Oct. 16, 1956 F. DRUECK, JR 2,766,893

COLLAPSIBLE HOLLOW DISPLAY DEVICE

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FIG. 3

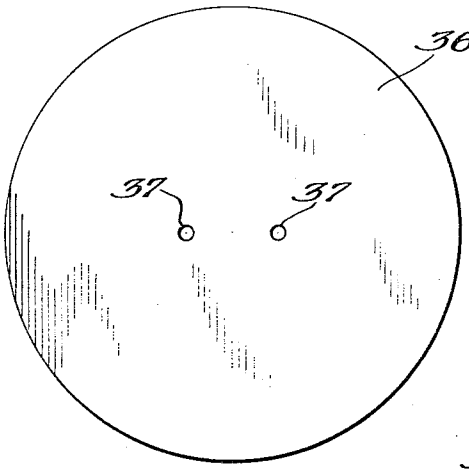


FIG. 4

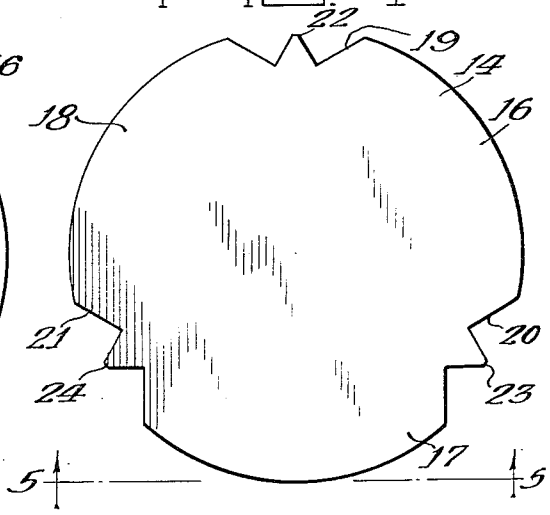


FIG. 1

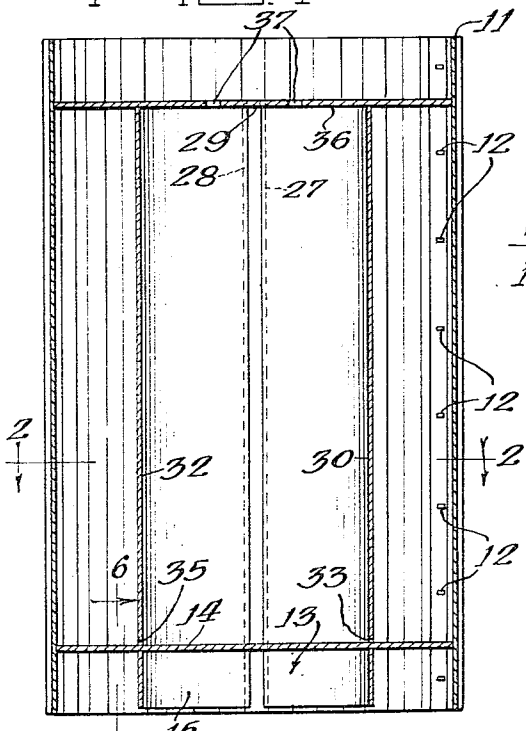


FIG. 2

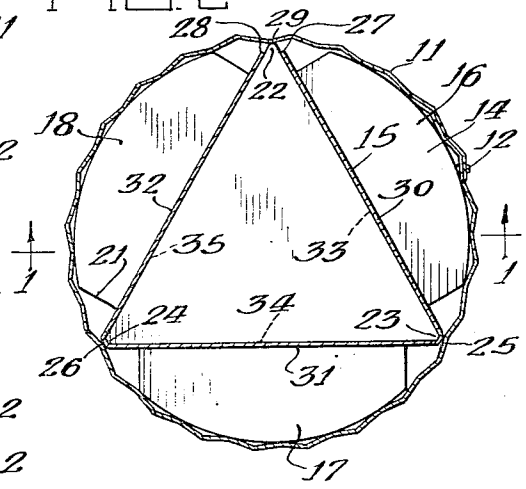


FIG. 6

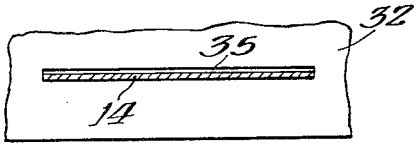
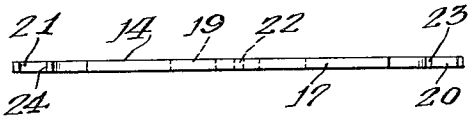


