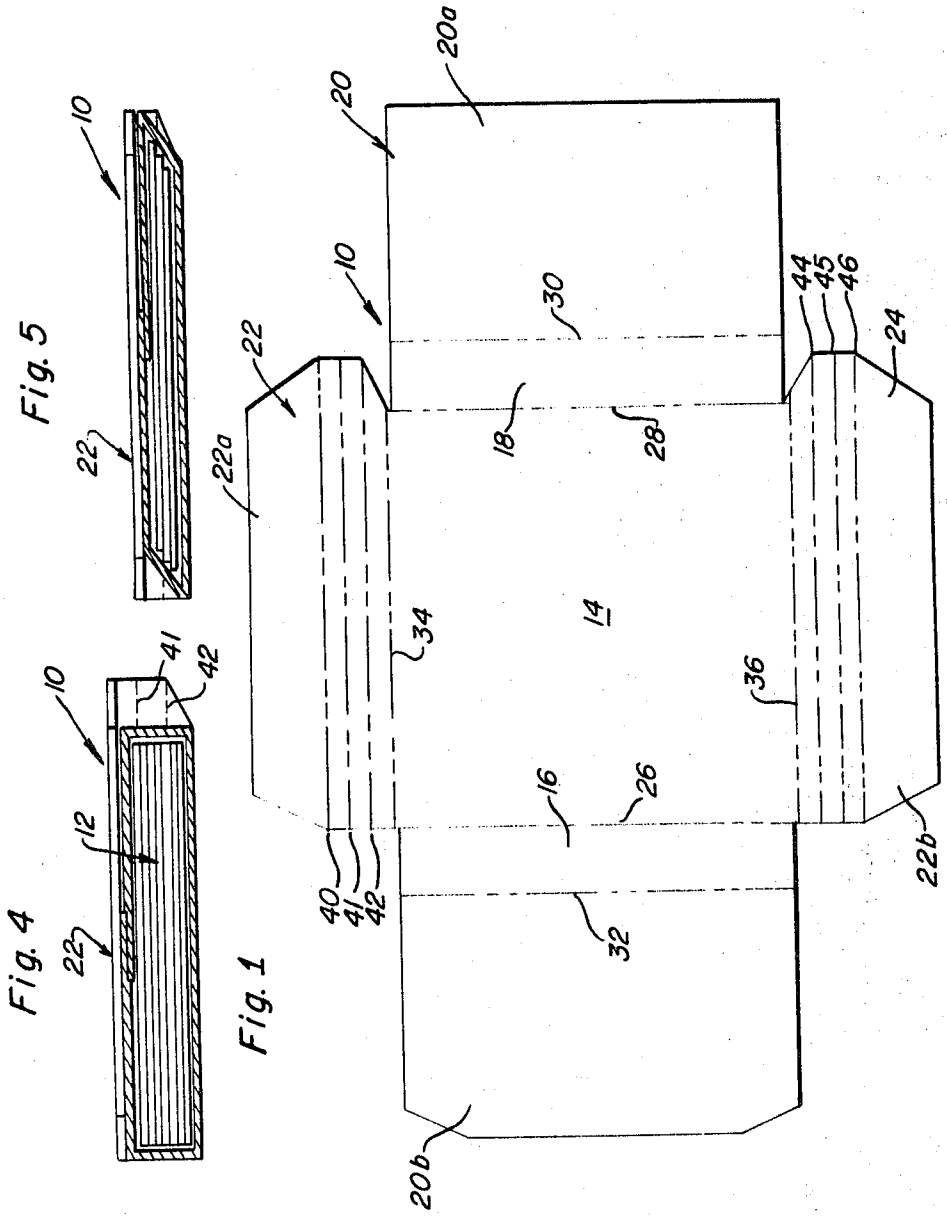
July 15, 1969 W. G. ANDERSON 3,455,499

ADJUSTABLE CONTAINER

Filed Jan. 13, 1967 2 Sheets-Sheet 1



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Fig. 3

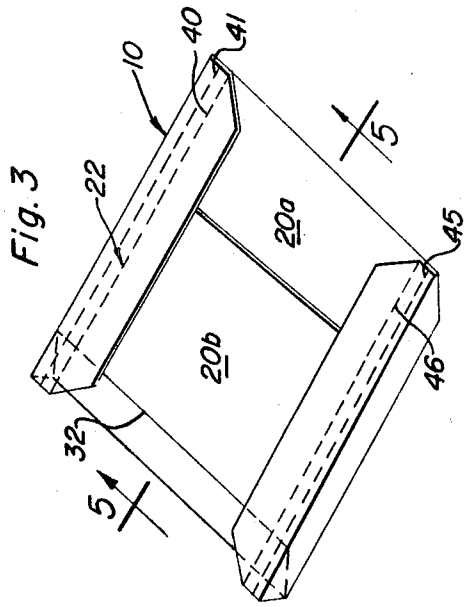
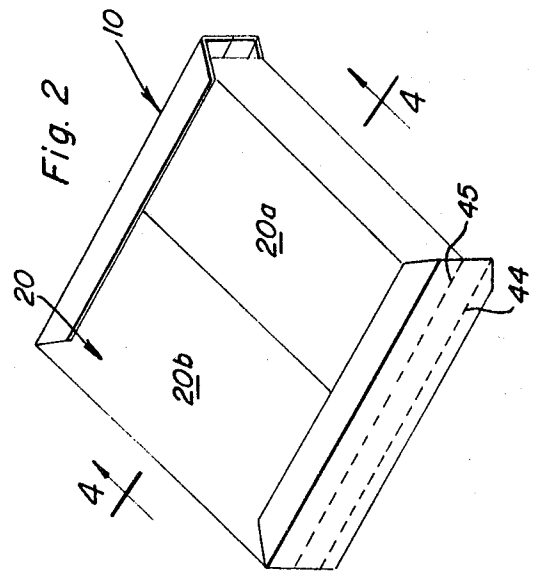


Fig. 2



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ADJUSTABLE CONTAINER

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ABSTRACT OF THE DISCLOSURE

A six sided box-like container the height of which is adjusted by angular adjustment of the end panels with respect to the top and bottom panels and having a pair of side panels which are higher than the end panels. The side panels have several parallel fold lines to permit the folding of a selected length of their free end portions over the top panel and thereby lock the top panel in position relative to the bottom panel.

This invention relates to an adjustable container and, more particularly, to a container, the height of which can be varied to accommodate articles or stacks of articles of varying heights. The container is particularly well suited for shipping a stack of phonograph records where the number of records, and thus the height of the stack, will vary from time to time. It is to be understood, however, that the container is suitable for shipping articles other than phonograph records.

Companies engaged in the business of shipping records to customers in small but varying quantities will quite often maintain an inventory of boxes of varying heights so that the box may be selected according to the height of the record stack being shipped. As an alternative, a single large size box may be used and, when the box is filled to less than its capacity, a substantial quantity of inner packing may be used in order to fill up the unused space in the box and prevent the records from moving around inside. Even when boxes of various heights are available, some excess inner packing must frequently be used to fill up space, because from one size box to the next the heights will usually increase more than the thickness of one or two relatively thin records. Excessive inner packing not only adds to the cost of the packaging operation, it adds to the weight of the container and thus to the shipping cost.

