

April 13, 1943.

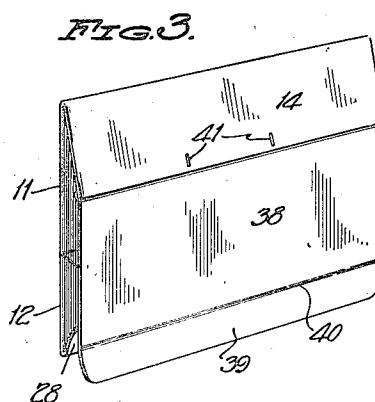
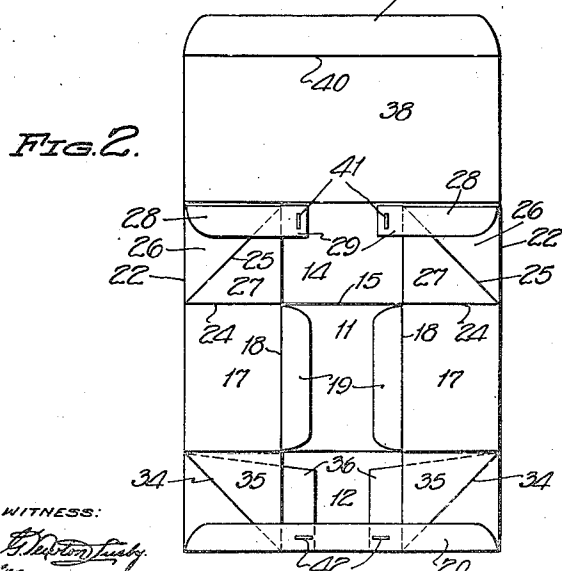
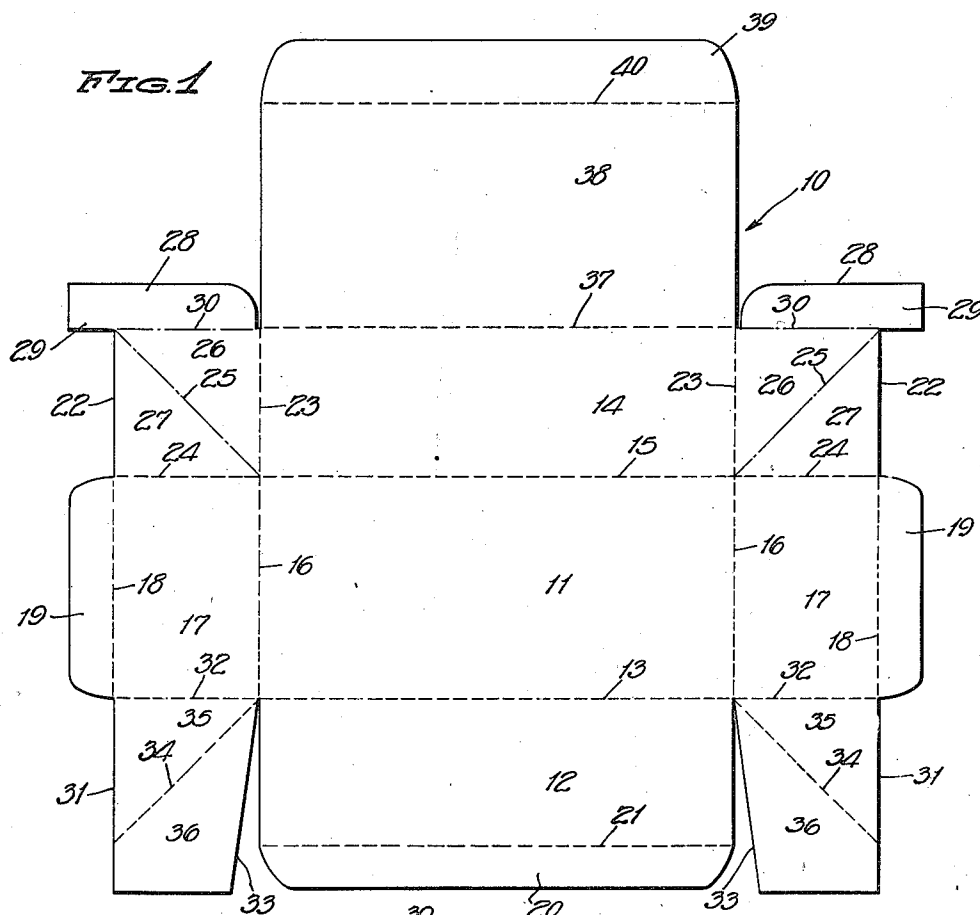
D. LEVKOFF

