

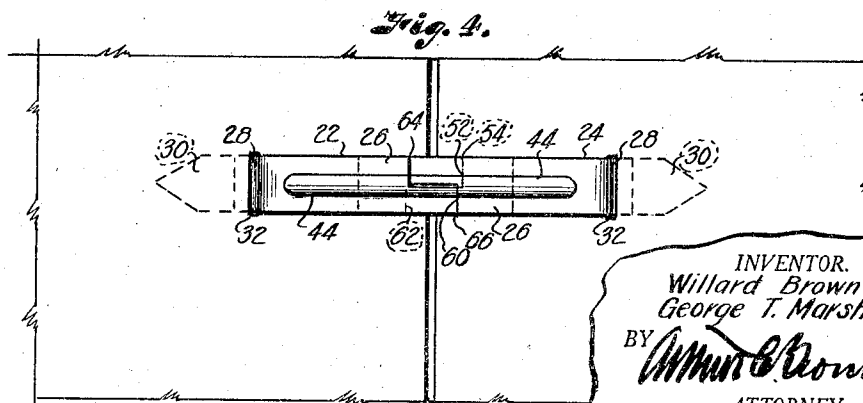
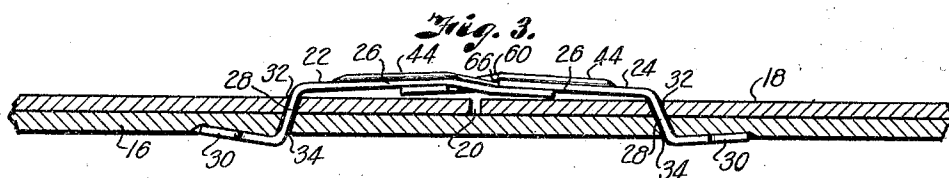
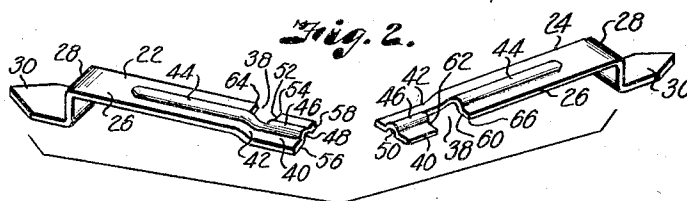
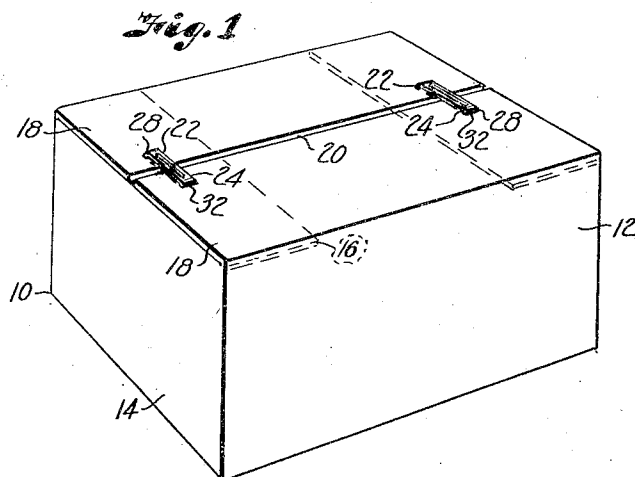
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BOX FASTENER

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BOX FASTENER

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This invention relates to box fasteners and more particularly to devices for fastening a cover in closed position on a paperboard box.

The principal object of the invention is to provide fasteners that will securely hold cover flaps in box closing position but which may easily be displaced to permit inspection of contents of the box, and restored to fastening position without weakening the fasteners or cover and box members.

In accomplishing these and other objects of the invention, we have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a box having cover flaps provided with fasteners embodying this invention.

Fig. 2 is an enlarged perspective view of the fastening members displaced from each other laterally to a greater extent than when mounted on a box, but in relative positions for rotative movement into interlocking relation.

Fig. 3 is a vertical section through the cover flaps illustrating the fasteners in interlocking and flap-latching position.

Fig. 4 is a plan view of portions of the cover flaps connected by the fasteners, the anchor portions of the fasteners being shown in dotted lines.

