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J. COYLE ET AL
SNAP-IN HINGE FOR BOX COVERS

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FIG. 1

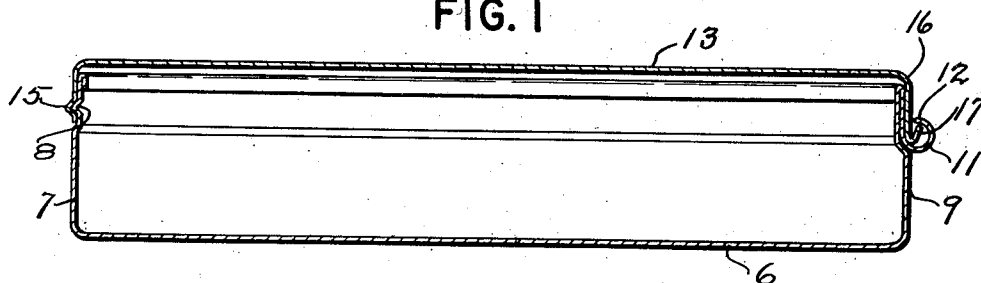


FIG. 2

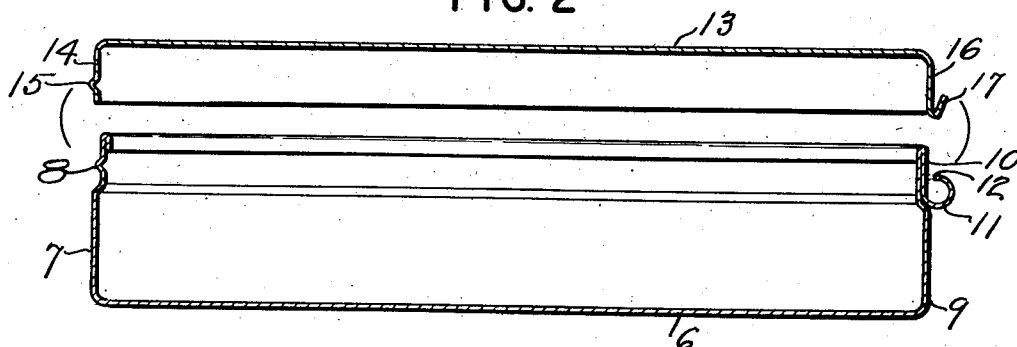


FIG. 3

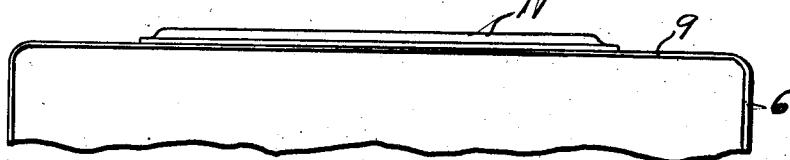


FIG. 4

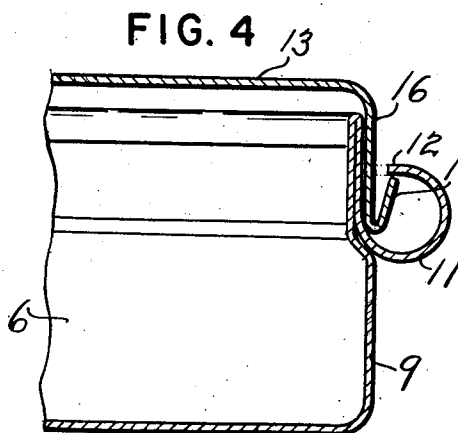
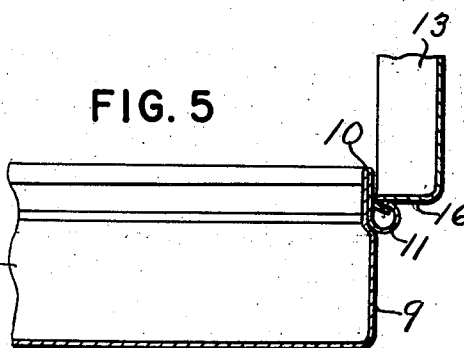


FIG. 5



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SNAP-IN HINGE FOR BOX COVERS

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5 Claims. (Cl. 220—31)

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Small metal boxes with hinged covers are widely used in the packaging of diverse products, such as headache and digestive tablets, candy bars, cigars, cigarettes, first-aid bandages and the like. Such boxes preferably have the covers hinged at the rear and have a dimpled snap fastening in front.

However, after such boxes and covers have been assembled, the packaging or filling is slow and inconvenient as the covers must be held open and out of the way. Furthermore, provision of a satisfactory hinge has been deemed to require the use of inserted hinge pins or other cooperating features which add considerably to the cost of the article. At the same time, such hinged fastenings generally necessitate openings in the rear of the box which weaken the latter and also prevent a tight closure.

It is an object of our invention to provide a hinge which will permit assembly of the cover after the box proper has been filled with the articles such as tablets, cigars, cigarettes, bandages or the like.

It is a further object of our invention to provide a hinged assembly which will insure that the rear wall of the box has the full, normal height, and, in fact, may be double thickness so that it is given added strength and the closure is tighter.

It is also an object of our invention to prevent the inadvertent or accidental separation of the cover from the box, and to establish a definite maximum open position for the cover.

Further objects of our invention will be evident from the following description of the preferred form of our invention as illustrated on the accompanying drawings in which:

Fig. 1 is a vertical, longitudinal section of a tablet box having our improved snap-in hinge for the cover;

Fig. 2 is a similar view with the cover separate and arranged to be snapped into position during assembly either before or after the box has been filled;

Fig. 3 is a partial plan view of the box showing the rear wall and reinforcing hinged portion;

Fig. 4 is a fragmentary, enlarged, vertical section showing the hinge of the cover inserted and

Fig. 5 is a similar view showing the relation of the hinged parts when the cover is fully opened.

