

Nov. 7, 1944.

H. ZIEMMERMAN

2,362,230

INTERLOCKING MEANS FOR KNOCK-DOWN ADVERTISING DISPLAYS

Filed June 24, 1940

2 Sheets-Sheet 1

Fig. 1.

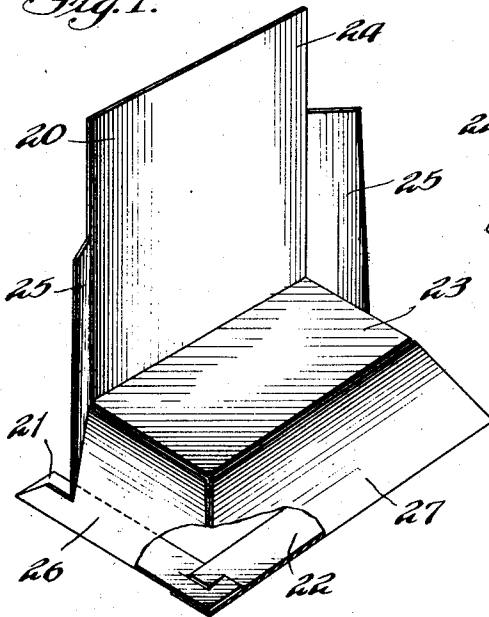


Fig. 2.

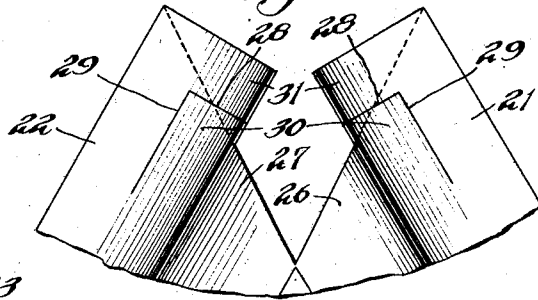


Fig. 3.

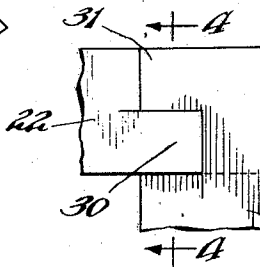


Fig. 4.

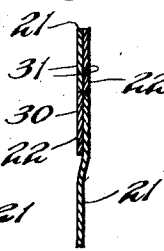


Fig. 6.

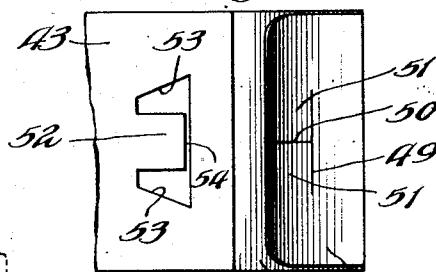


Fig. 5.

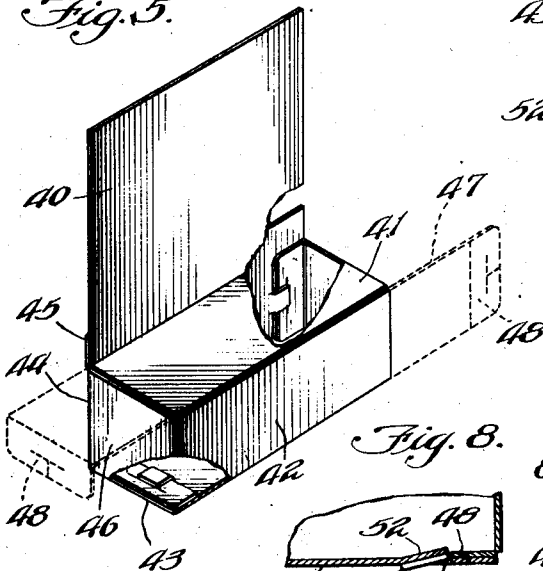


Fig. 7.

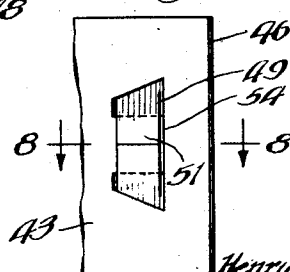
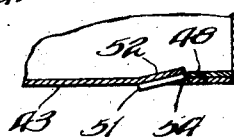


Fig. 8.



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Fig. 9.

