

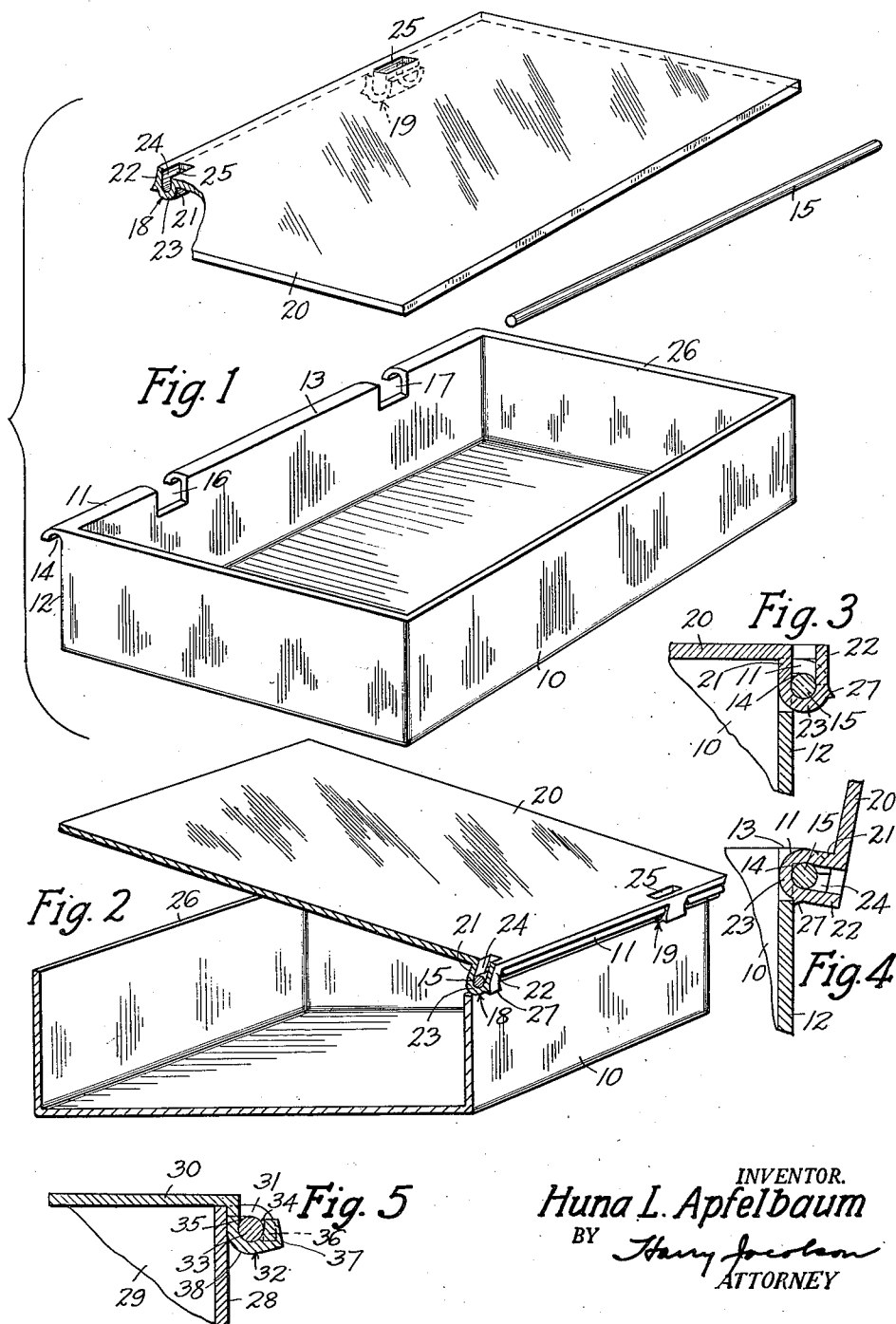
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HINGE FOR MOLDED CONTAINERS

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HINGE FOR MOLDED CONTAINERS

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This invention relates to molded hinged boxes and particularly to the molded hinges therefor.

The invention contemplates the provision of a three part molded hinged box, two hinge parts of which may be molded with the ordinary type of molds integrally with the respective cover and container parts of the box, the third or securing part of the hinge being in the form of a rod or pin passing through the other hinge parts.

The invention further contemplates the provision of a simple hinge readily moldable with the box parts of plastic material and readily assembled by unskilled persons and therefore comparatively inexpensive.

The various objects of the invention will be clear from the description which follows, and from the drawing, in which,

Fig. 1 is a perspective view of a molded box disassembled and showing the parts of my improved molded hinge separated.

