Dec. 25, 1956 E. M. RUGG 2,775,393

COLLAPSIBLE ASSEMBLY FOR BOX STRUCTURES

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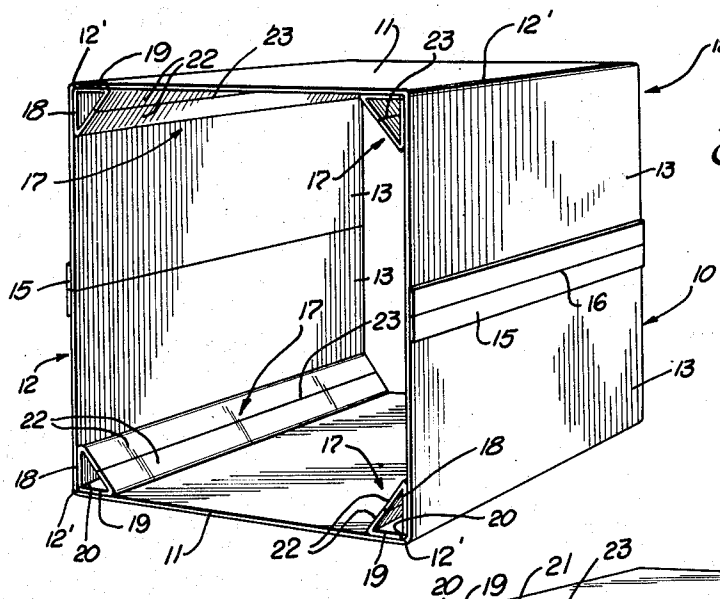


Fig. 1

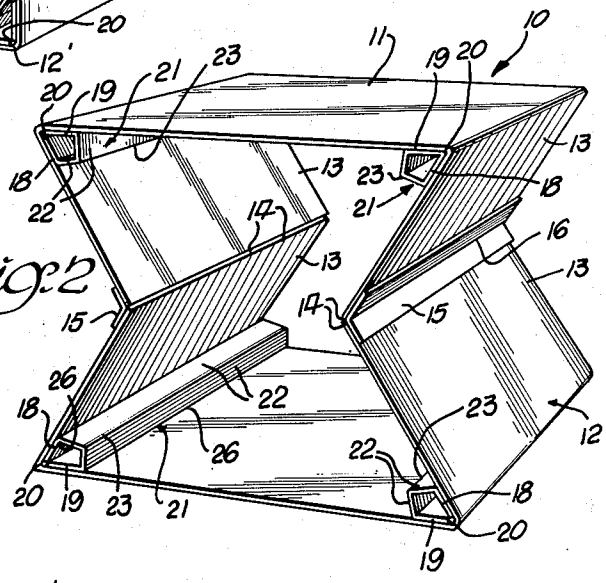
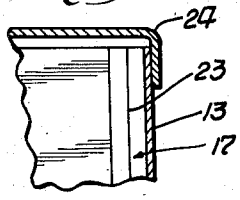


Fig. 2

Fig. 5



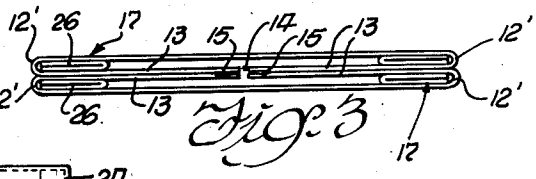
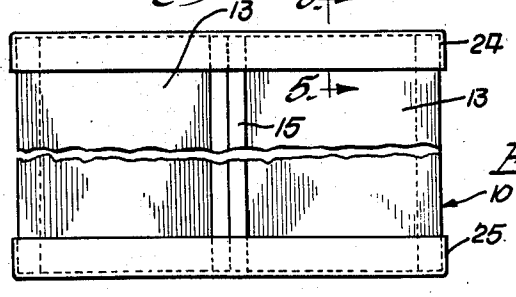


Fig. 3

Fig. 4



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COLLAPSIBLE ASSEMBLY FOR BOX STRUCTURES

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1 Claim. (Cl. 229—41)

This invention relates to a collapsible box structure. More particularly the invention relates to a collapsible wall assembly used in connection with a box-like container.

It is a primary object of this invention to provide an improved wall assembly for collapsible containers, the wall assembly being particularly adaptable for boxes of the paper-board type.

A still further object is to provide an improved collapsible paper-board wall assembly having improved corner reinforcements adapted to reinforce and support the assembly during normal use.

Still another object is to provide an improved collapsible wall assembly having tubular-like corner reinforcements, the said reinforcements being of collapsible construction to permit quick and easy collapse of the collapsible wall assembly.

A still further object is to provide an improved collapsible wall assembly of the type used in paper-board boxes, the said assembly including tubular corner reinforcements each having individual wall sections adapted to be hingedly collapsed during the collapse of said assembly.

