Sept. 16, 1958 E. M. ROACH 2,851,804

COLLAPSIBLE DISPLAY

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FIG. 1.

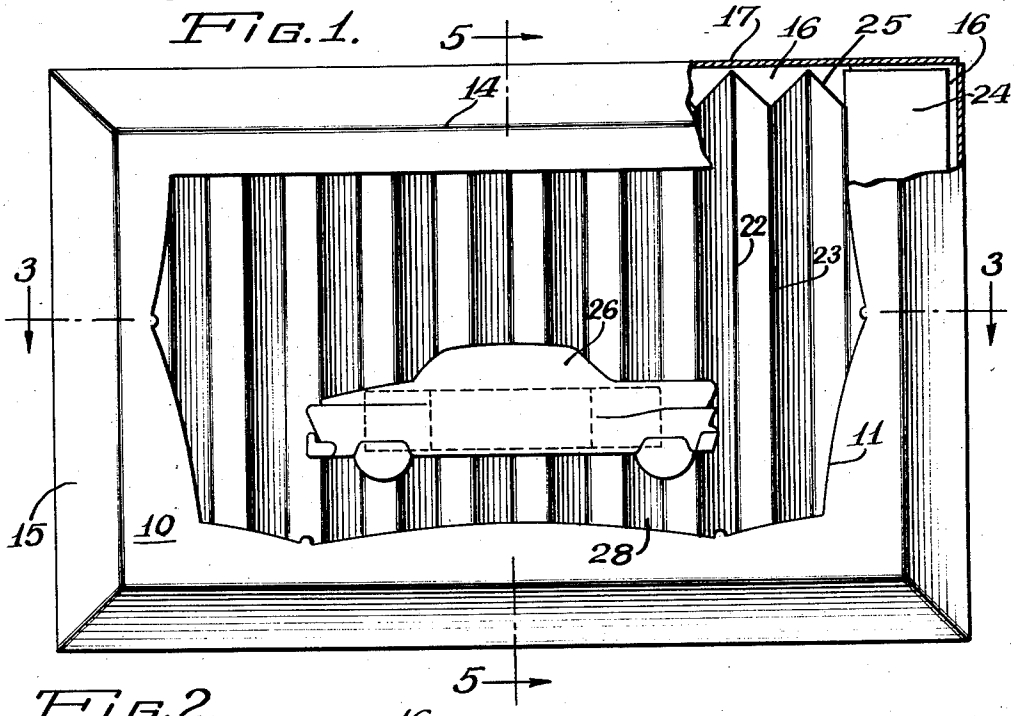


FIG. 2.

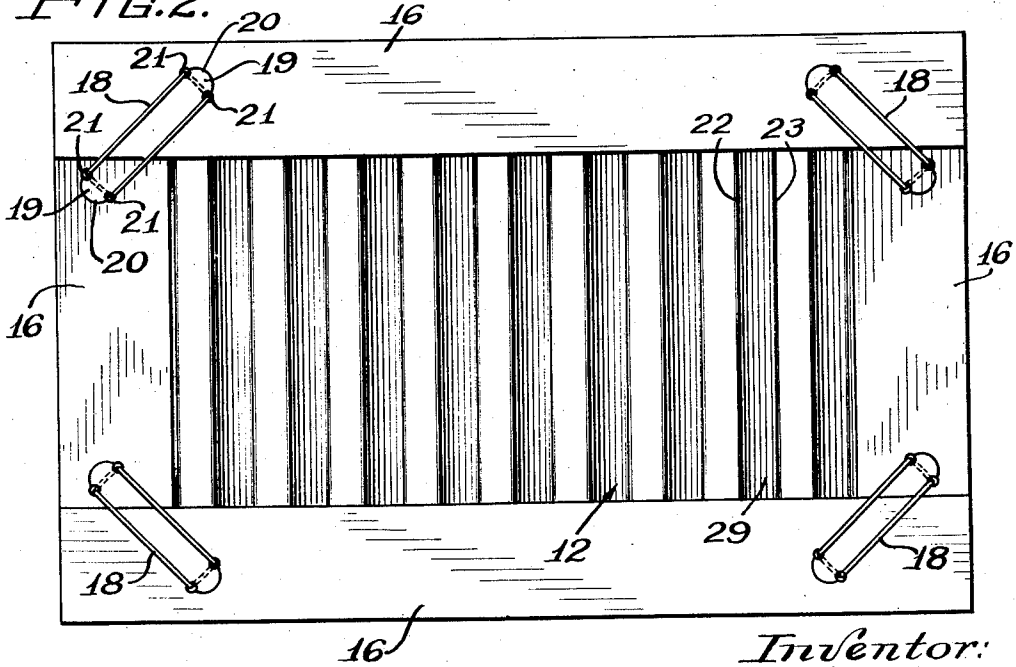


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FIG. 3.