Fig. 2 is a fragmentary perspective view, partly in section, of the assembled hinge and box.

Fig. 3 is a fragmentary vertical section of the hinge part of the box as it appears when the cover is closed.

Fig. 4 is a similar view of the same showing the cover open.

Fig. 5 is a similar view of a slightly modified form of the hinge.

In the practical embodiment of the invention shown by way of example, the molded container part 10 of the box has molded thereon the rear hinge part 11 in the form of an interrupted flange projecting rearwardly from the top edge 13 of the rear wall 12 throughout the entire length of said edge or through any selected part of its length. Said flange is curved to provide the recess 14 at the under side thereof, adapted to receive and fit at least the upper part of the hinge pin 15. The recess 14 being completely open at the bottom thereof and the wall thereof being substantially semi-cylindrical and concave downwardly, said flange is adapted to be molded integrally with the box part 10. If desired for the purpose of reducing the distance which the hinge extends rearwardly of the wall 12, said wall may be cut out at suitable intervals to provide spaces as at 16, 17 for the reception of the complementary hinge parts 18, 19 molded with the box cover 20. In that case, due to said spaces 16 and 17, the interrupted flange 11 may be regarded as a series of spaced apart flanges. It will be understood, however, that the wall 12 may remain imperforate if desired, as shown in Fig. 5 and the complementary hinge parts 18, 19 may be arranged rearwardly of the wall without adversely affecting the operation of the hinge, provided however, that those parts of the flange 11 are omitted where the hinge parts 18, 19 or their equivalents are arranged. By so inter-

rupting the flange, a series of longitudinally aligned hinge members in spaced relation is provided to alternate with the hinge members of the cover.

In the case where it is desired that the flange part 11 of the hinge and the hinge pin 15 be substantially concealed in the normal or closed positions of the box parts, the cover is extended rearwardly past the hinge parts 18, 19 thereof to a slight extent and is also extended laterally between said hinge parts (Figs. 1 and 2). Where, however, it is unnecessary to conceal said parts from view, the rear edge of the cover may end at the front walls of said hinge parts, as shown in Fig. 5.

In any case, the hinge parts depending from the cover are each provided with a substantially semi-cylindrical recess open at the top and ends, but closed at the bottom, front and rear. In the form of the invention shown in Figs. 1 to 4, the hinge parts 18 and 19 each have a front wall 21, a rear wall 22, a curved bottom wall 23 joining the front and rear walls and having an inner surface shaped to fit and engage the surface of the hinge pin 15. The recess 24 between said walls 21, 22 and 23 is open at the top 25 thereof to permit integral molding of the cover and of the hinge part by means of molds of the usual type. The recess 24 is also open at its ends to permit the passage therethrough of the hinge pin 15. The front wall of the hinge part 18 is preferably, though not necessarily, arranged in the cut-out 16 of the rear container wall 12, while the front wall of the part 19 is similarly arranged in the cut-out 17, the under surface of the cover 20 resting on the upper edges 26 of the container part 10 in the closed position of the box. In said position, the hinge pin 15, having been inserted longitudinally through the recesses 14 and 24, is arranged underneath the flange 11 and the spaced apart portions of said flange and is in contact with the inner upwardly concave surface of the bottom walls 23 of the hinge parts 18 and 19. Said pin thereby locks the cover 20 to the box part 10 and prevents separation thereof by the lifting of the cover off the part 10, and also prevents lifting of the hinge parts 18, 19 out of the cut-outs 16, 17.

The cover and the parts 18, 19 may be rotated about the axis of the hinge pin and relatively to the box part 10 as shown in Figs. 2, 3 and 4 to open and close the box, it being immaterial whether or not the pin 15 rotates with the cover. Means are provided for limiting the opening movement of the cover and for maintaining the opened cover in a predetermined open position. Said means as illustrated comprises a stop projection as 27 outstanding from the rear walls 22 of the hinge parts 18 and 19 and adapted to rest against the rear wall 12 of the container part

in the predetermined open position of the cover (Fig. 4).

