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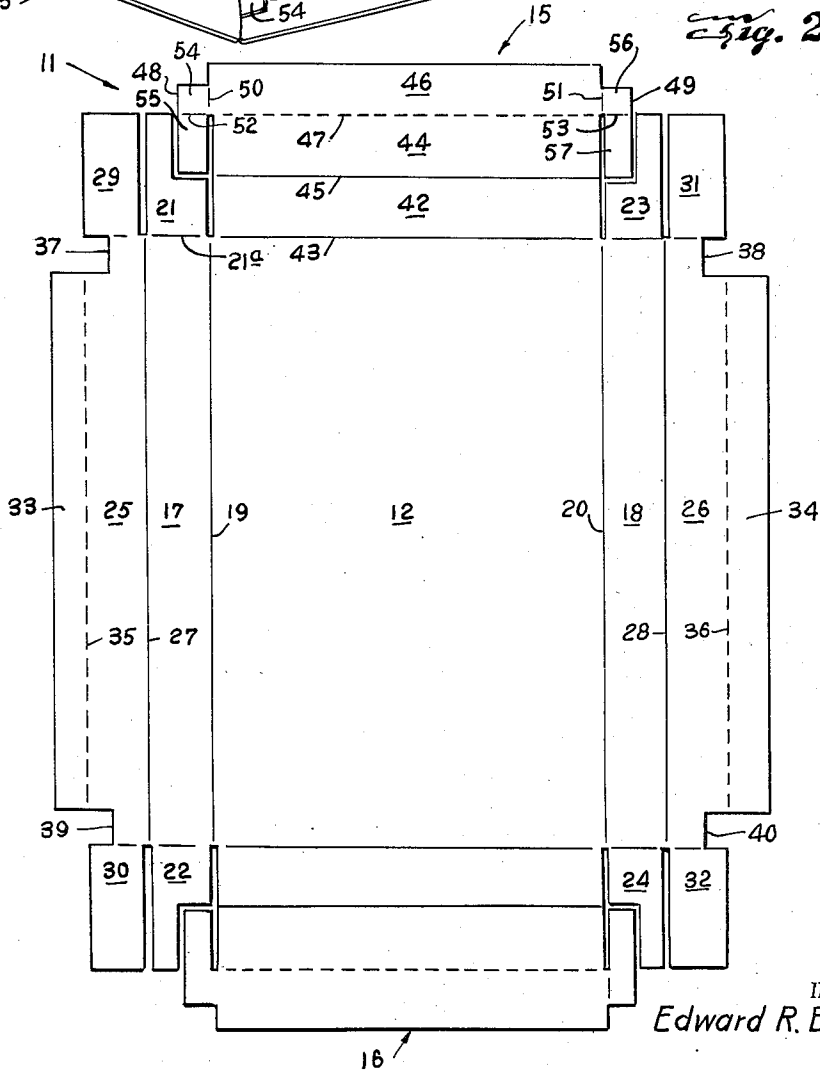
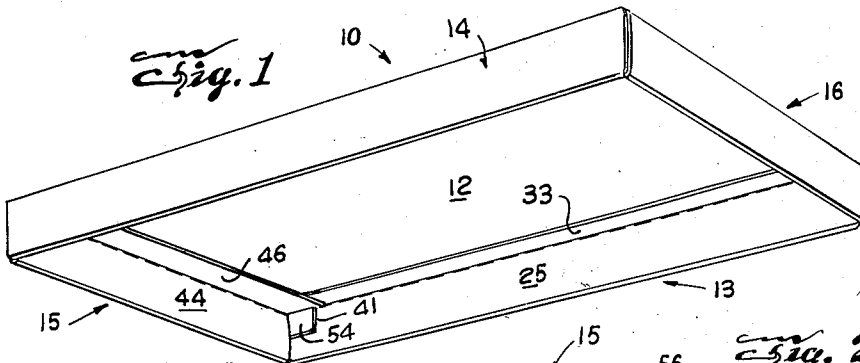
E. R. BURDEN