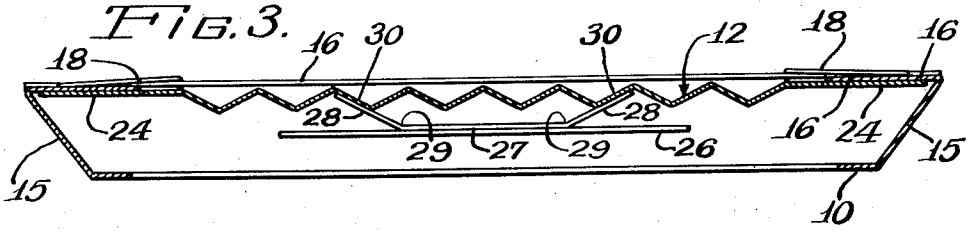



FIG. 4.

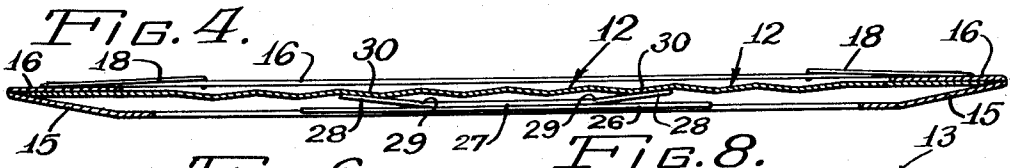



FIG. 6.

FIG. 8.

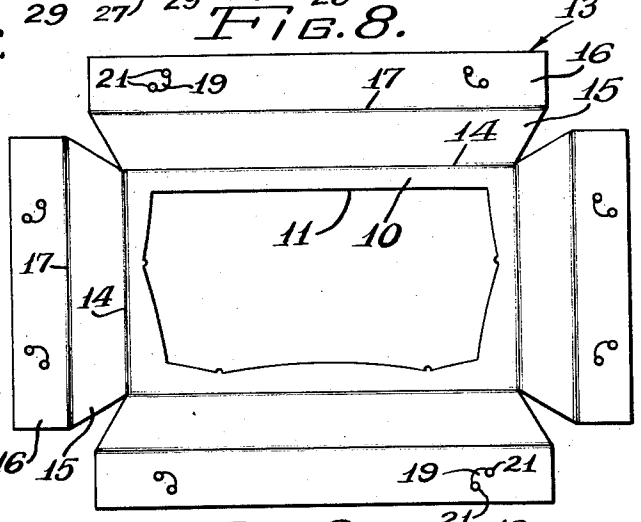



FIG. 5.

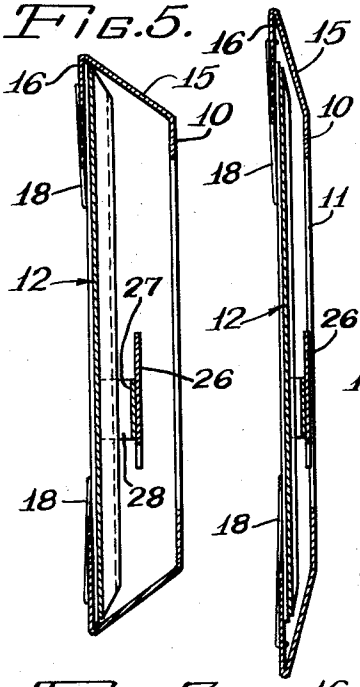



FIG. 9.

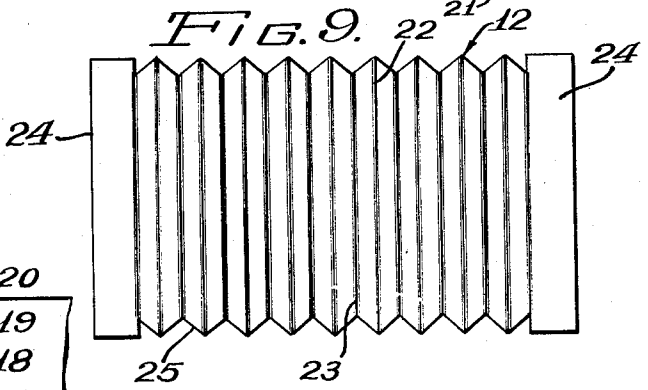
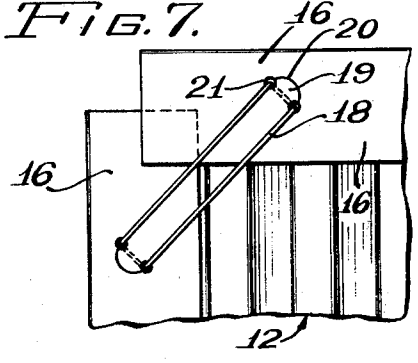



