

July 11, 1950

W. B. CRANE
CONTAINER

2,515,151

Filed Jan. 26, 1946

2 Sheets-Sheet 1

Fig. 1

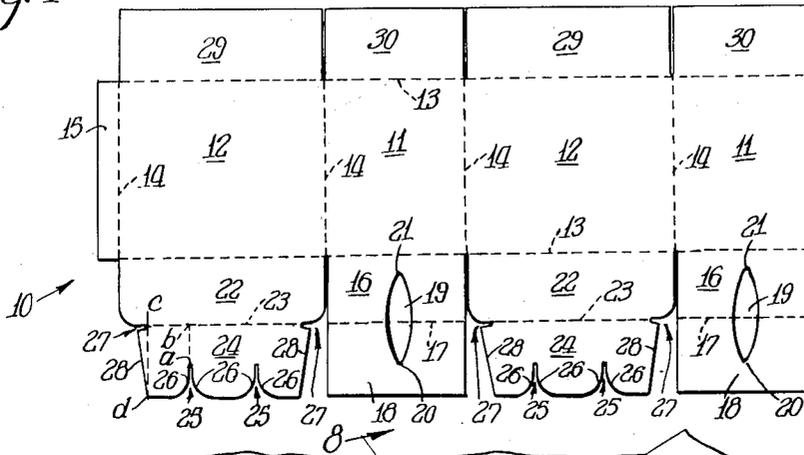


Fig. 7

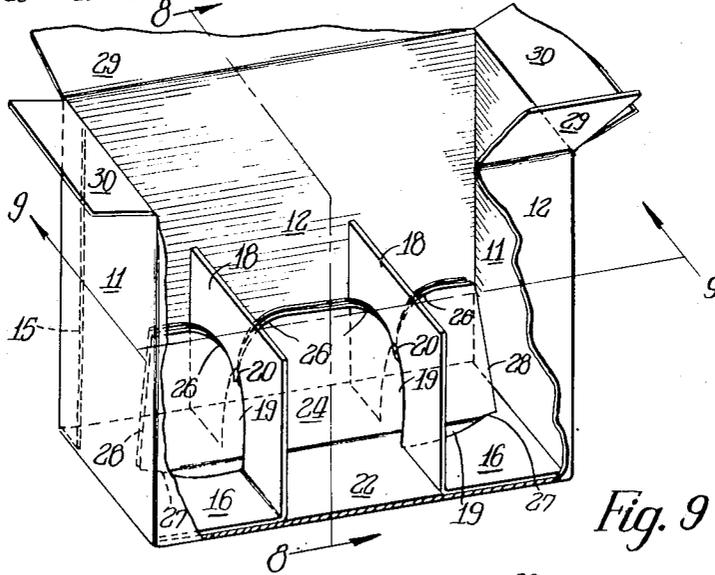
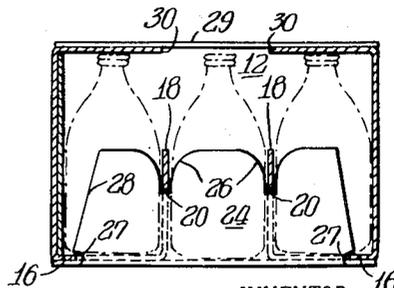
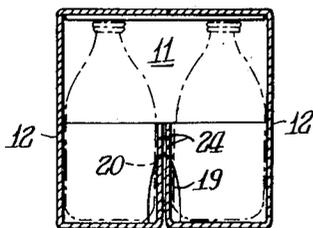


