Aug. 1, 1939. G. W. BOH 2,167,741

CONTAINER

Filed Jan. 27, 1938 3 Sheets-Sheet 1

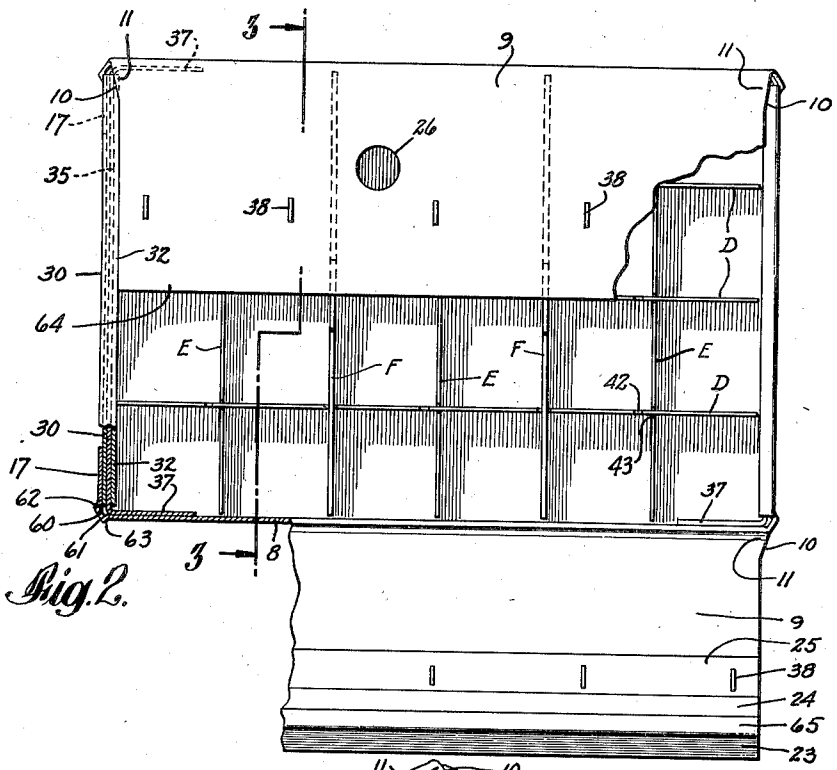


Fig. 2.

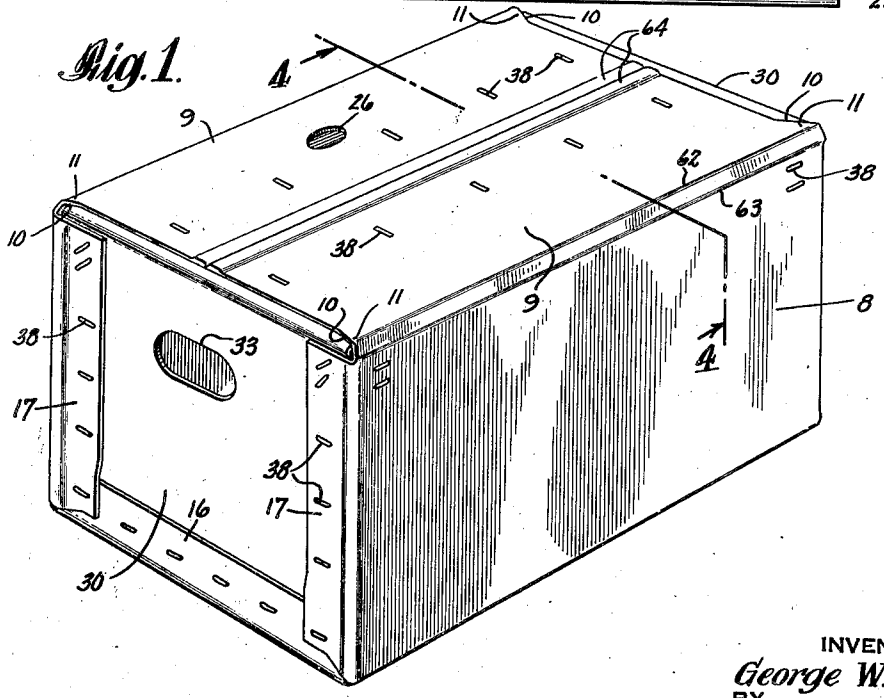


Fig. 1.