2,846,133

SELF-LOCKING FOLDING BOX

Filed Dec. 31, 1956

2 Sheets-Sheet 1



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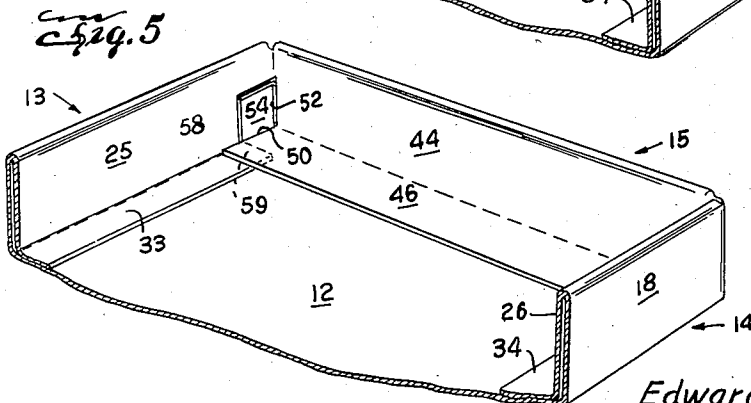
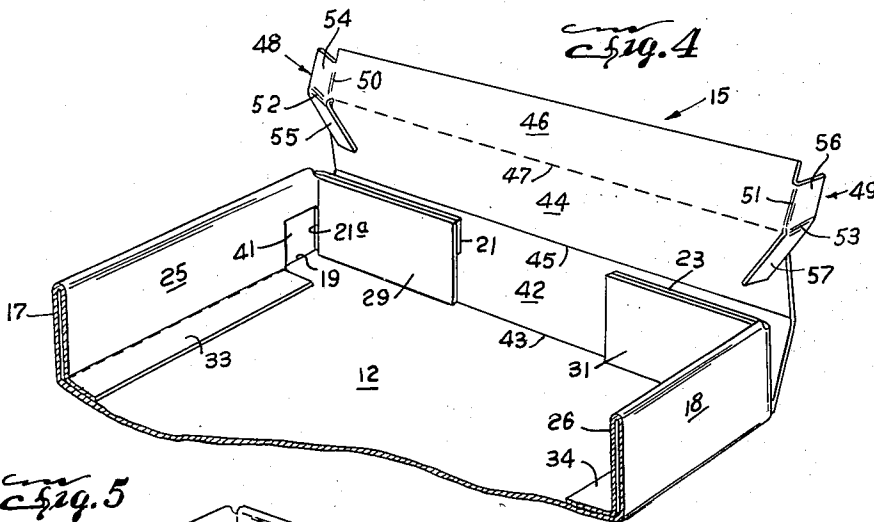
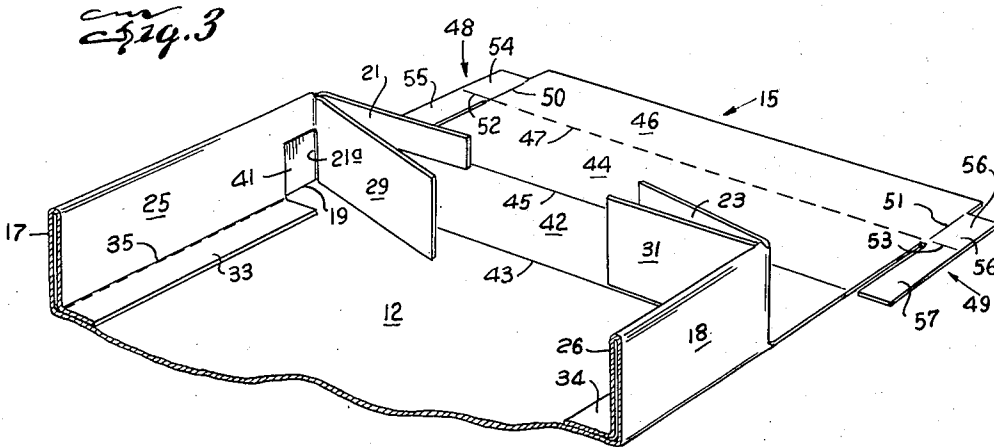
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SELF-LOCKING FOLDING BOX

Edward R. Burden, Dallas, Tex.

