Dec. 31, 1963 H. F. DRNEC ETAL 3,116,006

PAPERBOARD CONTAINER

Filed May 7, 1962 2 Sheets-Sheet 1

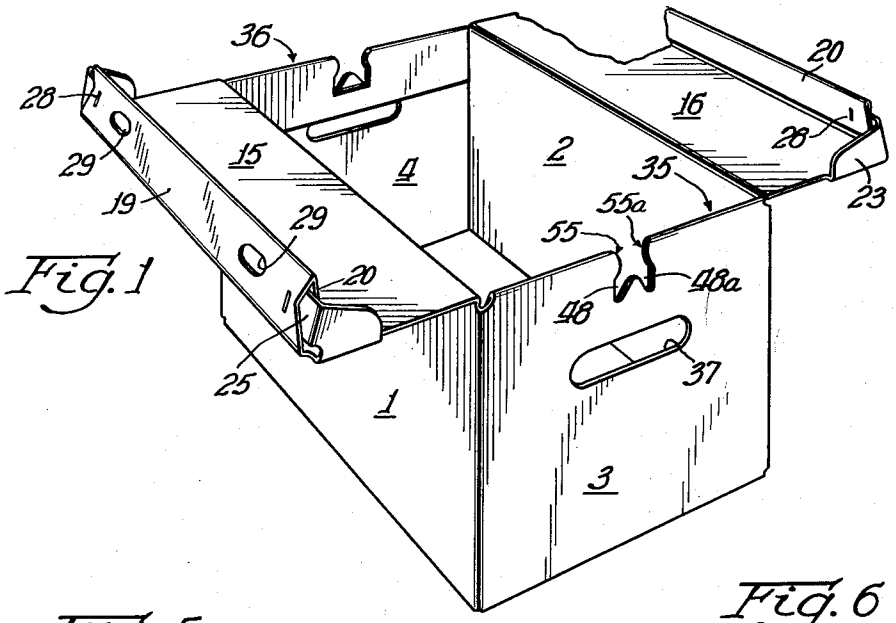


Fig. 1

Fig. 5

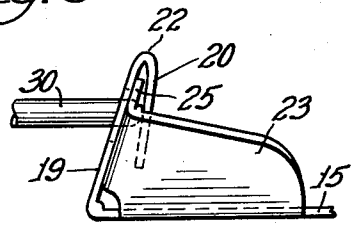


Fig. 6

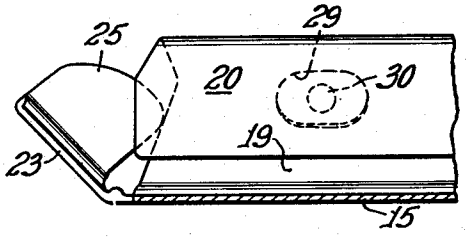


Fig. 7

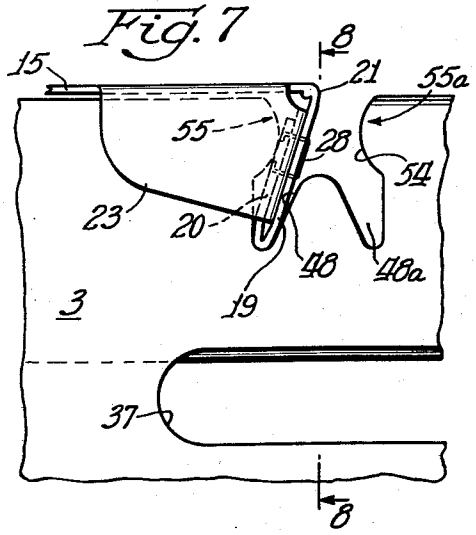
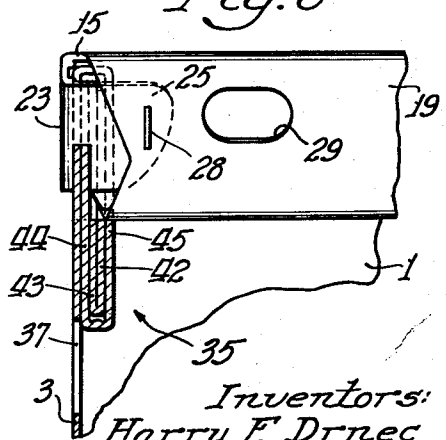