A box which may be constructed according to our invention is illustrated in the drawings at 6 and includes a front wall 7 having a protuberance 8 for a snap fastening.

The rear wall 9 of the box has a reversely turned fold 10. This fold extends for the greater

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length of the rear wall as shown in Fig. 3. It forms a rigid reinforcement for the rear wall. Further, this construction provides for a rear wall which is of the same height as the rest of the box walls and free from any apertures.

The lower free end of the fold 10 is given an outward circular curl 11. The open edge 12 of the curl 11 is spaced from the fold 10 proper and provides a narrow gap.

The customary cover 13 has depending flanges which form side, front and rear walls. The depending front wall 14 has a dimple or depression 15 which cooperates with the protuberance 8 of the front wall 7 of the box in the usual snap fastening arrangement.

The rear depending rim or wall 16 of the top or cover has an angular flange 17 coextensive with the curl 11. This flange 17 extends outwardly and upwardly at an acute angle to the rear wall 16. A V-shaped opening is thus provided between the wall 16 and the flange 17.

By reference to Fig. 4 it will be noted that the combined width of the two thicknesses of metal 16 and 17 and the intervening space exceeds that of the width of the gap at the edge 12. It will also be apparent that the width of the flange measured vertically in Fig. 4 is considerably in excess of the width of this gap.

Due to the proportions of the flange and gap above outlined, the cover may be slipped into place over the rim of the box. The curl 11 rides up the flange 17 which latter, by reason of its resiliency, yields toward the wall 16. As the cover fits down in place, the flange 17 springs out beneath the edge 12, and thus prevents the cover from being lifted in a vertical direction.

However, when the snap fastening in front is separated, the cover may rotate around flange 17 as a movable pivot. As the flange 17 is wider than the gap, the flange engages beneath the edge 12 of the curl 11 as shown in Fig. 5, preventing further upward movement and removal of the flange 17.

At the same time, the edge 12 is received within the space between the rim 16 and flange 17. The rim 16 thereupon rests upon the curl 11 and the cover cannot be opened beyond the approximate position indicated in Fig. 5, without distorting the curl 11. However, the cover may be restored to closed position without material effort. It may thus be said that the hinged flange 17 is loosely detained within the curl 11 which latter forms a stop against the removal of the cover or its opening beyond the desired position.

One of the main advantages of this improved

hinge assembly is that the cover may be fitted into place as a closure simultaneously with the assembly of the hinged parts. This operation need not necessarily be carried out incidental to the manufacture of the empty hinged box. On the contrary, our improvement permits the manufacture of separate boxes and covers and their separate packaging and delivery to the place where the box is to be filled with suitable materials. After the box has been filled either manually or mechanically, a cover is fitted over the box also either manually or mechanically. The final operation is to engage the cover with the snap fitting in front and the hinge assembled in the rear.

The cover is thus a tight closure over the hinged portion. The cover may be opened to the desired extent without risk of its becoming disconnected.

This arrangement forms a satisfactory container which is both rigid and durable and has added utility in permitting packaging of the material before the cover is assembled on the box.

While the preferred form of the invention has been illustrated and described, many changes in minor proportions and details of structure and material may be carried out without departing from the scope of the invention as set out in the appended claims.

What we claim is:

1. In combination, a box having a rear wall, the sheet material of said wall having a portion folded back against the wall and then curled outwardly therefrom to provide a hollow resilient curl with an edge separated from the folded portion of the wall by a narrow gap, and a cover with a depending rim having means for attachment comprising a flat rear flange extending upwardly from the edge of the rim and outwardly at an acute angle a greater distance than the gap but insertable therethrough.

2. In combination, a box having a rear wall, the sheet material of said wall having a portion folded back against the wall and then curled outwardly therefrom to provide a hollow resilient curl with an edge separated from the folded portion of the wall by a narrow gap, and a cover with a depending rim having means for attachment comprising a flat rear flange wider than said gap and extending upwardly from the edge of the rim and outwardly at an acute angle a greater distance than the gap but insertable therethrough.

3. In combination, a box having a rear wall, the sheet material of said wall having a portion folded back against the wall and then curled out-

wardly therefrom to provide a hollow resilient curl with an edge separated from the folded portion of the wall by a narrow gap, and a cover having means for attachment comprising a depending rim and a flat rear flange extending upwardly from the rim and outwardly at an acute angle from the rim for a greater distance than the gap in the fold but insertable therethrough, said edge of the curl being received in the V-shaped opening between the flange and the rim in the open position of the cover.

4. In combination, a box having a rear body wall, the top portion of said rear wall being bent outwardly and downwardly upon itself, the extremity of said portion being bent outwardly and upwardly into a curl to provide a narrow gap between the edges of the curl and the rear wall, and a cover having depending walls, the lower portion of the rear cover wall being bent upwardly to provide a flat flange extending outwardly a greater distance than said gap in the body curl but insertable therethrough.

5. In combination, a box of sheet material having a rear body wall with a portion folded outwardly and against the wall to double the thickness thereof, the free edge of the folded portion being curled outwardly, upwardly and inwardly into an open curl with a narrow gap between its edge and the fold of the body wall, and a cover having depending walls, the lower portion of the rear cover wall being bent upwardly and outwardly at an acute angle to the depending cover wall to provide a flat flange extending outwardly a greater distance than said gap in the body curl, but insertable therethrough, the edge of said curl being received in the space between the flange and body wall where the cover is opened to a plane at right angles to the top of the box.

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