the slots have been angled outwardly as at 35 and 35'. These angles compensate for the fact that the slots 34 and 34', being straight, cannot conform perfectly with the arcs of hinging movement.

When the covers are in closed position the container possesses unusual rigidity. The side flanges 21 and 23, together with the reinforcing strips 38 and 39, if used, reinforce the covers against downward pressure and also strengthen the box against inward pressures on the end walls. Due to the snug fit of all of the parts when in closed position, the container is strongly braced against diagonal strains. The inverted V-shaped pieces of material 44 and 44' between the downwardly diverging end wall slots 34 are strengthened by being stapled together by metal staples 45. This lends almost metallic rigidity to the parts 44 and 44'.

Although only a few forms of the invention have been shown and described, it is obvious that various changes and modifications may be made without departing from the spirit of the invention, and all of such changes are contemplated, as may come within the scope of the claims.

What I claim is:

1. In a container having side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, and longitudinal flanges on said longitudinal edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal

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flange of one of said cover sections and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and each flange being at an oblique angle to match the angle of its respective end wall slots.

2. In a container having side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, and longitudinal flanges on said longitudinal edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and means for maintaining each flange at an oblique angle to match the angle of its respective end wall slots.

3. In a container having a side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, and longitudinal flanges on said longitudinal edges and end flanges on the end edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and means connecting ends of said cover section end flanges to ends of said longitudinal flanges while maintaining each longitudinal flange at an oblique angle to match the angle of its respective end wall slots.

4. In a container having side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said walls and having longitudinal edges foldable toward one another over the container, and longitudinal flanges on each of said longitudinal edges and end flanges on the end edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections, and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and tongues foldable from the ends of each longitudinal flange of each cover section and connected to the adjacent ends of the end flanges to maintain each longitudinal flange at an oblique angle to match the angle of its respective end wall slots.

5. In a container having side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, and longitudinal flanges on each of said longitudinal edges and end flanges on the end edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections, and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of

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the other cover section when said cover sections are closed, and tongues foldable from the end flanges of each cover section and connected to the adjacent ends of the longitudinal flanges to maintain each longitudinal flange at an oblique angle to match the angle of its respective end wall slots.

6. In a container having side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, longitudinal flanges on each of said longitudinal edges of the cover sections, end flanges on the end edges of the cover sections having end edges adjacent the longitudinal flanges which are each at an oblique angle to match the angle of the adjacent end wall slot, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections, and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and means connecting the ends of said longitudinal flanges to the oblique end edges of the end flanges of each cover section to maintain each longitudinal flange at an oblique angle to match the angle of its respective end wall slots.

7. In a container having side and end walls, each end wall having a pair of downwardly diverging upper edge slots, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, longitudinal flanges on each of said longitudinal edges of the cover sections, end flanges on the end edges of the cover sections having end edges adjacent the longitudinal flanges which are each at an oblique angle to match the angle of the adjacent end wall slot, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections, and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and tongues foldable from the ends of said longitudinal flanges for connecting the ends of said longitudinal flanges to the oblique end edges of the end flanges of each cover section to maintain each longitudinal flange at an oblique angle to match the angle of its respective end wall slots.

8. In a container having side and end walls, each end wall having a pair of upper edge slots which diverge downwardly for the major portion of their length, portions of the outer sides of the slots near the upper ends thereof diverging upwardly, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, longitudinal flanges on said longitudinal edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the longitudinal flange of one of said cover sections and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and each flange being at an oblique angle to match the angle of the major portion of the length of its respective end wall slots.

9. In a container having side and end walls, each end wall having a pair of upper edge slots

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which diverge downwardly for the major portion of their length, portions of the outer sides of the slots near the upper ends thereof diverging upwardly, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, longitudinal flanges on said longitudinal edges of the cover sections, one of the pair of slots of each end wall being positioned to receive the longitudinal flange of one of said cover sections and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, and each flange being at an oblique angle to match the angle of the major portion of the length of its respective end wall slots, the slots together with the upwardly diverging outer side portions thereof being approximately in the arcs of hinging movement of the cover sections.

10. In a container having side and end walls, each end wall having an upper edge portion folded downwardly to produce a double thickness, there being a pair of downwardly diverging slots extending through both thicknesses in the upper edge of each end wall, and there being a double thickness section of material of inverted V-shape between the pair of slots on each end wall, metal staples extending through both thicknesses of material of said inverted V-shaped sections, complementary cover sections hinged to said side walls and having longitudinal edges foldable toward one another over the container, longitudinal flanges on said longitudinal edges of the cover

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sections, one of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of one of said cover sections and the other of the pair of slots of each end wall being positioned to receive the ends of the longitudinal flange of the other cover section when said cover sections are closed, each flange being at an oblique angle to match the angle of its respective end wall slots.

11. In a container having side and end walls: a cover hinged to at least one of said side walls, said cover having a longitudinal edge formed with a longitudinal flange, each of said end walls being formed with a slot having a surface which extends downwardly at an oblique angle from the upper edge of said end wall toward the side wall to which said cover is hinged, said end wall slots being positioned so that said angled surfaces thereof are engaged by the longitudinal flange of the cover when said cover is closed, and said longitudinal cover flange being at an oblique angle relative to said cover to match the angle of the angled surface of said end wall slots.

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