

Aug. 11, 1953

L. D. YOUNG

2,648,485

CARDBOARD BOX SPRING HINGE

Filed Jan. 6, 1951

FIG. 1

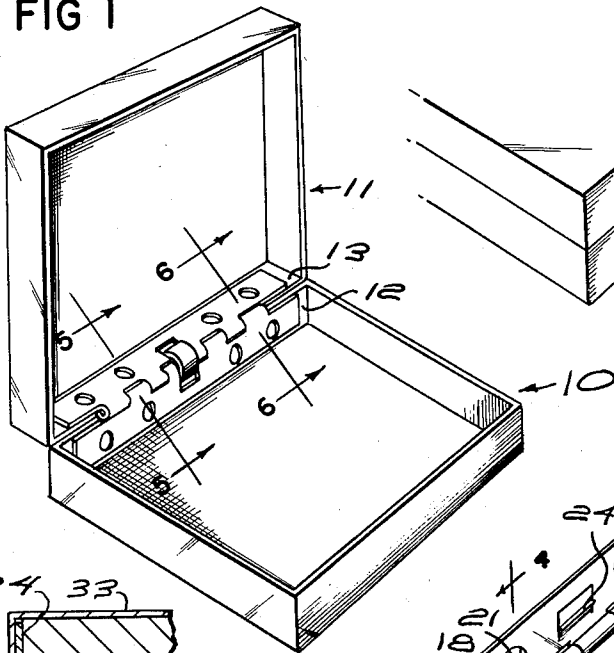


FIG. 2

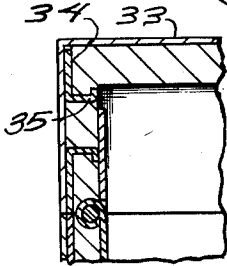
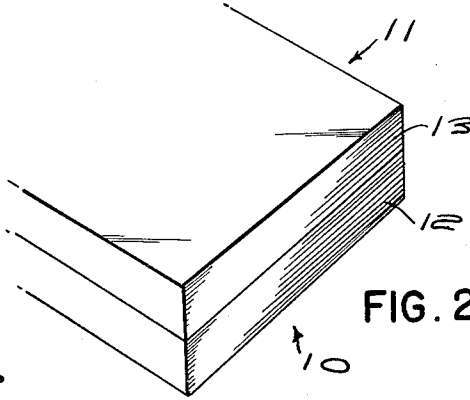


FIG. 6

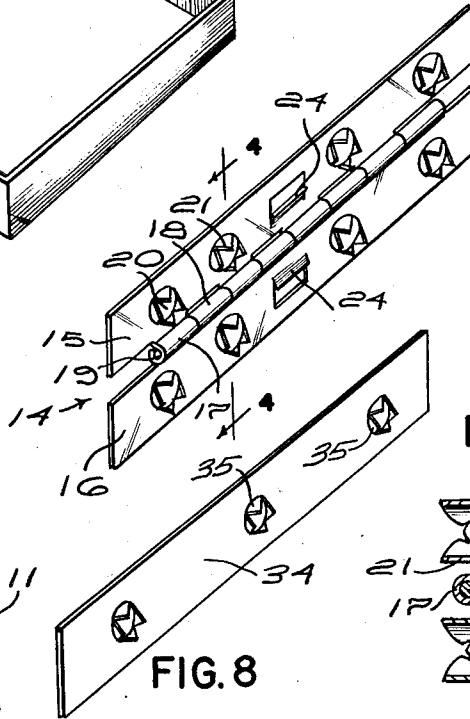


FIG. 3

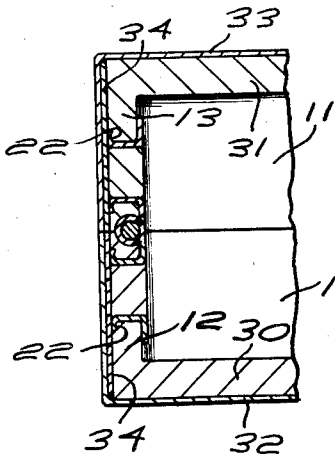


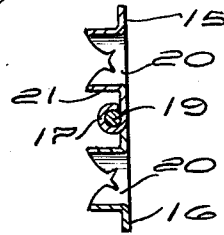
FIG. 5

FIG. 8



FIG. 7

FIG. 4



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2,648,485

CARDBOARD BOX SPRING HINGE

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Application January 6, 1951, Serial No. 204,704

2 Claims. (Cl. 229—44)

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This invention relates to a cardboard box in which a spring hinge joins the body and cover sections of the box together.

One of the objects of the invention is to provide a light weight or thin hinge and a light weight or thin box and by addition of the hinge to the box stiffen both along the area of contact one with the other.

Another object of the invention is to provide a metal hinge on a cardboard box which may be attached without disfiguring the outer surface of the box.

Another object of the invention is to provide attaching means for the hinge so as to avoid ugly projections which are in use and show from the outside of the box.