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1 Claim. (Cl. 229—34)

This invention concerns folded boxes, more particularly "Self-locking" folded boxes.

Folded boxes are generally made of heavy paper cut-outs, plastic sheets, and metal or foil covered paper. The cut-outs are folded where indicated, usually to form double walls for the ends and sides with tabs and extensions arranged for engagement between them at the vertical corners of the double walls. In some instances, an extension is provided on the fold-down end pieces which form a flange at the bottom horizontal corner of each end.

The principal object of the present invention is to provide improved means for joining the side walls to the end walls, particularly to secure the engaging tab against the likelihood of disengagement in ordinary handling. The arrangements now used depend on the spring effect of the paper at the tab-fold to maintain the tab engagement, but experience has proven this to be inadequate and hence unsatisfactory.

Another object is to provide extensions on the fold-down pieces of the sides to form flanges at the bottom horizontal corners of the sides, as well as on the fold-down pieces of the ends, with the end flange-extensions overlapping those on the sides. Thus, when the end flange-extensions are locked down by the tabs in engagement with the side walls, the side wall flanges are held down upon the bottom of the box.

Still another object is to provide an improved method of indicating the fold lines between the fold-down side pieces and the flange-forming extensions, which insures sharper corners, and also contributes toward making the flanges lie flat on the bottom which makes the sides more rigid. In the present invention, the fold lines for the flanges are lines of longitudinally thin perforations, definitely fixing the point of folding and removing substantially one-half of the material which, of course, makes folding much easier.

The trade has responded very favorably to this new box especially because of ease of setting it up, the snap-action stay put characteristics of the tabs for "locking" the ends to the sides. This makes the box more stable and thus more convenient to handle.

The top or cover of the box is similar in all respects to the container part and setting it up is obviously the same.

Other objects will appear from the description given below when considered in connection with the drawing accompanying this application, which drawing shows the preferred form constructed in accordance with the invention.

In the drawing:

Fig. 1 is a perspective view of the box cover (the container part of the box being similar), showing principally the inside.

Fig. 2 is a plan view of the cut-out for either the cover or the container part of the box, showing perforation lines for folding the extension pieces to form the flanges.

Fig. 3 is a perspective view of one end portion of the

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cut-out showing the side-folding completed; and the side wall returns over which the inside end-wall folds.

Fig. 4 is a perspective view showing the sides folded, the side-returns in position, and the end creased, ready for bending the inside end-wall over the side-returns and pressing it downwardly into the box.

Fig. 5 shows the end completed, with the tabs "locked in" and the end flange lapping over the side flanges.

Continuing now with a detailed description of the present invention, reference numeral 10, Fig. 1, designates generally either the cover or the container part of the box, since they are in all respects identical except for size, the cover of course being made slightly larger. Numeral 11, Fig. 2, refers in general to the cut-out for making up either the cover or container part of the box, by folding, as indicated, along the pressed lines, and the perforated lines provided on the said cut-out. To avoid confusion and repetition, only the container part of the box will be dealt with from now on and it will be referred to simply as the "box."

The box consists of the bottom 12, the double-wall sides 13, 14, and the double wall ends 15, 16. The pieces 17, 18 which make the outside walls of said double-wall sides, are bent upwardly along the pressed lines 19, 20, respectively; and the wall-returns 21, 22, and 23, 24, arranged thereon are bent inwardly toward each other. Next the pieces 25, 26, which make the inside walls of said double-wall sides, are bent downwardly toward the said box bottom along the lines 27, 28, respectively; and their wall-returns 29, 30, and 31, 32, are bent inwardly toward each other. Then the extension pieces 33, 34, are bent outwardly on lines 35, 36, respectively. Finally, the said sidewalls 25, 26, are pressed inwardly and downwardly against said side walls 17, 18, with the extension pieces 33, 34, coming to rest on said box bottom and forming stiffening flanges with said side-walls 25, 26. This is the stage of the setting up shown for one box end in Fig. 3. Also, shown in Fig. 3 is the recess, 41, formed by the notch 37, of the cut-out of Fig. 2. Each of the other corners is provided with an exactly similar recess formed by corresponding notches 38, 39, 40, Fig. 2. The details of one box end and its setting up will now be described, both ends being alike.