It is, therefore, one object of this invention to provide a container which will accommodate articles such as record stacks of varying heights without requiring excessive inner packing.

It is another object of this invention to provide a container which may be adjusted to accommodate articles or stacks of articles of varying heights.

It is an additional object of this invention to provide a container the height of which may be varied, thereby eliminating the necessity for maintaining an inventory of containers of varying heights.

It is still a further object of this invention to provide a neat, lightweight, variable size container which will eliminate the necessity for excessive inner packing when filled to less than its capacity.

Other objects will be seen and a further understanding of the invention may be had by referring to the following description and claims taken in conjunction with the accompanying drawings.

In accordance with one embodiment of the invention the container, which is formed from a single blank of fiberboard or the like, comprises a bottom panel, a pair of end panels hinged to the respective ends of the bottom panel, a pair of side panels hinged to the respective sides

of the bottom panel, and a top panel hinged to the opposite free ends of the end panels. The top panel preferably consists of two overlapping top flaps. The configurations and dimensions of the top, bottom and end panels are such that the end panels remain parallel and the top and bottom panels remain parallel through all positions of adjustment of the container. The four hinge connections of the top and bottom panels to the end panels are parallel, and the cross section of the container thus defines a parallelogram. The height of the container, i.e., the distance between the top and bottom panels, may be varied by adjusting the angular disposition of the end panels with respect to the top and bottom panels. The side panels are substantially greater in height than the end panels and each side panel has a plurality of fold lines spaced varying distances from and disposed parallel to the hinge connection with the bottom panel. In order to lock the top, bottom and end panels in the desired position of angular adjustment, a maximum length of each of the side panels is folded over the top panel and may be there secured in place by suitable means, such as an adhesive, a gummed tape or a binding.

