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PAPER BOARD LOCKS

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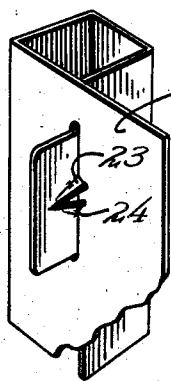


Fig. 1

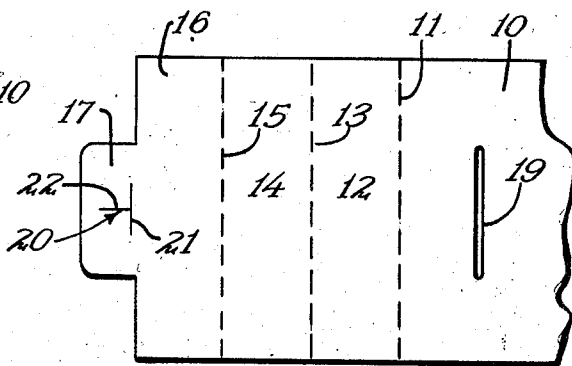


Fig. 2

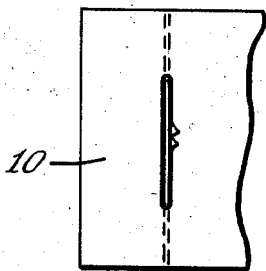


Fig. 3

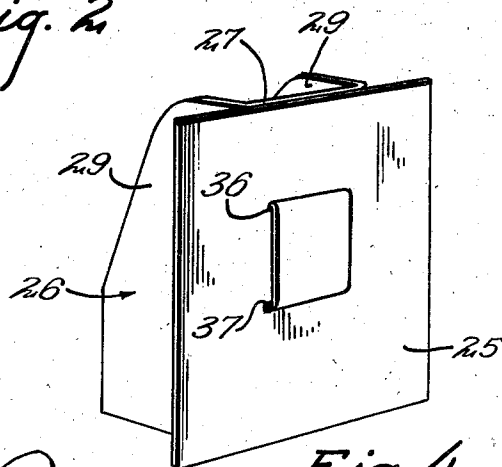


Fig. 4

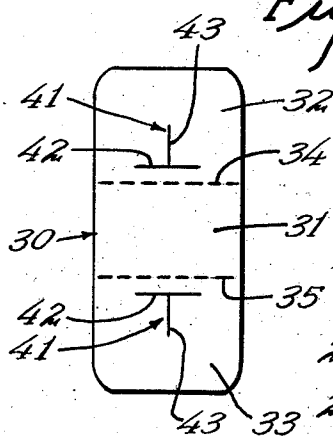


Fig. 5

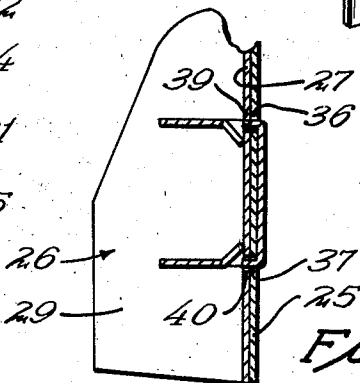


Fig. 6

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2,821,761

PAPER BOARD LOCKS

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6 Claims. (Cl. 24-73)

This invention relates to an improvement in paper board locks and deals particularly with a means of locking one piece of paper board into another.

In the formation of displays and particularly those made of corrugated paper board, some difficulty has been experienced in locking one piece of paper board extending through a slot in the other. In calling for two pieces of paper board, it should be understood that both pieces may be integrally connected together. The present invention deals with a simple and effective means of locking the two parts together.

A feature of the present invention lies in the simplicity with which the locking engagement may be completed. Under normal circumstances a slot is formed in one piece and a tab is designed to extend through this slot. The tab is of proper size to fit through the slot without interference. When once inserted, the lock is formed by bending portions of the inserted tab out of alignment with the slot, thus preventing the withdrawal of the tab through the slot.