Referring more in detail to the drawing:

10 designates a box body including side walls 12 and end walls 14. A cover mounted on the body is movable to and from box-closing position, and may be hinged to the body. In the form of box illustrated, the cover comprises flaps or walls 16 and 18 hingedly connected respectively with the end and side walls of the body to form integral edge portions of said body walls, the flaps 18 overlying the flaps 16 to form the outer cover. The end wall flaps are folded first into alignment and the side wall flaps overlie the end flaps and have substantially abutting inner edges extending approximately on the median longitudinal line of the box to form a seam 20.

The invention is particularly applicable to box body and cover members formed of sheet

material such as paperboard that may be relatively easily punctured by a sharp pointed wire, bar, or like metal fastening strip for anchoring the strip to one of the box members, so that the strip when anchored to another box member may hold the members together.

Improved fasteners are provided comprising resilient metal strips 22 and 24 bent to form elongated body portions 26, necks or shoulders 28 extending angularly from the body portions, and outer end portions 30 sharpened or pointed to form prongs insertable through the walls of cover and body members of the box.

The necks 28 incline slightly longitudinally outwardly from the bodies 26, and the prongs preferably incline slightly longitudinally outwardly from the necks toward the planes of the bodies, as best shown in Fig. 3, to promote clamping box members together as later described.

Fasteners adapted for latching box cover and body members such as illustrated in the drawing, preferably comprise bands or flat strips having substantial width and equal width throughout their length, the outer ends of the end portions 30 having side edges converging to form the entrance points. The necks 28 have faces of material width to engage the edges of openings in which they may be located, and the prongs also have material width to minimize indentation of the box members with which they may be engaged.

The prong of one of the fasteners may be passed through one or more of the box walls, to locate the neck 28 in the opening formed by puncturing the wall, and the strip may be pivoted on the neck to engage the prong and body of the strip respectively with the inner surface of the punctured wall, and the outer surface of an adjacent box wall.

For example, the prongs of two strips may be inserted in overlapping cover edge and body edge portions such as the cover flaps 18 and edge flaps 16 on the upper edges of the box body walls as shown in Fig. 3, and pivoted to cause the bodies of the strips to overlie the edge portions of the cover members

18 and latch the cover members to the box body, whereupon the strips may be connected for retaining the strips in cover latching position.

5 Whatever material may be used in constructing the boxes, registering openings or slots 32 and 34 may be preformed in the box members 18 and 16 and having inner walls conforming to the angularity of the necks 10 28, through which the prongs may be inserted.

The elongated body portions 26 of the fasteners will, in the usage illustrated, lie substantially parallel with the closed outer or 15 upper cover flaps 18 and the prongs and necks act as levers to press the lower or inner flaps 16 against the upper flaps and vice versa, whereby the flaps are clamped securely together.

20 The slots are arranged and the strips inserted in a suitable manner for causing the strips to align transversely of the box across the seam formed by the adjacent outer flaps, and are provided with means interlockingly 25 engaging each other as presently described, for connecting the strips and retaining the flaps in box-covering position.

Each fastener is provided with a laterally presented notch 38 formed in one side 30 thereof at a position spaced sufficiently from the end of the strip to provide a hook-like laterally extending flange or wing 40 engageable in the notch of the other fastener.

35 Attention is called to the fact that the flanges have greater length longitudinally of the strips than the longitudinal dimensions of the notches. The flanges thus cannot bodily pass through the notches to effect latching 40 engagement between the strips, but one strip must be inclined longitudinally to enable its flange to enter the notch.

45 The inner ends of the strips from the inner edges of the notches are depressed slightly to offset the flanged terminal portions from the planes of the bodies and the narrow webs 42 connecting the flanged ends with the approximately rectilinear body portions are inclined and preferably arcuate as shown in 50 Fig. 2, whereby the flanged ends may lie in planes substantially parallel with the body portions.

A pair of fasteners mounted in slots of cover flaps may be moved pivotally or 55 rotatively in planes parallel with the closed cover flaps to bring the notched ends of the strips into engagement with each other, or to separate the latching ends of the strips.

60 In order to latch the strips in alignment, aligned ribs or bosses are formed on the median lines of the strips including portions 44 extending from the notches toward the prongs and portions 46 on the flanged tips of the strips. The ribs are formed by indenting 65 the strips and thus providing downward-

ly directed longitudinal aligned grooves 48 and 50 on the lower face of each strip.