Another object of the invention is to provide a spring hinge on a cardboard box which will give more snap of the cover in moving from open to closed position.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a perspective view of the cardboard box with my hinge in place with the cover shown in open position.

Figure 2 is a perspective view of a fragmental portion of the box showing the back of the box when in closed position.

Figure 3 is a perspective view of the hinge with the spring detached.

Figure 4 is a section on line 4—4 of Figure 3;

Figure 5 is a sectional view through the box on line 5—5 of Figure 1 but with the cover closed showing the hinge in place on the box and the paper cover over the cardboard;

Figure 6 is a view similar to Figure 5 but on line 6—6 of Figure 1;

Figure 7 is a perspective view of the spring; and

Figure 8 is a perspective view of an anvil plate used for securing the hinge in place.

In proceeding with this invention I provide from rather light weight stock a pair of metal plates which have eyes rolled upon the edges to be hinged together. Each of the plates is provided with a plurality of openings spaced lengthwise from end to end, and from the edges of each of the openings a plurality of prongs project, which prongs may pass thru the cardboard rear wall of the box with their points bent over to clinch the back or rear wall of the box and fasten the plate thereto. A plate which serves

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as an anvil is first secured in a similar manner within the paper cover along the back wall of each box section to engage and turn over the prongs so that their points will not protrude thru the paper cover to be unsightly and thus no additional cover need be provided over the outer surface.

A spring is attached to these plates so as to urge the plates one relative to the other to move the cover either to open or closed position depending on the relative position of the plates.

With reference to the drawings, I have provided a body section 10 and a cover section 11. The body section has a rear wall 12 folded from a bottom wall 30 while the cover section has a rear wall 13 folded from a top wall 31 which walls are of cardboard. Along each back wall is located a metal plate 34 which is co-extensive with the back wall and provided with prongs 35 which extend through the back wall and are clinched over. A paper cover 32 extends over the outer surface of the bottom wall 32 and back wall 12 while a similar paper cover 33 extends over the top wall 31 and back wall 13 and conceals the metal plate 34. When in closed position the edges of the rear walls 12 and 13 are in abutting relation. In order to maintain them in this relation one relative to the other, I have provided a hinge which is designated generally 14 and shown in perspective in Figure 3.

This hinge 14 comprise plates 15 and 16 which have eyes 17 and 18 rolled from the edges and which are positioned in alignment to receive a pintle pin 19 passing thru these eyes so as to hingedly relate the plates 15 and 16. To attach these plates to the rear walls of the sections 10 and 11, I have provided a plurality of openings 20 at spaced points along the length of each of the plates, and from the edges of the openings 20 projections 21 extend, each opening having a plurality of such projections extending from the edge thereof. Four such openings with groups of projections are shown as provided about each opening in the drawings, but it will be readily apparent that the number may be varied as occasion may require. The projections 21 are of such a length that they will protrude thru the thickness of the rear walls 12 or 13 and after being forced thru the walls they will engage this metal anvil member 34 and will be deflected as shown at 22 in Figure 5 so as to clinch the back wall securely drawing the plate firmly against the inner surface of the back wall and imbedding themselves in the surfaces of the rear wall as

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shown in Figure 5 at the same time drawing the stock of the back wall into the openings 20.

Each of the plates 15 and 16 is provided with a lip 24 as seen in Figure 3 and an arcuate spring 25 as shown in perspective in Figure 7 has its ends inturned as at 26 so as to engage these lips to regulate the movement of the cover in its movement to an open position just slightly beyond 90 degrees from its closed position as shown in Figure 1 where the end portions of the arc of the spring 25 tends to force the cover in an opening direction to the limit provided by the inturned ends 26 while after the cover is swung beyond approximately an angle of 45 degrees to the plane of the body, the spring ends 15 swinging the cover towards closed position and tend to hold the edge surfaces of the walls of the body and cover in abutting relation as shown in Figure 2.

The above manner of fastening the hinges in position serves to very effectively attach the hinges and by having a plurality of points attached to hold the plates against the rear walls of the box both the hinge and rear walls are stiffened to a substantial extent as one supports 25 the other. The snap which is provided by reason of this stiffness is very much increased and the plates which are made of rather soft material are reenforced to provide the desired stiffness after attached to the box.

I claim:

1. In a cardboard box a body section and a

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cover section, each section having perpendicularly disposed flat rear walls of relatively soft material with their edges abutting, flat metal anvil members along the outer surfaces of the rear walls, a paper cover over each anvil member, a flexible metal plate extending along the inner surface of the rear wall of each section, each plate having a plurality of holes with projections arcuate in cross section extending from the edge of each hole through the rear wall over 10 which the plate extends with the free ends of the projections engaging said anvil member on the other side of the rear walls and deflected and clinched outwardly of its holes over the rear 15 wall of the section to firmly secure the plate to the section, and means to hingedly attach said plates together.

2. In a cardboard box as in claim 1 wherein the rear wall extends into the holes of each plate as clinched to the rear wall.

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