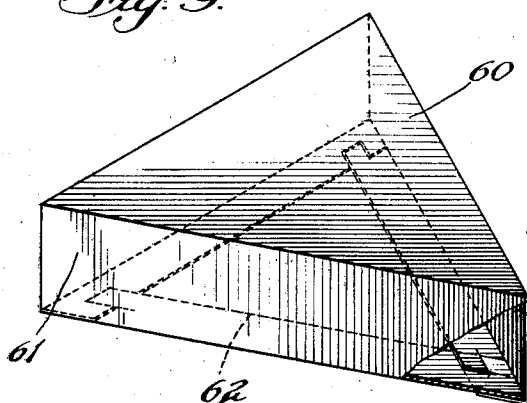


Fig. 10.

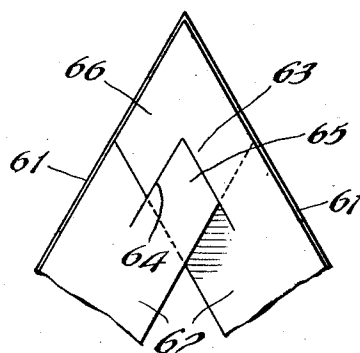


Fig. 11.

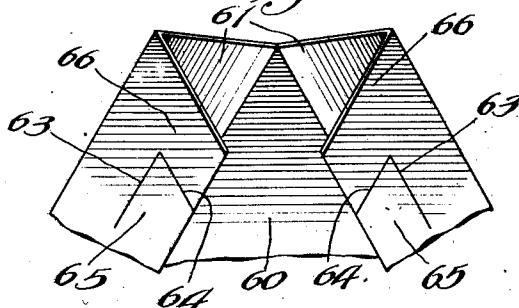


Fig. 12.

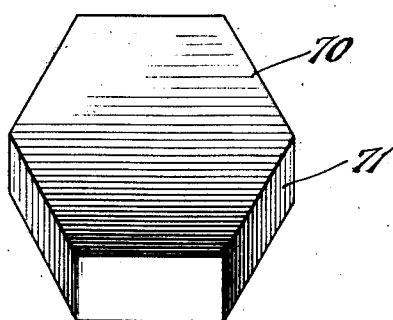


Fig. 13.

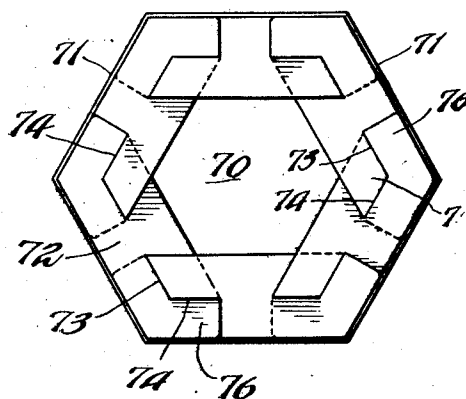
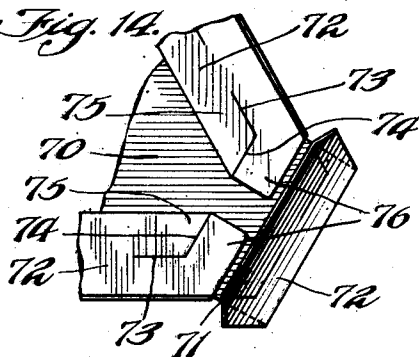


Fig. 14.



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UNITED STATES PATENT OFFICE

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INTERLOCKING MEANS FOR KNOCKDOWN
ADVERTISING DISPLAYSHenry Ziemmerman, Chicago, Ill., assignor to
Chicago Cardboard Company, Chicago, Ill., a
corporation of Illinois

Application June 24, 1940, Serial No. 341,984

4 Claims. (Cl. 189—36)

This invention relates in general to a resilient detachable lock for connecting, joining and securing together different parts of foldable structures made of cardboard, sheet metal and other resilient sheet materials.

An important object of the invention is in the provision of cooperating angularly cut portions which are movable quickly together into engagement where they are held by the resilience of the material and from which engagement they may be separated by springing and sliding the members apart. A further object of the invention is in the provision of a snap lock structure which is readily applicable to various folded boxes, frames, cartons, displays and the like, commonly made of light inexpensive sheet materials in which it is desired to secure the parts together in assembled set-up condition, but which may be also disconnected for folding the parts in a substantially flat condition in which they occupy the least space for shipment and storage.