FIG. 5



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FIG. 9

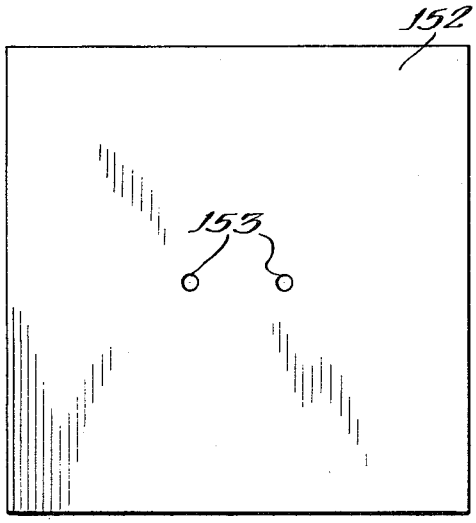


FIG. 10

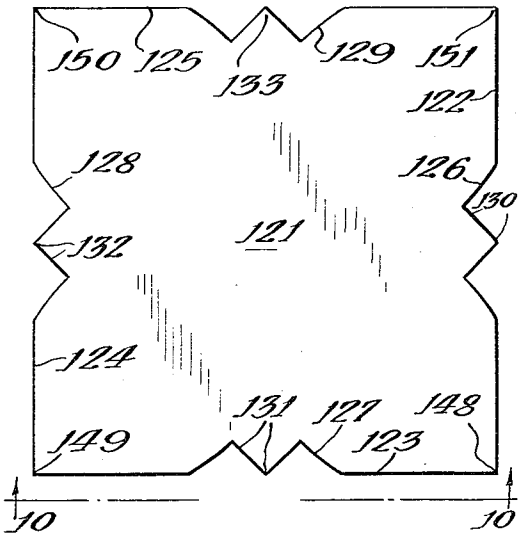


FIG. 7

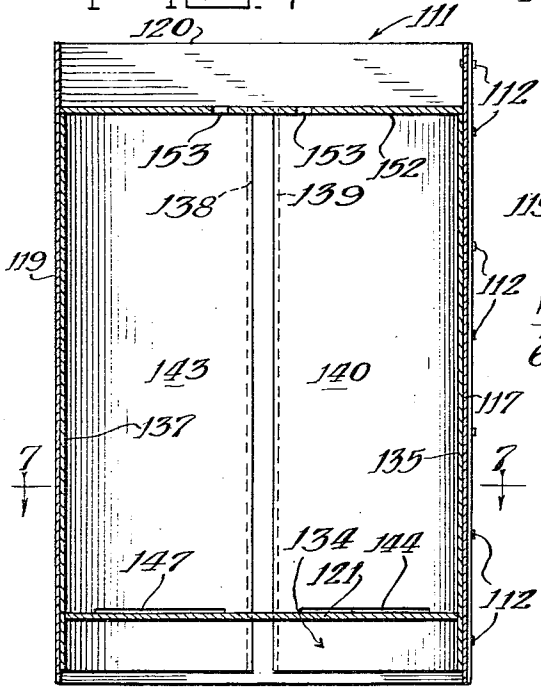


FIG. 8

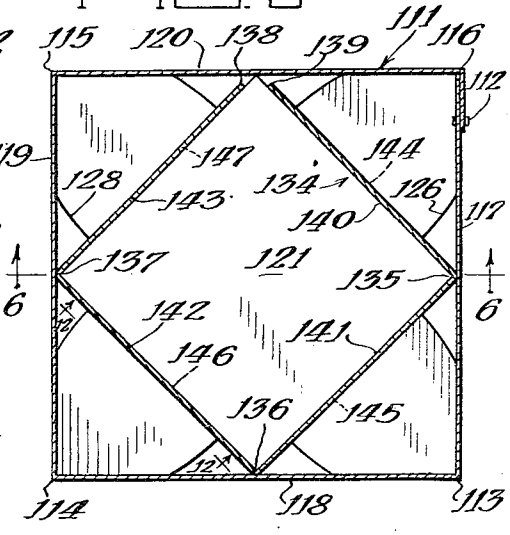


FIG. 11

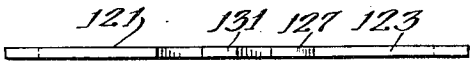
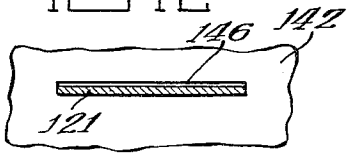


FIG 12



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COLLAPSIBLE HOLLOW DISPLAY DEVICE

Fred Drueck, Jr., Chicago, Ill., assignor to Chicago Cardboard Company, a corporation of Illinois

Application November 12, 1952, Serial No. 319,842

9 Claims. (Cl. 211—133)

This invention relates to hollow collapsible display devices, and in particular it relates to a structure in which an outside wrapper member of such a device is collapsibly retained in a desired shape by a pair of interlocking shaper members which may be assembled and inserted within the wrapper member as a unit.

Paperboard display devices are most desirably constructed in such a way that their component parts may be shipped flat, and may be quickly assembled wherever they are to be used. Hollow display devices have been particularly difficult to construct in this manner, and the present invention provides a very simple structure which is adaptable to upright drum-type displays, whether they be circular, polygonal or irregular in shape. It is also applicable to frusto-conical displays.

In the construction here described a transverse shaper member has a substantial part of its periphery of the proper shape to abut against the inner face of the outside wrapper member so as to retain the wrapper member in the desired shape at a particular transverse plane, and a longitudinal shaper member interlocks with the transverse member and has at least three edges which extend longitudinally of the wrapper member and abut against its inner surface. The longitudinal shaper member is formed from a single rectangular piece of corrugated board, and is longitudinally scored to provide the desired number of edges to abut against the wrapper member. Each face of the longitudinal shaper member is transversely slotted to receive a portion of the transverse shaper member, and said members may be assembled and inserted in the wrapper member as a unit.

