

March 4, 1958

C. R. POTTS ET AL
DISPLAY STAND

2,825,519

Filed Sept. 15, 1955

4 Sheets-Sheet 1

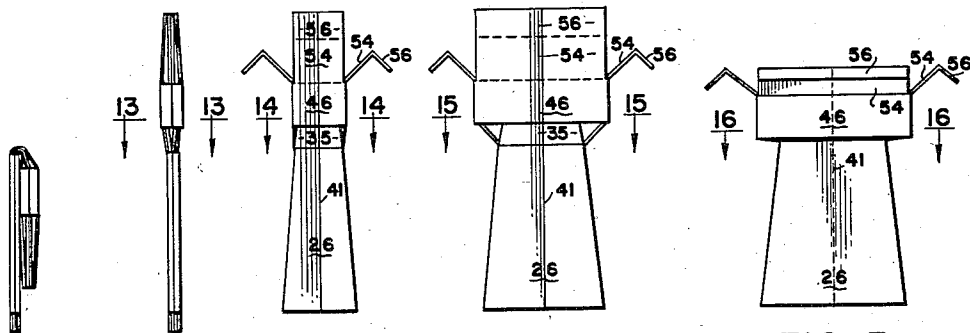


FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

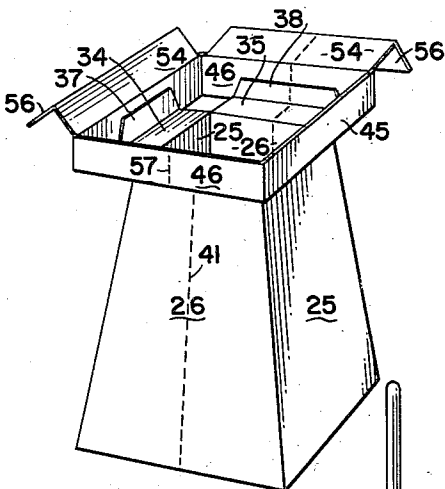


FIG. 6

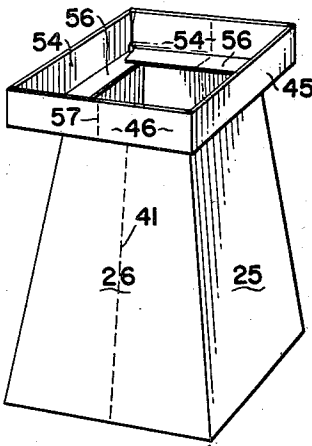


FIG. 7

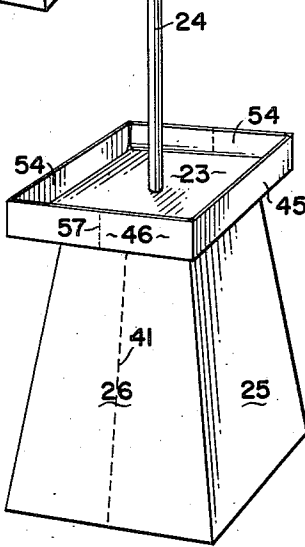


FIG. 8

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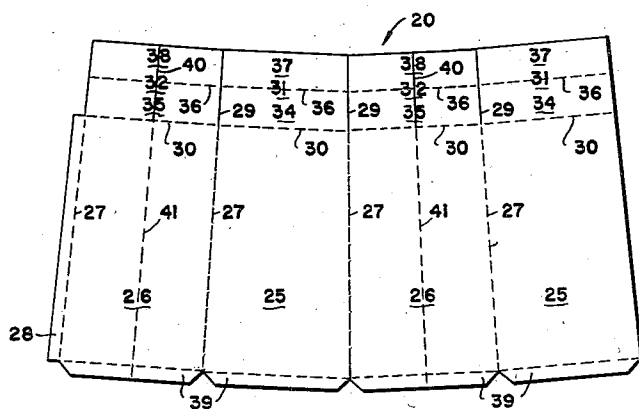


