May 18, 1943 W. E. STONECYPHER 2,319,371

FOLDING BOX

Filed May 25, 1940

FIG. 1.

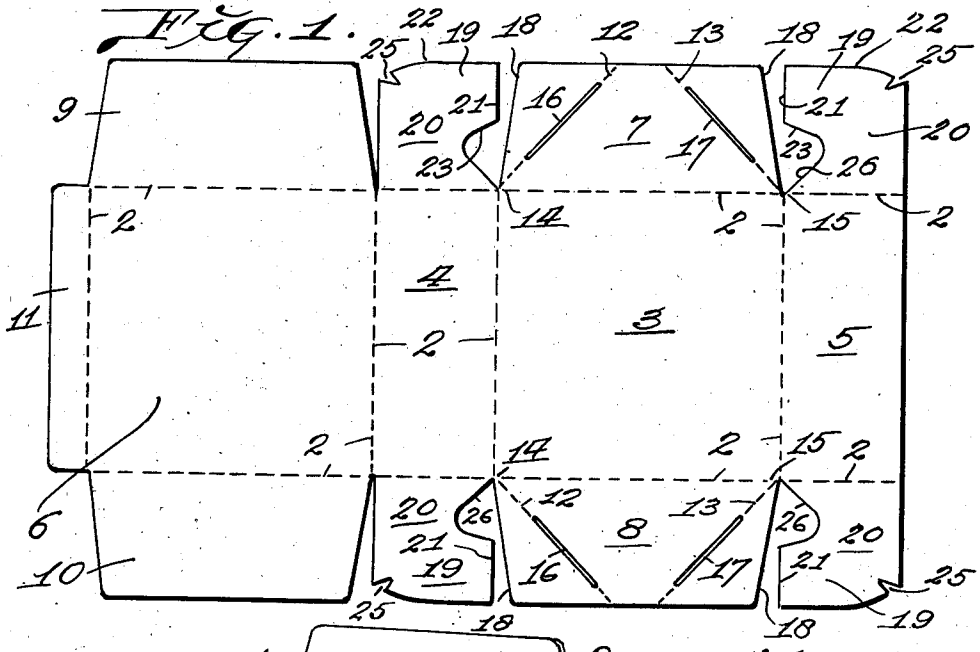


FIG. 2.

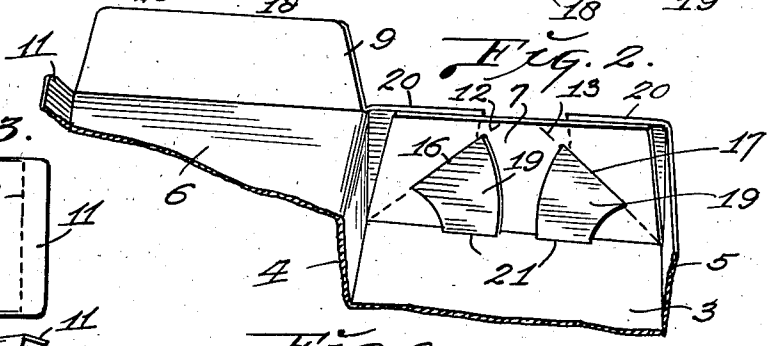


FIG. 3.

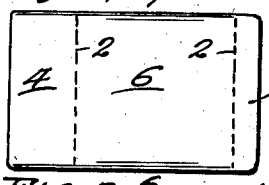


FIG. 4.

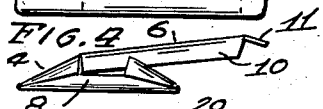


FIG. 5.

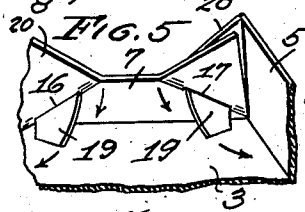


FIG. 6.

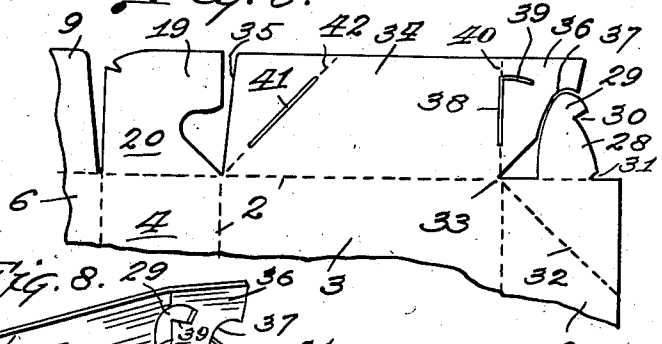


FIG. 7.