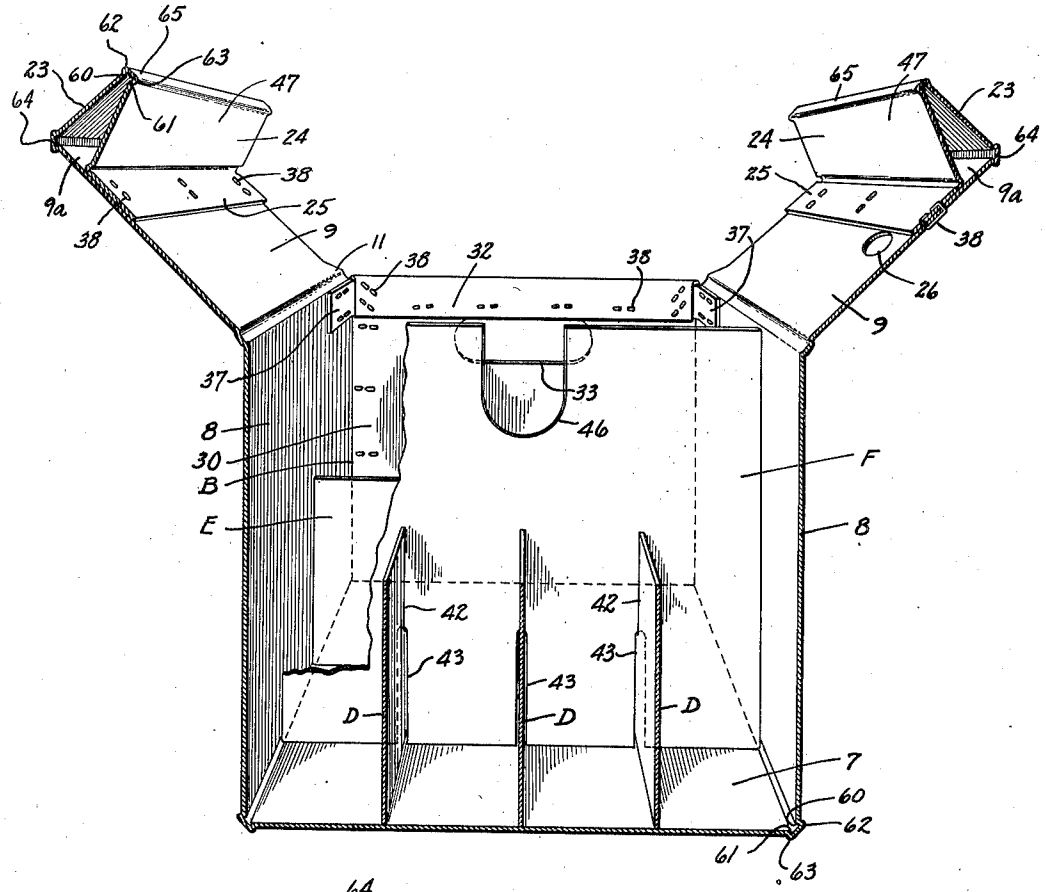
INVENTOR
George W. Boh.
BY
Albert M. Austin
ATTORNEY

Aug. 1, 1939. G. W. BOH 2,167,741

CONTAINER

Filed Jan. 27, 1938 3 Sheets-Sheet 2

Fig. 3.



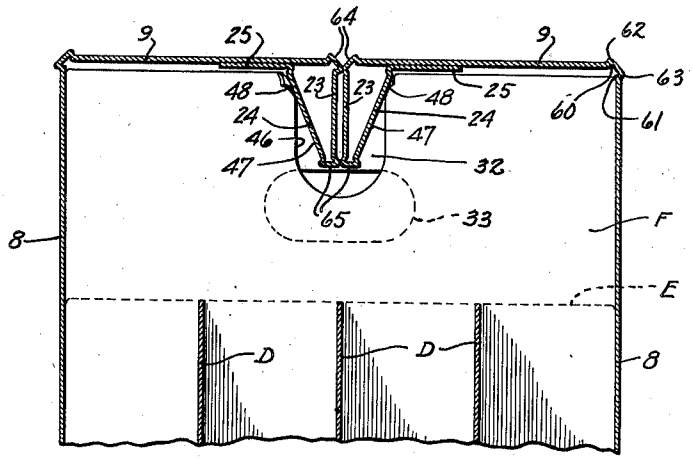


Fig. 4.