FIG. 9

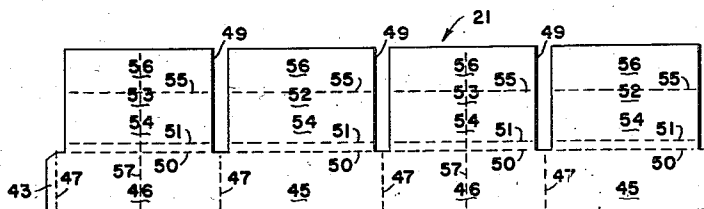


FIG. 10

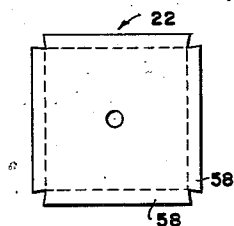


FIG. 11

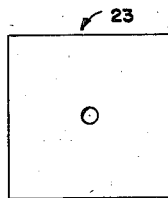


FIG. 12

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4 Sheets-Sheet 3

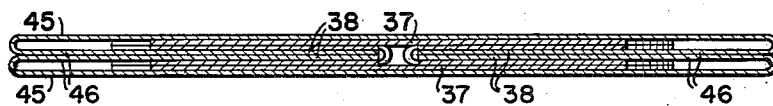


FIG. 13

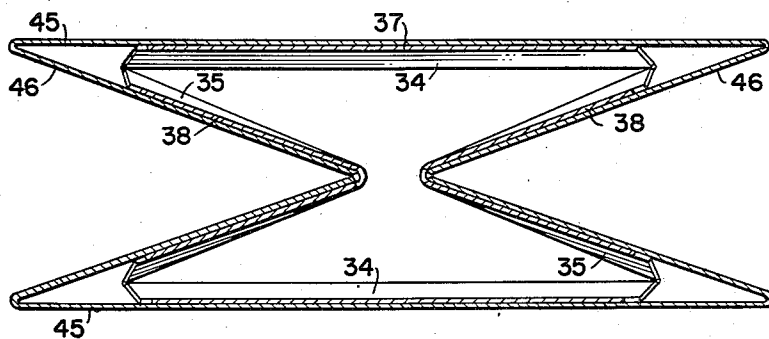


FIG. 14

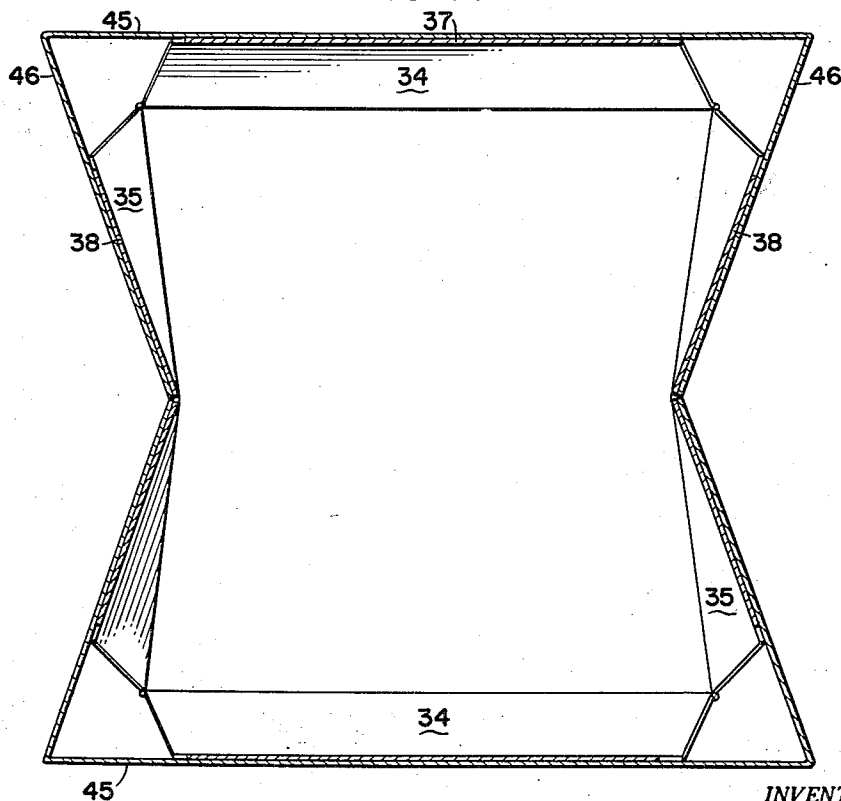


FIG. 15

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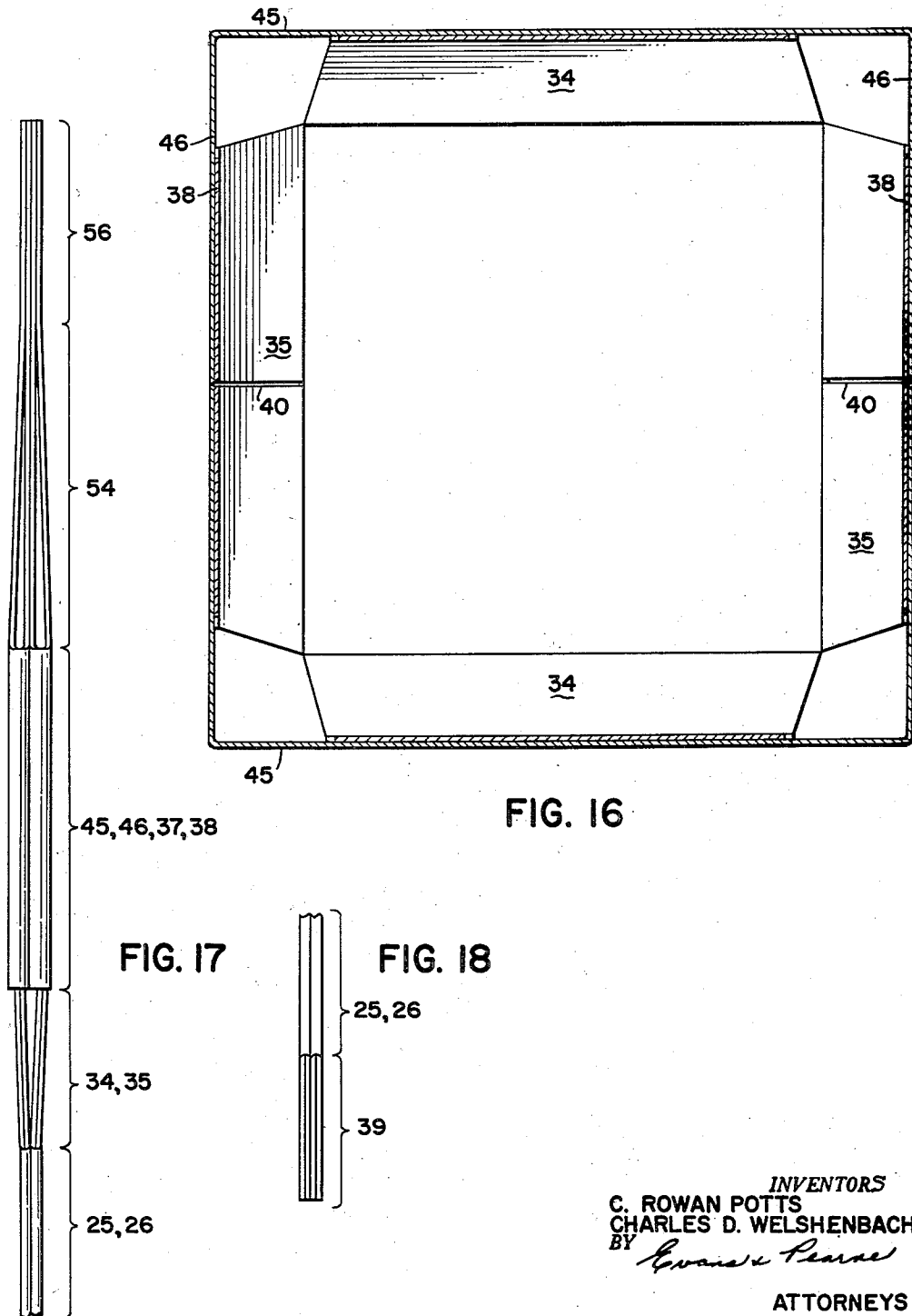
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4 Sheets-Sheet 4



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2,825,519

DISPLAY STAND

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Application September 15, 1955, Serial No. 534,495

2 Claims. (Cl. 248—174)

This invention relates to paperboard display stands or similar structures of paperboard or like material which can be collapsed into a relatively flat compact condition for shipment prior to use and for storage when not in use. In particular, the invention relates to paperboard structures of the general type mentioned where one part, usually the top, extends laterally beyond another part, usually the base, in order to provide an attractive and useful stepped construction giving the effect, for example, of a relatively wide display case with a narrower supporting pedestal.