FIG. 7.

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2,851,804

# COLLAPSIBLE DISPLAY

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Application September 17, 1956, Serial No. 610,209

5 Claims. (Cl. 40—126)

This invention relates to display devices, and more particularly to improvements in collapsible display devices of the class which may be assembled and locked in set-up position by the manufacturer by resilient means under tension, and which thereafter can be collapsed against the tension of said resilient means, for economy in transportation, without disengagement of the assembly locking means, and which is self-setting-up to the ultimate user of the display. An example of such collapsible display device is shown in the Arnold Johnson U. S. Patent No. 2,332,642.

The present invention relates to improvements in devices of the foregoing class whereby novel display backing means are provided of an expansible and collapsible nature, jointly operable with the collapsing and setting up of the display as a whole to provide additional interest and a third dimensional effect.

Other objects and advantages of the present invention, details of construction and arrangement of parts will be apparent from a consideration of the following specification and accompanying drawings, wherein:

Fig. 1 is a face view of a collapsible cardboard display device, with parts broken away, illustrating the present invention in set-up position; and

Fig. 2 is a rear view thereof.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a section taken on the same line as Fig. 3 but with the display in substantially collapsed condition.

Fig. 5 is a section on the line 5—5 of Fig. 1.

Fig. 6 is a section taken on the same line as that of Fig. 5 but with the display in substantially collapsed condition.

Fig. 7 is a fragmentary rear elevational view of the assembled display device in collapsed condition.

Fig. 8 is a blank development of the collapsible display; and

Fig. 9 is a blank development of the collapsible backing for the display.

Referring to the drawings, and particularly to Fig. 8, the display is composed of a blank of foldable material such as cardboard, cut and scored to define a central, rectangular panel 10 formed with a sight opening 11 of suitable shape and outline whereby to exhibit and suitably frame the backing panel generally indicated as 12 and shown in Fig. 9.

To each side of the rectangular panel 10 there is attached a side piece generally indicated as 13, separated from each other at their ends and hinged to the center panel 10 on the score line 14. Each of these panels 13 is further divided into an inner trapezoidal-shaped side panel 15 and an outer side panel 16 by means of a score line 17, the score lines 14 and 17 being formed on the face of the blank so that the panels 15 and 16 may be successively bent rearwardly.

The ends of the inner panels 15 are cut at an angle so that when they are bent rearwardly from the face of center panel 10 they will come into abutment at an incline to the face of panel 10 and provide a bevelled



frame therefor, which abutting relationship is to an extent aided by the overlapping and internesting of the outermost side panels 16 when brought from the relationship shown in Fig. 7 to that shown in Fig. 2, where they become disposed in a plane parallel to but spaced from central panel 10.

Initially in setting up the display, the outermost side panels 16 are return-bent over the inner side panels 15 and the adjacent corners of the outermost side panels 16 are brought into yieldable engagement toward each other by means of the elastic members 18 extended obliquely between the adjacent end portions of adjacent pairs of said outermost side panels and anchored thereto in suitable manner, as by means of the tongues 19 defined by the arcuate slit 20 and apertures 21, 21 adjacent each corner of the panels 16.

It will be seen that promptly upon engagement of the elastic members 18, which may be rubber bands, in the manner indicated, and under their tension, the blank will have a tendency to set up from a collapsed position such as shown in Figs. 4 and 6 to an expanded or set-up position such as shown in Figs. 1, 2, 3, and 5, the foregoing being common to said Patent 2,332,642, with the exception of the apertured center panel 10.

