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2,979,252

COVER LOCK BOX

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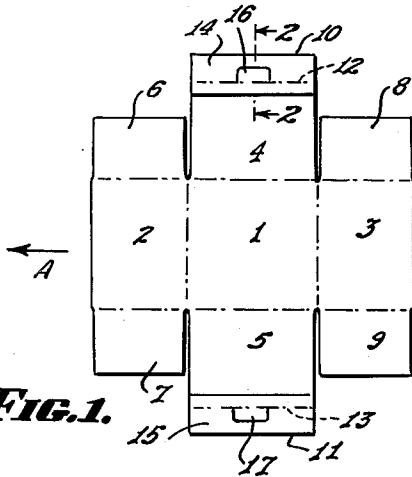


FIG. 1.

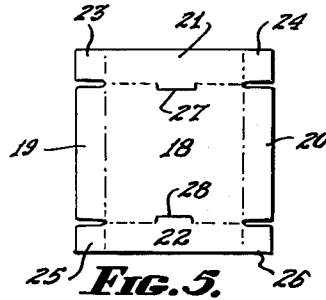


FIG. 5.

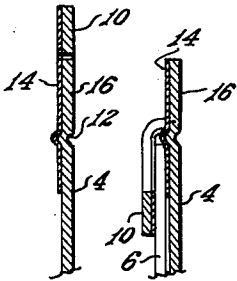


FIG. 2, FIG. 4.

FIG. 3.

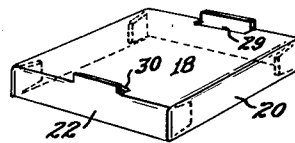
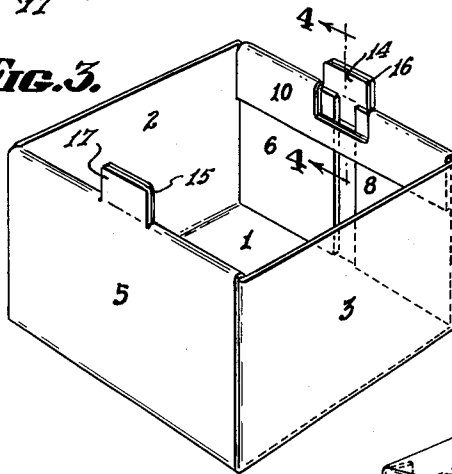


FIG. 6.

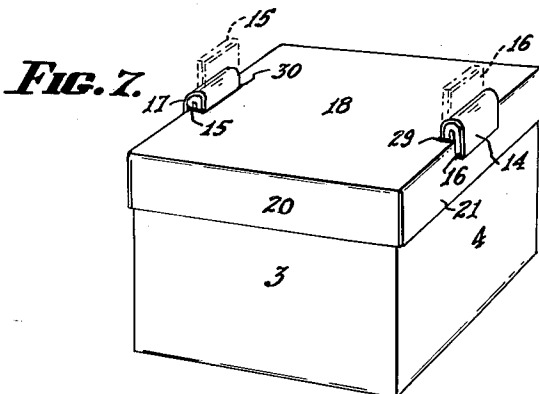


FIG. 7.

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2,979,252

COVER LOCK BOX

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1 Claim. (Cl. 229—47)

My invention relates to paperboard boxes and more particularly to a box structure comprising a bottom part and a cover part, the bottom part having integrally formed locking tongues arranged to project upwardly through openings in the cover part, whereupon the tongues are folded over to secure the cover part to the bottom part.

It may be observed at the outset that cover lock boxes provided with metallic locking tongues have been available for many years, but in all instances of which I am aware the tongues are in the form of separate metallic members which are stapled or otherwise secured to the box. As opposed to this, the instant invention contemplates the provision of paperboard tongue members formed integrally with the box blank, the tongues so formed being lined with metal foil having dead-folding characteristics so that such characteristics may be imparted to the paperboard tongues to thereby retain them in folded condition.

In accordance with my invention, the box bottom part is provided with end overlap flaps, and strips of the foil are secured to these flaps and to the adjacent portions of the body walls to which the flaps are hingedly connected so that the end overlap flaps may be folded and maintained in folded condition by means of the foil. At the same time the tongues are struck from the end overlap flaps and the foil, with the base edges of the tongues lying along the hinge lines connecting the end overlap flaps to the body walls of the box. Thus, a single strip of foil serves both to line the locking tongue and the end overlap flap and render both of them dead-folding. This permits the box bottom to be erected and maintained in erected condition without the use of adhesives, staples or other similar forms of locking means, and, when the cover is positioned on the box, the locking tongues may be folded to securely lock the cover in place, all by reason of the strips of foil applied to the box blank.

The foregoing together with other objects of my invention which will appear hereinafter or which will be apparent to the skilled worker in the art upon reading these specifications, I obtain by that construction and arrangement of parts of which I shall now describe an exemplary embodiment.

Reference is now made to the accompanying drawings wherein:

Figure 1 is a plan view of a blank for the bottom part of the box structure.

Figure 2 is a fragmentary sectional view taken along the line 2—2 of Figure 1.

Figure 3 is a perspective view illustrating the blank of Figure 1 in erected and assembled condition.

Figure 4 is a vertical sectional view taken along the line 4—4 of Figure 3.

Figure 5 is a plan view of a blank for forming the box cover.

Figure 6 is a perspective view illustrating the blank of Figure 5 in erected condition.

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Figure 7 is a perspective view illustrating the cover part positioned on the bottom part with the locking tongues folded to secure the cover part in place.