As has been hereinbefore indicated, the hinge flange on the container part may be interrupted to form a set of spaced hinge parts without interrupting or making cut-outs in the rear wall 12, and the cover may end at the front walls of the complementary hinge parts thereon, whereby said parts as well as the flange are exposed to view instead of being concealed by the extension of the cover. This construction is shown in Fig. 5, wherein the rear wall 28 of the container part 29 of the box is imperforate and extends up to the under side of the cover 30. However, the rearwardly extending flange 31, similar to the flange 11, is interrupted or cut away at spaced intervals to permit the arrangement of correspondingly spaced hinge parts as 32 in the spaces thus formed to alternate the hinge parts of the cover and the container part. The hinge pin 33 joins the cover 30 to the container part 29 and provides a pivot about which the cover may swing between the open and the closed positions thereof. Said hinge pin fits into the recesses 34 of the hinge parts 32 and also fits into the recesses 35 of the flange 31. The rear portion 36 of said flange preferably extends downwardly below the center of the hinge pin, while the upstanding rear wall 37 of the hinge part 32 projects upwardly preferably to a point above the center of the hinge pin when the cover is closed.

The bottom wall of the part 32 is rounded at its front outer surface 38 concentrically with the hinge pin so that said surface 38 rolls on the rear face of the wall 28 when the cover is opened and closed. The rear part of said bottom wall is tangent to the surface 38 to provide a stop adapted to rest against the rear face of the wall 28 and thereby to maintain the cover in a predetermined open position in the manner heretofore explained in connection with the stop projection 27 and to limit the amount which the cover may be opened. The extensions of the walls 36 and 37 and the stop means just described cooperate to insure that the cover cannot be rotated into a position wherein it may be lifted off the hinge pin. It will be noted that the recess in the hinge part 32 is open at its top, and that in the flange is open at its bottom, whereby the hinge pin is adequately maintained in the recesses without danger of falling out and the parts are readily moldable by means of molds of the usual type. It will also be seen that there has been provided a simple and comparatively inexpensive molded hinge easily assembled and requiring only a single part in addition to the parts designed for integral molding with the box parts.

Modifications of the invention within the spirit thereof are intended to be included within the scope of the appended claims.

I claim:

1. In a molded hinged box, a container part open at its top and having a rear wall, a rearwardly extending flange projecting from the top edge of the rear wall, the front portion of the upper surface of the flange being flat and coplanar with said top edge and the rear portion of said surface extending downwardly and rearwardly, said flange and said rear wall being correspondingly interrupted at spaced intervals to provide transverse spaces therein, the lower surface of the flange being arcuate to form the wall

of a recess therein open at the bottom, a cover in the form of a flat plate of uniform thickness terminating in a rear edge in substantially vertical alignment with the rear edge of the flange when the cover is closed and rests on the top of the container part and on the upper surface of the flange, a plurality of hinge parts projecting from the under surface of the cover and forwardly of the rear edge thereof, each of said hinge parts having a front wall, and a rear wall coplanar with the rear edge of the cover, and having a bottom wall joining the front and rear walls and forming a recess therebetween open at the top and extending through the cover, said hinge parts being arranged in the spaces of the aforesaid flange and of the rear wall of the container part, and an elongated hinge pin arranged in the recesses and serving as the pivot for the cover.

2. In a molded hinged box, a box part having a top provided with coplanar edges and having a series of aligned and longitudinally spaced apart rearwardly projecting flanges, the front part of the upper surface of each of the flanges being a coplanar rearward continuation of the rear edge of the top and the rear part of said surface extending downwardly and rearwardly, each of said flanges being of substantially uniform thickness, the lower surface of each flange being concave to form the wall of a recess therein open at the bottom, a flat plate-like cover for the box part, a plurality of hinge parts longitudinally aligned with and respectively alternating with the spaced apart flanges, the hinged parts being arranged in the spaces between said flanges and extending downwardly from and below the under face of the cover, each of the hinge parts having a front wall and a substantially parallel rear wall, one of said walls being substantially coplanar with the rear edge of the cover, each of said hinge parts having a bottom wall connecting the front and rear walls and being open at the top and at the ends thereof, said rear wall having a rearwardly extending enlargement thereon serving as a stop, and a hinge pin arranged between the front and rear walls of the hinge parts and in contact with the upper faces of the bottom walls of the hinge parts and with the lower faces of the flanges.

3. In a molded hinged box, a box part open at its top and having a rear wall, a flange of substantially uniform thickness molded integrally at its front edge portion with the rear wall, the upper surface of said front edge portion being coplanar with the top of the box part, the rear part of said flange being curved downwardly to provide a recess between the flange and said rear wall, the rear wall and the flange being interrupted at spaced intervals to provide a plurality of spaces therein, a flat plate-like cover for the box part, the rear edge of the cover extending rearwardly past the rear wall of the box part, said cover having a plurality of openings therein in forward spaced relation to the rear edge of the cover, a plurality of hinge members each depending from the cover at one of the openings and each forming the bottom of an opening and each entering one of the spaces in the flange and the rear wall, and a hinge pin in contact with the under side of the flange and with the bottoms of said openings.

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