Paperboard structures of this general type have been provided in the past, one example being found in U. S. Patent 2,066,844 to Lynch. However, such structures have been relatively unwieldy to set up, since it has been necessary to expand the structure and then continue to manually restrain the natural collapsing tendency of the structure during the infolding or insertion of locking overflaps.

We have provided a structure of the type described which is locked in expanded position by the very act of expansion and which therefore exhibits no tendency to collapse during the infolding or insertion of such supplemental locking overflaps and such other elements as it may be desirable to provide.

Another advantage of our structure is that any tendency of the top and base, when collapsed, to move slightly toward and away from each other in telescoping relation is eliminated, thereby providing a firmer collapsed package which is less subject to the flexing and chafing and consequent loss of body and stiffness which similar structures of the prior art have experienced, particularly under impact loads incident to shipping and handling. Our structure is also stronger and more rigid when erected than those of the prior art.

We achieve the above objects and advantages by providing connections between the top and bottom assemblies of the structure, which connections embody what might be termed a "toggling" feature which resists changes in the folded relation of the connecting elements in both the expanded and collapsed conditions of the structure.

The above and other objects and advantages of the invention and its mode of operation will become clearer from the following description of an embodiment of the invention, which is given by way of illustration and not of limitation.

In the drawings:

Figure 1 is a side view of a collapsed structure embodying the invention.

Figures 2-5 are side views of the structure shown in Figure 1 at succeeding stages of expansion.

Figure 6 is a sketch in perspective of the structure in the condition shown in Figure 5, certain elements being omitted for clarity.

Figure 7 is a sketch in perspective showing a later stage in the complete assembly of the particular embodiment illustrated.

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Figure 8 is a sketch in perspective showing the final and complete assembly of the particular embodiment illustrated.

Figures 9-12 are layouts of the several blanks which the illustrated embodiment may comprise.

Figures 13-16 are views on an enlarged scale and in cross-section, taken on lines 13-13 in Figure 2, 14-14 in Figure 3, 15-15 in Figure 4, and 16-16 in Figure 5, respectively.

Figure 17 is a view, on an enlarged scale, of the upper portion of Figure 2.

Figure 18 is a view, on an enlarged scale, of the lower portion of Figure 2.

The particular embodiment illustrated, in its fullest elaboration, may include one tubular element or pedestal generally indicated at 20, another tubular element or top generally indicated at 21, a bottom pad generally indicated at 22 and a tray pad generally indicated at 23 (see Figures 9-12, respectively).

The tube 20 may comprise plain side walls or panels 25 and intermediately scored or foldable side walls or panels 26, the side walls or panels 25, 26 being separated by fold lines 27. A tab 28 is appropriately glued or fastened to the opposite free end of the panel assembly to form a tube. The cuts 29 and fold lines 30 define plain tabs 31 and intermediately scored or foldable tabs 32. The tabs 31 and 32 have, respectively, intermediate tab portions or panels 34 and 35 defined between the fold lines 36 and fold lines 36 and outer tab panels 37 and 38. Suitable tabs 39 may be provided at the opposite end of the tubular assembly 20.

The tabs 32 are intermediately cut and severed by the cuts 40 and aligned therewith are intermediate folds or scores 41 in the panels 26, which preferably have the form of non-severing cuts extending from the inside of the tube to the outer liner of the paperboard stock without severing such outer liner.

The tube 21 may comprise plain side walls or panels 45 and intermediately scored or foldable side walls or panels 46, the side walls or panels 45, 46 being separated by fold lines 47. A tab 43 is appropriately glued or fastened to the opposite free end of the panel assembly to form a tube. The notches or cuts 49 and fold lines 50, 51 define plain tabs 52 and intermediately scored or foldable tabs 53. The tabs 52 and 53 have intermediate tab portions or panels 54 defined between the fold lines 51 and fold lines 55 and outer tab panels 56.