Fig. 9

Fig. 8



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Fig. 2

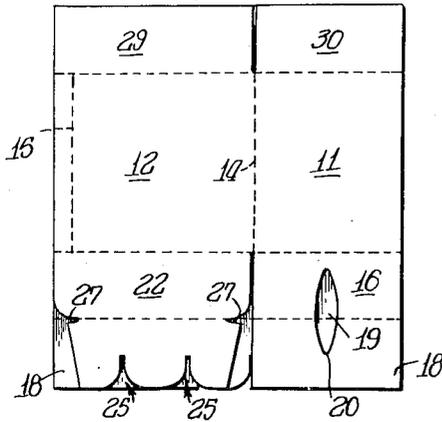


Fig. 3

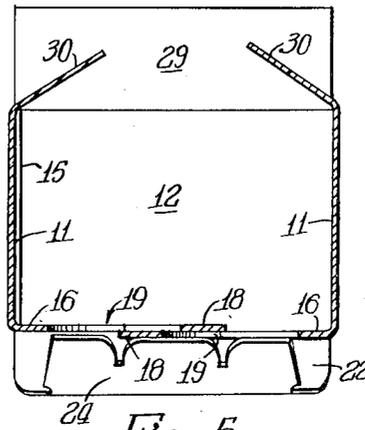


Fig. 4

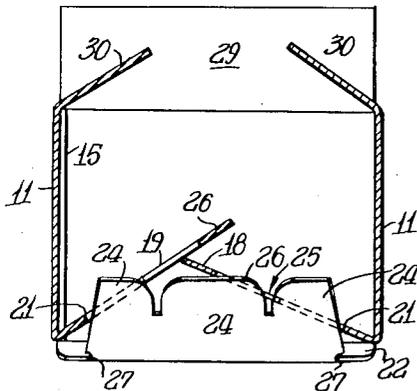


Fig. 5

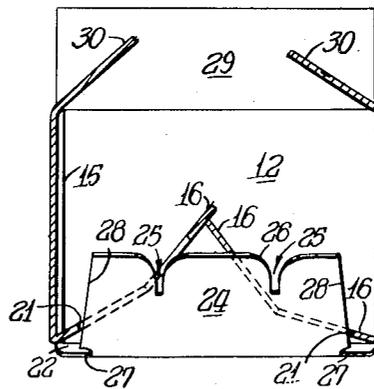
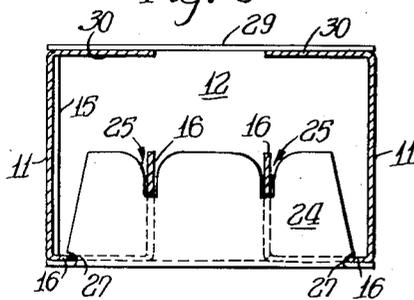


Fig. 6



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2,515,151

CONTAINER

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Application January 26, 1946, Serial No. 643,671

2 Claims. (Cl. 229—28)

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This invention has to do with improvements in containers. More particularly, it relates to a container, preferably made from a single blank of cut and scored paper board material, which is useful for shipping and retail packaging of fairly heavy commodities, the container having a bottom closure with a novel longitudinal and transverse partition combination which is an improvement over that disclosed in my copending application, Serial No. 499,909, filed August 25, 1943, now Patent No. 2,450,941, issued October 12, 1948, and of which this application is a continuation-in-part.

In my above mentioned application there is described a combination shipping, storage and display container cut, scored and secured together from a single blank of paper board material which can thereafter be folded from collapsible position to erect interlocked position to provide transverse and longitudinal partitions in the bottom thereof. However, in erecting such a container from collapsed position it is necessary, in order to insert fairly heavy articles such as jars, bottles, and the like, for which such containers and the present invention are particularly applicable, for a packer, or operator, to hold the transverse partitions in upright position with one hand while inserting such articles in the separate cells thus provided with the other hand.

It would be a distinct advantage to be able to eliminate the necessity for fingering and holding the transverse partitions in erect position during the setting up as well as during the packaging stage and this is accomplished by means of the present invention.

A principal object of the invention is the provision of a container of this type in which the bottom is formed and the transverse partitions automatically erected and held in position by means of the longitudinal partition.

