

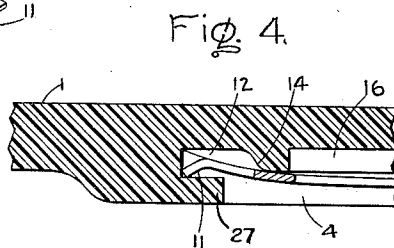
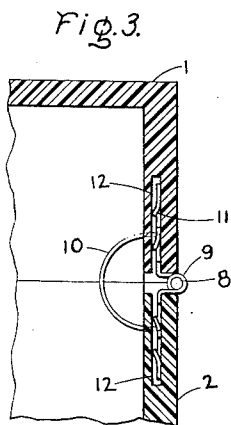
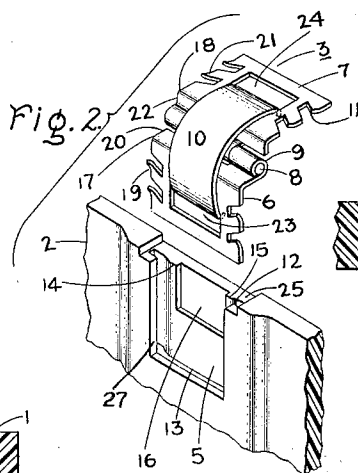
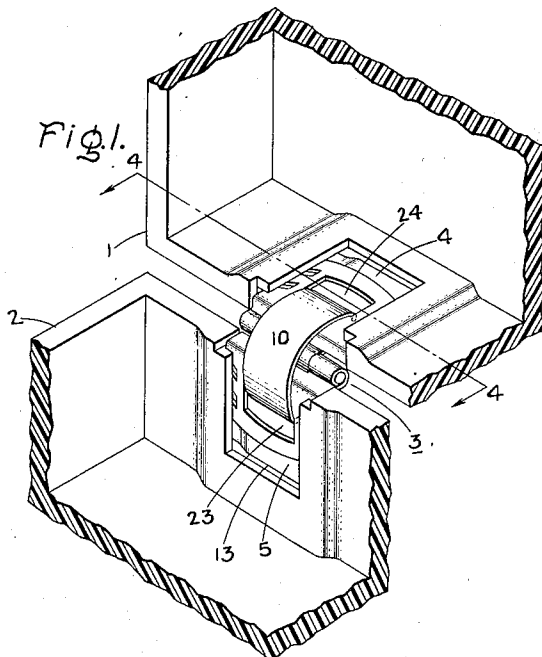
Jan. 22, 1952

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2,583,350

HINGED BOX

Filed May 8, 1948



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UNITED STATES PATENT OFFICE

2,583,350

HINGED BOX

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Application May 8, 1948, Serial No. 25,859

2 Claims. (Cl. 220—31)

1 This invention relates to a hinged box and more particularly to a unique hinged structure for molded boxes.

In assembling the covers and body portions of boxes constructed of relatively brittle materials, for example, plastic products such as phenolic condensation products, the usual method of assembly is by attaching hinges with screws, rivets or bolts. This often results in cracking or breaking of the material in addition to detracting from the decorative effect of the article.

An object of this invention is to provide a hinge structure for boxes, made particularly of such brittle material, which will be simple and inexpensive.

Another object of the present invention is to provide a quickly attachable and secure hinge for molded boxes.

Other objects will become apparent from a consideration of the following description, when taken in connection with the accompanying drawing in which Fig. 1 is a perspective view of a portion of a molded box showing the hinge of the present invention in place; Fig. 2 is a perspective view of the hinge in open position along with one of its box wall recesses; Fig. 3 is a partial view in elevation of a box, in section, illustrating the gripping or engaging action of the hinge in its recesses and Fig. 4 is a partial sectional view looking in the direction 4—4 in Fig. 1.

Fig. 1 illustrates a portion of a box made of any molded material, for example, a thermosetting or a thermoplastic condensation product. The box is provided with a cover 1 adapted to form a closure for the body portion 2, the cover being attached to the body portion by means of a hinge member generally designated at 3. Molded or otherwise constructed within cover 1 and body portion 2 are identical but opposed recesses 4 and 5 respectively. These recesses or slots, one of which is most clearly depicted in Fig. 2, are molded or otherwise formed in the walls of the cover and body portions. As is shown, the walls of the cover or body portions may be thickened if desired to provide extra strength. In many cases in which the wall thickness is sufficient, such reinforcing will, of course, be unnecessary.

