June 7, 1960 L. W. SNYDER 2,939,625

CONTAINER WITH LOCKING CLOSURE

Filed Sept. 20, 1957

FIG. 1

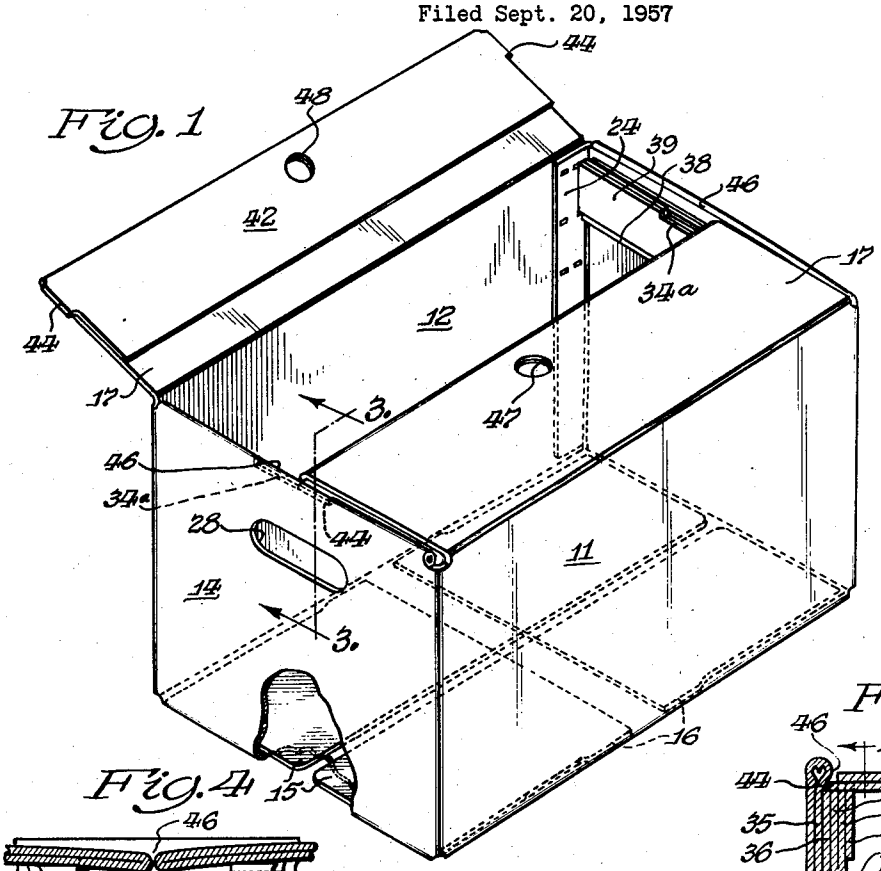


FIG. 4

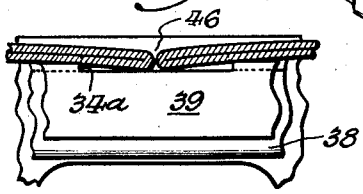


FIG. 3

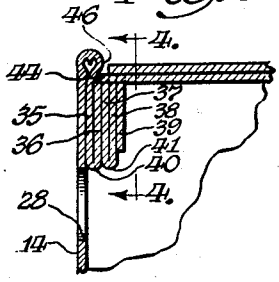
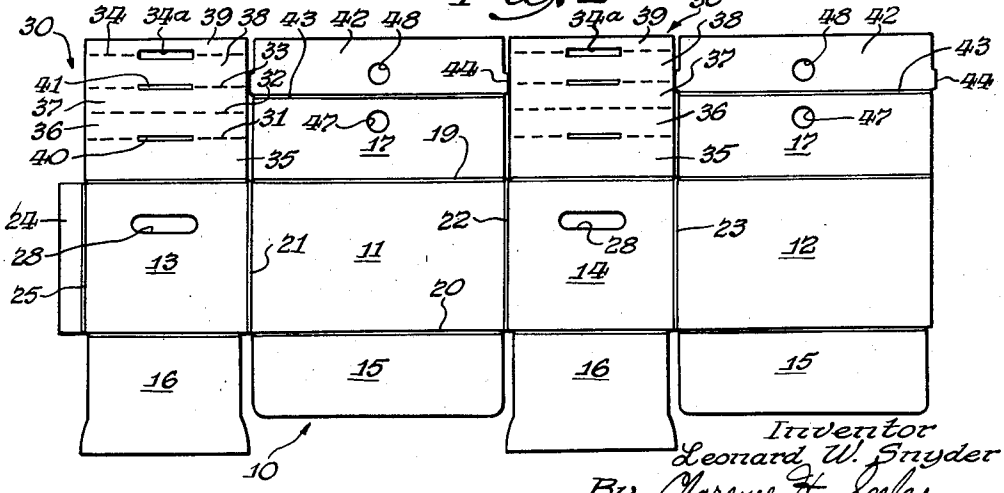