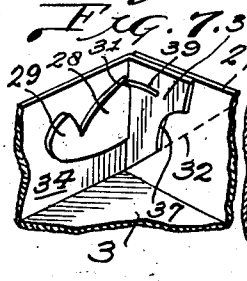
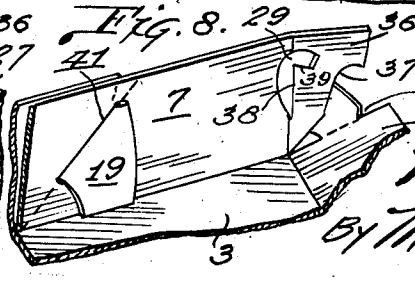


FIG. 8.



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Patented May 18, 1943 2,319,371

UNITED STATES PATENT OFFICE

2,319,371

FOLDING BOX

William E. Stonecypher, Los Angeles, Calif.

Application May 25, 1940, Serial No. 337,217

1 Claim. (Cl. 229—36)

This invention concerns folding boxes or envelopes for the packaging and protection of various articles of commerce and while the invention is useful for various kinds and types of boxes and cartons, for instance, those used for the packaging of articles of wearing apparel, laundered articles and the like, it is especially designed for use in packaging bakery products, such as pies, cakes, etc.

Some of the novel features and objects of this invention are, that the box can be machine die-cut, readily folded to form a box having strong reinforced corners, and then pressed into a flat folded shape for convenient storage and carriage of large numbers thereof in a ready-to-use form without the necessity of setting up the box. The lateral sides of the box are materially stiffened by sturdy leg elements which are locked in place to hold the box in its pre-designed configuration and the corners of the box are constructed so as to enable all four side walls to readily fold inwardly when the box is collapsed for storage or transportation in packaged form.

Another important object of the invention is the provision of a drop side for cake and pie cartons, so that the cake or pie can easily be placed into the carton and removed therefrom without the risk of spoiling their appearances and thus, the box is especially adapted for containing meringue pies and cakes with soft frostings.

Other objects, advantages and features of my invention will appear from the accompanying drawing, the subjoined detailed description, the preamble of this specification and the appended claim.

Applicant is about to illustrate and describe one of the forms of his invention in order to teach one how to make, use and vend the same, but it is to be understood that the drawing and description thereof are not to limit the invention in any sense whatsoever, except as limited by the appended claim.

In the drawing:

Fig. 1 shows one form of the invention in a developed plan view to illustrate how it can be die stamped from a single sheet of material.

Fig. 2 shows a portion of the box of Fig. 1 folded and in perspective view.

Fig. 3 is a plan view of the box in flat folded position.

Fig. 4 is an elevational edge view of the box in partially folded condition.

Fig. 5 is a perspective view looking into one corner of the box when partially folded.

Fig. 6 is a developed plan view of another form of the invention and showing a portion of the box.

Fig. 7 is a perspective view showing one corner of the modified form of the box in fully folded condition.

Fig. 8 is a perspective view of the modified form of the box and the front wall thereof in a partially folded condition.

In Fig. 1, the developed view of the box comprises a single sheet of material for which may be paper, cardboard, or any other material from which foldable boxes or cartons can be made. The box is divided by a plurality of scored lines 2 which provide a bottom portion 3 for the box, back wall 4, front wall 5, top 6, side walls 7 and 8, side flaps 9 and 10 attached to the top, and a front flap 11.

Each of the side walls 7 and 8 have diagonal scored lines 12 and 13 extending from the lower outer corners 14 and 15 respectively of the box and converge toward one another as shown. For a very small box or a long narrow box, the tops of the lines 12 and 13 may intersect one another, whereas for larger boxes, the top ends in these lines would be materially spaced apart. Along limited portions of lines 12 and 13 are elongated slots 16 and 17 respectively, the ends of which are spaced from the ends of their respective lines. The side edges of the walls 7 and 8 are cut on a slight bias, as shown at 18, to facilitate folding the sheet into box form.

The slots 16 and 17 are of such dimensions in width and length to snugly receive the tongues 19 of flaps 20 at the ends of the walls 4 and 5 respectively. The tongues are preferably configurated as shown and have leading edges 21 and diverging upper and lower edges 22 and 23. The outer corners of the flaps 20 between the ends of the edges 22 and the upper edges of said flaps are cut away to form notches 25. The purpose of these notches is to lock the flaps 20 within the respective slots 16 and 17 by engaging the tops of the slots when the box is set up for use. Because of the cut-away curved portion 26 of each flap inwardly from each tongue 19, the tongues 19 become bracing legs and materially strengthen the box sides (see Fig. 2). Note in particular, that the end or leading edges 21 of the legs squarely rest in contact with the bottom 3 of the box.

