Aug. 21, 1962 D. R. LANE 3,050,228

REINFORCING INSERT FOR A CONTAINER

Filed Nov. 21, 1960 2 Sheets-Sheet 1

FIG. 1

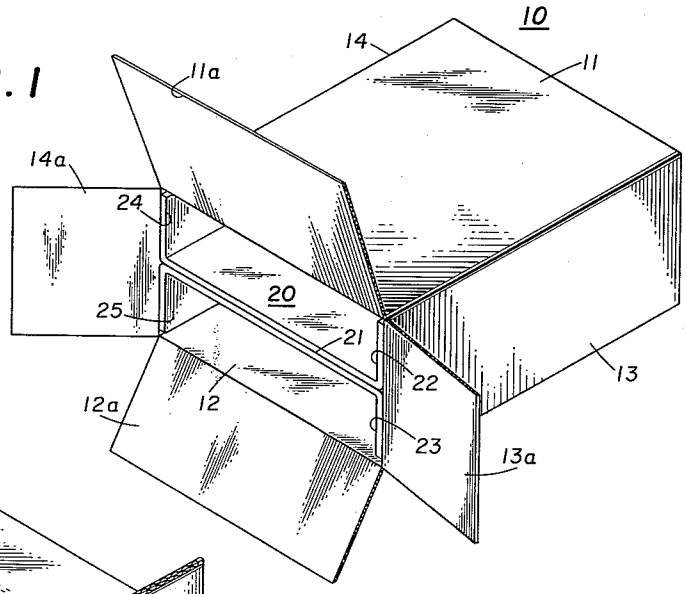


FIG. 2

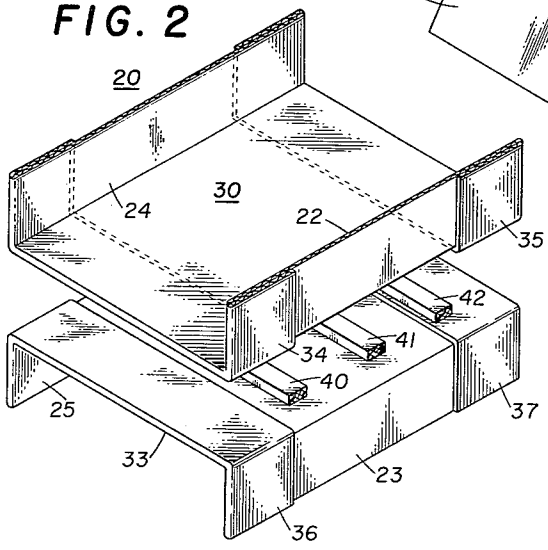
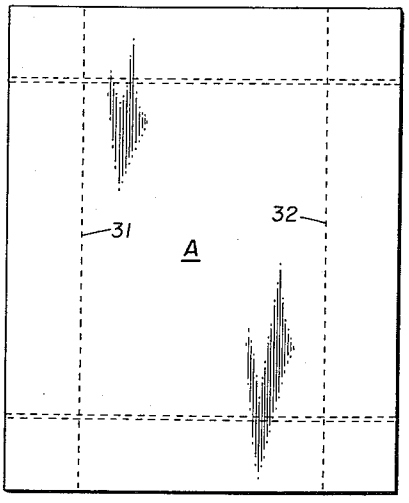