FIG. 2



Inventor
Leonard W. Snyder
By Clarence H. Seeley
Atty.

United States Patent Office 2,939,625 Patented June 7, 1960

2,939,625

CONTAINER WITH LOCKING CLOSURE

Leonard W. Snyder, Mount Prospect, Ill., assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Filed Sept. 20, 1957, Ser. No. 685,124

3 Claims. (Cl. 229—45)

The present invention relates to containers and more particularly to shipping containers constructed of relatively heavy fibre board and having closure means adapted to be secured releasably in closed position.

Among the principal objects of the invention are to provide a rugged construction of container having effective reinforced portions combined with one or more closure members, with means cooperating with the reinforced portions and other parts of the container whereby the closure edges may be supported in closed position and at the same time the closure edges will be locked releasably in such closed position.

Another object of the invention is to provide, in a shipping container having hinged cover sections, an end wall construction reinforced to afford a large measure of support for the edges of the cover sections adjacent the end wall and to provide inwardly extended locking parts against which cooperating locking parts on the cover sections are adapted to bear to provide an effective, releasable cover lock.

A further object of the invention is to provide a generally improved container with reinforced end structure and cover structure combined with releasable cover locking means.

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 embodying the principles of the present invention;

Fig. 2 is a plan view of a preferred form of solid fibreboard blank from which the container of the present invention may be formed;

Fig. 3 is a fragmentary cross-sectional view taken along line 3—3 of Fig. 1 looking in the direction of the arrows; and

Fig. 4 is a fragmentary sectional view taken along line 4—4 of Fig. 3.

The present invention as herein disclosed comprises a container of the general type employed for shipment of bottled beverages. The container may be of somewhat elongated, rectangular form to comprise interconnected side and end walls with cover panels hingedly carried by the side walls and arranged to swing toward each other to closed position. The end walls include supporting members having upwardly presented abutment surfaces upon which the ends of the cover panels may rest when closed. Releasable cover locking means are provided comprising parts projecting inwardly and extending along the upper edges of the end walls, and cooperating locking portions on the cover panels extending outwardly to engage frictionally the parts on the end walls when the covers are moved from open to closed position. The locking portions on the cover in passing the inwardly projecting parts on the end walls create a small degree of flexing of the covers and end walls to permit passage of the locking parts without substantial deformation of the contacting parts with the result that

the covers may be releasably held in closed position and may be repeatedly moved from closed to open position as desired without detriment to the locking parts.

Referring particularly to the drawings, the container is preferably, although not necessarily, formed from a single blank 10 of foldable fibre board of substantial thickness. This blank is suitably cut, slotted and crease-scored to provide side walls 11 and 12, end walls 13 and 14, bottom flaps 15, 15 on the side walls 11 and 12, bottom flaps 16, 16 on the end walls 13 and 14, and cover panels 17, 17 on the upper edges of the side walls 11 and 12. Score lines 19 and 20, extending lengthwise of the blank, define the cover panels from the side walls and define the bottom flaps from the side and end walls. Score lines 21, 22 and 23 separate the side and end wall panel sections. An attaching flap 24 may be employed, hinged on panel 13 along score line 25. The container may be secured in flat, collapsed tubular form by joining the flap 24 to side wall 12.