More specifically, it is an object of the invention to provide, in a container constituting a blank of cut and scored paper board material providing panels secured together to form collapsible side and end walls, and inner and outer bottom walls hinged thereto, the improvement of transverse partitions hinged to the inner bottom walls and each having an aperture therein beginning at a point located marginally inwardly of the free edge thereof and extending medially into the inner bottom wall to a point terminating marginally inwardly of the end wall, and a longitudinal partition hinged to an outer bottom wall and having a slot therein with a curved edge extending from the free edge to provide a camming

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surface, whereby the transverse partitions automatically are cammed from a lowered to a raised position in setting up the carton and held in erect and interlocked position by the longitudinal partition.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a view illustrating a blank of cut and scored material of a preferred embodiment of the invention;

Fig. 2 is a view of the blank of Fig. 1 folded over upon itself, secured together ready for shipping to the user by whom it automatically can be erected from its collapsed position for filling;

Fig. 3 is a view illustrating the collapsed blank squared with the inner walls and transverse partitions overlapped and the outer bottom walls and longitudinal partition in positions to cam the transverse partitions into position;

Fig. 4 is a view illustrating an intermediate stage of the camming of the transverse partitions into position by the longitudinal partition;

Fig. 5 is a view illustrating a further stage of the transverse partitions being cammed into position by the longitudinal partition;

Fig. 6 is a view illustrating the transverse partitions finally cammed into erect and interlocked position by the longitudinal partition;

Fig. 7 is a perspective view of a container, with a section broken out of one of its side walls, illustrating the same held in erect and interlocked position for packaging;

Fig. 8 is a transverse view taken along the lines 8—8 of Fig. 7 and looking in the direction of the arrows when the container is packed with a commodity and closed; and

Fig. 9 is a transverse view taken along the lines 9—9 of Fig. 7 and looking in the direction of the arrows when the container is packed with a commodity and closed.

Referring more particularly to Fig. 1 of the drawings there is illustrated generally at 10 a blank of suitable paper board material which has been die-cut, scored and in condition to be se-

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cured together to provide a collapsed container.

This blank is provided with panels formed by score lines which form end walls 11, 11, and side walls 12, 12. These walls are defined by longitudinal score lines 13, 13, and vertical score lines 14, 14.

A securing flap 15 is provided at one of the side walls 12.

Connected to the end walls 11, 11, are inner bottom walls 16, 16, defined by the score line 13 and score lines 17, 17. Extending from the inner bottom walls 16, 16, are transverse partitions 18, 18, also defined by the score lines 17, 17. Each combination of inner bottom wall 16 and transverse partition 18 is provided with an aperture 19. This aperture begins at a point 20 located marginally inwardly of the free edge of each transverse partition 18 and extends medially into the inner bottom wall 16 to a point 21, terminating marginally inwardly of the end wall 11.

Extending from the side walls 12, 12, are outer bottom walls 22, 22, defined by the score line 13 and score lines 23, 23. Extending from the outer bottom walls 22, 22, are longitudinal partitions 24, 24, beginning at the score lines 23, 23. The score lines 17, 17, and 23, 23, as well as the score line 13 provide hinge or crease lines for the various panels forming the inner bottom wall, or inner bottom wall sections, and the outer bottom wall, or outer bottom wall sections. Conventional score lines need not necessarily be utilized but any suitable line weakened for bending and hinging purposes may be provided by cutting, perforating, or the like, between panels.

The longitudinal partitions 24, 24, which are hinged to the outer bottom walls 22, 22, have slots therein indicated generally at 25, 25. These slots have curved edges 26, 26, extending from the free edge of the partitions toward the bottoms of the slots, thus providing camming surfaces whereby the transverse partitions are automatically cammed from a lowered to a raised position in setting up the container.

The longitudinal partitions also have base slots indicated generally at 27, 27, where they are joined to the outer bottom walls 22, 22, and these slots interlockingly engage the inner bottom walls where the apertures 19, 19, terminate at 20, 20.

The longitudinal partitions at their ends 28, 28, are outwardly inclined from top to bottom but foreshortened so as to be spaced inwardly of the end walls 11, 11. They also provide camming surfaces to raise the inner bottom walls to permit the base slots to engage the same. The functions of the slots 25, 25, the slots 27, 27, and the ends of the longitudinal partitions 28, 28, will more fully appear hereinafter.