The side walls or panels 46 are provided with intermediate folds or scores 57 which preferably have the form of non-severing cuts extending from the inside of the tube to the outer liner of the paperboard stock without severing such outer liner. The folds or scores 57 extend intermediately along the tabs 53.

The bottom or pad 22 may be provided with a central hole and with suitable tabs 58. The tray pad 23 may also be provided with a central hole.

In the particular embodiment illustrated, the tabs 32 each comprise pairs of tabs due to the intermediate severance at 40. However, it will be understood that each line 40 may less preferably be merely a fold line or score line, in which case the tabs 32 are each divided not into separate tabs but into two co-joined portions.

The outer tab panels 37 and 38 are glued or fastened to the inner side walls 45 and 46, respectively, with the fold lines 36 located at the free or lower edges of the side walls 45 and 46. The fold lines 30 and 36 thus lie on or at the adjacent ends of the tubes 20 and 21 with the intermediate tab panels 34 and 35 extending therebetween.

When the individual members of the tab pairs or tab portions comprising each of the tabs 32 are folded at other than very shallow angles to each other around

the lines 40, the tabs 32 are locked by such angular disposition against folding around the lines 30 or 36. When the structure is collapsed as shown in Figures 2, 17 and 18, a sharp angular disposition of these parts obtains, and any tendency of the tubes 20 and 21 to telescope or move longitudinally with respect to each other arising from accommodation of the flaps 31 to folding and unfolding around the lines 30 and 36 is positively overcome by provision of the flaps 32. The structure may be still further collapsed as shown in Figure 1. This is the way it is preferably packed together with the bottom and tray pads 22 and 23.

When the structure is to be removed from a shipping carton and set up, it is unfolded from the position shown in Figure 1 to that shown in Figure 2. The tabs 39 may then be tucked under and the structure expanded as shown in Figures 3-5. From within the tube 21 pressure may be exerted manually outwardly at the cuts or folds 40 to quickly expand the assembly. Slight resistance is encountered due, in most part, to the deformation or non-destructive twisting or bending of the tab panels 35 (which twisting may be seen in Figure 15) during the latter stages of expansion. However, as manual pressure continues to be exerted, the angles between the halves or portions making up each panel 35 become very shallow and suddenly accommodate folding of the tabs 32 around the fold lines 30 and 36. Strain on the twisting tab panels 35 is thus relieved, and the structure snaps or toggles out to fully expanded position where it stays because the then-established sharp folds at 30 and 36 lock the tabs 32 against folding around the lines 40. Accordingly, the structure maintains itself in a positive manner in expanded, erected position with no tendency to collapse or fold.

The tabs 52 and 53 provide further reinforcement when that is desired. Thus, in the particular embodiment illustrated, the erection of the structure may be further carried on from the stage shown in Figures 5 and 6 (in Figure 6 the foremost tabs 52 and 53 are omitted for clarity) by infolding the tabs as shown in Figure 7 and then inserting the tray pad 23 as shown in Figure 8. At this time the bottom pad 22 may also be inserted in the bottom of the tube 20. The central holes in the pads 22 and 23 may receive a pole 24 on which a display card or other structure may be hung or mounted above the tray.

When the illustrated embodiment is to be collapsed or stored, the pole 24 and pads 22 and 23 are removed. The tabs 52 and 53 are outfolded. The erect structure comprising the tubes 20 and 21 is collapsed by exerting manual pressure inwardly at the cuts or folds 40. This causes each half of each side wall or panel 46 to twistingly deform to accommodate unfolding of the tabs 31 around the fold lines 36, such twisting being analogous to the twisting of the tab panels 35 during erection of the structure. The tube 21 tends to rise slightly, and unfolding also occurs around the fold lines 30. When the angles between the walls 26 and intermediate tab panels 35, on the one hand, and the panels 35 and 38, on the other hand, become shallow, folding along lines 40 and 41 is suddenly accommodated, and the structure snaps or toggles into partially collapsed position. Inward manual pressure on the panels 25 then completes collapse. The structure may then be further folded as shown in Figure 1, if desired.