The end walls 13 and 14 are preferably formed with finger openings 28, 28 to facilitate carrying the filled container. Means are provided for supplying additional bearing surfaces for engagement by the fingers in carrying the container and also providing reinforcement for the end walls and bearing surfaces for the ends of the cover panels. For this purpose extensions, indicated as a whole at 30, 30 are formed on the upper edges of the end walls 13 and 14 respectively, and are defined from the end walls by the score line 19. Each extension 30 in the present instance is suitably cut along lines 31, 32, 33 and 34 to provide narrow panel sections 35, 36, 37, 38 and 39. The cuts are preferably interrupted by small nicks which hold the sections together while the extensions 30 remain in flat form. However, when the sections are folded together, the nicks, while assisting in folding the sections accurately, tend to break when adjoining sections are folded one against the other. Thus the sections, when so folded, tend to lie flat against each other, as best shown in Fig. 3. For the purpose of eliminating square edges where the fingers engage the folded sections, the cuts preferably do not extend entirely across the extension 30 between sections 35 and 36 and between sections 37 and 38. At a central location between the sections just referred to, and indicated at 40 and 41, the cuts are interrupted over a length somewhat less than the length of the finger opening and crease scores are impressed in alignment with the cuts.

Sections 36 and 37 in the present instance are of approximately the same width but section 38 is preferably formed somewhat wider than the sections 36 and 37 so that when the section 38 is folded against section 37 and section 39 is folded against section 38, as shown in Figs. 1 and 3, the upper edges of sections 38 and 39 will project somewhat above the upper edges of sections 36 and 37. Section 39 may be formed narrower than its adjoining section 38 as it is unnecessary that it be made to extend down even with the finger engaging surfaces.

For a purpose to be made clear later in the description, an elongated slot 34A is formed symmetrically with the cut line 34 so that when sections 38 and 39 are folded together the slot 34A will take the form of a notch located centrally of these sections. The bottom of the notch is substantially flush with the upper edges of the sections 36 and 37.

The cover panels 17 are each preferably provided with a supplemental panel 42 defined from panel 17 by a crease score 43. The panel 42 is folded to lie against the under surface of the cover and is secured thereto by any suitable means such as adhesive.

Means are provided for releasably locking the cover panels in place. In the present instance this means com-

prises a locking tab element 44 at each end of each cover panel adapted to cooperate with inwardly projecting rib portions extending along the upper edge of the end walls. While the locking tab elements may be located in different positions they are preferably formed on the supplemental panels 42, 42 near the outer longitudinal edge of the cover. In order to form inwardly projecting portions on the end walls the crease score 19 is formed as a wide score which is customary in scoring relatively thick solid fibreboard container blanks. The fold is so formed that a bulge is provided at the juncture of the panel 35 and end wall panel and preferably the folding will be so controlled that a substantial portion of the bulge will be directed inward.

The distance between the opposite edges of adjacent locking tabs 44, 44 is less than the length of the slots 34A so that when the covers are closed the two adjacent tabs 44, 44 at each end of the container will be received into the notches formed by the slots 34A.

The section 35 is wider than the adjoining sections 36 and 37 so that the upwardly presented bearing surface provided by the latter sections will be spaced from the inwardly projecting part or rib, indicated at 46, a sufficient distance to accommodate the thickness of the locking tabs 44, 44 and also to keep the edges of sections 36 and 37 from crowding against the inward bulge of the rib 46. Apart from the tabs 44 the cover end portions will come to rest upon the upper edges of the sections 38 and 39 which thus form upwardly presented abutments.

As illustrated in Fig. 4, the portions of the covers adjacent the tabs 44 may be somewhat downwardly deflected when the covers are in their closed and locked position. As the covers are swung downward the ends of tabs 44 meet the rounded rib 46 and by a combination of effects the tabs pass around the rib and move below it. Some deflection may take place in the end wall and some in the covers themselves dependent upon the particular resiliency of the fibreboard from which the container is formed.