It should be noted that each aperture 19 is of a length which is substantially equal, for example, to the height of a longitudinal partition 24 beginning at the bottom of a slot 25 at *a*, to a point *b* normal to a bottom wall of the container at the bottom of the longitudinal partition, plus the distance along the bottom of the longitudinal partition from the point *b*, to another point *c*, normal to the top corner of the end of the longitudinal partition (see Fig. 1, lower left corner).

The top closure for the container may be of any suitable type. In the drawings it has been illustrated with plain overlapping panels 29, 29, extending from the side walls 12, 12, and panels 30, 30, extending from the end walls 11, 11, all of which are defined by the other score line 13.

A blank thus formed is next folded as illustrated in Fig. 2. The flap 15 is secured to one

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of the end walls 11 in any suitable manner such as by stapling or gluing, the former being preferred for certain commercial purposes for which the container is now in use.

The folded and secured blank is shown in collapsed position for shipping. When the packer receives the blanks they readily can be set up for filling and in a manner such that the transverse partitions will automatically be actuated and held in fixed erect position by means of the longitudinal partitions. The operation of setting up the container is graphically depicted in Figs. 3 through 6.

In Fig. 3 the collapsed carton of Fig. 2 has been squared by bringing the opposite side walls 12, 12, and the opposite end walls 11, 11, into opposed position. The inner bottom walls 16, 16, and the transverse partitions 18, 18, then are brought into overlapping position as indicated. The outer bottom walls 22, 22, are next brought into raised position with the longitudinal partitions 24, 24, arranged so that the curved free edges are disposed immediately below the overlapped inner walls 16, 16, and transverse partitions 18, 18.

In Fig. 4 there is illustrated an intermediate step in the automatic arrangement of the transverse partitions as the longitudinal partitions are raised into the body of the container, at the same time effecting the closing of the bottom. It will be seen that one of the curved surfaces 26 of the slot 25 engages the free portion of the lowermost partition 18. Since the apertures 19, 19 do not extend to the ends of the free edges of the transverse partition, i. e. since they are not mere slots, the camming surfaces 26, 26, will ride along the closed portions adjacent the free edges, thereby urging the partitions upwardly. At the same time the ends of the longitudinal partitions 24, 24, have begun to penetrate the apertures 19, 19. The lowermost transverse partition 26, as it is being cammed upwardly, raises the other overlapping partition 26, thereby also bringing it into raised position.

Fig. 5 shows a further development in the automatic camming of the transverse partitions into position by means of the longitudinal partitions. The lowermost transverse partition 16 is gradually cammed downwardly along one curved surface 26 of the longitudinal partitions 24, 24, by riding along the aperture at 20 and is directed toward the slot 25. At the same time the lower partition also pushes the upper transverse partition into an oppositely disposed slot 25 in the longitudinal partition.

In the meantime, the inner bottom walls 16, 16, are brought into slightly raised position because of the fact that the ends 28, 28, of the longitudinal partitions 24, 24 are tapered, or outwardly inclined, so as to provide other camming surfaces. These camming surfaces ride against the bottom end of the apertures 19, 19, where they terminate at point 21, 21, holding the adjacent inner walls slightly raised until the longitudinal partitions are raised to the extent permitted and the bottom walls 22 are in closed position. The slots 27, 27, will then engage the inner bottom end walls 16 as seen in Figs. 6-9. By this time the transverse partitions 16, 16, have become seated in the slots 25, 25, of the longitudinal partitions. Thus the ends of the longitudinal partitions 24, 24, penetrate the apertures 19, 19, and the transverse partitions 16, 16, traverse the slots 25, 25. The inner bottom walls 16, 16, extend through the base slots 27, 27, thereby holding the inner and outer bot-

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tom walls interlockingly in fixed position and the end and side walls in erect position.

The transverse partitions have now automatically been cammed into erect position merely by directing the adjacent transverse partitions upwardly through the apertures 19, 19, camming and interlocking the transverse partitions into cell forming position for the reception of such commodities as, for example, bottles indicated in dotted line position in Figs. 8 and 9 without any fingering whatsoever of the longitudinal partitions and, in particular, the transverse partitions.

