

[54] **THEFTPROOF MERCHANDISE  
DISPLAY HAVING HOLDING ADAPTOR**

[72] Inventor: Louis John Crosslen, Grafton, Wis.

[73] Assignee: Frank Mayer &amp; Associates, Inc., Grafton, Wis.

[22] Filed: July 20, 1970

[21] Appl. No.: 56,507

[52] U.S. Cl. .... 211/169, 40/72, 40/104.18, 211/163

[51] Int. Cl. .... A47f 5/02, A47f 5/10

[58] Field of Search .... 211/169, 132, 126, 163, 4; 40/155, 72, 102, 104.18, 104.17, 104.02; 229/31, 30

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Primary Examiner—Ramon S. Britts

Attorney—James E. Nilles

[57]

**ABSTRACT**

An adaptor for holding an article to be displayed on a theft-proof merchandise display. The adaptor comprises the article to be displayed and holds it in locked position in the display and when the display is unlocked, and shifted to a releasing position, the adaptor is readily removed from the article it holds, thus freeing the article. The adaptor is made from a plastic such as polypropylene and is formed with living hinges which permit the adaptor to be repeatedly folded around the article and removed therefrom without damage to the adaptor; there is no need for special hinges or the use of tabs in holding the movable parts of the adaptor together.

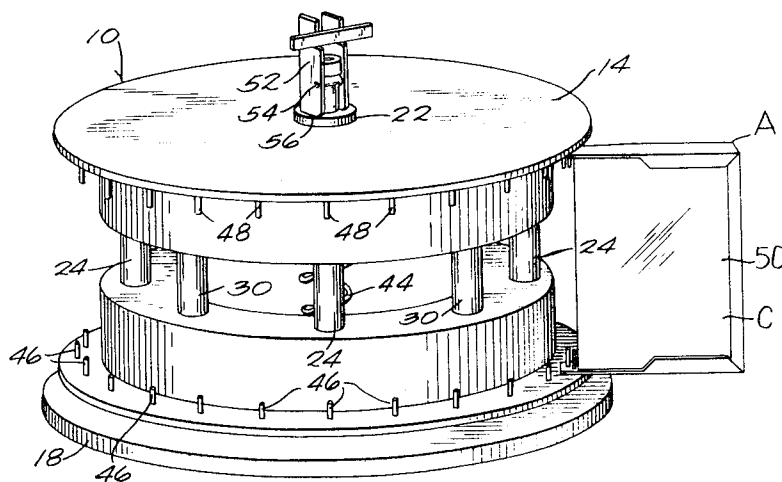
**5 Claims, 8 Drawing Figures**

FIG. 1

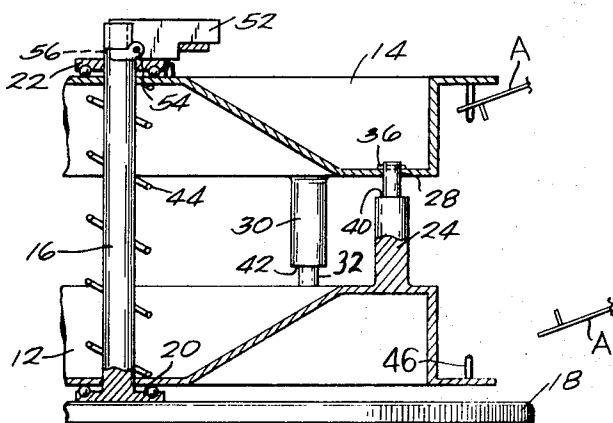
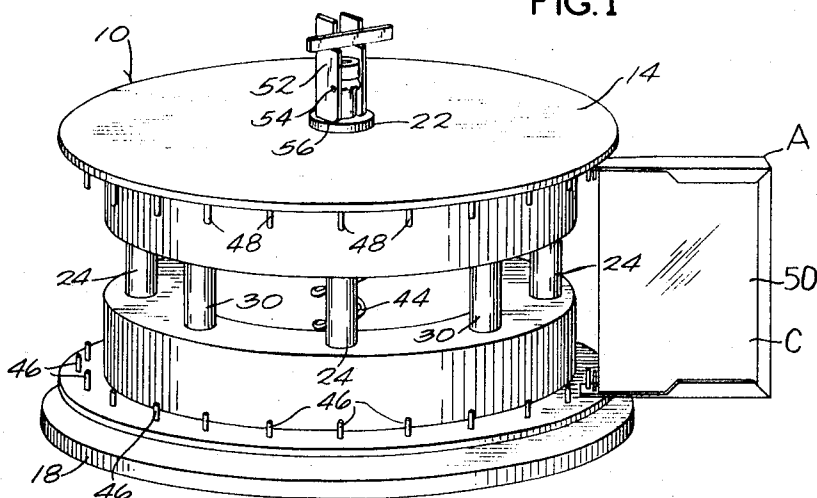