INVENTOR
George W. Boh.
BY
Albert M. Austin
ATTORNEY

Aug. 1, 1939. G. W. BOH 2,167,741

CONTAINER

Filed Jan. 27, 1938 3 Sheets-Sheet 3

Fig. 9.

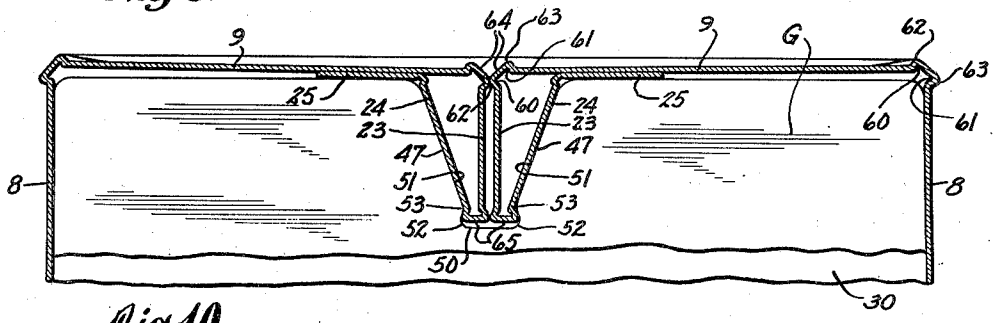


Fig. 10.

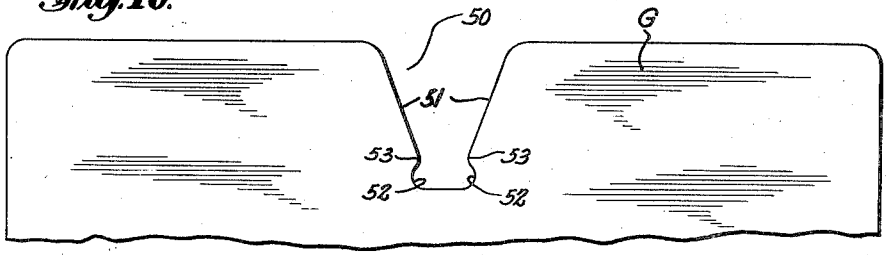


Fig. 5.

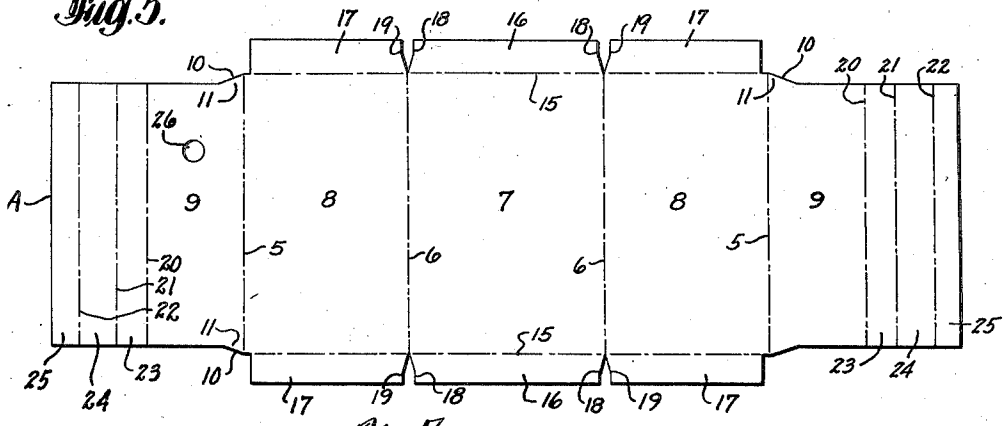


Fig. 7.