The advantages of such an automatic camming structure for such types of containers are many. A great deal of time, labor and expense is saved in erecting the container. The same is true in packaging the container since an operator now can use both hands in filling the same with commodities whereas heretofore it was customary to hold the transverse partitions erect with one hand while placing the articles into the container with the other. Very often during conventional methods of packaging the transverse partitions were inclined to collapse and this entailed unnecessary delay in repositioning the same.

The container illustrated is of the closed type and is not constructed readily to display its contents. The top closure is a conventional type and is the preferred one in use at the present time. It can be provided with a suitable carton lock or secured in closed position by a tape. Such a closed squared type of carton is of very rigid construction and can be packed and stacked 24 units to a case when, for example, shipping beverages such as soft drinks as well as beer. Such commodities can also be sold by retailers who can package them in containers erected by themselves from collapsed position thereby providing a container without displaying its contents, such as beer, if desired. The container can conveniently be carried and be used in returning empty bottle. Broken bottles are largely eliminated in shipping them filled or empty because of the excellent all around protecting characteristics of the container.

It will thus be seen that the objects hereinbefore set forth may readily and efficiently be attained and since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a container constituting a blank of cut and scored paper board material providing panels secured together to form collapsible side and end walls, and inner and outer bottom walls hinged thereto, the improvement comprising a transverse partition hinged to an inner bottom wall and having an aperture therein beginning at a point located marginally inwardly of the free edge thereof and extending medially into the

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inner bottom wall to a point terminating marginally inwardly of the end wall, and a longitudinal partition hinged to an outer bottom wall and having a slot therein with a curved edge extending from the free edge of the longitudinal partition toward the bottom of the slot providing a camming surface, whereby said transverse partition is automatically cammed from a lowered to a raised position in setting up the container, said longitudinal partition extending through said aperture, and said transverse partition extending through said slot, and said longitudinal partition having base slots, where it is joined to the outer bottom walls, which engage the inner bottom walls where said aperture terminates, said inner bottom walls extending through said base slots thereby to hold said inner and outer bottom walls interlockingly in fixed position and said end and side walls in erect position, the length of the longitudinal partition at its bottom being less than the length of the opposite side wall between end walls.

2. In a container constituting a blank of cut and scored paper board material providing panels secured together to form collapsible side and end walls, and inner and outer bottom walls hinged thereto, the improvement comprising a transverse partition hinged to an inner bottom wall and having an aperture therein beginning at a point located marginally inwardly of the free edge thereof and extending medially into the inner bottom wall to a point terminating marginally inwardly of the end wall, and a longitudinal partition hinged to an outer bottom wall and having a slot therein with a curved edge extending from the free edge of the longitudinal partition toward the bottom of the slot providing a camming surface, whereby said transverse partition is automatically cammed from a lowered to a raised position in setting up the container, said longitudinal partition extending through said aperture, and said transverse partition extending through said slot, and said longitudinal partition having base slots where it is joined to the outer bottom walls which engage the inner bottom walls where said aperture terminates, the ends of said longitudinal partition being outwardly inclined from top to bottom but spaced inwardly of said end walls and providing camming surfaces to raise the inner bottom walls to permit said base slots to engage the same, said inner bottom walls extending through said base slots thereby to hold said inner and outer bottom walls interlockingly in fixed position and said end and side walls in erect position, the length of the longitudinal partition at its bottom being less than the length of the opposite side wall between end walls.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|-----------|------------|---------------|
| 1,221,804 | Kitt | Apr. 3, 1917 |
| 2,077,173 | Holy | Apr. 13, 1937 |
| 2,294,874 | Gordon | Sept. 1, 1942 |
| 2,365,333 | Cunningham | Dec. 19, 1944 |

FOREIGN PATENTS

| Number | Country | Date |
|---------|---------------|---------------|
| 359,083 | Great Britain | Oct. 22, 1931 |