FIG. 2

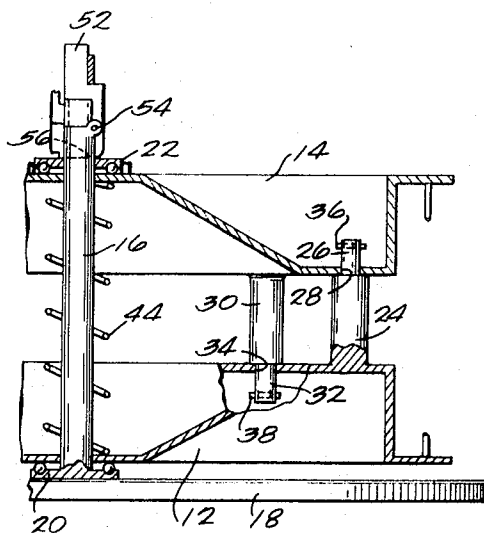
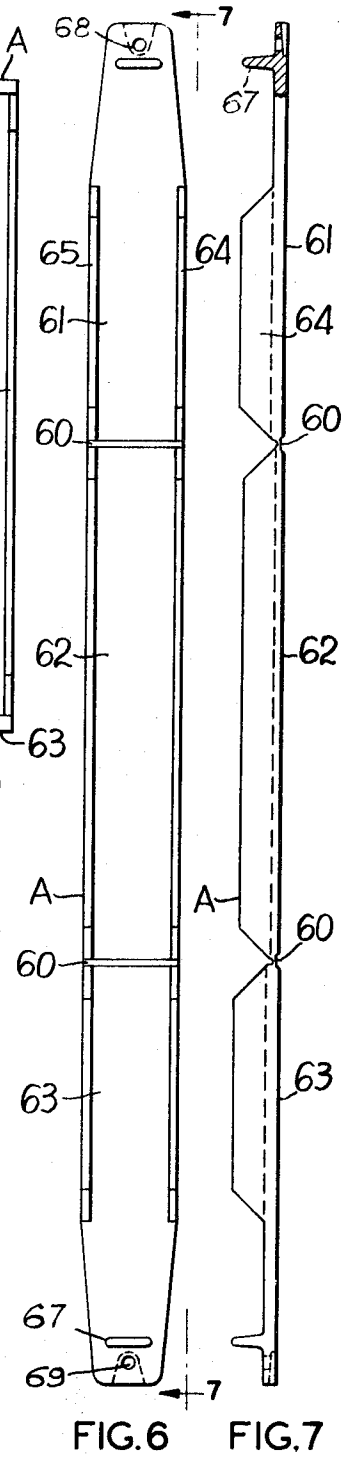
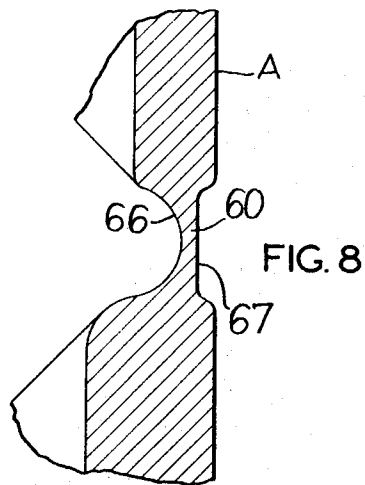
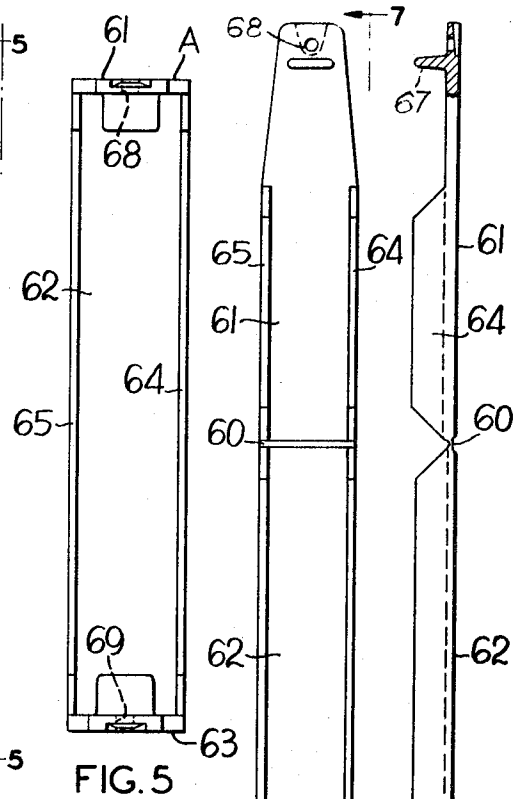
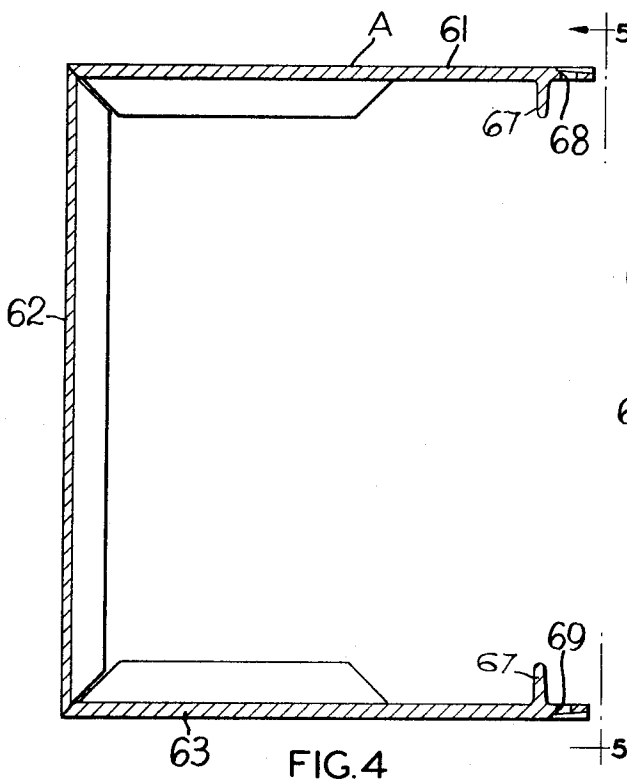


FIG. 3

INVENTOR:

L. J. CROSSLEN

BY: *James E. Nilles*  
ATTORNEY



INVENTOR: ..

L. J. CROSSLEN

BY: *James E. Nilles*  
ATTORNEY

# THEFTPROOF MERCHANDISE DISPLAY HAVING HOLDING ADAPTOR

## BACKGROUND OF THE INVENTION

The invention pertains generally to a display device having relatively movable support members provided with cooperable merchandise receiving and display elements, and which elements are adapted to be locked against displacement to prevent unauthorized removal of the merchandise from the elements. The elements are readily releasable for removal of the displayed articles by authorized personnel.