Other objects of the invention will appear hereinafter, the accompanying drawings illustrating a number of forms and applications of the lock to simple display structures.

In the accompanying drawings,

Fig. 1 illustrates a simple counter display to which a snap lock embodying the present invention is applied;

Fig. 2 is an enlarged view of the snap lock portions for the structure of Fig. 1 in separated position;

Fig. 3 is a detail view of the lock of Fig. 2 in locked position;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 shows a counter display stand with foldable snap locks of a modified form;

Fig. 6 is a detail showing the lock parts in separated position;

Fig. 7 shows the lock parts of Fig. 6 in locked position;

Fig. 8 is a section taken on the line 8—8 of Fig. 7;

Fig. 9 illustrates a triangular display box with a bottom rim closure;

Fig. 10 shows a portion of the rim in locked position;

Fig. 11 shows the lock of Fig. 10 in open position;

Fig. 12 is a perspective of a hexagonal box with a rim lock;

Fig. 13 is a view of the under side of box of Fig. 12 in locked position; and

Fig. 14 is an enlarged view showing one corner of this box with the parts in position to be locked.

In presenting foldable display and carton structures which are made of sheet material, it is highly desirable that they be provided with

a simple means for locking the parts together in display position while providing a separable connection which is readily disconnected when it is desired to collapse or fold the parts together for shipment or storage. The present invention contemplates a snap lock or locking means in a variety of forms which may be used for connecting portions or sections of sheet material together by means of spring tongue portions which interlock and inter-engage when pressed together, thereby holding the portions or sections accurately in the desired set-up position, but which must be pressed or sprung so that the inter-engaging tongues may be slipped apart in disengaging them.

Referring now more particularly to the snap lock shown in Figs. 1 to 4, a simple form of display 20 is shown in Fig. 1 which has rim portions 21 and 22 movable together and interlocked for holding the display 20 in set-up condition. This particular display has a boxlike base 23, a back plate 24, side wings 25, and base portions 26 and 27 all connected together but cut apart at the angular corners between the base portions 26 and 27 so that when the rim sections 21 and 22 are connected at the corners they will inter-engage and hold the display in upright extended position. The particular form of display is immaterial as the lock of this invention may be variously applied to different structures but is particularly adaptable for foldable cardboard displays of this kind.

Adjacent ends of the rims 21 and 22 are provided with slits 28 and 29 cut at right angles to each other with the slit 28 parallel to the outer end of the rim and the slit 29 parallel to the longitudinal edge of said rim, to form an inner spring tongue 30 and outer angular hook or tongue 31.

The tongue and hook of this snap lock are so proportioned that when brought together as shown in Figs. 3 and 4 the tongue 30 of one rim section overlies the tongue 30 of the other and likewise the hook or tongue of said rim section underlies the hook or tongue of said companion rim section. Thus the tongues and hooks, accurately cut, will inter-engage and tightly hold the parts in interlocked position due to the resiliency of the material itself and the parts can only be disengaged by pressing one or the other rim portion out of its engaging position, releasing its tongue or hook into the plane of the rim so that the two rim sections can be slipped apart.

Instead of the snap lock being located at the corner or meeting ends of inwardly bent rims, as described in connection with the boxlike base shown in Fig. 1, a straight snap lock as shown in Figs. 5 to 8 may be used. This is illustrated in connection with a display 40 having a boxlike

base comprising connected sections 41, 42, 43 and 44, with its upwardly extending back supported by back extensions 45, and with ends 46 and 47, all formed of the same piece of material. Each of the ends 46 and 47 of the boxlike base has a tab extension 48 in connection with which there is formed one part of the snap lock or engaging means in accordance with my invention, provided in this instance by slits 49 and 50, the slit 49 being parallel to the edge of the extension and slit 50 extending from the center of said slit to the edge at right angles, so that the two connected slits are in the form of a T providing spring tongues 51 at opposite sides of the slit 50. To cooperate with the spring tongues 51, 51 a spring tongue 52 is formed in the cooperating part of the display by cut-outs 53 joined at their outer edges by a slit 54 at a distance from the edge of the member 43 in which the tongue 52 is provided just slightly less than the distance of the slit 49 from the edge of the tab 48. When the members of the display are to be connected they are slipped together or interlocked by overlapping engagement of the tongue 52 to one of the parts or members of the display with the companion pair of tongues 51, 51 of the other part or member, and it will be noted by reference to Figs. 6, 7 and 8 of the drawings that in this interlocking engagement of the tongues the tongue 52 will depress the tongues 51, 51 into the openings 53, 53 below said tongue to engage the outer edge of the slit 54 thus forming an interlocking connection requiring that the tongues be manipulated for releasing the engagement of the depressed tongues.