Referring to Figs. 3, 4, 5, the piece 42, which makes the outside wall of said double-wall end 15, Fig. 2, is bent upwardly on line 43, and the piece 44, which makes the inside wall, is bent inwardly on the line 45. The extension piece 46, is bent outwardly on the line 47, which makes a stiffening flange on said inside wall 44. This extension piece or flange 46, carries two tabs 48, 49, one attached to each end. These tabs are folded backward toward each other on the lines 50, 51, respectively. They also are folded on lines 52, 53, dividing each tab into two parts 54, 55, and 56, 57, respectively. We have now reached the stage of setting up shown in Fig. 4.

The flange 46, is further bent to substantially a right angle with the inside wall 44, and the tab parts 54, 56, are further bent to substantially a right angle with said flange. The tab parts 55, 57, are then bent against said inside wall 44. Finally, the said inside wall is bent downwardly over the side returns 21, 29, and 23, 31, with the tab parts 55, 57, falling between said inside wall and said side-returns. As said inside wall is pressed against said outside wall and said flange is pressed against the bottom, the tab parts 54, 56, snap into their corresponding recesses to "lock-up" the box, as in Fig. 5, where the tab-part 54, engages recess 41, of Fig. 4. Simultaneously, said flange braces the inside walls of said sides, as at 58, Fig. 5, and overlaps upon the side wall flanges, as at 59, Fig. 5, enabling said side wall flanges to hold said inside walls in alignment and make the box

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more rigid as well. The snap action of the recess engaging tab-parts, for example 54, is obtained by the inclusion of tab-part 55, bent substantially at right angle on the fold line 52. This part, in each instance, rests on the bottom edgewise, and supports part 54, along the fold line 52, substantially vertical from its fold-line 50. This completes the detailed description of the invention.

Precisely, the invention comprises a box consisting of a cover and an open top container made substantially alike with the cover fitting down over the container, each having opposite folded double-wall sides and ends, the inside walls thereof being provided with flanges along their longitudinal edges, said inside end-wall flanges lapping over the ends of said inside side-wall flanges; rectangular notches in said inside walls forming recesses at each of the cover and container corners; tabs arranged at each end of said end-wall flanges, said tabs each made in one piece, bent transversely near the center substantially at right angle to form two parts, a first part being joined to the end of said end flanges and bent upwardly to engage said recesses, a second part arranged to engage the bottom between the walls of the double-wall box ends.

The construction shown and described above is, of course, capable of modification, and such modification as may be construed to fall within the spirit and intent of the invention revealed herein, is also considered to fall within the scope and meaning of the appended claim.

What is claimed is:

A folding box having a bottom and folded double wall sides and ends, each wall of the double wall sides having returns at both ends engaging the ends between their

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double walls, flanges provided along the longitudinal edges of the inside walls of the double wall sides arranged to rest on the bottom, flanges provided along the longitudinal edges of the inside walls of the double wall ends arranged to lie on the bottom, the end wall flanges overlapping the ends of the side wall flanges and bearing against the inside walls of the double wall sides, the side wall flanges being shorter than the walls of the double wall sides, rectangular notches in each end of the inside walls of the double wall sides forming recesses therein at each corner meeting of the sides and ends, beyond the ends of the side wall flanges, tabs provided on each end of the end wall flanges arranged to engage the recesses to lock the double wall ends to the double wall sides, the tabs each having an extension arranged to engage the bottom between the inside and outside walls of the adjacent double wall end, the tabs and the extensions thereof being made in one piece each folded transversely near the center substantially at right angles to form two parts, a first part joined to one end of the adjacent end flange and bent upwardly for engagement with the adjacent recess, and a second part arranged to lie between the double walls of the adjacent double wall end and there rest upon the bottom.

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