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[54] **EXPANDABLE DISPLAY TRAY**

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[52] **U.S. Cl.**..... **206/44 R;** 206/72; 229/DIG. 3; 229/30; 229/41 R

[51] **Int. Cl.**[2].... **B65D 5/52;** B65D 1/34; B65D 5/20

[58] **Field of Search**..... 206/44 R, 72, 45.15; 229/DIG. 3, 30, 41 R

[56] **References Cited**

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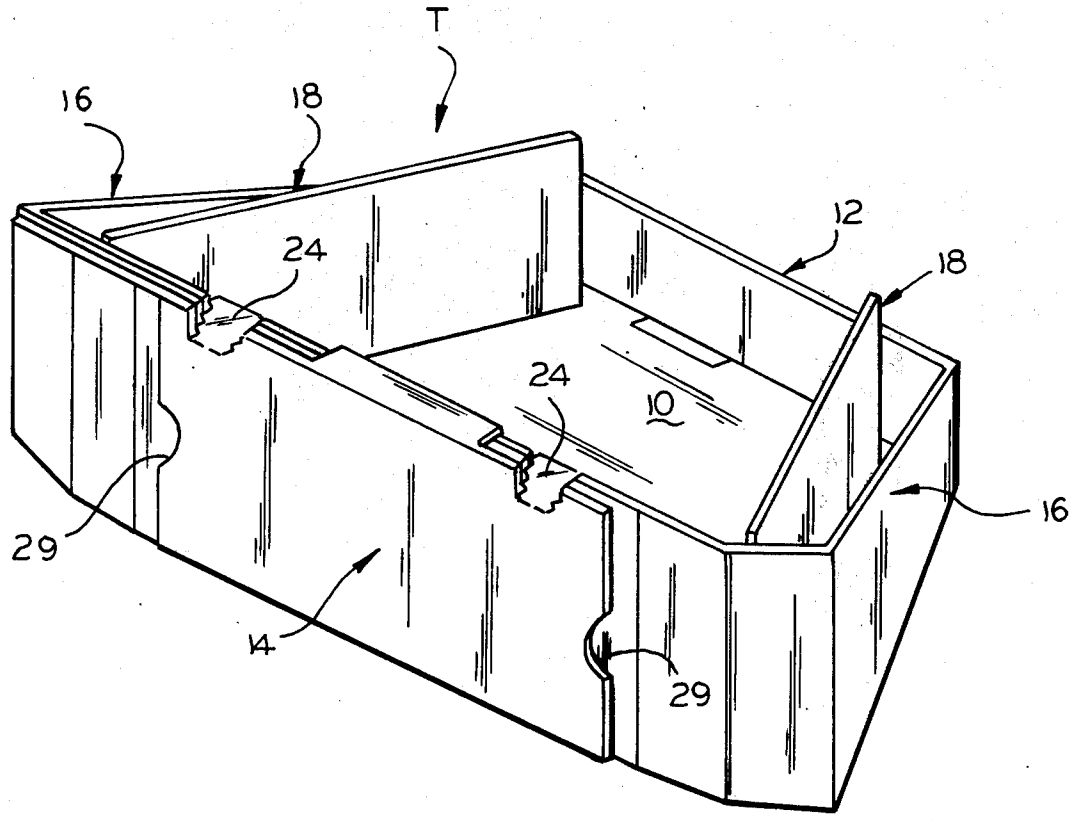
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[57] **ABSTRACT**

An open-top tray for shipping and displaying articles of merchandise which can be expanded by moving the side walls away from each other.

