United States Patent [19]

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[54] **DISPLAY DEVICE APERTURED FOR HOLDING SUPPORT HOOKS**

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[52] **U.S. Cl.** **211/57,** 211/177, 248/DIG. 3

[51] **Int. Cl.** **A47f 5/10,** A47f 7/00

[58] **Field of Search** 211/57, 59, 58, 163, 211/177; 248/DIG. 3; 264/92, 90; 312/209, 207, 111; 40/1, 33

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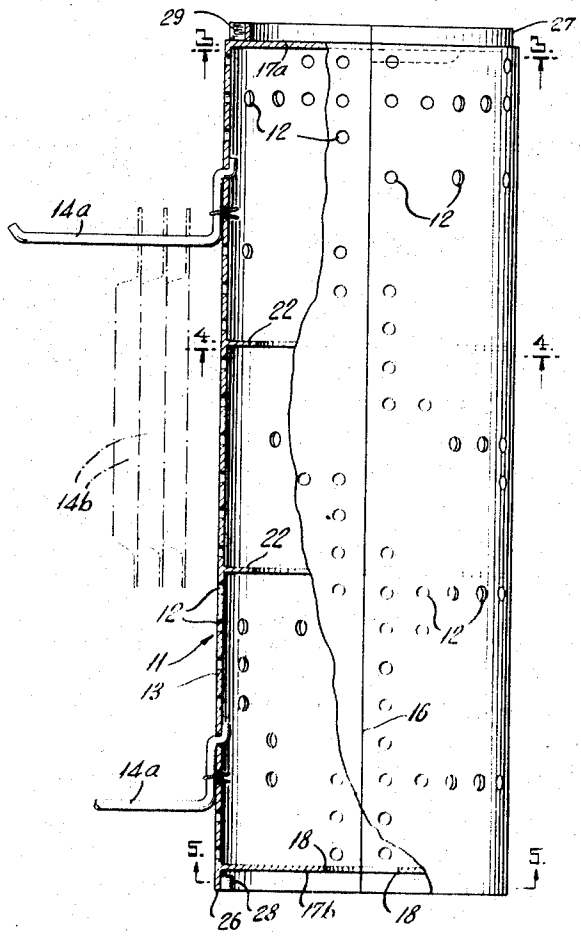
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[57] **ABSTRACT**

A display device consisting of an elongated structure having apertures for the reception and retention of support hooks is manufactured as a molded one-piece element having two complementary sections which can be locked together. The design is such that the two portions are joined along one edge of each in a living hinge. The elongated structure can be stacked to increase the display area.

4 Claims, 7 Drawing Figures



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Fig. 1.