Fig. 8



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Fig. 2

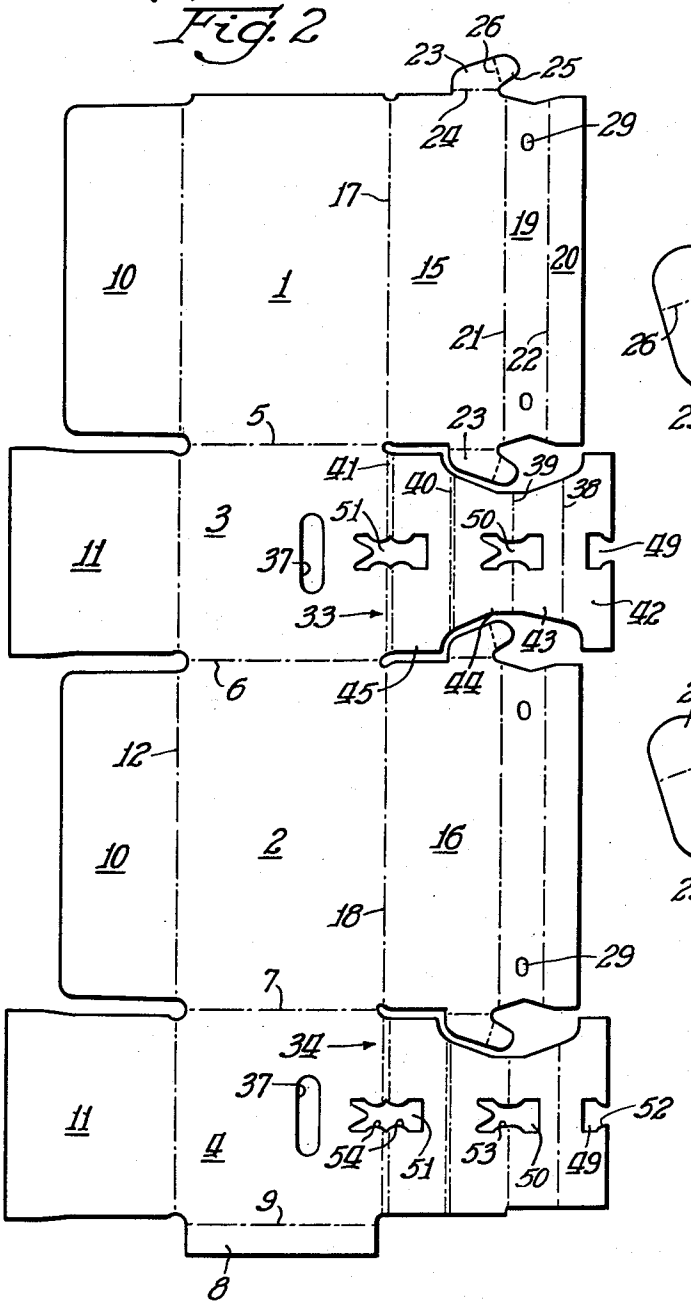


Fig. 3

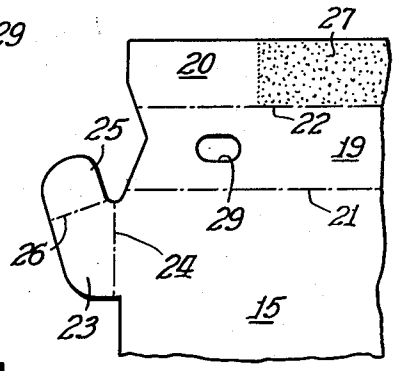
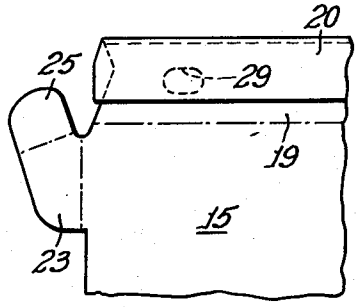


Fig. 4



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PAPERBOARD CONTAINER

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1 Claim. (Cl. 229—45)

The present invention relates to heavy duty, returnable, paperboard containers and more particularly to containers of this character having hinged covers with reinforced edge flanges on the covers.

This application is related to co-pending application Serial No. 191,131, filed April 30, 1962, in the name of Harry F. Drnec, John T. Bell, and Theodore D. Jaeger, entitled Box Cover Forming Machine.