Recess 5 is made deep enough to receive leaf 6 of hinge 3 and has an offset sub-recess or portion 12 created by lips 27 and the edges of raised part 13 of the box wall within recess 5 forming shoulders 14 and 15. This construction imparts to the recess an irregular cross-section. Recess 16 more particularly referred to below is formed in raised part 13.

2 Hinge 3 comprises two leaves 6 and 7 pivotally connected together by pivot pin 8 in the usual manner as shown at 9, tenons of each leaf being wrapped or wound around pin 8 in alternate manner. Leaves 6 and 7 are bent at right angles at 17 and 18 respectively to form sections 19 and 20 of leaf 6 and sections 21 and 22 of leaf 7.

To assemble the hinge to the box a leaf such as 6 in Fig. 2 is lowered into recess 5 until leaf section 20 comes to rest at the bottom of receiving recess 25 in the wall of body portion 2, which like recess 5 is made just wide enough to receive the hinge, such arrangement preventing objectionable relative sideways movement of the hinge and box.

As the leaf section 19 enters irregular recess 5, it is flexed or bowed longitudinally, as best shown in Fig. 4, by reason of its being bent or distorted by raised wall portion 13 and its parallel shoulders 14 and 15 which are adjacent to and spaced inwardly from the lips 27. This action causes the leaf section to cling tightly by frictional means to the shoulders or raised portions 14 and 15 and to be held in resilient engagement with the inner surface of lips 27 defining one surface of offset sub-recess 12 thereby preventing easy withdrawal or accidental displacement of the leaf in its assembled position. This holding effect may be enhanced by making the hinge leaf of spring metal or roughening the contacting surfaces as by sandblasting or both.

The holding power of the hinge leaf in its assembled position in recess 5 is further increased by pointed teeth or serrations such as 11 in the sides of the hinge leaves. The tips of these teeth or serrations are offset as best shown in Figs. 3 and 4 and point in such direction that when they are forced into the narrow sub-recess 12 the tips will dig into or engage the surface of the sub-recess and resist and prevent withdrawal of the hinge during normal use. The engaging action of the teeth or serrations may be increased by sharpening or roughening their tips or making the hinge leaf of spring steel.

Hinge leaf 7 is connected to cover 1 in the same manner as leaf 6 is connected to body portion 2. With the hinge leaves both assembled, a curved spring 10 of well-known design, is engaged in the hinge 3 as shown by hooking its ends in holes 23 and 24 respectively of leaves 6 and 7, provision being made by means of recess 16 in body portion 2 and a similar recess in cover 1 to accommodate the spring ends. Using spring 10 in conjunction with the hinge 3, the latter may be positively held in the open position shown in Fig. 1 or in the closed position of Fig. 3.

3

The hinge and receiving structure described herein are adaptable to economical mass production methods. The hinge parts, with the exception of the pivot pin, may be stamped out of ordinary or spring metal in a minimum of operations. The receiving recesses are likewise molded in the box parts during the regular molding process with a minimum of effort. The simplicity of the parts also lend themselves to quick, effortless and secure assembly. The hinge and structure of the present invention have not only the advantages enumerated above but in addition, are practically invisible when the box is closed, thereby enhancing the esthetic value of the article on which it is used. If the box is lined with cloth as is usual in many applications, the hinge structure will be invisible when the box is open.

I claim:

1. A box comprising a body and a cover connected together by a hinge including a hinge leaf, a recess in the rear wall of said box opening on the inner surface and the upper edge of said wall, inwardly extending lips along the side of said recess in spaced relation to the back wall of said recess, said hinge leaf comprising a generally flat sheet metal stamping positioned in said recess and having laterally extending offset serrations received between said lips and said rear wall of the recess, and raised portions on said rear wall of said recess parallel and adjacent to and spaced inwardly from said lips, said raised portions engaging the rear face of said leaf and holding said serrations in resilient engagement with said lips.

4

2. A box comprising a body and a cover connected together by a hinge including hinge leaves, recesses in the adjacent rear walls of said body and cover opening on the inner surfaces and the adjacent edges of said walls, inwardly extending lips along the sides of said recesses in spaced relation to the back wall of said recesses, each of said hinge leaves comprising a generally flat sheet metal stamping positioned in said recesses and having laterally extending offset serrations received between said lips and said rear walls of the recesses, raised portions on said rear walls of each of said recesses parallel and adjacent to and spaced inwardly from said lips, said raised portions engaging the rear face of said leaves and urging said serrations into resilient engagement with said lips, and spring means connected to said hinge structure to permit positive opening and closing of the cover of said box.

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