FIG. 4



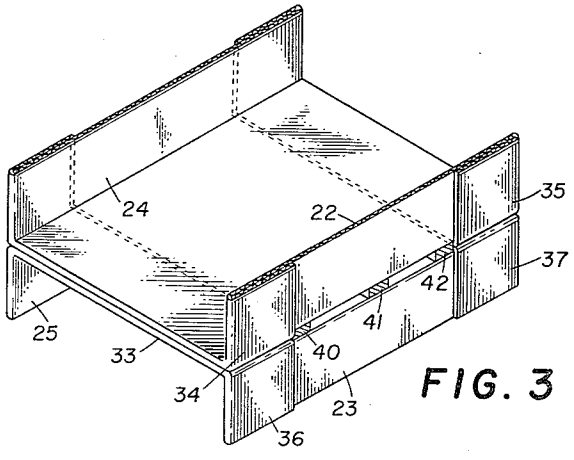


FIG. 3

Aug. 21, 1962 D. R. LANE 3,050,228

REINFORCING INSERT FOR A CONTAINER

Filed Nov. 21, 1960 2 Sheets-Sheet 2

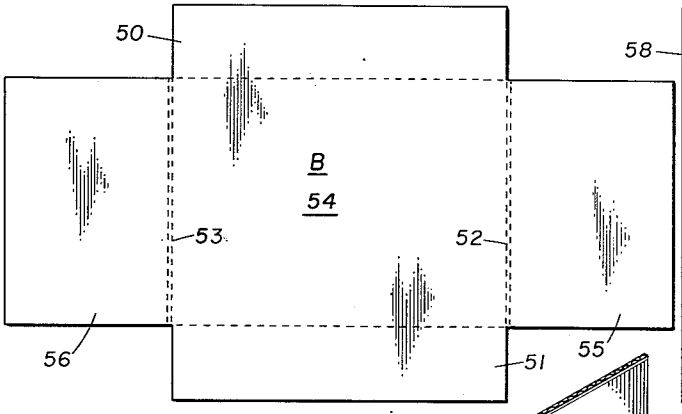


FIG. 6

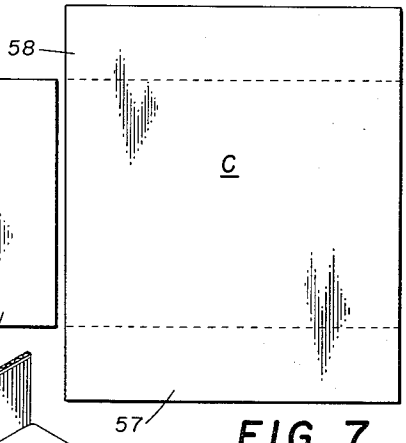


FIG. 7

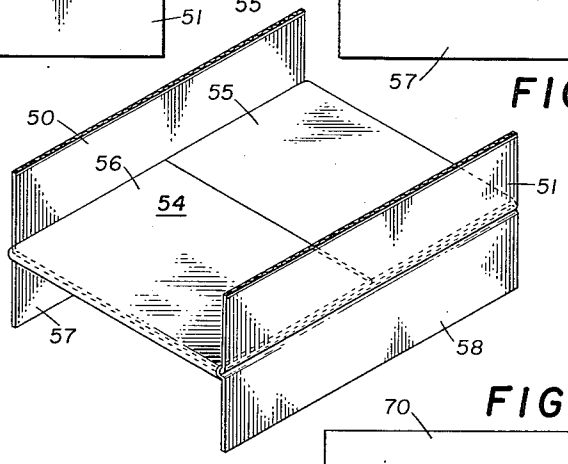


FIG. 5

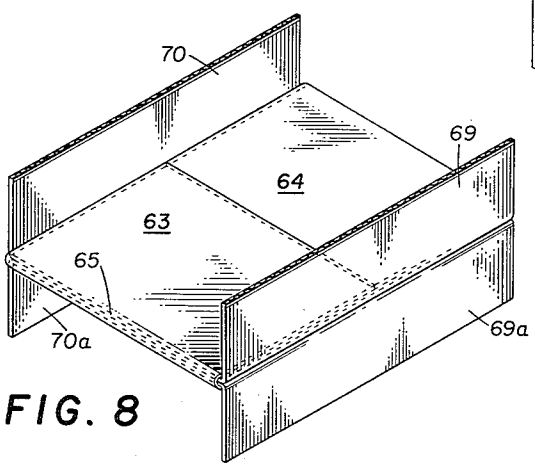


FIG. 8

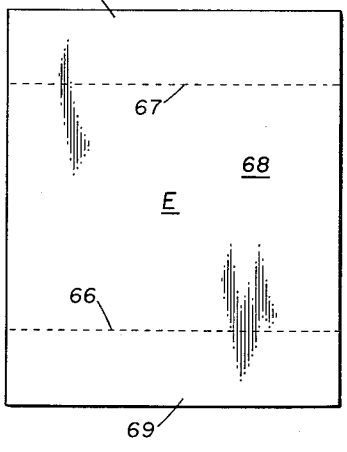


FIG. 10

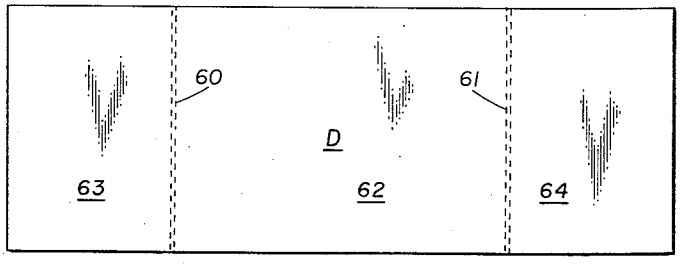


FIG. 9

United States Patent Office 3,050,228
Patented Aug. 21, 1962

3,050,228

REINFORCING INSERT FOR A CONTAINER

Dan R. Lane, Dallas, Tex., assignor to Lane Container Company, Dallas, Tex., a corporation of Texas

Filed Nov. 21, 1960, Ser. No. 70,762
9 Claims. (Cl. 229—15)

This invention relates to a reinforcing insert for a container which is adapted to divide a container into compartments and at the same time to reinforce the container walls. In a more specific aspect, the invention relates to the provision of a reinforcing structure in a container insert which is made of corrugated fiberboard or other suitable material.

In the transportation of delicate products such as bakery goods it is necessary to provide protection therefor and to prevent undue loading as would be present when the articles themselves are stacked. At the same time it is desirable that any such container be reusable and that the structure be such that the point in time at which accumulative fatigue sets in is substantially prolonged.

The present invention relates to improvement over container inserts such as disclosed in Patent No. 2,646,201 to Meinhardt. The present invention involves the provision of an insert in which reinforcing is provided for the partitioning insert in order that the fatigue point may be substantially prolonged in time so that the container may be reusable for a period much longer than found possible with structures of such prior art.

More particularly in accordance with the present invention, there is provided a reinforcing and partitioning insert for a paper board container having two upstanding side walls, horizontal top and bottom walls connecting the side walls, and one end of the container having a vertical wall constituting an openable closure means thereat. The reinforcing and partitioning insert includes a partition member with upper and lower panels of substantially rigid material horizontally disposed within the container and each substantially coextensive with and in parallel spaced relation to the top and bottom walls, thus forming upper and lower article-storing compartments within the container, the compartments being accessible from the open end of the container for inserting articles on the partition member or removing the same from the upper compartment and the lower compartment. The insert is provided with reinforcing means disposed between the upper and lower panels. The reinforcing means has partition-supporting side wall reinforcing flaps on the ends thereof which extend in one direction from the partition wall along the side walls. Additional partition-supporting and side wall reinforcing flaps extend the other direction from the opposite edges of the insert. All such flaps are fixed against the adjacent walls with the free edges terminating adjacent respective upper and lower inside corners of the container. The exposed edge of the insert is unscored along the length of the upper and lower panels facing the opening of the container.