An important object of the invention is to provide a highly efficient and improved form of container having a pair of cooperating hinged covers with reinforced flanges on their meeting edges, such flanges being inwardly inclined toward the under surfaces of the cover panels and receivable within notches formed in the container end walls.

A further object is to provide a container with double cover panels having reinforced flanges along their meeting edges, such flanges being inclined with respect to the planes of the cover panels and held in position by additional flanges and flaps carried on the end edges of the covers and such flanges being particularly designed to cooperate with high speed flange forming and securing machinery.

An additional object of the invention is to provide a form of end wall structure and cooperating cover flange structure arranged for effectively holding the covers securely closed by frictional fit of the cover flanges within notches in the top edges of the container end walls.

Additional and more specific objects and advantages of the 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 plan view of a preferred form of paperboard blank from which the container may be made;

FIG. 3 is an enlarged, fragmentary view of a corner portion of the cover prior to folding;

FIG. 4 is a view similar to FIG. 3, showing the outer flange element of the blank folded over and secured against its companion element;

FIG. 5 is a fragmentary edge view of the flange portion of one of the covers in the process of manufacture, showing how its structure cooperates with the flange forming mechanism;

FIG. 6 is a fragmentary view of the flange parts of one corner of the cover, showing how the corner flap is brought into position between the two flange sections;

FIG. 7 is a fragmentary view showing how the cover flange is fitted into the slot in the container end wall; and

FIG. 8 is a fragmentary cross sectional view taken on line 8—8 of FIG. 7, looking in the direction of the arrows.

The container herein disclosed is preferably formed of very sturdy but foldable paperboard, such as solid fibre board, which will enable the container to be used a number of times in the delivery of commodities, such as filled bottles. By providing the container with flanged covers, the top of the container, when the covers are closed, is thereby stiffened and strengthened to facilitate handling and stacking. When particularly strong and stiff paperboard is employed the cover flanges cannot be folded and secured readily by hand operation, necessitating the use of special machinery. It has been found convenient to em-

ploy certain types of machines at the plant of the packer where bottles, to be placed within the containers, are filled. These machines are capable of folding the cover flanges and securing them in set up form, as by means of stitching or stapling. However, when double-thickness flanges are included in the container construction, it has been found more economical to secure such flanges by adhesive at the container manufacturing plant. The packer in such case requires containers particularly adapted for use on his special setting up machinery. More specifically, it is desirable that the container covers with double-thickness main flanges be designed so that the flange sections may be spread apart at their end portions to admit connecting flaps carried on flanges at the ends of the container covers.

The container herein shown is a one-piece construction, but the novel features of construction are not limited for use on containers of this type. Essentially, the container has top reinforced end walls with carrying openings formed in such walls below the reinforcing section. This reinforcing section is also formed with notches to receive the ends of the cover flanges. In the disclosed construction the main flanges on the meeting edges of the covers are inclined inwardly toward the under side of the covers. This is desirable as it facilitates closing and prevents the flanges from interfering with each other as they might if made closely fitting and with the main flanges extending at right angles to the cover panels.

Referring more particularly to the drawings, the container blank (FIG. 2) is suitably cut and scored to provide elongated side walls 1 and 2 and end walls 3 and 4 defined by score lines 5, 6 and 7. An attaching flap 8, hinged along score line 9, enables the end wall 4 to be secured to side wall 1. Bottom forming flaps 10, 10 and 11, 11 are provided hinged along a common score line 12.

The covers 15 and 16 are identical as herein shown and are hinged along score lines 17 and 18 to the side walls 1 and 2. As the flanges on both covers are identical, a description of the flanges on cover panel 15 will suffice for both. Narrow flange sections 19 and 20 are carried on the long side of the cover panel 15, the section 19 being foldable along score line 21 at the edge of cover panel 15. Flange section 20 is hinged to section 19 along score line 22. While the sections 19 and 20 are shown integrally joined and section 19 integrally hinged to panel 15, it is within the scope of the invention to connect the panels other than integrally.

Short end flanges 23, 23 are preferably formed integrally with the ends of panel 15 and are hinged thereto along score lines 24, 24. Each end flange carries a corner flap 25, hinged along score line 26, for the purpose of connecting these flanges to the double-thickness main flange formed by flange sections 19 and 20.