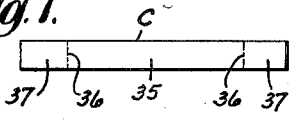
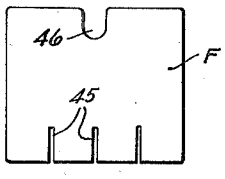


Fig. 8.



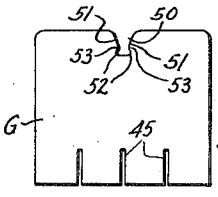
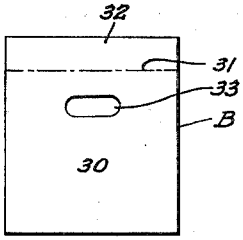


Fig. 11.

Fig. 6.



INVENTOR
George W. Boh.
BY
Albert M. Austin
ATTORNEY

Patented Aug. 1, 1939

2,167,741

UNITED STATES PATENT OFFICE

2,167,741

CONTAINER

George W. Boh, Chattanooga, Tenn., assignor to O. B. Andrews Company, Chattanooga, Tenn., a corporation of Tennessee

Application January 27, 1938, Serial No. 187,141

7 Claims. (Cl. 229—23)

This invention relates to containers and more particularly to a novel packing and shipping case formed from paperboard or like material and particularly adapted for the handling and shipping of bottled goods or other commodity units and to a blank for forming such case.

In accordance with one illustrative embodiment of the invention, the case or container is formed from one or more blanks of paperboard or other suitable material suitably formed and assembled. The container is constructed from a blank or blanks cut, scored and folded up to form a bottom wall, side walls, end walls and cover members hinged to the top edges of the side walls. Portions of the cover members are folded over and secured to provide inherently rigid, upstanding flanges extending along at least certain of the free edges of the cover members to assist in longitudinally reinforcing the container. The flanges are adapted to engage with each other and/or with other portions of the container to retain the cover members in closed position. A suitable divider or partitioning means is provided for insertion within the container to define a plurality of cells and a portion or portions of the divider extends substantially to the top of the container for interengagement of the flanges to the cover members to assist in securing them in closed position.

The invention provides a container which can be easily and economically formed from one or more relatively simple blanks of paperboard or other sheet material, which can be readily and economically set up and assembled to form a container, which can be easily packed, and which provides a sturdy and convenient storing, handling and shipping case for bottles, bottled goods or other consumer units.

The invention also provides a container which can be formed from sheet material such as paperboard, which container is sturdy and rugged and reinforced against distortion or crushing and which amply protects the contents even when roughly handled.

The invention also provides a novel blank which may be employed in forming a container in accordance with the present invention.

Various other features and advantages of the invention will be apparent from the following particular description and from an inspection of the accompanying drawings.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which:

Fig. 1 is a perspective view of a container formed in accordance with the present invention, the cover members being shown in closed position;

Fig. 2 is a top plan view of the container of Fig. 1, with one of the cover members being shown in open position, certain of the parts being broken away and others being shown in cross-section in order to more fully disclose the construction;

Fig. 3 is a perspective sectional view taken along line 3—3 of Fig. 2 with both cover members in partially opened position, certain of the parts being broken away to more fully illustrate the construction;

Fig. 4 is an enlarged, fragmentary cross-section taken along line 4—4 of Fig. 1 and illustrating particularly the top portion of the container;

Fig. 5 is a top plan view of a blank suitable for forming a container such as is shown in Fig. 1;

Fig. 6 is a plan view of a blank suitable for forming the end wall of a container such as is shown in Fig. 1;

Fig. 7 is a plan view of a reinforcing strip suitable for use in forming the container;

Fig. 8 is a plan view of a blank suitable for forming a high partition of the container of Fig. 1;

Fig. 9 is an enlarged, fragmentary, transverse cross-sectional view illustrating a portion of a container constructed in accordance with another embodiment of the invention;

Fig. 10 is an enlarged, fragmentary, elevational view of a high partition employed in forming the embodiment shown in Fig. 9; and

Fig. 11 is a reduced plan view of a blank suitable for forming the high partition of the embodiment shown in Fig. 9.

In the following description and in the claims, various details will be identified by specific names for convenience, but they are intended to be as generic in their application as the art will permit. Like reference characters denote like parts in the several figures of the drawings.