In a preferred embodiment of the invention, there is provided an insert in which the upper and lower panels are formed from separate corrugated fiberboard sheets with flaps provided along all four edges of each of the sheets, the side flaps being folded inwardly into engagement with and affixed to the respective inner faces of the upper and lower panels. The side flaps thus form reinforcing means which extend the length of the panels, multisection elements thereby being provided which extend the full width of the opening of the container with side wall reinforcing flaps also being formed from that portion of the inwardly turned side flaps which extend along the end flaps. Further, in the preferred embodiment of the invention a plurality of solid, rigid reinforcing bars extend parallel to the edges of the inturned side flaps on the upper and lower panels and are of such width as to provide reinforcing in the zone between the facing edges of the inturned side flaps. By this means a reinforced partition is provided having smooth, rolled edges on the face thereof adjacent the opening of the container.

In accordance with a further aspect to the invention, a reinforcing panel having end flaps thereon is positioned intermediate the upper and lower panels with the end flaps extending in one direction from the upper and lower panels and flaps forming a part of the panel members extending the other direction. Thus, in accordance with the present invention a reinforced insert is provided for a container which will extend the reusable life thereof.

For further objects and advantages of the present invention, reference may now be had to the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is an isometric view of a container of the present invention showing an insert in proper position;

FIG. 2 is an exploded view of the insert shown in FIG. 1;

FIG. 3 is an assembled view of the insert of FIG. 2;

FIG. 4 is a plan view of the blank used for forming each of the upper and lower panels of the insert of FIGS. 2 and 3;

FIG. 5 is an isometric view of a modification of the insert in which two fiberboard panels are employed;

FIG. 6 is a plan view of a blank from which one of the panels of FIG. 5 is formed;

FIG. 7 is a plan view of a blank from which the second of the two panels of FIG. 5 is formed;

FIG. 8 is an isometric view of a further modification of the invention in which the insert is formed from three panels;

FIG. 9 is a plan view of a blank from which one of the three panels of the insert of FIG. 8 is formed; and

FIG. 10 is a plan view of a blank from which the remaining two of the panels employed in the insert of FIG. 8 is formed.

Referring now to FIG. 1, there is illustrated a container **10** having an upper wall **11**, a lower wall **12** and side walls **13** and **14** which interconnect the walls **11** and **12**. The end of the wall **11** is provided with a flap **11***a*. Similarly, the bottom **12** is provided with a flap **12***a*. The sides **13** and **14** carry end flaps **13***a* and **14***a*, respectively. It has been found desirable to provide the end flaps **11***a* and **12***a* of sufficient width that they are equal to the width of the side panels **13** and thus provide closure for the container **10** which is completely overlapping. When this is the case, the end flaps **13***a* and **14***a* may conveniently be made the same width so that in the transport of bread products the dimensions employed would be as follows. The side panels, such as the panel **13**, would be 11½" wide and 19" long. The upper and lower panels **11** and **12** would be 26" wide and 19" long. The flaps **11***a* and **12***a* would be 11½" wide and 26" long. Flaps **13***a* and **14***a* would be 11½" wide and 11½" long. The foregoing dimensions are representative only and may be varied as articles to be packaged demand.

In accordance with the present invention, the container **10** is provided with an insert **20** which is adapted to be spaced parallel to the planes of the panels **11** and **12** and to provide a smooth or rolled edge **21** along the opening provided by flaps **11***a*, **12***a*, **13***a* and **14***a*. Furthermore, side wall supporting flaps such as flaps **22**, **23**, **24** and **25** are provided forming a part of the insert **20** and extending upwardly and downwardly along the side walls **13** and **14**, respectively, to points adjacent the upper and lower corners of the box or container **10**.