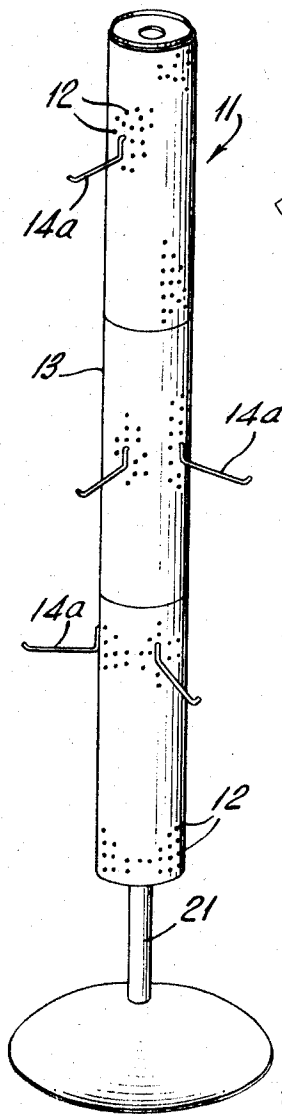
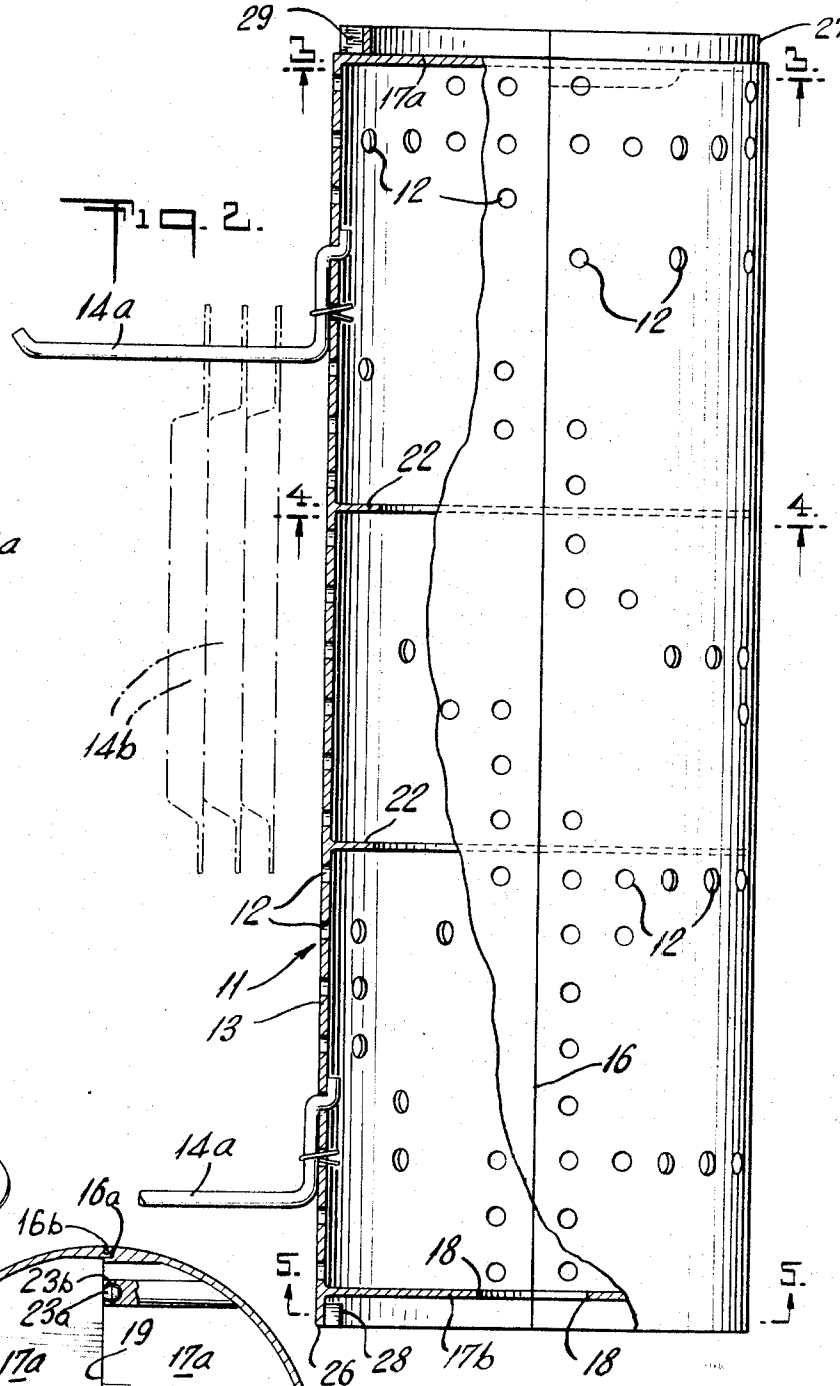


Fig. 2.



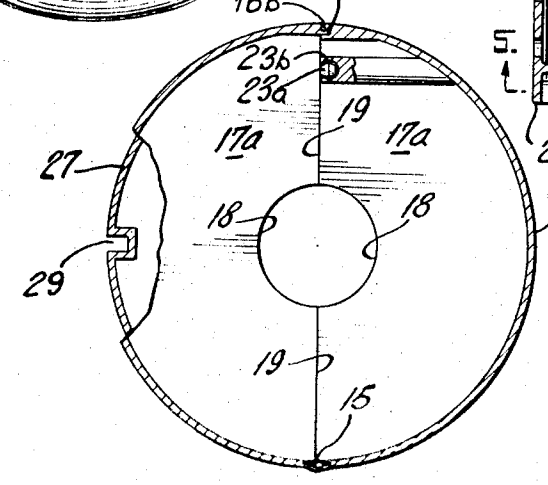


Fig. 3.

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Fig. 4.

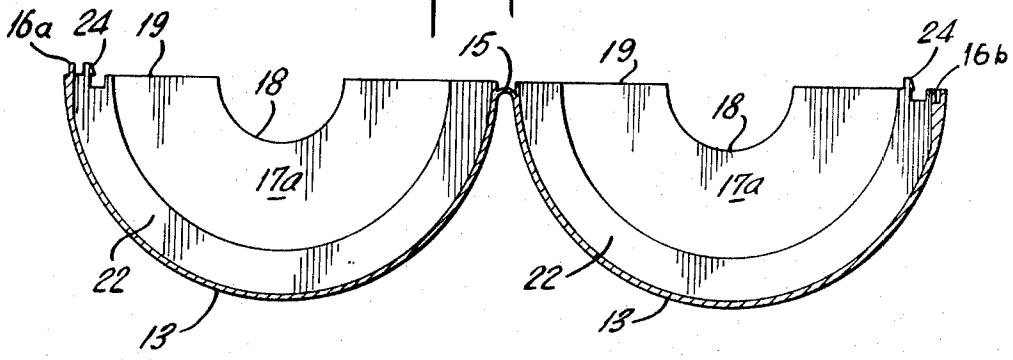


Fig. 5.