Since displays of this type are often used as containers for small merchandise in store displays, a filler piece preferably overlies the top of the longitudinal shaper member, and has its entire periphery in contact with the outer wrapper member. The filler piece also assists in retaining the wrapper member in the desired shape but is not essential for this purpose.

The invention is illustrated in the accompanying drawings as applied to a circular cylindrical type of display and as applied to a square upright display.

Fig. 1 is a central vertical sectional view of a cylindrical display device made in accordance with the invention, the section being taken as indicated along the line 1—1 of Fig. 2; Fig. 2 is a horizontal sectional view taken as indicated along the line 2—2 of Fig. 1, with a part of the longitudinal shaper member broken away; Fig. 3 is a plan view of a filler piece; Fig. 4 is a plan view of a transverse shaper member; Fig. 5 is a side elevation of the transverse shaper member of Fig. 4 viewed as from 5—5 of Fig. 4; Fig. 6 is a fragmentary sectional view taken as indicated along the line 6—6 of Fig. 1; Fig. 7 is a central vertical sectional view of a display device which is square in horizontal cross section, the section being as indicated along the line 7—7 of Fig. 8; Fig. 8 is a horizontal sectional view taken as indicated along the line 8—8 of Fig. 7; Fig. 9 is a plan view of a filler piece for

the device of Fig. 7; Fig. 10 is a plan view of a transverse shaper member for the device of Fig. 7; Fig. 11 is a side elevation of the transverse shaper member of Fig. 9; and Fig. 12 is a fragmentary sectional view taken as indicated along the line 12—12 of Fig. 7.