The lock shown by Figs. 9 to 11 is similar to that shown by Figs. 1 to 4, except that it is applied to an angular box structure 60 of triangular shape having a side 61 and rim portions 62 overlapping at the corners and each provided with an angular corner snap lock similar to that shown in Fig. 2 having angularly related cuts 63 and 64 which form the inter-engaging acute angled tongues 65, and hooks 66 as shown and described in Figs. 1 to 4.

A similar construction is also shown in Figs. 12 to 14 comprising a hexagonal box 70 with sides 71 and rim portions 72, all connected together and preferably formed of a single piece of material, the rim sections having parallel and angular cuts or slits 73 and 74 at the ends forming obtuse angled tongues 75, and hooks 76 which interlock with corresponding hooks and tongues of the adjacent rim sections 72, so that when the box is set up and the rim sections are pressed together the rim sections will be snap-locked together and cannot be disengaged except by pressing the sections of each rim into alignment and slipping them relatively to sections with which they engage.

In all of the rim end snap locks it will be noted that the slits parallel to the edges of the rims are somewhat longer than the width of the tongues which they form so that when adjacent rim sections are interlocked the tongues may readily be flexed for a portion greater than their width. This provides a yielding interlocking engagement which also tends to prevent the tongues from being broken by frequent engagement and disengagement in connecting and disconnecting the parts.

While this snap lock construction is particularly adapted for use with cardboard, sheet metal and the like, and in the making of frames, dis-

play articles and cartons, it is obvious that it may have a general application as a snap lock for various articles and various materials which it is desirable to connect either permanently or temporarily, as the resiliency of the material itself will hold the lock sections together by their own interengagement.

I claim:

1. In combination, two sheet material parts, each part having a first slit therein and a second slit extending from an edge of the part to the first slit, said parts being disposed in flatly overlapping relation so that the slit edges of the first slit of one part about the slit edges of the second slit of the other part, and the slit edges of the second slit of said one part about the slit edges of the first slit of said other part.

2. Interlocking means for connecting the foldable parts of knock-down advertising displays, and like articles of manufacture, comprising in combination two sheet metal parts each having a first slit therein and a second slit extending from an edge of the part to the first slit, the two slits on both parts being cut at identical angles to each other and one of the slits extending parallel to the marginal edge of said part, said parts being disposed in flatly overlapping relation so that the slit edges of the first slit of one part about the slit edges of the second slit of the other one part about the slit edges of the first slit of said other part, thereby forming tongues and edges on one of the parts which abut and interengage with the edges and tongues of the other part.

3. Interlocking means for connecting the foldable parts of knock-down advertising displays, and like articles of manufacture, comprising in combination two sheet metal parts, each part having a first slit therein, and a second slit extending from an edge of the first part to the first slit forming rectangular resilient tongues, said parts being disposed in flatly overlapping relation so that the slit edges of the first slit of one part about the slit edges of the second slit of the other part, and the slit edges of the second slit of said one part about the slit edges of the first slit of said other part, adapting the parts of the display to be connected for interlocking engagement when the parts are moved together until the slits overlap and coincide.

4. Interlocking means for connecting foldable parts of knock-down advertising displays, and like articles of manufacture, having angular corners, comprising in combination two sheet material parts, each part having a first slit therein and a second slit extending from an edge of the part to the first slit and comprising tongues on each of the two parts, and the slits of each part being at the same angle to each other as that made at the corner when the parts are connected, said parts being disposed in flatly overlapping relation so that the slit edges of the first slit of one part about the slit edges of the second slit of the other part, and the slit edges of the second slit of said one part about the slit edges of the first slit of said other part, whereby the tongues and edges on one of the parts will engage, deflect, abut, and interlock with the other tongue when the parts are overlapped and moved together so that the slits coincide.

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