A feature of the present invention lies in the provision of a tab designed to extend through a slot and in providing a T-shaped slit in the tab with the cross member of the T extending substantially flush with the inner surface of the sheet containing the slot when the tab is fully inserted. The main stem of the T-shaped slot extends towards the free end of the tab. As a result, after the tab has been inserted, the triangular areas between the non-connected ends of the T-shaped slit can be bent out of plane of the tab to lock the tab from removal.

A further feature of the present invention lies in the fact that not only can the tab be used to lock folded portions of the same sheet in angular relation, but also the lock may be used to secure two thicknesses of paper board in surface contact. This is accomplished by providing a locking member formed of a U-shaped strip of paper board arranged so that the base of the U will lie in surface contact with one of the sheets to be connected and the sides of the U-shaped member may extend through slots to extend through the sheets at right angles thereto. When the sides of the U are locked in place, the two sheets are securely fastened in surface contact.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

Figure 1 is a perspective view of a generally rectangular post formed of corrugated paper board showing a locking tab holding the post in proper shape.

Figure 2 is a diagrammatic view of the blank from which the post is formed.

Figure 3 is an elevational view of the rear of the sheet with the locking tab in locking position.

Figure 4 is a perspective view of a display showing an easel connected to a display panel.

Figure 5 is a diagrammatic view of the blank from

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which the locking member illustrated in Figure 4 is formed.

Figure 6 is a sectional view through the display of Figure 4 showing the manner in which the locking member locks the easel to the display panel.

There are many uses for a lock which is designed to hold a tab projecting through a panel at right angles thereto. The structures illustrated in the drawings are merely fragmentary and for the purpose of illustration. However, many displays are formed with tubular posts along opposite edges thereof, designed to stiffen the display and hold it in proper shape. Furthermore, there are many instances in which it is desired to lock two panels in surface contact. The present structure is desirable for such purposes in any case where the inserted ends of the tab or tabs are accessible after they have been inserted.

In the form of construction shown in Figures 1, 2, and 3, a display panel 10 is connected along one edge 11 to a side flange 12. The side flange 12 is connected along a fold line 13 to a front flange 14. This front flange 14 is connected along a fold line 15 to a side flange 16. This side flange 16 is in turn provided with a projecting tab 17 designed to extend through a slot 19 in the panel 10. When the structure thus formed has been folded, a tubular post is provided extending along an edge of the display panel. Various means have been used for anchoring a structure of this type in proper position. For example, a flange may be foldably connected to the flange of panel 16 and designed to fold flat against the surface of the panel 10. This anchoring flange may be secured to the display panel by adhesive, stitching or other such means. However, if the attachment is made before the display is set up, difficulty is experienced in holding the tubular portion in its tubular form. If the parts are connected when the display is set up, means must be provided for accomplishing this result. The present invention avoids these difficulties.

The tab 17 is provided with a T-shaped slit 20 formed as illustrated in Figure 2. The T-shaped slit includes a cross bar portion 21 which is designed to extend substantially flush with the inner surface of the panel through which the tab is inserted. The slit 20 also includes a right angular main stem portion 22 which communicates with the slit 21 and extends right angularly from the center thereof.

With the structure thus described, the tab 17 may be inserted through the slot 19 without difficulty as this slot 19 is of proper dimensions to accommodate the tab. After the tab has been inserted, the portion of the tab adjoining the slits is pressed inwardly with the thumb or fingers. This action bends the triangular areas between the right angular slit lines out of the plane of the remainder of the tab and engages over the inner surface of the panel 10 as is best indicated in Figure 1 of the drawings. As the stock is bent at these areas and as the edges of the triangular parts are flush with the inner surface or rear surface of the panel 10, the triangular areas indicated at 23 and 24 frictionally engage the panel and are held out of the plane of the tab. In actual practice the slit 21 may be slightly inwardly of the surface of the panel so that when the triangular areas are forced out of the plane of the tab, they bind in this position.