Referring to the drawings in greater detail and referring particularly to the cylindrical form of the device shown in Figs. 1 to 6, inclusive, a wrapper member 11 is formed from a suitable flexible sheet material, and in the case of the cylindrical device here shown, consists of a single rectangular sheet of material which has its opposite longitudinal edges secured in overlapping relationship by means of fasteners 12. As illustrated in the drawings, the outside wrapper member 11 preferably is formed of a display material which has crease scores formed alternately in its two faces, so that it is readily rolled to the desired shape; although plain stock may be used. Conveniently the fasteners 12 may be brass paper fasteners so that the wrapper member may have an advertising message on each face, and may be assembled with either face out. With its opposite longitudinal end portions secured together as illustrated the wrapper member forms a continuous wall; and in the particular type of display device illustrated the wall forms a right circular cylinder.

Within the wall are shaper means indicated generally at 13, which consists of a transverse shaper member 14 and a longitudinal shaper member 15 which are interlocked. As best seen in Fig. 4 the transverse shaper member has three portions the edges of which form segments 16, 17 and 18 of a circle having a radius equal to that of the interior of the wall formed by the wrapper member 11. The segments 16 are separated by notches 19, 20 and 21, and at the centers of the notches are projecting wedge-shaped protuberances 22, 23 and 24, respectively.

The longitudinal shaper member 15 is formed from a single rectangular piece of corrugated board which is provided with longitudinal score lines 25 and 26 which are equidistant from its longitudinal edges 27 and 28 so that it may be folded on the score lines 25 and 26 to enclose an equilateral triangle which has apexes at the score lines 25 and 26 and a third apex 29 where the longitudinal edges of the shaper member 15 meet. Its three faces 30, 31 and 32 are provided, respectively, with slots 33, 34 and 35 which extend transversely of the faces adjacent their lower ends. The slots are so proportioned that the edge 27 of the longitudinal shaper member may be positioned adjacent the apex of the central protuberance 22 in the notch 19 on the transverse shaper member, and the face 30 of the longitudinal shaper member may be engaged with the transverse shaper member so that the arcuate segment 16 extends through the slot 33 and the score line 25 is positioned at the apex of the protuberance 23. The face 31 may then be hinged on the score line 25 so as to be brought into engagement with the next arcuate segment 17, and the score line 26 lies at the apex of the second protuberance 24. The face 32 is then hinged on the score line 26 and engaged with the third arcuate segment 18 so that its free edge 28 is adjacent the edge 27, forming the third apex 29 of the triangular area enclosed by the longitudinal shaper member. The slots 33, 34 and 35 are narrow enough that they frictionally engage the arcuate segments 16, 17 and 18 so that the two shaper member 14 and 15 may be assembled and moved about as a unit.

When the display device is in its collapsed condition the two shaper members may be assembled as previously described and may then be inserted into the space enclosed by the wrapper member 11 so as to hold said wrapper member in its desired assembled position. If

the display is to be used as a container for merchandise, a circular filler piece **36** is inserted in the top of the wrapper member **11** and rests upon the upper end of the shaper member **15**. Preferably the filler piece **36** is provided with finger holes **37** by means of which it may be readily removed from the wrapper member **11**.

In this form of the device the longitudinal shaper member **15** encloses an equilateral triangle so that the angles at the apexes **25**, **26** and **29** of the triangle are 60° and the angles at the apexes of the wedge-shaped protuberances **22**, **23** and **24** are also 60°. In order to permit the shaper members **14** and **15** to be assembled as described, the distance from the edge of any face of the member **15** to the opposite end of the slot in that face is greater than the distance from the apex of a protuberance to the nearest point on the adjacent notch.

The constructional principle described with respect to the form of the device shown in Figs. 1 to 5 is also present in the form shown in Figs. 7 to 12, in which a wrapper member **111** has its longitudinal edge portions secured together by fastening members **112** and is scored at **113**, **114**, **115** and **116** so that it encloses a square area and has side walls **117**, **118**, **119** and **120**. In this case the wrapper member **111** is preferably formed from flat, unfluted stock.