As a further novel feature of the present invention I provide a backing member 12 alternately formed with parallel lines of score 22 and 23, the lines 23 being scored on the face and the score lines 22 being formed on the back, whereby the unit 12 may be foreshortened in a direction normal to the score lines 23 and 22 to provide an accordion pleated effect. This backing unit 12 is secured by means of its terminal or end pieces 24, 24 to one opposed pair of outermost side panels 16 by suitable means such as adhesive or staples, and is of a dimension such that when the display is in assembled but collapsed position the backing unit 12 likewise assumes an extended or flattened position as shown in Figs. 4 and 6, and in set-up position under the tension of the bands 18 assumes the pleated position as best shown in Fig. 3.

The transverse dimension of backing 12 is such that it slidably fits in between the folded side panel components 15 and 16 in both collapsed and set-up position, and as an aid for retaining it in said position and to thus hold it uniformly extended, the ends of the pleated sections are angularly cut as at 25 so as to substantially conform to the angular disposition of the panels 15. It will be understood that as an alternative the panel 12 instead of being attached to the illustrated opposed pair of outer side panels 16 may be of a dimension so that they may be attached to other or horizontally extending outer panels 16 illustrated in Fig. 8, with the free edges slidably retained between the vertically extending side panels 15 and 16, with the score lines thus running horizontally instead of the illustrated vertical arrangement.

Although I have described my present invention in connection with a display device wherein the side faces are divided into two panels, such as shown in Figs. 1–8 of said Patent 2,332,642, the invention may be equally applied to other forms such as where the side pieces are divided into three panels as shown in Figs. 14–31 of said patent.

In addition to the three-dimensional effect provided by the pleated backing member 12, there may be attached thereto one or more collapsible accessories, such as the item 26 which is secured to the holder strip 27, the latter in turn being provided with a pair of arms 28, 28 hingedly engaged to component 27 at the score lines 29, 29, the arms 28 being adhesively or by other means secured to two of the strips 30, 30 comprising the intermediate portion of the backing 12.

Thus, when the entire unit is collapsed for shipping purposes, the pleated backing is stretched to flattened

condition and the display piece 12 collapsed therewith. Conversely, under the urging of the bands 18 the entire device becomes set up, that is to say, the corners of the inner side panels 15 are brought into abutting engagement and at an incline to the panel 10 and to the outermost side panels 15, the latter are brought into spaced, substantially parallel relationship to the center panel 10, and at the same time the backing member 12 which is secured to an opposed pair of outer side panels 16 assumes its pleated position with the angularly cut edges confined between the angle formed by the inclined panels 15 and the outermost side panels 16. At the same time the one or more accessory units 26 become projected outwardly of the face of the backing 12 to thereby provide a three-dimensional and novel frame display effect.

As an alternative, instead of forming the alternate score lines 22 and 23 parallel to the engaged edge portions 24 of the backing member 12, these alternate score lines 22 and 23 may be arcuate; that is to say, the alternate score lines 22 and 23 may be parallel, arcuate or concentric score lines terminating at the free edges of the panel 12. Preferably, when such arcuate score lines are employed, they are formed in two groups disposed on either side of the center of panel 12. Thus, there may be a group of arcuate score lines 22 and 23 on each side of the center of panel 12 with the concavity of each group of score lines on the opposite side of the center opening toward each other in one case, or with the concavity extending opposite to each other in the other case. These will give a rounded, accordion-pleated effect.

Thus, although I have shown and described the preferred embodiment of my invention and have indicated modifications within the broad scope thereof, it will be evident to those skilled in the art that various other changes may be made in the details of construction and arrangement of parts without departing from the spirit of my invention as comprehended by the following claims.

I claim:

1. A collapsible display device comprising an apertured central rectangular panel, endwise spaced side pieces hinged to the edges of said central panel, each of said side pieces being divided to define an inner side panel adapted to extend rearwardly and angularly to said central panel to form a frame component therefor and to endwise abut with adjacent inner panels and a hinged outermost side panel adapted to extend parallel to said center panel in a plane spaced therefrom and rearwardly thereof, a pleated backing panel fixedly secured at two opposed edges to one opposed pair of said outermost side panels and visible through the aperture of said central panel, said apertured central panel peripherally overlying and edgewise confining said pleated backing panel, and elastic members connected with and extending between adjacent end portions of said outermost side panels under tension acting to yieldably maintain the side panels in said relationship to said central panel and said backing in said pleated disposition.