The preferred embodiment of the present invention is

illustrated in FIGS. 2–4. In FIG. 2 there is illustrated an exploded view of the insert **20**. FIG. 3 shows the same insert in assembled form and ready to be positioned inside container **10**. FIG. 4 illustrates a blank from which each of the upper and lower panels is formed. The upper panel **30** of the insert **20** is formed from a single blank of corrugated fiberboard sheet such as the blank A of FIG. 4. Blank A of FIG. 4 is folded along lines **31** and **32** to form inwardly turned side flaps. The lower panel **33** is formed from a similar blank, having the same inwardly turned side flaps. The flaps are folded back along the inner surfaces of the panels **30** and **33** so that they extend the full length thereof. The inwardly turned faces of the flaps **34** and **35** on panel **30** are then adhesively secured to the confronting surfaces of the panel **33**. The abutting faces of the inwardly turned flaps **34** and **36** are then adhesively secured to one another as are flaps **35** and **37**. By this means the edge portions of the insert **20** are multi-layered panels and thus provide substantial support across the opening in the container **10**. Further, a plurality of reinforcing bars **40**, **41** and **42** are provided which extend along the length of the panel **20** in the space between the upper panel **30** and the lower panel **33** and parallel to the confronting edges of the inwardly turned flaps **34**, **35**, **36** and **37**. The slats **40–42** are of thickness equal twice the thickness of the panel A of FIG. 4 so that they can conveniently be adhesively secured both to the inner face of the upper panel **30** and to the inner face of the lower panel **33**. It will be noted that flaps **34**, **35**, **36** and **37** extend the full length of the panel A and thus form a part of the upwardly and downwardly turned flaps **22**, **23**, **24** and **25**. Thus the reinforcing means embodied in this insert extends upwardly and downwardly along and adjacent to the walls **13** and **14** of the container **10** and preferably are secured thereto to provide reinforcing along the container walls and to provide rigidity for the insert itself.

Referring now to FIGS. 5–7, there is illustrated a further modification of the invention in which the insert is formed from two fiberboard panels. The first of the panels is panel B illustrated in FIG. 6 which has a width approximately equal the width of the box **10** and a length approximately equal twice the depth of the box **10**. Panel B is provided with end flaps **50** and **51** which extend along approximately half the length of the panel B. In the form illustrated, panel B is scored along lines **52** and **53** so that it may be folded back along itself to form the upper and lower panels of the insert shown in FIG. 5. More particularly, the intermediate section of panel B, the section **54**, forms the upper panel **54** of the insert of FIG. 5. The flaps or sections **55** and **56** are folded back along the section **54** to form the lower panel (not seen in FIG. 5). The second blank C of FIG. 7 is provided with end flaps **57** and **58**. The blank C has dimensions which correspond with combined sections **54**, **50** and **51** of the blank of FIG. 6. Thus, in fabrication, the blank of FIG. 7 is placed over the blank of FIG. 6 and the sections **55** and **56** are then folded over the blank of FIG. 7 and adhesively secured thereto. The flaps **50**, **51** and **57** and **58** are then folded away from the plane of the upper and lower panels with the flaps **57** and **58** forming portions of the reinforcing panel C extending downwardly as seen in FIG. 5 and the flaps **50** and **51** of panel B are folded upwardly as viewed in FIG. 5. By this means the insert in FIG. 5 may be placed in the box **10**, FIG. 1, with flaps **50**, **51**, **57** and **58** secured to the sides **13** and **14**. The panel C of FIG. 7 thus provides a reinforcing insert, portions of which form a flap which extends along the side walls of the container.