The flange section 20 is secured flatwise on the inside surface of section 19. As so secured, the section 20 will be in close face-to-face engagement with section 19 throughout its length. However the end portions of section 20 are left unsecured for the purpose of admitting the corner flap 25 between such end portions. The median parts of flange sections 19 and 20 are preferably secured by adhesive, indicated by the stippled area shown at 27 on section 20. See FIG. 3.

As shown in FIGS. 5 and 6, when the main flange and the end flanges are to be secured in their flange forming position, the main flange is moved to the desired raised position. The corner flaps 25 are folded upwardly so that they may be inserted edgewise between the sections 19 and 20 when spread apart. The flange sections are then separated and the end flanges 23 are swung upward while the corner flaps are held in their raised position. This causes the corner flaps to enter between the sepa-

rated flange sections. The flange sections are then released, after which a suitable fastening device 28, such as a metal stitch or staple, is driven through the three thicknesses of paperboard formed by the two flange sections and corner flap to hold the parts in permanent set up condition.

To facilitate spreading of the flange sections 19 and 20, the section 19 as herein shown is formed with apertures 29, 29 through which a suitable spreading finger, as indicated at 30 in FIG. 5, may be inserted to bear against the section 20 in the area where this section is not attached to the section 20. When the spreading finger is retracted the resilience of the material causes the end portion of section 20 to move toward its original position so that it will rest firmly against the inserted corner flap.

The end walls 3 and 4 carry respective extended portions 33 and 34 at their upper edges. These portions when folded, form the reinforcing members, indicated as a whole at 35 and 36. The lower surfaces of the reinforcing members are substantially in register with the upper edge of finger openings 37, 37 used for carrying the container.

Referring to the foldable extended portion 33, attached to end wall 3, it is scored transversely to form a plurality of fold lines 38, 39, 40 and 41 to provide vertically disposed panels 42, 43, 44 and 45. The fold lines between the panels vary in width as necessary, as will be understood by an inspection of FIG. 8.

When the reinforcing panels are folded together a two-sectional opening is provided constituting, in effect, two merging notches indicated at 48, 48*a*. These notches are formed by three die cut openings 49, 50 and 51. See FIG. 2. The configuration of these openings is such that they provide inwardly directed curved sections 52, 53 and 54, 54 respectively which, when the panels are folded together, form flange-engaging nubs, indicated as a whole at 55, 55*a*, at the entrance to the merging notches. As shown in FIG. 7, when the main flange enters the notch 48 it will contact the nub 55. The dimensioning is preferably such that the lower portion of the flange as it passes the nub will engage the nub with some degree of deflecting force so that the flange must be urged past the nub. As the flange moves toward its final position, its lower end will move within the restricted part of the notch 48 and, when the flange comes to rest, it will be held in the notch as well as in contact with the nub to hold the cover frictionally in closed position.

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 claim rather than to the foregoing description to indicate the scope of the invention.

We claim:

A paperboard container having rectangular end walls, side walls and a bottom wall, at least one end wall having a plurality of narrow panels carried on its upper end and folded together to form a reinforced upper edge portion, an elongated, rectangular cover panel hinged on the upper edge of a side wall, an end flange on an end of the cover panel, an inwardly foldable corner flap carried by the end flange, the free edge of the cover panel carrying narrow, foldable flange sections comprising an outer section, integrally hinged on the free edge of the outer section, means for securing the corner flap in fixed position relatively to the flange sections when folded together and disposed in flange-forming position on the cover panel, the composite outer flange, thus formed, being inclined inwardly at a small angle toward the under surface of the cover panel, the cover end flange being adapted, when the cover is closed, to be positioned outside the adjacent container end wall, the folded panels forming the reinforced upper edge of the end wall being formed with a flange-receiving notch defined by a pair of downwardly converging side edges which meet at the bottom of the notch; said notch having its long axis inclined vertically at approximately the angle of the flange when the flange is disposed within the notch in the closed position of the cover, the side of the notch nearer the cover hinge having a generally straight, vertical lower portion and a convexly rounded upper portion which forms a nub projecting into the notch past said lower portion to a point closely adjacent the long axis of the notch; said nub being adapted to bear forcefully upon the inside surface of the cover flange, when the flange is disposed within the notch, to hold the flange frictionally in closed position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,548,130	Stephan	Apr. 10, 1951
2,603,406	George	July 15, 1952
2,711,282	Desposito	June 21, 1955
2,865,554	Rephing et al.	Dec. 23, 1958
2,900,123	Drnec et al.	Aug. 18, 1959