In order to make the relationships of the cover locking parts more readily apparent, the construction, as shown in Figs. 3 and 4, is somewhat exaggerated. In practice the major parts of the cover edge portions when closed are substantially aligned with the upper edges of the end walls.

Registering finger openings 47 and 48 are cut in each cover and supplemental cover panel to facilitate upward swinging of the covers from their closed position.

After the blanks 10 have been cut and scored the supplemental cover panels are glued or otherwise secured in place, the panel sections 35 to 39 inclusive are adhesively secured and sections 35 are preferably adhesively secured to their attached end walls 13 and 14. The attaching flap 24 is then secured to the side wall 12 and the container may then be retained in collapsed tubular form until ready for use.

When it is desired to set up the container from its collapsed condition the side and end walls are squared up, the bottom flaps are folded over and secured together and the container is ready to receive its contents. After filling the container with such commodities as bottled beverages the cover panels are closed and, by reason of the locking tabs engaging beneath the inwardly projecting rib portions on the end walls, the cover panels will be releasably locked in closed position. Due to the reinforcement of the end walls provided by the sections 35 to 39, inclusive, secured together and to the inside surfaces of the end walls, the latter will offer great resistance to bending and the ends of the covers will be strongly supported, enabling the containers to be stacked in relatively high tiers without danger of undue distortion. The meeting edge portions of the covers when closed are supported on the top edges of sections 36, 37, 38 and 39 due to contact of these sections by the rigid locking tabs 44. The remaining edge portions of the cover edges are supported upon the upper edges of the sections 38 and 39. The folded sections 35 to 39 also provide comfortable bearing surfaces for the fingers of the person carrying the container.

It is to be noted that the blank is substantially rectangular in contour and utilization is made of the greater portion of the stock with only a small amount of waste.

While the present description sets forth a preferred embodiment of the invention, various changes may be made in the construction 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 fibreboard container of rectangular form having interconnected side and end walls, cover panels hinged on the top edges of the side walls and adapted to meet along an intermediate line to close the top of the container, a reinforcing member on the inner surface of an end wall, spaced below the uper edge thereof and providing an upwardly presented abutment surface adapted to be contacted by the edge portions of the cover panels to support such edge portions slightly below the top edge of the end wall, said end wall comprising a double thickness of fibreboard adjacent said reinforcing member formed by reverse bending along a fold line to define the top edge of the end wall, such fold presenting an inwardly projecting curved rib portion on the inner surface of the end wall, the closure panels each having a locking portion on their end edges projecting toward the end wall, said locking portions being adapted to move frictionally past the inwardly projecting rib at the top of the end wall when the cover panels are closed, whereby the cover panels may be held releasably in closed position.

2. A container construction, as defined in claim 1, in which the covers have supplemental panels on their adjacent free edges, reversely folded and secured to the under side of their attached covers, and the locking portions on the cover comprising short rigid tabs projecting from the edges of the supplemental panels.

3. A fibreboard container of rectangular form having interconnnected side and end walls, cover panels hinged on the top edges of the side walls and adapted to extend inwardly to close the container, an abutment member on the inner surface of an end wall, spaced below the upper edge thereof and having an upwardly presented bearing surface adapted to be contacted by the edge portions of the cover panels to support such edge portions in closed position, an inwardly projecting, curved rib portion extending along the upper edge of the end wall, the closure panels each having a supplemental panel secured to its under surface, each supplemental panel having a locking portion projecting toward the end wall, said locking portions being adapted to engage frictionally against the inwardly projecting rib at the top of the end wall when the cover panels are moved past the rib to their closed positions, said abutment member having a cut out in its upper part extending downward to a depth substantially equal to the thickness of the locking portions and adapted to receive the locking portions in positions so that their upper surfaces are engaged beneath the inwardly extending rib on the upper edge of the end wall, and thereby hold the cover panels releasably in closed position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,545,771	Hout	July 14, 1925
2,281,061	Boeye	Apr. 28, 1942
2,284,942	Boeye	June 2, 1942
2,409,673	Glascoff	Oct. 22, 1946
2,586,156	Ferguson	Feb. 19, 1952