5 Claims, 3 Drawing Figures



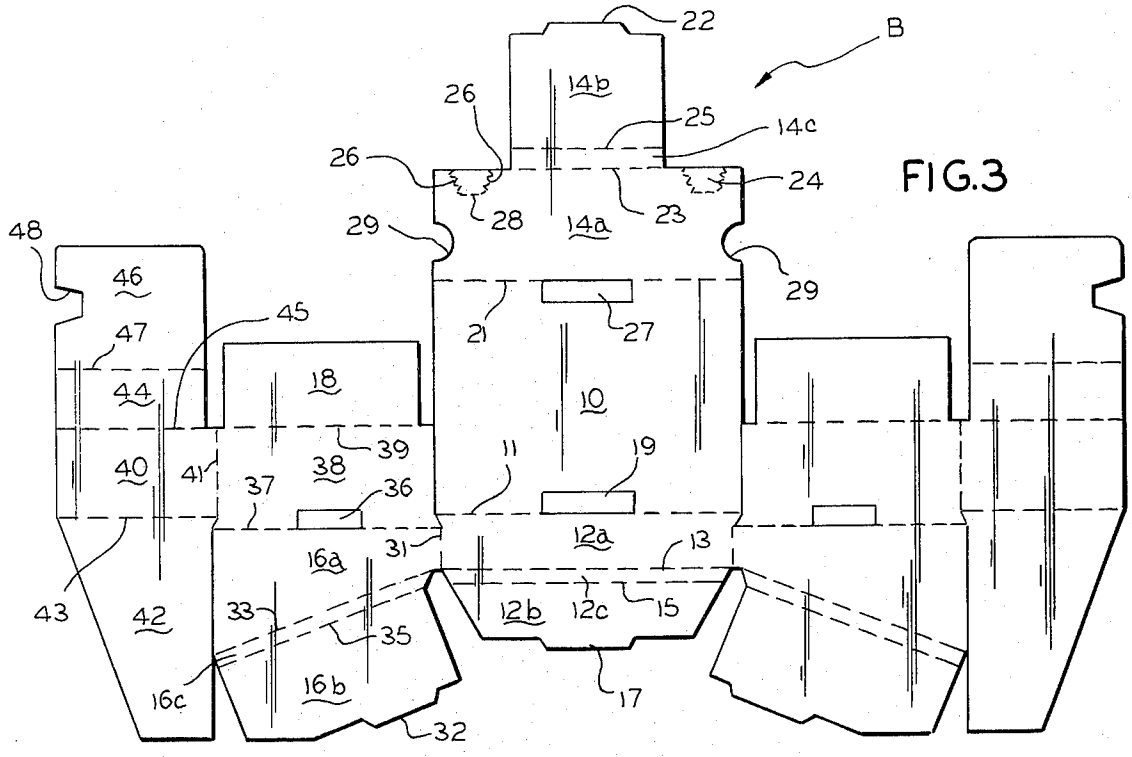


FIG.3

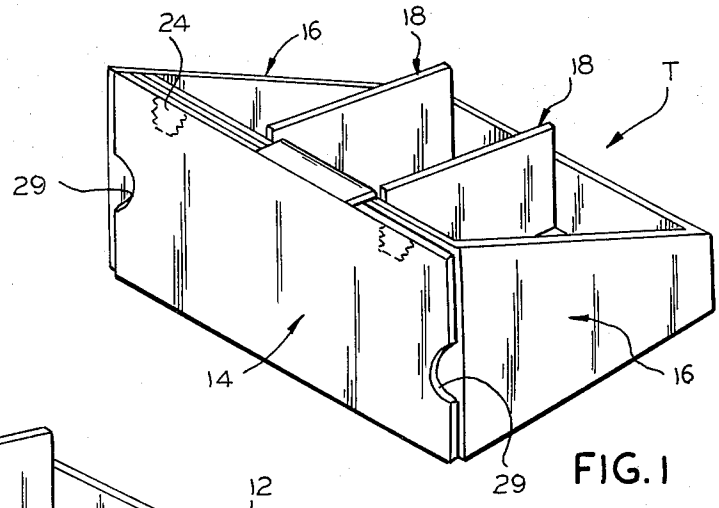


FIG.1

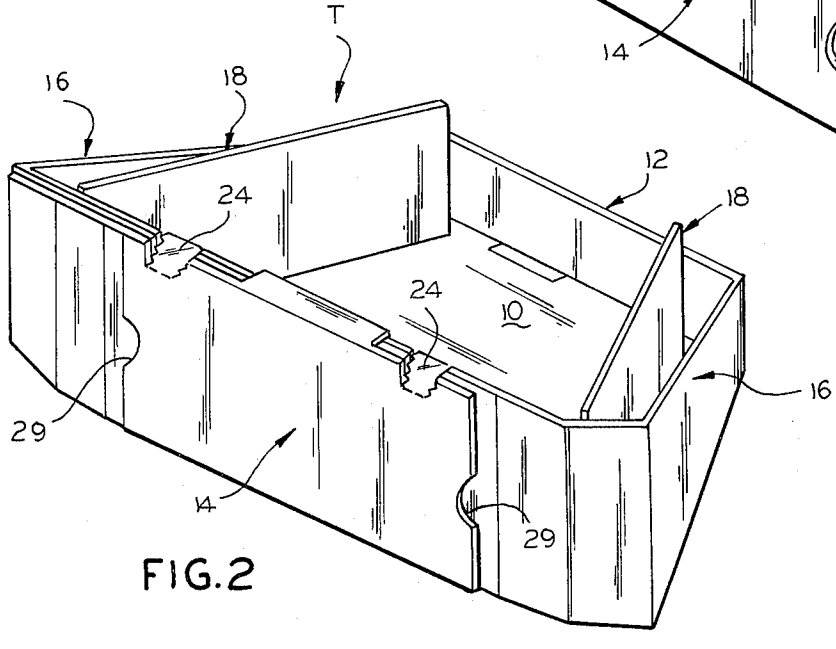


FIG.2

EXPANDABLE DISPLAY TRAY

SUMMARY OF THE INVENTION

It is an object of the invention to provide a tray-type container which may be used to package relatively heavy articles of merchandise, such as books, for shipment, and which can thereafter be expanded to a greater width for display purposes.