The groove 48 in the body portion of one strip thus provides a seat for the boss on the 70 upper face of the underlying flanged end of the complementary strip as apparent from comparison of the two members in Fig. 2 and the boss is thus latched in the body groove.

In order to effect engagement between the 75 strips when the outer ends of the fasteners are anchored in the flap slots, and the strips are moved rotatively, it is necessary that the rear edge 52 of the flange and flange point 54 of one strip, for example the strip 22, as 80 shown in Fig. 2, be moved laterally toward and into the notch of the adjacent strip. Therefore, the front end edge 56 and front point 58 of the strip 22 pass below the body of the strip 24 and behind the rear edge 60 85 of the notch in the strip 24. Thus the outer edges 52 and 62 of the respective notches, which are the inner end edges of the flanges, will be brought into engagement.

Further rotation of the strips toward 90 aligned position while the flanges are located in the notches will cause the point 64 of the strip 22 to ride over the rib 46 on the strip 24 and enable the ribs to enter the grooves.

The point 66 of the strip 24 meanwhile has 95 engaged the side of the rib 46 of the strip 22, and assisted in forcing the rib 46 of the strip 24 beneath the point 64.

Pressure must be applied to the engaged 100 notched portions to depress the inner ends of the strips for completing the latching operation, thus involving depression of the flaps. The resiliency of the flaps tends to return the depressed ends of the strips into horizontal 105 aligned position and thus retain the ribs in the grooves. The resilience of the strips, prongs and flanges also contributes to the yielding latch effect.

The operation is reversed for unlatching 110 the fasteners, the latching ends of the aligned latched strips being depressed and the ends pivoted to cause the latched ends to hinge on each other until the ribs move from beneath the resilient latching point portions.

115 It is apparent that the engaged aligned fasteners may be moved pivotally over the cover toward the upper or the lower edge of the flaps in Fig. 4 to release the fasteners. In the example of operation above described, the strip 22 was considered an anchor member and the strip 24 a fastening or retaining 120 member. Both must be rotated in opposite rotative directions but in the same direction with reference to the ends of the box to space the strips, and then rotated into alignment 125 so that the latching flange of the retaining member may enter the notch of the anchor member. Depression of inner latching ends is required, however, to enable the resilient point to pass over the rib and latchingly engage 130 the strips with each other due to their

own resilience and the resilience of the cover flaps and clamping lever prongs.

It is apparent that when the strips diverge in the opposite direction to that shown in Fig. 2 in open position, the strip 24 will become the anchor member.

The slots in the cover flaps may be formed by puncturing the flaps with the pointed prongs, and the necks or shoulders while tending to hold the strips in transverse position on the flaps may slightly distort the walls of the slots to enlarge the slots and permit limited rotative movement of the strips.

The use of wide strips forming wide shoulders, and the mounting of the prongs in slots elongated longitudinally of the box flaps, thus tend to locate the pair of strips substantially in aligned position. When rotated, the extent of movement of the strips will be limited and the strips will always be located conveniently for manipulation to fasten the cover flaps.

What we claim and desire to secure by Letters Patent is:

1. A box fastener comprising a pair of resilient strips engageable with adjacent relatively movable walls of a box and movable into and out of alignment, and means including a longitudinal indentation on one of said strips and a cooperative longitudinal indentation on the other of said strips for latching the strips together against sidewise movement.

2. A fastener of the character described comprising a pair of metallic strips having depressed inner ends and provided respectively with oppositely directed lateral notches adjacent the inner ends for longitudinally aligned interlocking engagement of said ends, and cooperative longitudinal indentations in said strips for latching the strips together against sidewise movement.

3. A box fastener of the character described comprising a pair of metallic strips having offset outer ends insertable through a box wall and having depressed inner ends provided respectively with oppositely directed lateral notches adjacent the inner ends for interlocking engagement of said ends in substantially longitudinally aligned relation, and cooperative indentations along longitudinal median lines of said strips for latching the strips together against sidewise movement.

4. A box fastener of the character described comprising a pair of metallic strips having depressed inner ends provided respectively with oppositely directed lateral notches adjacent the inner ends and extending to a longitudinal median line of the strips for interlocking engagement of said ends in substantially longitudinally aligned relation, and an indentation along the longitudinal median line of each strip and partly cut away by the notch of the respective strip for latching

the strips together against sidewise movement.

In testimony whereof we affix our signatures.

WILLARD BROWN.
GEORGE T. MARSHALL.

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