Figures 4, 5 and 6 disclose a modified form of construction embodying the same type of lock. For the purpose of example, the drawings show a display panel 25 which is to be secured to an easel such as 26. The easel includes a center panel 27 designed to lie in surface contact with the rear side of the display panel 25 and includes spaced wings 29 secured to opposite side edges of the center panel 27 so as to support the display panel 25 in an upright position. The problem involved is to secure the

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panels 25 and 27 in surface contact without the use of staples, adhesive or other such means.

In order to accomplish this result a lock 30 of the type best illustrated in Figure 5 is formed. This lock comprises a U-shaped member including a central panel 31 and a pair of locking tabs 32 and 33 connected to the center panel 31 along opposite fold lines 34 and 35. The tabs 32 may be folded at right angles to the center panel 31 to project through the display panel 25 and through the panel 27.

A pair of parallel slots 36 and 37 are provided in the panel 25 and a pair of aligned slots 39 and 40 are provided in the easel panel 27. These slots are of proper size to freely accommodate the tabs 32 and 33 which project therethrough at right angles to the surface thereof.

Each of the tabs 32 and 33 is provided with a T-shaped slit 41 therein. This T-shaped slit 41 includes a slit 42 designed to extend parallel to the fold lines 34 and 35 and spaced therefrom a distance approximately equal to, or slightly less than, the combined thickness of the panels 25 and 27. The slits also include portions 43 which extend at right angle to the slits 42 and communicate with the center thereof. Thus the slits form two sides of two triangular areas which may be bent out of plane of the remaining portions of the tabs 32 and 33.

In assembling the easel illustrated it is only necessary to place the easel in surface contact with the rear side of the display panel so that the slots 36 and 37 of the display panel align with the slots 39 and 40 of the easel. The tabs 32 and 33 are then inserted through the aligned slots. Pressure is then exerted with the thumbs or fingers against the triangular areas defined by the T-shaped slots, bending these areas out of plane of the remainder of the tabs. These portions will frictionally engage the rear surface of the panel 27 and prevent withdrawal of the tabs from the slots thus locking the two parts together.

As the locking member 30 is of small size it can usually be cut from waste portions of the blank from which the display is made and may be simultaneously printed if desired so that the visible portion of the lock will not detract from the appearance. For example, in one display showing a Santa Claus figure, the lock was attached centrally and printed to indicate a belt buckle and thereby enhancing the appearance of the display rather than detracting from it.

In accordance with the patent statutes, I have described the principles of construction and operation of my paper

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board locks, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A lock for anchoring a tab extending at right angles to a panel, the structure including a tab, and a panel having a slot therein through which the tab may extend, said tab having a generally T-shaped slit arranged with the cross bar portion of the slit extending along a surface of the panel, said slit defining two triangular portions which may be flexed out of the plane of the tab.

2. The construction described in claim 1 and including means for limiting the insertion of the tab through the slot.

3. A lock for anchoring a tab extending through a panel and including a panel, flange means foldably connected thereto, a tab connected to the marginal edge of one of said flange means, said panel having a slot through which said tab may extend when said flange means are folded angularly to the panel, said tab means having a T-shaped slit, the cross member of the T-shaped slit extending substantially flush with the surface of the panel through which the tab has been inserted.

4. The construction described in claim 3 and in which said flange means limits the insertion of said tab means through said slot.

5. A lock for holding a pair of panels in surface contact, the structure including a pair of panels having spaced slots extending therethrough, the slots of the two panels being registerable, a locking element having a panel portion designed to overlie one of said panels, said locking element also including tabs engageable through said slots, each of said tabs having T-shaped slits with the cross bar portions of the slits extending substantially flush with the surface of the other panel through which the tabs are inserted.

6. The construction described in claim 5 and in which said slots are parallel.

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