The invention is in the nature of an adaptor for holding the articles in a device such as shown in the co-pending U.S. Pat. application, Ser. No. 730,454, filed May 20, 1968 and entitled "Theftproof Merchandise Display" which issued on June 30, 1970 as U.S. Pat. No. 3,517,827. That application discloses support members having opposed spindle elements which are adapted to engage in holes in the carton or article of display and thereby hold them in locked position. However, many articles, such as tape cartridges do not have holes for receiving the spindle elements and ordinarily cannot be used with a display device as shown in said application.

## SUMMARY OF THE INVENTION

The present invention provides a removable adaptor for securely holding an article to be displayed in a display device, and which adaptor can be readily unlocked from the display device and then easily removed from the article which it holds.

A more specific aspect of the invention relates to such an adaptor having relatively movable parts which can embrace the article and this then can be folded to free the article from the adaptor; the adaptor has embracing flanges for holding the article securely and also has holes for the reception of the spindle elements of the display device. Another aspect of the invention relates to such an adaptor made of polypropylene and which is molded into the form of a one-piece adaptor and which provides living hinges between the movable parts of the adaptor. The result is an economically manufactured, integral adaptor which can securely lock the article in displayed position.

These and other objects and advantages of the present invention will appear hereinafter as this disclosure progresses, reference being had to the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a display device and showing the adaptor holding the article to be displayed in the device;

FIG. 2 is a fragmentary, vertical sectional view of a portion of the device of FIG. 1, but showing the relatively shiftable support members in the open position, the lower portion of the adaptor being removed from its spindle and the article itself is not shown;

FIG. 3 is a view similar to FIG. 2 of the support member in closed position;

FIG. 4 is a side elevational view, in section, of an adaptor shown in FIG. 1 and made in accordance with the present invention, but on an enlarged scale;

FIG. 5 is a view taken generally along the line 5—5 in FIG. 4;

FIG. 6 is a view of the adaptor in the fully unfolded position;

FIG. 7 is a view taken along line 7—7 in FIG. 6; and

FIG. 8 is a detailed view of one of the living hinges of the adaptor.

## DESCRIPTION OF A PREFERRED EMBODIMENT

The merchandise display shown therein as usable with the invention comprises a pair of axially spaced support members 12 and 14 shown herein as being of disc shape and each having a central aperture for reception on an upright shaft 16. The shaft 16 is secured to and extends upwardly from a suitable base 18.

The support members 12 and 14 are preferably rotatably received on the shaft 16, and for this purpose, suitable anti-friction bearings 20 and 22 may be provided below the lower member 12 and above the upper member 14 of each pair respectively. Each pair of members 12 and 14 are also spaced axially from each other a minimum predetermined distance while being relatively axially movable to a limited extent beyond such predetermined minimum. For this purpose as well as to key the members 12 and 14 of each set together and thereby prevent relative rotational movement thereof, the member 12 is provided with an annular series of spaced upwardly directed spacer and guide posts 24 each having a reduced end portion 26 slideably received in an aligned aperture 28 in the other member 14, and the member 14 is formed with a similar annular series of alternately spaced downwardly directed spacer and guide posts 30 each also having a reduced end portion 32 slideably received in an aligned aperture 34 in the member 12.

Axial displacement of the members 12, 14 is prevented by means of pins 36, 38 or the like adjacent the ends of the reduced portions 26, 32 of the respective posts 24, 30, and these pins 36, 38 cooperate with the shoulders 40, 42 formed by the respective reduced portions to permit limited relative axial movement of the members 12, 14 within predetermined limits. The members 12, 14 are furthermore constantly resiliently urged apart by means of a spring 44 or the like to the fullest extent permitted by the stops 36, 38, the coil spring 44 being compressed between the adjacent faces of the support members 12, 14.