Referring now to FIGS. 8–10, there is illustrated an insert which is formed from three separate pieces. In this embodiment of the invention the upper and lower panels are formed from a blank such as blank D of FIG. 9. The blank has a width equal the width of the box **10** and a length approximately equal twice the depth of the container **10**. In the embodiment illustrated, the blank D is scored along lines **60** and **61** to divide the blank into three sections, an intermediate section **62** and end sections **63** and **64**. The blank D is thus adapted to form both the upper and lower panels of the insert of FIG. 8. As illustrated, the sections **63** and **64** are folded along score lines **60** and **61** to provide a rolled edge, such as edge **65**, on each edge of the insert. Reinforcing panels are provided, two in number, from blanks such as blank E of FIG. 10. Blank E has a length equal the width of the box **10** plus the height of the box. The width of the blank E is approximately equal to the depth of the box **10**. As illustrated in FIG. 10, the blank E is scored along lines **66** and **67**. A pair of such blanks, in fabrication, are placed over the section **62** of the blank of FIG. 9. The sections **63** and **64** are then folded over the upper surface of the section **68** of the blank of FIG. 8 and are adhesively secured thereto. The flaps, such as flaps **69** and **70** of the blank E of FIG. 10, are then folded upwardly to form side supporting flaps. As illustrated in FIG. 8, the upwardly directed flaps **69** and **70** are conveniently adapted to be secured to the side walls of the box **10**. Downwardly directed flaps **69***a* and **70***a* are similarly formed from the second reinforcing insert in the structure of FIG. 8 so that there is provided an integral reinforcing insert for the box **10** such as illustrated in FIG. 8.

Thus it will be seen that, in the three embodiments thus illustrated and described, the invention is characterized by upper and lower panels which form a partition for a container spaced from and parallel to upper and lower sides thereof. The partition is provided with a reinforcing insert means, at least a portion of which is adapted to form reinforcing side wall engaging flaps extending at least in one direction from the plane of the upper and lower panels. In a preferred embodiment of the invention, the insert is made from a pair of fiberboard sheets, the edges of which are inwardly folded and adhesively secured to their respective panels and to each other to form multilayer sections along the facing edges of the insert.

Preferably a plurality of reinforcing slats extend through the insert parallel to the edges of the inwardly turned flaps and are secured to both the upper and lower panels further to reinforce the same and to prolong the reusable life of the container carrying such insert.

Having described the invention in connection with certain embodiments thereof, it is understood that further embodiments may now suggest themselves to those skilled in the art and it is intended to cover such embodiments as fall within the scope of the appended claims.

What is claimed is:

1. An insert for a paper board container which has two upstanding side walls, horizontal top and bottom walls connecting the side walls and one end of the container having a vertical wall constituting an openable closure means thereat, which comprises an article-supporting partition member comprising an upper panel and a lower panel of substantially rigid material horizontally disposed within the container and each substantially coextensive with and in parallel spaced relation to the top and bottom walls and thus forming upper and lower article-storing compartments within the container, the compartments being accessible from the open end of the container for inserting articles on the partition member or removing the same from the upper compartment and lower compartment, reinforcing means disposed between the upper and lower panels, said reinforcing means having partition-supporting and side wall reinforcing flaps on the ends thereof extending from the partition member along the side wall in at least one direction, and partition-supporting and side wall reinforcing flaps extending in the other direction from opposite edges of the insert, said flaps being fixed against their adjacent walls and the free edges of said flaps terminating adjacent the upper and lower inside corners of the container, the exposed edge of said insert being unscored along the length of said

upper and lower panels facing said one end of said container.

2. A reinforcing and partitioning insert for a paper board container which has two upstanding side walls, horizontal top and bottom walls connecting the side walls and one end of the container having a vertical wall constituting an openable closure means thereat, which comprises an article-supporting partition member comprising an upper panel and a lower panel of substantially rigid material horizontally disposed within the container and each substantially coextensive with and in parallel spaced relation to the top and bottom walls and thus forming upper and lower article-storing compartments within the container, the compartments being accessible from the open end of the container for inserting articles on the partition member or removing the same from the upper compartment and lower compartment, each said panel having both side flaps and end flaps coextensive with the lengths thereof, the side flaps being folded inwardly into engagement with and secured to the inner faces of said panels and secured to each other to form multilayer sections at the front and back margins of said panels with smooth, rounded edges thereon, said side flaps also extending the length of the end flaps and forming portions thereof, the end flaps of the upper panel extending upwardly and the end flaps of the lower panel extending downwardly from the partition member along the side walls of said container and fixed against the adjacent walls thereof with the free edges of said end flaps terminating adjacent the upper and lower inside corners of the container.