These and further objects will become more readily apparent from a reading of the specification when examined in connection with the accompanying sheet of drawing.

In the drawing:

Figure 1 is a perspective view of a collapsible wall assembly for paper-board boxes showing the assembly in a normal uncollapsed position;

Figure 2 is a perspective view, similar to Figure 1, of the collapsible wall assembly showing the same in a state of partial collapse;

Figure 3 is an elevational view of a collapsible wall assembly showing its collapsed position;

Figure 4 is a side elevational view of a collapsible wall assembly in normal use position including top and bottom closure members; and

Figure 5 is an enlarged detail cross sectional view of a portion of a box assembly taken substantially along the line 5—5 of Figure 4.

Referring now particularly to Figures 1 and 2, a collapsible wall assembly is indicated by the reference character **10**. The wall assembly **10** comprises side walls **11** and **12** hingedly connected together at hinge or score lines **12'**. The type of material that may be utilized in this particular assembly may be of the cardboard or paper-board type. This type of material is of course well known in the box industry and consists primarily of separated layers of paper having a corrugated section disposed therebetween. In general this type of material may be made to suitably hinge or be folded by merely scoring the material by means of score or so-called hinge lines. The present invention is of course not limited to this particular type of material though it has been discovered that this material is both inexpensive and particularly well adapted to the type of wall assembly under consideration.

Opposed side walls **12** comprise separate panels **13** having longitudinally extending adjacent edge portions **14**. A hinge flap **15** is provided for each of the side walls **13**, the said hinge flap **15** being positioned over the adjacent edge portions **14** and being co-extensive therewith. The hinge flap **15** also comprises a hinge or score line **16** whereby the wall panels **13** may be readily and easily hinged inwardly as best shown in Figure 2. As best shown in Figures 1 and 2 the collapsible wall assembly **10** is open at its ends. The normal use position for the said assembly is best shown in Figure 4. In order to properly reinforce the corners of the collapsible wall assembly **10**, a plurality of tubular triangularly shaped corner supports **17** are provided. Each of the said corner supports **17** comprises a first wall **18** which is connected by glue or other means not shown to the panels **13** of each wall **12**. A second wall **19** of each corner support **17** is in turn connected in the same manner to the walls **11**.

The first and second walls of the corner supports **17** are suitably connected for hinging movement by means of score lines indicated at **20**. A third wall of the tubular support **17** is indicated at **21**. Each third wall **21** of each support **17** comprises a pair of sections **22** which are hingedly connected together along score or hinge line **23**. As best shown in Figure 4 a top closure member is indicated at **24**, the said closure member being placed over the upper end of the wall assembly **10** and a bottom or lower closure member **25** is placed over the lower end of the said wall assembly **10**.

The normal in-use position of the collapsible wall assembly is shown in Figure 4. In this case the wall assembly may be supported on the bottom or base **25**, and after the material has been placed in the assembly the top closure member **24** may be suitably fastened to the assembly. Figure 2 shows the assembly **10** in a preliminary or initial collapsing stage, and Figure 3 shows the position of the parts when the assembly is completely collapsed. In Figures 2 and 3 it will be noted that the tubular corner supports **17** are constructed to likewise collapse when the complete assembly is placed into the collapsed position. Collapse of the tubular members is afforded by parallel score lines **20**, **23** and **26**. Thus it is apparent that the tubular members may be easily collapsed though they serve to rigidly support the collapsible wall assembly in the normal upright position. These corner supports serve to reinforce the corners of the wall structure and act as primary supports when they are placed in shipment or transit. Thus numerous boxes of this type may be supported one on top of the other and the tubular supports act as primary supporting structures.

Thus it is obvious that the objects of the invention have been fully achieved and it must be understood that changes and modifications may be made without departing from the spirit of the invention as disclosed or the scope thereof as defined in the appended claim.

What is claimed is:

A collapsible wall assembly for boxes, comprising a plurality of side walls disposed in rectangular relation, said side walls having hinged corner connections to provide a structure having oppositely disposed open ends, two of said side walls disposed in opposed relation comprising separate panels, each panel having adjacent edge portions extending substantially parallel to the corner connections, a hinge member connecting the adjacent edge portions of the panels of each side wall whereby the said panels may be hingedly moved inwardly for collapsing said structure, corner supports for said structure comprising triangular-shaped tubular members disposed in the corners of said structure and coextensive with the side walls, said tubular members each having a first wall connected to a panel and a second wall connected to an adjacent side wall, the first and second walls of the tubular

members being hingedly connected, a third wall on each tubular member, said third wall including wall sections hingedly connected to the first and second walls, said sections having inner surfaces disposed within the tubular members, and means hingedly connecting said sections together, all of said hinged connections being substantially parallel to each other whereby said corner supports may be positioned in flat collapsed relation with the inner surfaces of said sections in contiguous contact during collapse of said structure.

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