Aug. 31, 1965 H. K. STOESSEL 3,203,125

DISPLAY STRUCTURE AND METHOD OF FORMING THE SAME

Filed Feb. 21, 1963

FIG. 1

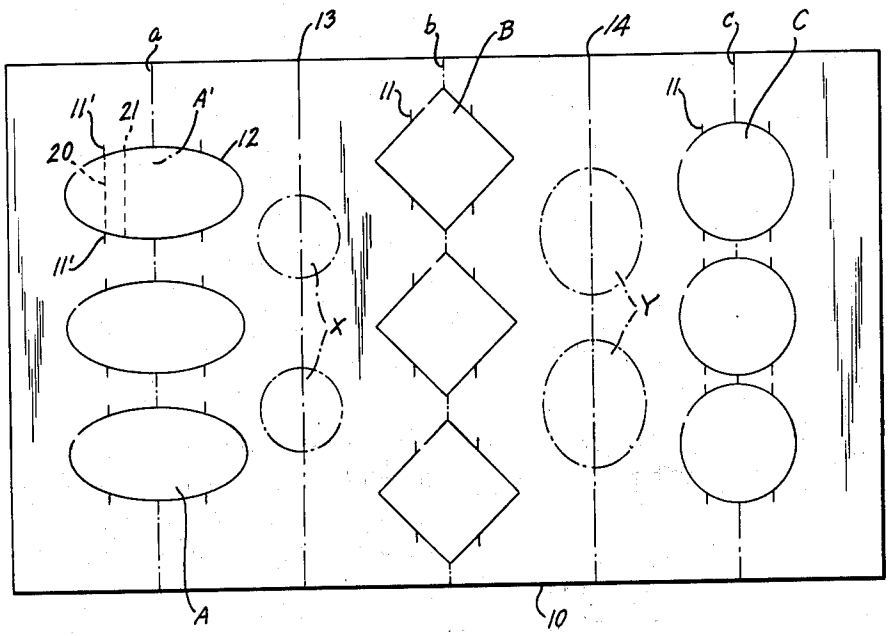


FIG. 3

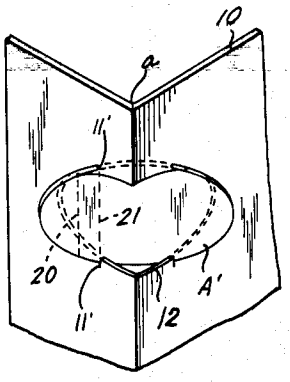
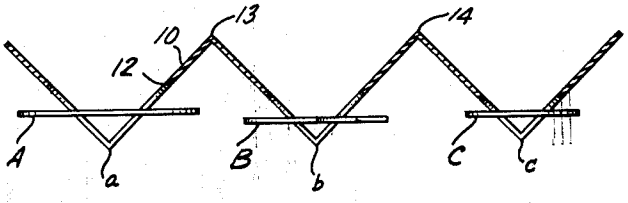


FIG. 2



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DISPLAY STRUCTURE AND METHOD OF FORMING THE SAME

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1 Claim. (Cl. 40—124.1)

This invention relates to a display device, and more particularly to a three dimensional advertising display device and method of making the same. Still more particularly, this invention relates to an advertising display device which may be shipped in flat or substantially two-dimensional condition, and may be rapidly assembled by the user, without the use of tools to a rigid, free-standing and attractive display.

Still more particularly, this invention relates to a device of the class described which is highly economical to manufacture, such economies resulting in part from the fact that each display unit is fabricated from a single sheet of cardboard or like material, and no part or portion of the sheet is wasted. Further economies result from the fact that the forming operations which enable the sheet to be assembled by the user into a completed, free-standing display, may be carried out in a single and simultaneous punching and scoring step.

Accordingly, it is an object of the invention to provide a novel display device and method of making the same. A further object of the invention is to provide a novel display device which may be shipped in flat condition and readily assembled to form a free-standing, three dimensional structure.

Still a further object of the invention is to provide a novel, free-standing advertising display made from sheeted cardboard or the like, characterized by the fact that no portion or segment of the sheet is wasted.

The device and method of the invention are predicated upon the blanking or severing from a cardboard sheet or the like, of a form or forms having inclined outline portions. Without limitation but as examples of such forms there may be named ovals, diamonds, triangles or the like. The sheet or matrix is folded along a line which intersects the aperture remaining after the removal of the blanked forms, the forms being preserved in unfolded condition. Notches or slits are formed in the matrix sheet in communication with the apertures, preferably in the same operation in which the forms are blanked out. The forms are thereafter reinserted in the apertures from which they have been blanked, the notches or slits frictionally engaging the forms.

Whereas the outline of the apertures initially exactly conformed to the size of the forms blanked therefrom, the procedure of folding causes a foreshortening of the apertures. A result of such foreshortening is to bring narrower portions of the walls of the aperture closer to the fold line. Thus, the outline portions of the walls of the aperture will no longer coincide with the outer periphery of the form blanked from the sheet, and thus, with the form centered above the aperture, the form will be wider at all points except the fold line than the aperture. As a result, the form may be bowed slightly and inserted within notches formed during the blanking process, whereupon the form will be fixedly seated within the notches, the form at the same time functioning to prevent any further flexing along the fold line.

More clearly to illustrate the apparatus, reference will now be made to the accompanying drawings, forming a part hereof, in which

FIGURE 1 is a plan view of a sheet in accordance with the invention, from which forms have been blanked;

FIGURE 2 is a top view showing the device after assembly when standing on a horizontal surface;

FIGURE 3 is a fragmentary perspective view of a portion of an erected display device in accordance with the invention.