A transverse shaper member **121** is square so that it has edges **122**, **123**, **124** and **125** each of which is interrupted by a central notch, said notches being numbered **126**, **127**, **128** and **129**, respectively, and there being central wedge-shaped protuberances **130**, **131**, **132** and **133** in said respective central notches. The portions of the shaper member **121** between the notches form corner projections **148**, **149**, **150** and **151**. In this shaper member **121** instead of the angle at the apex of each protuberance being 60° as in the transverse shaper member for the cylindrical device the angle is 90°.

A longitudinal shaper member, indicated generally at **134**, has score lines **135**, **136** and **137** which are spaced at equal distances from its longitudinal edges **138** and **139**, defining identical rectangular faces **140**, **141**, **142** and **143**. Said faces **140** to **143**, inclusive, are slotted, respectively, at **144**, **145**, **146** and **147** so that each face may be engaged with one of the corner projections of the transverse shaper member. The assembly of the two shaper members is the same as in the cylindrical form shown in Figs. 1 to 5, with the two members being engaged as seen in Fig. 7 so that one of the central wedge-shaped protuberances of the transverse shaper member extends into each corner of the longitudinal shaper member **134**; and the longitudinal edges of the longitudinal shaper member formed by the score lines **135**, **136** and **137** and by the longitudinal edges **138** and **139** of said shaper member abut against the median lines of the four faces of the wrapper member **111**. Each of the corner projections of the shaper member **121** extends into a corner of the wrapper member **111**.

The two shaper members **121** and **134** may be assembled and inserted as a unit within the wrapper member **111**, and a square filler piece **152** may be rested on top of the longitudinal shaper member, said filler piece preferably having finger openings **153** as shown.

It is plain from the foregoing description that the same principle may be applied readily to any display device in which the wall formed by the wrapper member encloses a regular polygon, or an elliptical area. A device in which the side wall encloses a pentagon would have a pantagonal shaper member with a notch at the center of each side of the pentagon, and a wedge-shaped protuberance in the center of each notch. The longitudinal shaper member would be scored to enclose a pentagonal area, and each apex of said shaper member would be in one of the notches in the edge of the transverse shaper member.

An elliptical display device might be made, for example, with an elliptical transverse shaper member having four notches, and the longitudinal shaper member might be so constructed as to enclose a rectangle. In either of the above cases the portion of the transverse shaper member which extends through the slots in the longitudinal shaper member is in peripheral contact with the inner surface of the wrapper member and the apexes of the longitudinal shaper member abut against the wrapper member.

A similar structural principle may be applied, with minor variations to irregularly shaped display devices, or to frusto-conical devices.

The foregoing detailed description is given for clearness of understanding and no unnecessary limitation should be understood therefrom as variations will be apparent to those skilled in the art.

I claim:

1. A hollow, collapsible display device, comprising: a wrapper member of sheet material which has two opposite parallel end portions secured together to form a continuous wall with open ends; and shaper means within said wall by which it is retained in a predetermined shape, said shaper means including a longitudinal shaper memer consisting of a rectangular piece of rigid sheet material having a plurality of longitudinal parallel score lines along which it is hinged to place its longitudinal margins in juxtaposition and provide at least three longitudinal edges and at least three faces enclosing a polygonal area, said member having its longitudinal edges abutting said wall and having coplanar slots in its faces near one end, and a transverse shaper member of rigid sheet material which has major portions projecting through said slots so that it has substantially its entire periphery abutting against said wall and which has notches at the longitudinal edges of the longitudinal shaper member and central projections in the notches extending into said edges.

2. The device of claim 1 in which the projections are wedge-shaped and fill the corners at the longitudinal edges of the longitudinal shaper member.

3. The device of claim 1 in which each slot in a face of the longitudinal shaper member has each end spaced from the more distant margin of said face a distance equal to the distance from the outermost part of the projection in one notch to the nearest point on the next adjacent notch.