A further object of the invention is to provide an open-top, expandable, tray-type container which may be assembled from a flat blank of sheet material, such as paperboard or the like, without the need of stapling, gluing, or taping.

A more specific object of the invention is to provide, in a container of the type described, an end and side wall construction including expansion flap members interconnecting end and side walls which permits the end walls to be moved away from each other to make the tray wider when desired.

These and other objects of the invention will be apparent from an examination of the following description and drawing, wherein:

DRAWING

FIG. **1** is a perspective view of a tray-type container embodying features of the invention, as shown in a retracted position;

FIG. **2** is a view similar to that of FIG. **1**, but with the container shown in an expanded position; and

FIG. **3** is a plan view of a blank of sheet material from which the container illustrated in the other views may be formed.

It will be understood that, for purposes of clarity, certain views may have been intentionally omitted from certain views where they are believed to be illustrated to better advantage in other views.

Referring now to the drawing for a better understanding of the invention, it will be seen that the novel tray-type shipping container embodying features of the invention, which is indicated generally at T in FIGS. **1** and **2**, may be formed from a unitary blank of sheet material, such as foldable paperboard, as indicated generally at B in FIG. **1** of the drawing.

As best seen in FIGS. **1** and **2**, container T is in the form of an open-top tray including a generally rectangular bottom wall **10**, a pair of front and rear side walls **12** and **14**, respectively, a pair of end walls **16**, and a pair of vertical partitions **18**, all of which are foldably interconnected to form a box-like structure open at the top.

Referring now to FIG. **1** of the drawing, it will be seen that front wall **12** includes a pair of outer and inner panels **12***a* and **12***b* which are hingedly interconnected at their upper edges by a relatively narrow, elongated top panel **12***c*. Front wall outer panel **12***a* is hingedly attached to a forward edge of bottom wall **10** along a fold line **11**, and top panel **12***c* is hingedly attached along its outer and inner edges to panels **12***a* and **12***b* along fold lines **13** and **15**, respectively. At its free lower edge, outer panel **12***b* is provided with a projection or extension **17** which is disposed to be received within a recess or depression **19** located in bottom wall **10** immediately adjacent fold line **11**.

Rear side wall **14** also includes a pair of outer and inner panels **14***a* and **14***b*, respectively, which are hingedly interconnected at their upper edges by a relatively narrow top panel **14***c*. Outer panel **14***a* is hingedly attached at its lower edge to a rear edge of bottom wall **10** along fold line **21**. Top panel **14***c* is hingedly attached at its outer and inner edges along fold lines **23** and **25** to the upper edges of outer and inner panels **14***a* and **14***b*, respectively. At its free or lower edge, inner panel **14***b* is provided with a projection or extension **22** which is adapted to be received within a recess or depression **27**, presented by bottom wall **10** immediately adjacent fold line **21**.

It will be noted that rear wall inner panel **14***b* and top panel **14***c* are of slightly less width than outer panel **14***a* and that there is provided in outer panel **14***a* on both sides of its attachment to top panel **14***c* a pair of locking tabs **24**, each of which are defined by a pair of spaced, preferably irregularly shaped cut lines **26** extending from the upper edge of panel **14***a* downward to a hinge line **28** on which the locking tab is hingedly attached to outer panel **14***a*. The purpose of locking tabs **24** will be described later in the Specification. Rear wall outer panel **14***a* may be provided with a pair of preferably circular recesses **29** located at the opposed side edges thereof, and the purpose of these recesses will also be described later in the Specification.

Each of the end walls **16** of the container also includes a pair of outer and inner panels **16***a* and **16***b*, respectively, which are interconnected at their upper edges by a relatively narrow top panel **16***c*. Outer panel **16***a* is hingedly attached on fold line **31** to an adjacent side edge of front wall outer panel **12***a*, and end wall top panel **16***c* is hingedly attached at its outer and inner edges to the upper edges of outer and inner end wall panels **16***a* and **16***b* along fold lines **33** and **35**, respectively.

Hingedly attached at one edge along a fold line **37** to a lower edge of each end wall outer panel **16***a* is a connecting panel **38**. Each connecting panel **38** is disposed to overlie a marginal portion of bottom wall **10**, when the container is in an erected condition, and has hingedly attached to an opposed parallel edge along fold line **39**, a vertical partition **18** which extends between the front and rear side walls of the container when the carton is in an erected condition.