In FIGURE 1 there is shown a sheet **10** which may be of ordinary cardboard, oak tag or the like. The sheet is processed preferably by disposing the same beneath a blanking die, which die functions to sever from the sheet a series of geometric figures, such as ovals A, squares B, circles C, although it should be understood that the invention is not limited to the stated figures. The die likewise functions to score the sheet **10** along transverse fold lines *a, b, c.* It will be noted that the core lines *a, b, c,* which are formed partially through the thickness of the sheet, extend the entire width of the sheet except for the blanked out or severed geometric figures A, B, C. The blanking die is also effective to form on the sheet **10** a plurality of spaced apart slits **11**, which slits extend outwardly into the sheet from the edge **12** of the apertures.

In the course of the blanking, transverse score lines may similarly be formed, as at **13, 14**, the score lines being disposed entirely across the sheet and between rows of blanked out apertures.

The sheet, formed as described, may then be shipped in the flat condition, to users of the device for assembly on the site.

The forms A, B, C are preferably imprinted with any desired advertising indicia or the like before the sheet is blanked out.

In the sheet illustrated in FIGURE 1, three types of forms are shown, notably ovals, squares or diamonds, and circles. However, it will be understood that normally a single sheet will contain only one form of figure. While there is no limit to the shapes of forms suitable for use with the device, the sole requirement in common for such forms is that a portion at least of the outline of the forms be inclined with respect to the fold lines. The importance of such requirement will be understood from the ensuing description.

The device is assembled into a free-standing unit by the following procedure:

The forms, which may in the course of mailing remain within the apertures, i.e. by the provision of small unpunched areas of adhesion between the forms and the matrix sheet, are removed from the sheets. The sheet is next folded transversely along the score lines *a, b, c,* and also along the score lines **13, 14**, which latter score lines are on the reverse face of the sheet from the lines *a, b, c,* to form an "accordioned" sheet structure. After folding, the forms A, B, C are flexed slightly to reduce the height dimension thereof, and inserted within the notches **11** on the matrix sheet **10**. It will be seen that as a result of the folding operation along the lines *a, b, c,* as aforesaid, the apertures defined by the removal of the forms will have been fore-shortened. As a result of such fore-shortening, upon superimposition of the forms A, B and C over the corresponding apertures, wider portions of the form are brought into registry with narrower portions of the outlines of the apertures.

As an illustration, the breadth of the form A', FIGURE 1, along dotted line **20**, is of course equal to the spacing of slits **11', 11'**, formed in the matrix sheet **10** at their junction with form A. The dotted line **21**, as shown in FIGURE 1, being closer to the center of the oval is of course longer than the dotted line **20**. As shown in FIGURE 3, by folding the matrix sheet, the portion of form A' represented by longer line **21** has been brought into registry with the slits **11', 11'**, the innermost ends of which are spaced a distance equal to line **20**. Thus, the marginal portions of form A' along line **21** will extend beyond the outline of the aperture and into the slits **11', 11'**. As will be further seen from FIGURE 3, the

portion of the form at line 20, in the inserted postion of the form, is disposed from the fold line a greater lateral distance than the slits 11', 11'.

The forms will thus be maintained securely within the slits or notches formed in the matrix or sheet and will function both as attractive advertising bearing portions of the finished device, and as stiffeners to maintain the sheet against folding in either direction along the score line intersecting the apertures.

As shown in FIGURE 1, a similar series of forms may be blank in intersecting relation with respect to the fold lines 13 and 14. In such instance, it will be evident that the fold lines, contrary to the showing of FIGURE 1, should not extend across the forms X and Y, but rather, the said forms should be left unsecured, to provide the stiffening influence aforesaid. It will be evident that the forms X and Y will be inserted in the apertures left by their removal in the same manner as forms A, B and C, and thus each fold line of such modified structure would be stiffened.

It will be appreciated that a three dimensional display for advertising or the like is thus formed with a minimum of waste since every portion of the cardboard sheet is employed. The sheet will normally be first imprinted with any desired advertising indicia prior to the scoring and separating steps aforesaid. It will thus be evident that through the simple expedient of blanking a plurality of forms from a sheet, folding the sheet along the fold line which intersects the apertures remaining after removal of the forms and thereafter inserting the removed forms to a position within the apertures, an attractive, rigid, three dimensional display device is provided.

If desired, other forms of locking notches beside the slits 11 may be provided. Preferably the length of the slits or notches should correspond roughly with the width of the form at the point received within the notches so that undue canting of the forms after insertion within the notches will be prevented.

Also, slits or notches may be provided in the forms rather than the sheet, or in both the forms and the sheet.

If desired, a projection may be formed in the form or sheet, a notch remaining in the other member, each of the arrangements serving to maintain a desired positioning of the forms with respect to the sheets. Where interengagement of the notches of the form and the sheet are desired, it will be understood that the notches of the form should be located closer to the fold line than the complemental notches of the sheet.

After thus describing the invention and illustrating its use, what is claimed as new and is desired to be secured by Letters Patent is:

A display device comprising a sheet member of cardboard or the like, an aperture formed in said sheet member, the walls defining said aperture being relatively widely spaced apart at a central portion and converging to both sides of said central portion, said sheet member being folded on a fold line intersecting said central portion of said aperture whereby the portions of said sheet member to opposite sides of said fold line are angularly oriented with respect to each other, and a form member having an outline corresponding with the dimension of said aperture in the flat condition of said sheet supported in generally centered position within said aperture in spanning position of said fold line, at least one of said members including cutout portions engaged with portions of said other member to retain said form member in said aperture.

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