With reference to the drawings;

FIGURE 1 is a top plan view of a blank which, when set up, will form a container embodying the invention;

FIG. 2 is a perspective view of a container constructed in accordance with this invention showing the top, bottom and end panels in one position of adjustment, conditioning the container for maximum capacity;

FIG. 3 is a perspective view of the container showing the top, bottom and end panels in another position of adjustment wherein the container will hold less than its maximum capacity;

FIG. 4 is a sectional view of the package illustrated in FIG. 2, taken substantially along line 4—4 of that figure; and

FIG. 5 is a sectional elevational view of the package illustrated in FIG. 3, taken substantially along line 5—5 of that figure.

With further reference to the drawings, the container **10** is adapted to hold articles or stacks of articles **12** such as phonograph records, books or any other articles or stacks of articles which vary in height and which would normally require an inventory of containers of various sizes. The container **10** includes a bottom panel **14**, a pair of end panels **16** and **18**, a top panel **20** and a pair of side panels **22** and **24**. Top panel **20** preferably consists of a pair of top flaps **20***a* and **20***b*.

The end panel **16** is hinged to one end of bottom panel **14** along a rectilinear hinge line **26**, and the end panel **18** is hinged to the other end of bottom panel **14** along a rectilinear hinge line **28**. Top flap **20***a* is hinged to end panel **18** along a rectilinear hinge line **30**, and top panel **20***b* is hinged to end panel **16** along a rectilinear hinge line **32**. The hinge lines **26**, **28**, **30** and **32** are parallel to one another and remain so in all positions of adjustment of the container **10**.

In the illustrated embodiment, the top flaps **20***a* and **20***b* are adapted to overlap, and the top panel **20** formed by these flaps is preferably the same size and shape (i.e., rectangular) as bottom panel **14**. It is essential that the distance between the ends of the top panel, i.e., the distance between hinged lines **30** and **32** be substantially equal to the distance between the ends of the bottom panel, i.e., the distance between hinged lines **26** and **28**. It is also essential that the end panels **16** and **18** be of substantially the same height and it is preferred that they be identical rectangles having the same transverse dimensions as the bottom and top panels **14** and **20**. Thus, when the container is set up, the top, bottom and end panels will form a configuration which is preferably a parallelepipedon and is necessarily a parallelogram in cross sec-

tion as best illustrated in FIGS. 4 and 5. By varying the angular disposition of the end panels **16** and **18** with respect to the top and bottom panels **14** and **20**, the top and bottom panels **20** and **14** may be moved toward and away from each other to vary the height of the container **10**.

The side panels **22** and **24** serve two functions—first, they close the sides of the container and, secondly, they lock the container in the desired position of height adjustment. Side panel **22** is hinged to one side of bottom panel **14** along a rectilinear hinge line **34**, and side panel **24** is hinged to the opposite side and bottom panel **14** along a rectilinear hinge line **36**. Side panels **22** and **24** are of greater height than the end panels **16** and **18** so that the free ends **22***a* and **22***b* of these side panels will extend above and may be folded over the top panel **20** where they may be secured in place by suitable means such as an adhesive, gummed tape, binding, or the like.