4. A hollow, collapsible display device, comprising a wrapper member formed from a rectangular piece of sheet material which has its opposite end portions secured together to form a continuous wall; and shaper means within said wall by which it is caused to enclose a circular area, said shaper means including a longitudinal shaper member consisting of a rectangular piece of rigid sheet material having a pair of longitudinal score lines dividing it into three identical faces and being bent along said score lines so that it encloses an equilateral triangle, said longitudinal shaper member having its longitudinal edges abutting said wall and having coplanar slots centrally positioned in its faces adjacent one end, and a transverse shaper member of rigid sheet material having a segment extending through each slot, the margin of each segment being an arc of a circle which abuts against the wall, and said transverse shaper member having three evenly spaced peripheral notches to accommodate the unslotted portions of said longitudinal shaper member.

5. The device of claim 4 in which there is a central wedge-shaped projection in each peripheral notch which fills the angle between adjacent faces of the longitudinal shaper member.

6. A hollow, collapsible display device comprising: a wrapper member formed from a rectangular piece of sheet material which has its longitudinal edge portions secured together to form a continuous wall and which has a plurality of evenly spaced longitudinal score lines dividing it into faces so that said wall may enclose a

regular polygon; and shaper means within said wall by which it is caused to enclose a regular polygon, said shaper means including a longitudinal shaper member consisting of a rectangular piece of rigid sheet material having the same number of longitudinal score lines as said wrapper member which divide it into a plurality of identical faces and being bent along said score lines so that it encloses a polygonal area similar to that enclosed by said wall, said longitudinal shaper member having coplanar slots centrally positioned in its faces adjacent one end, and a transverse shaper member of rigid sheet material having a segment extending through each slot, the margin of each segment having two sides which meet at an angle equal to the angle at an apex of the regular polygon enclosed by said wall and abutting adjacent portions of two faces of said wall, and said transverse shaper member having a peripheral notch between each two adjacent segments to accommodate the unslotted portions of said longitudinal shaper member, whereby the longitudinal edges of the longitudinal shaper member abut the faces of said wall along their longitudinal central lines, and said shaper members may be removed from within said wrapper member as a unit.

7. The device of claim 6 in which there is a central wedge-shaped projection in each peripheral notch which fills the angle between adjacent faces of the longitudinal shaper member.

8. A hollow, collapsible display device comprising: a wrapper member formed from a rectangular piece of sheet material which has its longitudinal edge portions secured together to form a continuous wall and which has three evenly spaced longitudinal score lines dividing it into four faces so that said wall may enclose a square; and shaper means within said wall by which it is caused to enclose a square, said shaper means including a square transverse shaper member of rigid sheet material which has marginal portions abutting every face of the wall and extending into the corners thereof, said transverse shaper member having a marginal notch at the center of each of its edges, and a longitudinal shaper member of rigid sheet material having three evenly spaced longitudinal score lines which divide it into four identical faces and being bent along said score lines so that it encloses a square which is slightly smaller than that enclosed by said wall, said longitudinal shaper member having coplanar slots centrally positioned in its faces adjacent one end through which the corners of the transverse shaper member extend, whereby the longitudinal edges of the longitudinal shaper member abut the faces of said wall along their longitudinal center lines and said shaper members may be removed from said wrapper member as a unit.

9. A hollow collapsible display device comprising: a wrapper member of flexible sheet material having two opposite end portions secured together to form a continuous wall; and shaper means within said wall by which it is retained in a predetermined shape, said shaper means including a transverse shaper member of rigid sheet material which has substantially its entire periphery in contact with the wall; and longitudinal shaper means composed of a single sheet of rigid material having at least three faces which enclose a polygonal area and having longitudinally extending juxtaposed edges in contact with the wall and being further provided with a plurality of generally longitudinally extending score lines along which it is hinged to provide said longitudinally extending juxtaposed edges and said faces, said longitudinal shaper means having a long transverse slot in each face, said slots being coplanar, and said transverse shaper member having major portions projecting through said slots into contact with the wrapper member and having a notch at each longitudinal edge portion to receive the unslotted portions of said longitudinal shaper means whereby said edge portions lie within the periphery of said shaper member and the longitudinal edges are positioned substantially on a projection of the periphery of the shaper member, said slotted and notched portions permitting ready assembly and disassembly as a unit.

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