Each of the members 12, 14 is also formed with an annular series of equally spaced and axially aligned spindle shafts 46, 48 respectively for receiving articles of merchandise 50 to be displayed. As shown, the spindle shafts 46 project upwardly from the lower member 12 toward the downwardly projecting spindle shafts 48 of the upper member 14 of each set. The upper spindle shafts 48 are somewhat longer than the lower spindle shafts 46 to thereby prevent free displacement of the articles 50 and their adaptors A, to be described, whenever the members 12, 14 are spread apart to their fullest extent while permitting removal thereof by first raising the selected article and its adaptor and then angularly displacing the same from the lower spindle shaft as shown in FIG. 2.

To simultaneously lock the adaptor A against displacement from the spindle shafts 46, 48, it is only necessary to move the support members 12, 14 axially toward each other to the extent permitted by the shoulders 40, 42 of the reduced portions 26, 32 of the guide posts, and for such purpose, a cam lever 52 is provided on the shaft 16 above the upper member 14. This cam lever 52 may be pivotally secured to the shaft 16 as by means of a pivot pin 54 and has a cam surface 56 coacting with the upper bearing 22 to further compress the spring 44 and move the members 12, 14 axially toward each other when swung to one position as shown in FIGS. 1 and 3 while permitting the spring 44 to spread the members 12, 14 apart when swung to another position as shown in FIG. 2.

The adaptor A is formed by a molding process from a plastic such as polypropylene or polyethylene. These are flexible plastics which have properties such as flexibility and resiliency that permit them to be bended repeatedly without breaking, wearing or otherwise being damaged.

The plastic adaptor is molded with two relatively thin sections 60 which form hinges that permit the repeated flexing of the portions 61, 62 and 63 relative to one another without destroying or weakening the plastic material. These hinges are "living hinges" because of their extremely long life without deterioration. The thin sections 60 are formed on one side by a generally semi-circular recess 66, and on the other side by a generally elongated and shallow recess 67.

The adaptor A also has inwardly turned flanges 64 and 65 along each side and extending along all of the portions 61, 62 and 63. These flanges form guides that embrace the article to be displayed, such as the tape cassette C. That is to say, when the portions 61, 62 and 63 are folded or embraced around the

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article, it results in holding it within the adaptor. The adaptor also has inwardly turned and opposing flanges 67 which also hold the cassette in assembled relationship with the adaptor. At the free end of portions 61 and 63, are holes 68 and 69 respectively which are adapted to be aligned with one another when the adaptor is embracing the cassette, and the spindles of the display device are received in these holes 68 and 69.

Thus, the adaptor provided by the present invention can be formed as an integral piece and provided with integral hinges that permit the adaptor to be used repeatedly to hold the cassette in the display. The adaptor is economical to manufacture, and permits the use of the display device with an article that does not have aligned holes in its container.

I claim:

1. In combination with a display device of the type having a pair of oppositely disposed support members, said members each having vertically disposed projecting means which are in axial and opposed alignment for holding an article to be displayed, one of said support members being shiftable relative to the other support member for varying the distance therebetween, an adaptor for holding said article between said opposed and aligned projecting means, said adaptor fabricated from plastic and defining only three connected por-

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tions and an open vertical side adjacent said projecting means, at least two portions of which are foldable relative to one another to thereby define a generally U-shaped adaptor which can embrace the article to be displayed, two opposite of said portions of said adaptor having free ends adjacent said open side, said free ends each having an aperture for receiving said projecting means, said adaptor also having flange means for embracing the article to be displayed on both sides thereof when said adaptor is folded into a generally U-shape to embrace said article.

2. The combination as set forth in claim 1 further characterized in that said adaptor is made of polypropylene.

3. The combination set forth in claim 1 further characterized in that said adaptor has hinge means which are formed by a reduced thickness of said adaptor.

4. The combination as set forth in claim 3 wherein said reduced thickness is defined on one side by a generally semi-circular recess and on the other side by a generally elongated shallow recess.

5. The combination set forth in claim 2 further characterized in that said adaptor has hinge means which are formed by a reduced thickness of said adaptor.

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