Between the hinge line **34** and its free end **22***a*, side panel **22** is scored to provide a plurality of fold lines which are parallel to each other and to the hinge line **34**. In the illustrated embodiment there are three such fold lines **40**, **41** and **42**. Side panel **24** is similarly scored to form fold lines **44**, **45** and **46**. These fold lines on the side panels **22** and **24** permit various lengths of the side panel to be folded over the top panel **20** to lock the top and bottom panels in their desired position of relative adjustment. Thus, the container may be set up to its maximum capacity as illustrated in FIGS. 2 and 4 wherein the end panels **16** and **18** are substantially vertical, positioning the top panel **20** the maximum distance from bottom panel **14**. In this position the side panels **22** and **24** are folded along the outermost fold lines **40** and **46**, respectively, so that only the portions exterior of these outermost fold lines are folded over the top panel **20**. When fewer than the maximum number of articles **12** are placed in the container, the end panels **16** and **18** may be angularly shifted to the position illustrated in FIGS. 3 and 5. This position of adjustment is an intermediate position of adjustment and it will be noted that the top panel **20** is disposed nearer to the bottom panel **14** than was the case in the position of adjustment illustrated in FIGS. 2 and 4. In this case, the side panels **22** and **24** are folded along intermediate fold lines **41** and **45**, respectively, and all portions of the side panels exterior of these fold lines are folded over the top panel **20**, thus locking this top panel in the desired position of proximity to the bottom panel **14**.

The fold lines may be spaced as desired. In the case of a container for phonograph records the fold lines may be spaced the thickness of a record so that the container will always exactly conform to the height of the record stack. Side panels **22** and **24** are preferably longer than the bottom panel **14** and shorter than the combined length of the bottom panel **14** and the end panel **18**. This assures that the sides of the container will be closed by the side panels in all positions of adjustment of the container.

Thus, it may be seen that a container has been provided, the height of which is adjustable to accommodate articles or stacks of articles of various heights without requiring excessive inner packing. Packing is easier and less costly, and the inventory of box sizes may be materially reduced. The package is neat and relatively light in weight, minimizing shipping costs.

Although the invention has been described with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that many modifications and changes in various details may be resorted to without departing from the spirit and scope of the invention, as hereinafter claimed.

What is claimed is:

1. A container for shipping articles of varying heights, said container comprising a bottom panel, a top panel, the distance between the ends of said top and bottom panels being substantially equal and the ends of said top panel being substantially parallel to each other and to the corresponding ends of said bottom panel, a pair of parallel end panels of a predetermined fixed substantially equal height, each extending between and being hingedly connected to a pair of corresponding ends of said top and bottom panels, said top, bottom and end panels defining a parallelepipedon, whereby said end panels may be disposed in various positions of angular adjustment with respect to said top and bottom panels to effect a corresponding adjustment in the distance between said top and bottom panels, and a pair of side panels hingedly connected to the opposite sides of said bottom panel, the height of said side panels being greater than that of said end panels, said side panels having a plurality of fold lines spaced varying distances from and disposed parallel to the hinge connection with said bottom panel, whereby a selected length of each of said side panels may be folded over said top panel to lock said top panel in the desired position of adjustment with respect to said bottom panel.

2. The structure of claim **1** wherein said top panel comprises a pair of flaps the combined size of which is at least as large as said bottom panel, each of said top flaps being hinged to a respective end panel.

3. The structure of claim **1** wherein the top, bottom and end panels are rectangular.

4. The structure of claim **3** wherein said top and bottom panels have substantially identical dimensions.

5. The structure of claim **3** wherein the length of said side panels is greater than the distance between said end panels, whereby the sides of the container may be covered in all positions of angular adjustment of said end panels.

6. A flat fiberboard blank for folding into a container for shipping articles of varying heights, said blank comprising a rectangular bottom panel, a pair of rectangular end panels each having one end hingedly connected to a respective end of said bottom panel, said end panels being of a predetermined, fixed, substantially equal height which, when said container is folded into a container, form with said top and bottom panels an angularly adjustable parallelepipedon, a pair of top flaps each having one end hingedly connected to the other end of a respective one of said end panels, said top flaps being adapted to overlap thereby forming a top panel having the same dimensions as said bottom panel when the blank is folded to form the container, and a pair of side panels hingedly connected to the opposite sides of said bottom panel, the height of said side panels being greater than that of said end panels, said side panels having a plurality of fold lines spaced varying distances from and disposed parallel to the hinge connection with said bottom panel, whereby a selected length of each of said side panels may be folded over said top panel to lock said top panel in the desired position of adjustment with respect to said bottom panel when the blank is folded to form the container.

7. The structure of claim **6** wherein said end panels have the same transverse dimension as said bottom panel.

8. The structure of claim **5** wherein the portions of said side panels overlap said top panel and are adhesively secured to said top panel to lock said top panel and said end panels in the desired position of adjustment with respect to said bottom panel.

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