In the drawings accompanying and forming part of this specification, certain specific disclosure of the invention is made for purposes of explanation, but it will be understood that the details may be modified in various respects with-

out departure from the broad aspect of the invention.

In accordance with the present invention, the container may be constructed from paperboard, box board, corrugated board or other sheet material of sufficient rigidity to retain the shape of the container and to provide the necessary mechanical strength, and of sufficient flexibility to permit the required bending and folding. Where the container is to be used for certain goods or is otherwise subject to wetting, the material may be suitably coated or impregnated to render it moisture-proof, as will be understood by those skilled in the art. Also, the sheet material may be suitably decorated or inscribed as may be desired.

Referring now particularly to Figs. 5, 6 and 7, the container preferably is formed from a plurality of suitably cut and scored blanks of sheet material, such as paperboard. One blank A (see Fig. 5) preferably is generally more or less rectangular in shape and is provided with fold lines 5, 6, such as scores or other lines of increased flexibility, and fold lines 15 to define a bottom panel 7, side panels 8 and cover panels 9 hingedly and flexibly connected. The bottom panel 7 and side panels 8 preferably are generally rectangular in shape. The cover panels 9 preferably are of slightly less length, throughout a major portion of their width than the side panels 8, and have inclined edge portions, as at 10, adjacent the score lines 5 to provide corner portions 11.

Bottom end flaps 16, bendable about portions of the fold lines 15, extend from the opposite end edges of the bottom panel 7 and side end flaps 17 also bendable about portions of the fold lines 15 extend from the opposite end edges of the side panels 8. The end edges 18 of the bottom end flaps and the inner end edges 19 of the side end flaps are so shaped that the width of the flaps is reduced, at least at the outer end, for a purpose which will hereinafter appear.

Spaced parallel fold lines 20, 21 and 22 define successively, an inner flange panel 23 connected to a side edge of the cover panel 9, an outer flange panel 24 connected to a side edge of the inner flange panel 23 and an attaching flap 25 connected to the side edge of the outer flange panel 24. The panels 23 and 24 and flap 25 are foldable respectively about the score lines 20, 21 and 22 whereby they can be folded to form rigid flanges, as will hereinafter be more fully described.

A finger hole 26 is provided in either or both of the cover panels 9 to facilitate opening of the container as will hereinafter appear.

A plurality of end wall blanks B are provided, one of which is illustrated in Fig. 6. The blank B, which may be formed of material similar to the blank A, is provided with a fold line 31, to define an end panel 30 and a reinforcing flap 32. A hand hole 33 is provided in the end panel 30 at a suitable distance below the fold line 31.

Referring now to Fig. 7, a reinforcing strip C is constituted by a blank of paperboard material having transverse fold lines 36 defining a central panel 35 and corner flaps 37.

The blanks are set up and assembled to form the container as follows, although not necessarily in the order of operations set forth:

The blank A is folded about the lines 5 and 6, whereby the side panels 8 stand up from the bottom panel 7 to provide side walls. The bottom end flaps 16 and side end flaps 17 are bent up along the lines 15 and extend inwardly from the bottom and side walls respectively. The end wall blanks B are applied to the inturned flaps and secured thereto by suitable means, as for example, staples 38, as illustrated in Fig. 1 to constitute end walls and secure the side walls 8 in upright position.

The reduced width of the side wall end flaps permits them to be secured flat against the bottom end flap thereby to provide a neat appearance.

The inner flange panel 23 is folded about the score line 20 to a position approximately perpendicular to the corresponding cover panel 9. The outer flange panel is folded about the score 21 to a position in which it makes an acute angle with the inner flange panel and the attaching flap is folded in the opposite direction into a position lying along the inner face of the corresponding cover panel 9. The attached flap 25 is secured to the cover panel 9 by suitable means, such as staples 38, whereby to retain the flange panels in set-up position, as illustrated particularly in Fig. 3. The flange panels and the portion of the cover panel 9a extending between the adjacent side edges of the flange panels constitute a triangular construction defining an upstanding flange of inherent rigidity. The flange thus formed stands out from the cover panel without additional reinforcing or stiffening.