Each end wall inner panel **16***b* is provided along its free lower edge with an extension or projection **32** which is adapted to be received within a recess or depression **36**, presented by connecting panel **38** immediately adjacent fold line **37**. In order to provide for the expansion of the container by moving the end walls away from each other, there is provided an expansion member which includes a main flap **40** which is hingedly attached at its lower edge along fold line **41** to an end edge of related connecting panel **38**. Hingedly attached to another edge of main flap **40** along fold line **43** is a front corner flap **42**. Hingedly attached to the opposed side edge of main flap **40** along a fold line **45** is first rear corner flap **44**. Hingedly attached to an opposed edge of first rear corner flap **44** along a fold line **47** is a second rear corner flap **46**. At the upper edge of second rear corner flap **42** there is presented a cut-away portion or recess **48**, the purpose of which is described later in the Specification.

It will be understood that the novel tray-type container herein may be assembled or erected either manually or automatically without the use of any glue, staples, or tape, because all of the parts have interlocking connections with each other.

In assembling the container, flaps **42** and **44** are folded upwardly at 90° angles relative to flap **40.** Flap **40** is then folded upwardly at a 90° angle relative to connecting panel **38.** Panels **16***a* are then folded upwardly at a 90° angle relative to connecting flap **38,** and panels **16***b* are then folded downwardly 180° with projections **32** being locked in recesses **36** and with panels **42** being sandwiched between panels **16***a* and **16***b*. At about the same time that panels **16***a* are folded upwardly, panels **12***a* are also folded upwardly 90° relative to bottom wall **10.** Panels **16***a* are then folded inwardly 90° relative to panel **12***a*, so that panels **38** overlie marginal portions of bottom wall **10.** This completes set-up of both ends of the container. Panel **12***b* is then folded downwardly 180° with its projection **17** being received in recess **19** in bottom wall **10,** thus, locking the front wall in position. Panel **14***a* is then folded upwardly 90° relative to bottom wall **10** and panel **14***b* is folded downwardly 180° with its projection **22** being received within recesses **27** of bottom wall **10** to lock the rear wall in position, with flaps **40, 44,** and **46** being sandwiched between panels **14***a* and **14***b*. Partition panel **18** is then folded upward at a 90° angle relative to connecting panel **38** and the container is now in a completely assembled or erected condition and is in the closed or retracted position and may be filled with articles of merchandise, such as books, for shipping. After the articles have been shipped in the container, and it is desired to expand the container for display purposes, the end walls **16** may be moved outwardly from the center of the container either by pulling directly on the end walls or by grasping the flaps **40** in the areas of the recesses **29** provided in the rear wall outer panel **14***a*. When the tray has been expanded to a position where the recesses **48** in flaps **46** are in alignment with lock tabs **24** on rear wall outer panel **14***a*, the lock tabs may be folded over and inserted into recesses **48** to provide an interlocking connection and thereby prevent further outward movement of the end walls of the tray. Thus, it will be seen that there is provided in the invention, a novel tray-type container of relatively simple design and construction which is entirely self-contained, so that it can be erected without any additional securing means, such as glue, staples, or tape,

and which may be moved from a retracted to an expanded position and locked in such position for display purposes if so desired.

We claim:

1. In an expandable shipping and display tray, formed of a unitary blank of foldable paperboard or the like, the combination of:

a. a bottom wall and opposed pairs of front and rear side walls and end walls foldably interconnected to form a box-like structure open at the top;

b. said side and end walls each including a pair of inner and outer panels;

c. at least one expansion member including:

i. a first flap interposed between the panels of an end wall;

ii. a second flap slidably interposed between the panels of a side wall for movement between a tray retracted position, wherein substantially all of said second flap is disposed within said side wall, and a tray expanded position, wherein only a distal portion of said second flap is positioned within said side wall;

d. lock means detachably interconnecting said second flap and said side wall when the former is in said tray expanded position.

2. A tray according to claim **1,** wherein said expansion member includes a connecting panel overlying said bottom wall and having one side edge foldably connected to a lower edge of said end wall outer flap and having another side edge foldably connected to a lower edge of a flap of said expansion member.

3. A tray according to claim **2,** and including a vertically disposed partition element foldably connected at its lower edge to and upstanding from a side edge of said connecting panel.

4. A tray according to claim **1,** wherein said lock means includes a lock tab foldably connected to said side wall outer panel and engageable with a recess in said expansion member second flap.

5. A tray according to claim **1,** wherein said end walls are parallel to each other when the tray is in its retracted position and diverge from one of said side walls when the tray is in its expanded position.

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