3. The combination of claim 2 in which a plurality of reinforcing slats extend the length of said upper and lower panels, one adjacent to each of the inturned edges of the side flaps thereof, and of thickness to be secured to the inner faces of both said upper and lower panels.

4. The combination set forth in claim 2 in which at least three solid reinforcing slats of thickness twice the thickness of said flaps extend the length of said insert parallel to the inturned edges of said side flaps and which are adhesively secured to the inner faces of said upper and lower panels.

5. An article-supporting partition member for a paper board container comprising a pair of identical sheets of corrugated fiberboard each folded back on itself along two lines parallel to the edges thereof to form inturned flaps, adhesive means for securing the flaps of each sheet along the entire lengths thereof to the inner faces of their respective sheets and for securing the flaps on one sheet to confronting faces of the other sheet along an intermediate fraction of the lengths thereof, said one sheet being folded 90° away from said other sheet at each extremity of said intermediate portion, said other sheet being folded 90° away from said one sheet to form coplanar flaps at each end of said intermediate section adapted to be secured to side walls of said container to support said intermediate portion as a dividing panel.

6. The combination of claim 5 in which each of said inturned flaps is of width less than one-half the distance between said two lines, and a rigid reinforcing slat is secured to the inner faces of said sheets between the edges of said inturned flaps.

7. The combination of claim 5 in which each of said inturned flaps is of width less than one-half the distance between said two lines, and a plurality of slats are secured to the inner faces of said sheets and extend the length of said intermediate portion in array parallel to and intermediate the edges of said inturned flaps.

8. A reinforcing and partitioning insert for a paper board container which has two upstanding side walls, horizontal top and bottom walls connecting the side walls and one end of the container having a vertical wall constituting an openable closure means thereat, which comprises an article-supporting partition member comprising an upper panel and a lower panel of substantially rigid material horizontally disposed within the container and each substantially coextensive with and in parallel spaced relation to the top and bottom walls and thus forming upper and lower article-storing compartments within the container, the compartments being accessible from the open end of the container for inserting articles on the partition member or removing the same from the upper compartment and lower compartment, said upper panel and lower panel formed of an integrally formed corrugated fiberboard sheet having flaps appended to the sides thereof and spanning approximately one-half the length thereof and said sheet being adapted to be folded along lines parallel to the ends of said flaps, a reinforcing member adapted to be positioned between said upper and lower panels of width equal the width of said panels and of length one-half the length of said fiberboard sheet plus the length of end flaps thereon, said flaps on said fiberboard sheet being folded in a first direction from the partition member along the side walls of said container, the reinforcing flaps on the ends of said panels extending in the opposite direction and being fixed against the adjacent walls of said container, the free edges of said flaps terminating adjacent the upper and lower inside corners of the container.

9. A reinforcing and partitioning insert for a paper board container which has two upstanding side walls, horizontal top and bottom walls connecting the side walls and one end of the container having a vertical wall constituting an openable closure means thereat, which comprises an article-supporting partition member consisting of an upper panel and a lower panel of substantially rigid material horizontally disposed within the container and each substantially coextensive with and in parallel spaced relation to the top and bottom walls and thus forming upper and lower article-storing compartments within the container, the compartments being accessible from the open end of the container for inserting articles on the partition member or removing the same from the upper compartment and lower compartment, said upper and lower panels being formed of a unitary fiberboard sheet adapted to be folded along at least one intermediate point, said sheet being approximately equal to the width of said container and of length approximately twice the depth of said container, a pair of reinforcing insert panels positioned intermedate sad upper and lower panels and adhesively secured thereto and to each other, said reinforcing insert panels each having end flaps, the flaps of said upper panel extending upward and the flaps of said lower panel extending downward along the side walls of said container and secured thereto and terminating with the free edges thereof adjacent the upper and lower inside corners of said container, said insert having a folded edge of said fiberboard sheet facing said one end of said container.

No references cited.