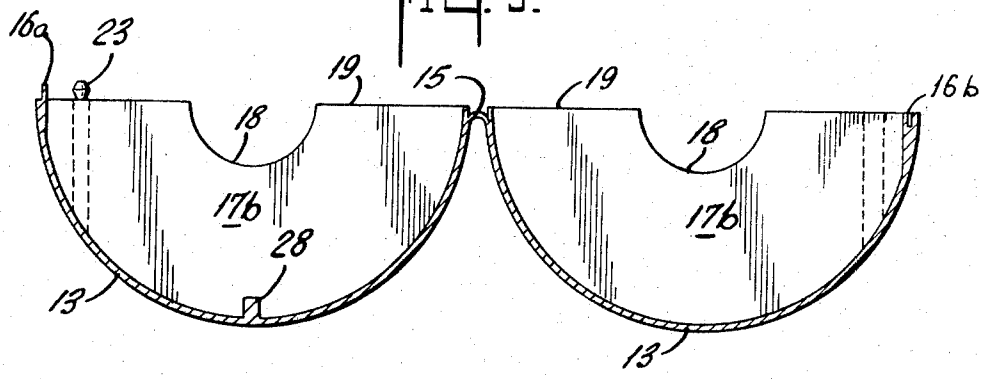


Fig. 6

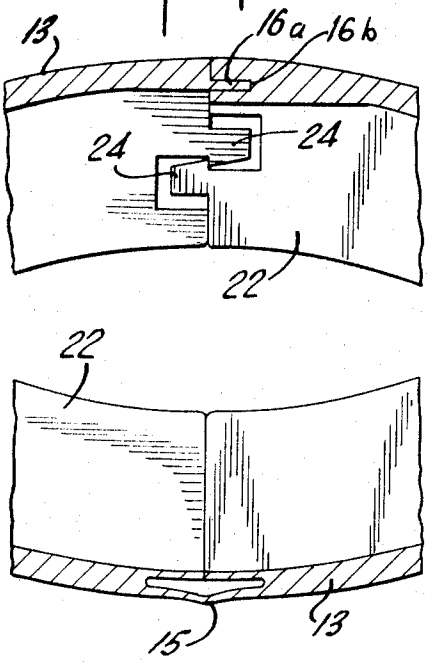
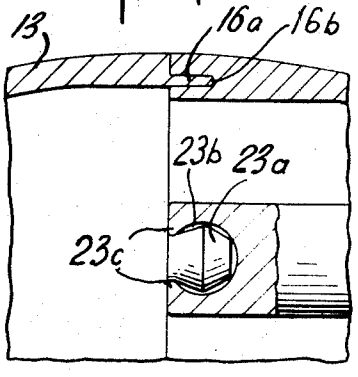


Fig. 7.



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DISPLAY DEVICE APERTURED FOR HOLDING SUPPORT HOOKS

BACKGROUND OF THE INVENTION

In a display device where it is desired to display a large number of small items, it is desirable that the device have a large area for the support of such items, that it be inexpensive to manufacture and maintain, attractive in appearance, storable in a minimum of space and stackable to increase the display area. Such attributes have not hitherto been available in a single device, largely because of difficulties in design.

SUMMARY OF THE INVENTION

A device in accordance with the present invention comprises a one-piece structure of two complementary parts lockable together to form an elongated structure. Each part comprises an apertured wall reinforced at each end by an integral top or bottom wall, corresponding top or bottom walls being lockable together as the parts are locked together. The apertures are suitable for the reception and retention of support hooks intended to support items for display and sale. The two complementary parts are molded of a flexible synthetic plastic in one piece, the parts being joined together at one edge of each by a living hinge. Also, the structures have ends which nest.

Accordingly, an object of the present invention is a display device, attractive in appearance, suitable for the support of a plurality of items, consisting of two complementary parts lockable together and formed as a single unit.

Another object is a display device suitable for the display and sale of a plurality of items consisting of two complementary parts lockable together which are moldable in one piece in which the two parts are permanently joined by a living hinge.

Yet another object of the invention is a display device suitable for display and sale of a plurality of items where the device is stackable to increase the area available for the display and sale of items.