The fold lines in the several blanks are formed by spaced parallel score lines 60 and 61 which provide an enlarged score having beads 62, 63 with a flat or somewhat rounded portion therebetween. When the blank A is folded to form the cover flanges in the manner above described, the scoring at the fold 20 provides a substantial bead or ridge 64. Likewise, when the blank is folded along the fold line 21, an enlarged bead 65 is provided which constitutes a nose having substantial, projecting sides.

The reinforcing strips C are disposed against the inner faces of the end walls 30 respectively adjacent the top edges, the corner flanges 37 being bent about the score lines 36 and lying against the inner faces of the side walls adjacent the corners of the container, and the respective reinforcing flanges 32 are folded down inside the container and against the reinforcing strips. Securing means, such as staples 38, secure the reinforcing flaps and reinforcing strips to each other and to the adjacent portion of the end wall to provide a rigid reinforcing structure at the top of each end wall. The corner flanges 37 are secured to the adjacent side walls to provide corner reinforcing and to assist in securing the side walls to the end walls.

The hand holes 33 preferably are suitably positioned in the end panels 30 so that the lower edges of the reinforcing strips and reinforcing flaps extend approximately along the top edges of the hand holes whereby the end walls are reinforced immediately above the hand holes and there is no possibility of injury to the end walls at this point. In addition, this reinforcing provides a wider grip for the hands of the person handling the container.

A divider or partitioning means is inserted within the container and preferably comprises a plurality of longitudinal partition members D and transverse partition members E. The partition members D and E are suitably provided with slots, such as the slots 42, 43 whereby they can be interengaged to form a cell structure, as will be understood by those skilled in the art.

One or more transverse partition members F are provided which extend from the bottom of the container substantially to the top edges of the side walls. Generally, it is desirable that the partition members D and E extend only partially throughout the height of the container in order to permit ready access to the contents. However, where all of the partition members extend substantially throughout the height of the container, it is necessary that all of the transverse partition members be constructed similarly to the high partition members F.

A blank suitable for constituting a high partition member F is shown in Fig. 8 and includes a member formed from sheet material, such as paperboard, having a suitable number of suitably shaped slots 45 extending inwardly from its lower edge for interengagement with the longitudinal partition members D. A notch 46 extends inwardly from the upper edge substantially at the center of the blank.

Referring now to Fig. 4, it will be seen that when the cover members 9 are moved to closed position, the cover flanges or portions thereof enter the notch 46. The inclined face 47 provided by the outer flange panels engage at least a portion of the edges of the notches 46, as indicated at 48, depending upon the relative shapes of the notches and the flanges. Owing to the mutual abutment between the flanges, and to the friction between the flanges and the edges of the notches 46, the cover panels 9 are held in closed position.

A somewhat different construction of high partition is illustrated in Figs. 9, 10 and 11, which construction is especially well adapted for securely locking the cover members against undesired opening.

Referring to Fig. 11, a high partition is constructed from a blank G generally similar to the blank F except as to the shape of the notch 50. The notch 50 is provided with inclined side edges 51 so shaped and positioned that when the cover members 9 are closed, the edges 51 abut and fit closely against the inclined faces 47 respectively substantially throughout the length of the latter. The lower portion of the notch is formed with inturned portions 52 defining projections or noses 53 against which the enlarged beads 65 are adapted to engage whereby to lock the flanges against removal from the notch 50. The cover panels 9 are of such width that the flanges abut when in closed position at least at the noses 65 and the beads 64, and thus the flanges are urged against the edges 51 of the notch 50 and a substantial locking effect is obtained.

A further locking of the cover panels in closed position may be obtained by constructing the cover panels of such width that their combined length is slightly greater than the width of the container, thus providing a condition of unstable equilibrium when the cover panels are moved into a position perpendicular of the side walls of the container. In this construction the high partitions G are of such height or are inclined slightly so that the cover members 9 may be moved into the container slightly past the position of unstable equilibrium. Thus a condition somewhat similar to a toggle action is obtained. When the cover panels are moved through this position of unstable equilibrium and into the container there is a force tending to move them further into the container and opposing opening movement.

It will be understood that the dimensioning of the cover members whereby to provide a condition of unstable equilibrium, as above described, may be employed either with the form of high partition illustrated in Fig. 8, as well as that shown in Fig. 11.