Referring first to Figure 1 of the drawings, I have therein illustrated an exemplary box blank formed from paperboard and cut and scored to provide a bottom panel 1, side wall panels 2 and 3, and end wall panels 4 and 5. It will be understood that the terms "side wall panels" and "end wall panels" are used to denote opposed pairs of body walls and are not intended as limitations upon the invention.

In the embodiment illustrated, attachment flaps 6, 7, 8 and 9 are hingedly connected to the end edges of the side wall panels 2 and 3, and end overlap flaps 10 and 11 are hingedly connected to the outer ends of end wall panels 4 and 5 along hinge lines 12 and 13.

In accordance with my invention, the end overlap flaps 10 and 11 and the adjoining portions of the end wall panels 4 and 5 are covered by strips of foil 14 and 15, the strips of foil bridging the hinge lines 12 and 13 and adhesively secured both to the end overlap flaps and the end wall panels. The foil strips will be formed from dead-soft aluminum or similar material having dead-folding characteristics and its thickness will be such that it will be capable of imparting those characteristics to the body walls of the carton. That is, the dead-folding character of the foil must be such that it will overcome the natural resiliency or tendency of the boxboard to "spring back" upon being folded upon itself.

Locking tongues 16 and 17 are formed in the end overlap flaps, being cut through both the boxboard and the foil. Preferably, these tongues will be formed with their base edges lying along the score lines 12 and 13, respectively.

The box is erected in the manner illustrated in Figure 3, wherein it will be seen that the side and end walls are folded upwardly with respect to the bottom panel, with the attachment flaps 6, 7, 8 and 9 juxtaposed to the inner surfaces of the end walls whereupon the end overlap flaps 10 and 11 are infolded to secure the attachment flaps in position. The infolding of the end overlap flaps leaves the locking tongues 14 and 15 projecting upwardly in the manner illustrated. It will be understood that the infolded end overlap flaps will remain in folded condition by reason of the foil strips 14 and 15.

Referring now to Figure 5, I have therein illustrated an exemplary form of cover part consisting of a cover panel 18 having side flanges 19, 20 and end flanges 21, 22 hingedly connected thereto.

In this instance, attachment tabs 23, 24, 25 and 26 are provided at the ends of flanges 21 and 22, and slot forming cuts 27 and 28 which project inwardly from flanges 21 and 22 into cover panel 18. When the cover part is erected, as shown in Figure 6, the slot forming cuts define slots 29 and 30 which are positioned to receive the tongues 15 and 16 when the cover is placed over the box bottom. It will be understood of course, that the slots may be completely cut out, if so desired, but such cut outs generally require a stripping operation which is not required with the arrangement shown.

As seen in Figure 7, when the cover part is telescoped over the bottom part, the locking tongues will project upwardly through the slots 29 and 30 in the manner illustrated in dotted lines, whereupon the tongues may be folded outwardly and downwardly to secure the cover in place. As in the case of the end overlap flaps, the dead-folding metal foil will retain the tongue members in folded position from which they cannot be removed until positive force is applied to unfold them.

In its process aspects, the invention contemplates the application of the foil strips in a continuous operation wherein the box blanks may be moved in the direction

of the arrow A (Figure 1) whereupon the strips of foil may be fed from a continuous supply, such as a roll, adhesive spotted on the blank and the strips severed and spotted in place on the blanks. Following their application the blank and foil can be concurrently acted upon by a cutting element effective to form the tongues in the overlap flaps.

It should be apparent that the procedure just described is one which can be carried out in a high speed operation without requiring precise alignment of the foil relative to the board, as would be the case if the board and foil were separately cut. Yet the finished product has precise edge alignment between the board and foil about the edges of the tongues.

Modifications may be made in my invention without departing from the spirit of it. Modifications and variations in the construction of the bottom and cover parts will undoubtedly occur to the skilled worker in the art and consequently I do not intend to be limited excepting as set forth in the claim which follows. Having, however, described my invention in an exemplary embodiment, what I desire to secure and protect by Letters Patent is:

In a cover lock box, a bottom part having a bottom wall, side and end walls projecting upwardly from said bottom wall, attachment flaps hingedly connected to the ends of said side walls and infolded to lie along the inner surfaces of said end walls, end overlap flaps hingedly connected to the upper ends of said end walls, a strip

of metal foil having dead-folding characteristics adhesively secured to the inner surfaces of each of said end overlap flaps throughout substantially the full lengths and widths thereof and to adjoining areas of said end walls throughout substantially the full widths thereof, locking tongues struck from said end overlap flaps and said foil strips, said tongues having their base edges lying along the upper edges of said end walls, and a cover part for said box having openings therein in alignment with said tongues, whereby said strips of metal foil will serve to lock said end overlap flaps in infolded condition upon being infolded over said attachment flaps and, at the same time, will serve to lock said tongues in folded position when said cover part is associated with said bottom part and said tongues passed through said openings from which position they are folded over to secure said cover part to said bottom part.

References Cited in the file of this patent

UNITED STATES PATENTS

220,510	Weaver	Oct. 14, 1879
625,858	Thornton	May 30, 1899
1,762,900	Todd	June 10, 1930
2,363,425	Klein	Nov. 21, 1944
2,382,573	Moore	Aug. 14, 1945
2,706,595	Fallert	Apr. 19, 1955
2,715,089	Michener et al.	Aug. 9, 1955
2,768,778	Ferguson et al.	Oct. 30, 1956
2,827,222	Buttery	Mar. 18, 1958