Because of the scored lines 12 and 13, the bottom and sides of the box can easily be pressed into a flat form by first shoving the middle of the sides 7 and 8 inwardly and then pressing the front and back sides 4 and 5 toward each other as shown in Fig. 5. The box can be further reduced in size for stacking in a small compass by bending the

flaps 9 and 10 against the inner surface of the top and then placing the entire folded bottom and sides onto the folded flaps and top (see Figs. 3 and 4).

The construction just described and particularly the forming of weakened lines that extend diagonally across the ends of the side walls 7 and 8, which weakened lines comprise the slits 16 and 17 and scored lines 13, is particularly advantageous in the manufacture of boxes that are folded or collapsed by machines, for when the side walls 7 and 8 are pushed inwardly by pressure against their outer central surfaces the end portions of said side walls will fold along the weakened lines so as to form substantailly V-shaped pockets, the bottoms of which are defined by the slits 16 and 17 and scored lines 12 and 13, and thus the tongues 19 which form the leg members will be automatically guided into and through the slits 16 as the side walls are folded downwardly onto the bottom 3 and the front and rear walls folded over onto the side walls and the bottom.

When the corner portions of the box are folded inwardly to effect collapse of the box, the end portions of the sides 7 and 8 "break" or fold on the scored lines 12 and 13 and the slots 16 and 17, so as to first swing toward the end portions of the back and front walls 4 and 5, then downwardly toward the bottom 3, and during this folding movement the flaps 20 do not fold but on the other hand, they swing with the end portions of the walls 7 and 8, first toward back and front walls 4 and 5 and then downwardly toward the bottom 13 with the tongues 19 lying between the back and front walls, and the bottom and the main body portions of the flaps to which the tongues are connected lying between the folded ends of the walls 7 and 8 and the end portions of the back and front walls 4 and 5.

In Fig. 5, the end walls 7 and the tongues 19 on flaps 20 are shown partially moved inward as they appear during the collapse of the box.

Figs. 6, 7, and 8 show a slightly modified form of the invention. In this form of the invention, all the box parts are the same as in the preferred form of the invention except the side and front walls. The front wall 27 of this form has a tongue 28 at each end, the leading edge of the tongue having a hook-like shaped element 29 with a notch 30. At the base of the tongue where it joins the front wall, there is a smaller notch 31. These notches 31 are for the purpose of engaging the material in the box ends 34 above the juncture of the slots 38 and 39 when the box is set up for use with the front wall in vertical position.

A scored diagonal line 32 extends from the box corner 33 toward the other end of the front wall and is for the purpose of permitting the front wall 27 of the box to collapse and fold flat onto the front portion of the bottom 3 and further, the provision of the scored line 32 eliminates the scoring of the end walls 34. This wall 27 is used in place of the wall 5 of the other form of the invention when it is desired to provide a drop wall for the box.

When the drop wall 27 is provided, the sides of the box are formed with wall 34 which takes the place of walls 7 and 8 of the other inventive form. These walls 34 have one vertical edge slightly biased as shown at 35 and the other edge formed with a flap 36. So that the entire box can be die stamped from a single sheet of material, the flap has a cut-out portion 37 to supply the material for the hook-like element 29. An acute angled slot having legs 38 and 39 is provided in the side wall 34. The longer leg is situated along the scored line 40 and the shorter leg, slightly curved, extending for the longer leg as shown.

The hook end of the tongue 28 is adapted to ride in the angled slot and the notch 30 thereof catches in the far end of the slot 39 when the front wall 27 of the box is dropped. This action takes place at both ends of the box and the action is clearly apparent by inspection of Figs. 5 and 6 of the drawing.

A diagonal slot 41 is provided along the diagonal scored line 42 to receive the tongue 19 of the back wall in the manner taught in the explanation given for the other form of the invention.

Thus it will be seen that I have provided a folding box that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved folding box, may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claim.

I claim as my invention:

A folding box comprising integrally connected top, bottom, front, rear and side walls, leg extensions formed integral with and projecting from the ends of said front and rear walls, the inner portions of the edges of said leg extensions adjacent the front and rear walls being cut away to form notches, the portions outwardly from said notches forming legs having straight lower edges which rest on the bottom of the box when the same is set up for use, there being diagonally disposed slots formed in the end portions of the side walls, which slots are inclined 45° with respect to the outer edges of said side walls and the joint between the lower edges of said side walls and bottom, which slots receive said legs when the box is set up for use and said side walls being provided with diagonally disposed scored lines in longitudinal alignment with said slots, which scored lines and slots provide weakened lines on which the end portions of the side walls beyond the slots and scored lines fold, when said side walls are collapsed and folded inwardly onto the bottom of the box.

WILLIAM E. STONECYPHER.