A further object of the invention is a display device suitable for the display and sale of a plurality of items which can be mounted on a central support rod.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described, and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWING

For a fuller understanding of the invention, reference is had to the following description taken in connection with the accompanying drawing, in which:

FIG. 1 shows three display devices in accordance with the present invention stacked together and mounted on a support rod and base;

FIG. 2 is a display device in elevational view, partly broken away and partly in section;

FIG. 3 is a sectional view partly broken away, taken along the line 3—3 of FIG. 2;

FIG. 4 is a sectional view taken along the line 4—4 of FIG. 3 with the two parts of which the device is constructed spread apart and attached by a living hinge;

FIG. 5 is a sectional view taken along the lines 5—5 of FIG. 2; with the two parts spread apart as in FIG. 4;

FIG. 6 is an enlargement of two details of FIG. 4 showing a locking mechanism and a living hinge; and

FIG. 7 is an enlarged detail of FIG. 5 showing a locking mechanism.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A display device, generally indicated by the reference numeral **11**, in accordance with the present invention, is elongated in shape and has apertures **12** over its cylindrical side-wall **13**. The apertures are intended for the reception and retention of support hooks **14***a* as shown in FIGS. **1** and **2**. The support hooks serve to hold packages **14***b*, as indicated by the broken lines, for display and sale. Each display device is made in two complementary parts which lock together at corresponding edges. One pair of corresponding edges are permanently held together by living hinge **15** as shown in FIG. **3**. For this type of construction, the device is preferably made of polypropylene. The other pair of corresponding edges join by means of a tongue and groove combination **16**. This combination of a tongue **16***a* and a groove **16***b* is shown in more detail in FIG. **6**.

The device is reinforced at top and bottom with fixed top-walls **17***a* and bottom walls **17***b* which are preferably integrally molded with the device. Each of these walls **17***a* and **17***b* is cut out in a half-circle **18** at its periphery **19**, providing for reception of a support rod **21** (FIG. **1**). The walls lock together by a mechanism consisting of a projection **23***a* wider at a median and narrower at its base and tip and a socket **23***b* having a narrow opening. In entering the socket **23***b*, the tip spreads the flexible lips **23***c* of the socket **23***b*. These spring back to hold the projection **23***b* at its narrower base as the projection seats in the socket.

The locking mechanisms **23***a* and **23***b* not only hold the top and bottom walls **17***a* and **17***b* from spreading apart in the planes thereof, but also prevent them from moving apart axially. In general, the locking mechanisms **23***a* and **23***b* of the top and bottom walls are sufficient to prevent relative axial displacement of the two parts; consequently, the locking mechanisms of the ribs need only ensure against displacement in the plane of the ribs **22**, so that a simpler locking mechanism **24** (FIG. **6**) suffices. This locking mechanism **24** consists of two flexible projections which are displaced as the parts are brought together and then cam over each other holding the parts firmly together.

To make it possible to stack the device **11**, a cylinder **27** (FIGS. **2** and **3**) is provided at one end of the device. Similarly, periphery **26** extends beyond the bottom wall **17***b* forming a cup to receive the cylinder **27** which is of diameter such that the cylinder **27** fits snugly within the side wall **13**.

To prevent relative rotation between adjacent devices, wall **13** has a boss **28** (FIG. **2**) which fits into notch **29** (FIG. **3**).

In order to be able to withdraw the device from molds, it is necessary that the axes of the apertures all be essentially parallel. The remainder of the design of the device except for the locking mechanisms and the living hinge is also such that no difficulty is encountered in removing the finished parts from molds. Such undercuts as are present in the locking mechanisms and

the living hinge are sufficiently small so that the flexibility of the plastic from which the device is molded is sufficient to provide for withdrawal of the pieces. It is for this reason that polypropylene is a preferred material.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above product without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

What is claimed is:

1. A molded hollow, elongated unitary display structure of flexible synthetic plastic, comprising two complementary elements each having wall means, each of said wall means having a first and a second edge, apertures by which parts to be displayed may be supported, living hinge means by which said first edges are joined, locking means proximate said second edges for interengaging said second edges, integral, complementary top-wall members and integral, complementary bottom wall members within said complementary elements, said complementary members having locking means and serving to reinforce said elements and to prevent relative motion transverse to said structure and parallel to the axis of said structure, said apertures having axes parallel to each other.

2. A structure as defined in claim **1**, wherein each of said elements has at least one integral rib at corresponding positions intermediate said top and bottom wall members, said ribs having locking means and serving to reinforce said structure.

3. A structure as defined in claim **1**, wherein said structure is cylindrical and has a first cylinder projecting axially beyond said top wall and a second cylinder projecting axially beyond said bottom wall, the diameters of said first and second cylinders being such that one cylinder would fit with friction within the other cylinder could they be joined, thereby making said structure nestable in an axial direction with other similar structures.

4. A structure as defined in claim **3**, wherein said structure is cylindrical and is provided with means to prevent relative rotation between adjacent, nested structures.

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