The cover members are supported in closed position and prevented against substantial entrance into the container by abutment with the top edges of the high partition or partitions, thus the cover members lie substantially flush with or only slightly below the top edges of the side and end walls. It will be noted that the cover panels are of reduced width substantially throughout their major portion whereby they can enter between the end walls. However, the corner portions 11 extend over the ends of the cover walls slightly and thus serve to close the corners of the containers and provide a neat and finished appearance.

When the cover members are closed the cover flaps abut the central portions of the end walls and provide reinforcement against inward collapse of the end walls. The reinforcing flap and reinforcing strip provide reinforcement against collapse in a direction transversely of the cover flanges and thus an H-shaped reinforcing frame-like structure is provided. The multi-ply construction provided by the end walls, bottom end flaps, side end flaps and the reinforcing at the upper end of the end walls provides a reinforced end wall construction.

The inter-engagement between the cover flaps and the high partition or partitions when the cover members are closed prevents bulging of the side walls intermediate their ends. The connection between the corner flaps of the reinforcing strips and the side walls provides additional corner reinforcing and provides additional attachment between the end walls and the side walls. The doubly-scored fold lines provide corner beads which stiffen and reinforce the edges of the container, and of the cover flanges.

The foregoing reinforcing features provide a container or case of extremely great rigidity and strength, which case is capable of withstanding unusually rough and destructive service and is capable of satisfactorily protecting the contents against damage.

While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A container formed from sheet material and comprising bottom, side and end walls, cover members hinged to the top edges of said side walls and dimensioned whereby the inner edges substantially meet medially of said container when in closed position, and flanges of inherently rigid construction extending along the inner edges of said cover members and rigidly positioned relatively to said cover members, said flanges being adapted to enter said container when said cover members are in closed position whereby to reinforce said container longitudinally.

2. A container formed from paperboard or like material and comprising bottom, side and end walls, cover panels flexibly and hingedly connected to the top edges of said side walls, a rigid flange integral with each of said cover panels and including panels extending from said cover member and meeting in an apex to pro-

vide with the adjacent portion of the cover panel an inherently rigid construction.

3. A container formed from paperboard or like material and comprising bottom, side and end walls, cover members flexibly and hingedly connected to the top edges of said side walls, a flange integral with each of said cover members and having a projection extending therealong, and a partition in said container having a notch adapted to receive said flanges and formed for engagement with said projection to retain said cover members in closed position.

4. A container formed from paperboard material and comprising bottom, side and end walls, cover panels extending from the top edges of said side walls and adapted to substantially meet within said container when in closed position, a flange extending along the free edge of each cover member and including integral, angularly disposed panels and a flap secured to said cover member whereby said panels and the adjacent portion of said cover member define a triangular, inherently rigid structure.

5. A container formed from sheet material and comprising bottom, side and end walls, cover members hinged to the top edges of said side walls and dimensioned to substantially meet medially of said container when in closed position, flanges of inherently rigid construction integral with said cover members and extending along the free edges of said cover members for insertion in said container when said cover members are in closed position whereby to reinforce said container longitudinally, and means extending along the top edges of said end walls and connected both to said end walls and said side walls for reinforcing said container transversely.

6. A container for a plurality of relatively heavy merchandise units such as bottles, or the like, said container being formed from paperboard or the like and comprising bottom, side and end walls, rigidly associated both in open and closed condition of said container, cover members hinged to said side walls and having a combined width slightly greater than the distance between said side walls whereby said cover members pass through a position of unstable equilibrium when moved into closed position, means in said container for limiting the movement of said cover members into closed position, and means engageable with said cover members when in closed position to resist opening movement thereof.

7. A container formed substantially from paperboard material or the like comprising a member defining side and bottom walls and a cover member integrally and hingedly connected to at least one of said side walls, members defining end walls rigidly connected to said side walls, an end reinforcing strip extending across the top edge of each of said side wall members and connected to the corresponding end wall and the adjacent side walls, and additional reinforcing means comprising a panel integral with each of said end members and folded over and secured in position overlying the corresponding reinforcing strip.

GEORGE W. BOH.