2. In a collapsible display device constructed of foldable sheet material cut and scored to define an apertured central rectangular panel, endwise spaced side pieces hinged to the edges of said central panel, each of said side pieces being scored to define an inner side panel adapted to extend angularly to said central panel to form a frame component therefor and to endwise abut with adjacent inner panels on being bent rearwardly and an outermost side panel adapted to extend parallel to said center panel in a plane spaced therefrom and rearwardly thereof and folded inwardly and endwise overlying an adjacent outermost side panel, a generally rectangular pleated backing panel fixedly secured at two of its opposed ends to one opposed pair of said outermost side panels and slidably disposed at its other opposed ends between said folded side panel components and visible through the aperture of said central panel, said apertured central panel peripherally overlying and edgewise confining said pleated backing panel, a display component carried by said backing panel and erectable from the plane thereof, and elastic members connected with and extending between adjacent end portions of said outermost side panels under tension acting to yieldably urge the side panels to said relationship to said central panel and said backing to said pleated disposition and to extend said display component therefrom.



3. A collapsible display device comprising an apertured central rectangular panel, endwise spaced side pieces hinged to the edges of said central panel, each of said side pieces being divided to define an inner side panel adapted to extend rearwardly and angularly to said central panel to form a frame component therefor and to endwise abut with adjacent inner panels, and a hinged outermost side panel adapted to extend parallel to said center panel in a plane spaced therefrom and rearwardly thereof, a normally flat substantially rectangular backing panel fixedly secured only at two of its opposed ends to one opposed pair of said outermost side panels and visible through the aperture of said central panel, said apertured central panel peripherally overlying and edgewise confining said pleated backing panel, said backing panel being divided into a plurality of strips adapted to be inclined to each other by parallel score lines alternately formed on its opposed faces and extending between its other two opposed ends, and elastic members connected with and extending between adjacent end portions of said outermost side panels under tension acting to yieldably urge and maintain the side panels in said relationship to said central panel and to yieldably urge and maintain said backing in a pleated disposition.

4. In a collapsible display device constructed of foldable sheet material cut and scored to define an apertured central rectangular panel, endwise spaced side pieces hinged to the edges of said central panel, each of said side pieces being scored to define an inner side panel adapted to extend angularly to said central panel to form a frame component therefor and to endwise abut with adjacent inner panels, and an outermost side panel adapted to extend parallel to said center panel in a plane spaced therefrom and rearwardly thereof and folded inwardly and endwise overlying an adjacent outermost side panel, a substantially rectangular backing panel fixedly secured at two of its opposed ends to one opposed pair of said outermost side panels and slidably disposed at its other opposed ends between said folded side panel components and visible through the aperture of said central panel, said apertured central panel peripherally overlying and edgewise confining said pleated backing panel, said backing panel being divided into strips adapted to be inclined to each other by score lines parallel to its secured ends and alternately formed on its opposed faces, and elastic members connected with and extending between adjacent end portions of said outermost side panels under tension acting to yieldably urge and maintain the side panels in said relationship to said central panel and to yieldably urge and maintain said backing in pleated disposition.

5. In a collapsible display device constructed of foldable sheet material cut and scored to define an apertured central rectangular panel, endwise spaced side pieces hinged to the edges of said central panel, each of said side pieces being scored to define an inner side panel adapted to extend angularly to said central panel to form a frame component therefor and to endwise abut with adjacent inner panels, and an outermost side panel adapted to extend parallel to said center panel in a plane spaced therefrom and rearwardly thereof and folded inwardly and endwise overlying an adjacent outermost side panel, a substantially rectangular backing panel fixedly secured at two of its opposed ends to one opposed pair of said outermost side panels and slidably disposed at its other opposed ends between said folded side panel components and visible through the aperture of said central panel, said apertured

central panel peripherally overlying and edgewise confining said pleated backing panel, said backing being divided into a plurality of strips with adjacent ones being adapted to be inclined to each other by score lines parallel to its secured ends and alternately formed on its opposed faces, a display support comprising a medial portion and a pair of hinged arms secured to a pair of inwardly oppositely inclinable ones of said strips, a display element secured to said medial support portion, and elastic members connected with and extending between adjacent end portions of said outermost side panels under tension acting to yieldably urge and maintain the side panels in said relationship to said central panel and to yieldably urge and maintain said backing in pleated disposition and



its supported display component in forwardly spaced relationship thereto.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 929,980 | Popper | Aug. 3, 1909 |
| 1,839,871 | Fisher | Jan. 5, 1932 |
| 2,055,201 | Leigh | Sept. 22, 1936 |
| 2,332,642 | Johnson | Oct. 26, 1943 |
| 2,660,825 | Howard | Dec. 1, 1953 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 1,103,062 | France | May 18, 1955 |