It will be apparent that important aspects of the teaching of the invention may be embodied in structures which do not employ elements equivalent to the pads 22 and 23 or the tabs 52 and 53. Still other departures may be made from the precise details of the disclosed embodiment of the invention. For example, the tube elements 20 and 21 might have greater numbers of side walls to provide, for instance, octagonal tubes, and four of the walls on each tube could still be co-attached with two of them being inwardly collapsible as taught by the

invention, so long as the four walls in each tube were rectilinearly disposed to each other at adjacent ends of the two tubes in expanded position.

A particularly simple modification would be the replacement of the cuts 40 by less preferred fold lines or scores. Another obvious modification would be to form the tabs 31 and 32 integral with the tube 21 rather than the tube 20, or to form the tabs 31 and 32 separately and adhere or fasten them to each of the tubes 20 and 21. These and other less readily apparent possible modifications and elaborations will make it apparent that the above disclosure of one presently preferred specific embodiment of the invention is made merely by way of example. Within the limitations of semantics that are inherent in the subject matter, the scope of the invention is defined in the following claims:

What is claimed is:

1. In a collapsible paperboard structure, references to shape being had with respect to erected conformation, a plurality of first walls foldable relatively to each other and defining a collapsible first tube, the cross-section of said first tube comprising cross-sections of four of said first walls, which cross-sections are rectilinearly disposed to each other, a plurality of second walls foldable relatively to each other and defining a collapsible second tube, the cross-section of said second tube comprising cross-sections of four of said second walls, which cross-sections are rectilinearly disposed to each other, said first and second tubes having adjacent ends, the cross-sectional area of the adjacent end of one of said tubes being substantially greater than the cross-sectional area of the adjacent end of the other of said tubes, one opposite pair of said first four walls and one opposite pair of said second four walls having intermediate score lines, tab means extending from each of said first four walls in overlapping relation to each of said second four walls, each of said tab means having a first fold line adjacent said adjacent end of said first tube and a second fold line adjacent said adjacent end of said second tube, said first and second fold lines defining therebetween intermediate tab panels, the tab means associated with said one opposite pair of first fold lines each including a pair of tabs extending from each of said opposite first walls on opposite sides of its intermediate score line, each of said pair of tabs being locked against folding with respect to the other when such pair of tabs, taken together, is folded to a substantial degree on those of said first and second fold lines associated therewith, thereby preventing collapse of said tubes and conversely, each said pair of tabs, when folded to a substantial degree with respect to each other, locking such pair of tabs, taken together, against folding on said first and second fold lines, thereby preventing indeterminant telescoping of said tubes when collapsed, and means securing said tab means to said walls with which they are associated.

2. In a collapsible paperboard structure, references to shape being had with respect to erected conformation, a plurality of first walls foldable relatively to each other and defining a collapsible first tube, the cross-section of said first tube comprising cross-sections of four of said first walls, which cross-sections are rectilinearly disposed to each other, a plurality of second walls foldable relatively to each other and defining a collapsible second tube, the cross-section of said second tube comprising cross-sections of four of said second walls, which cross-sections are rectilinearly disposed to each other, said first and second tubes having adjacent ends, the cross-sectional area of the adjacent end of one of said tubes being substantially greater than the cross-sectional area of the adjacent end of the other of said tubes, one opposite pair of said first four walls and one opposite pair of said second four walls having intermediate score lines, tab means extending from each of said first four walls in overlapping relation to each of said second four walls, each of said tab means having a first fold line adjacent

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said adjacent end of said first tube and a second fold line adjacent said adjacent end of said second tube, said first and second fold lines defining therebetween intermediate tab panels, the tab means associated with said one opposite pair of first fold lines each including an intermediate score line extending from the intermediate score line of the associated first wall to the intermediate score line of the associated second wall and therefore extending transversely across said first and second fold lines associated therewith to define a pair of portions of said intermediate tab panel associated therewith, which portions are locked against folding with respect to each other, thereby preventing collapse of said tubes when the associated intermediate tab panel as a whole is folded to a substantial degree on said first and second fold lines and which portions, conversely, when folded to a sub-

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stantial degree with respect to each other, lock the intermediate tab panel as a whole against folding on said first and second fold lines thereby preventing indeterminate telescoping of said tubes when collapsed, and means securing said tab means to said walls with which they are associated.

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