2,316,261

FOLDING BOX

Filed Jan. 13, 1941

2 Sheets-Sheet 1



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WITNESS:

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2 Sheets-Sheet 2

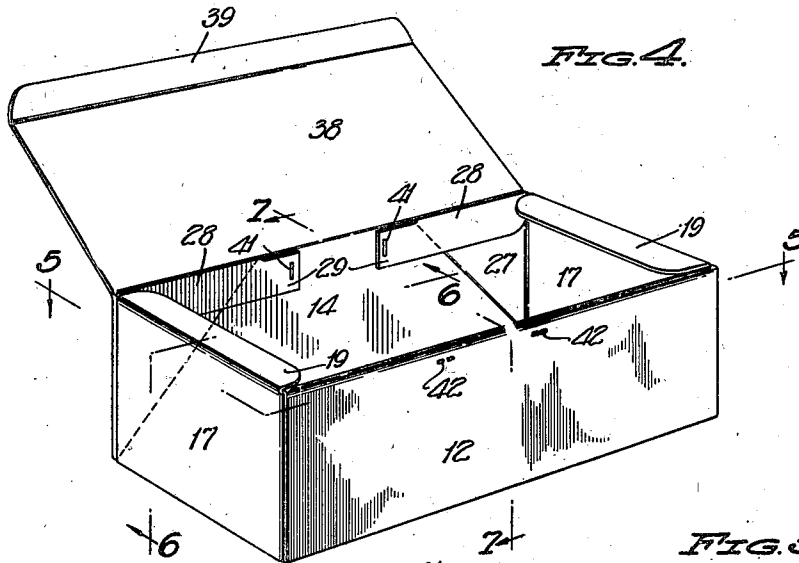


FIG. 4.

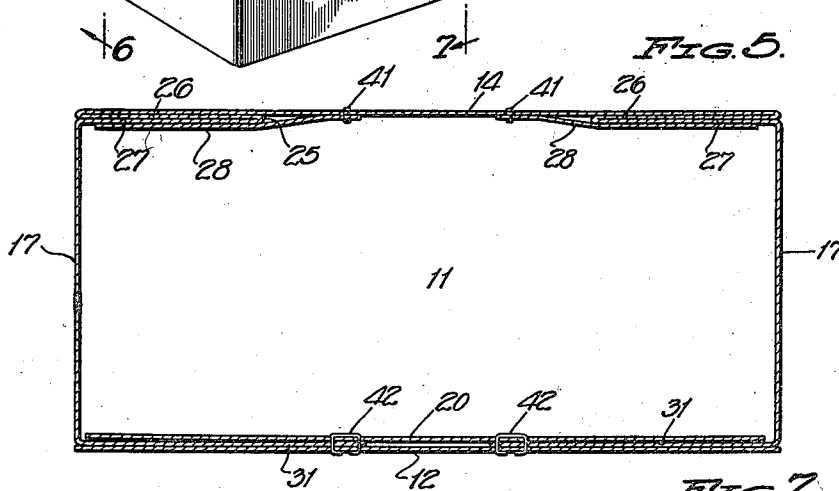


FIG. 5.

FIG. 6.

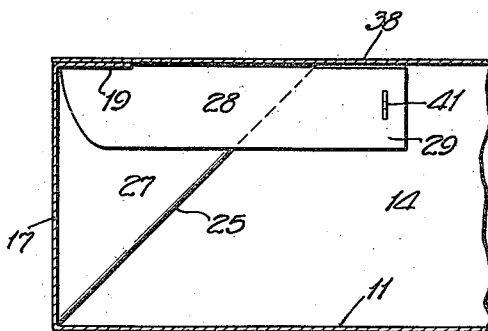
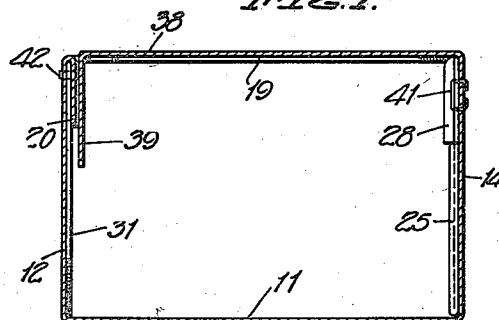


FIG. 7.



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FOLDING BOX

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Application January 13, 1941, Serial No. 374,141

2 Claims. (Cl. 229—31)

This invention relates to improvements in folding boxes.

The primary object of the invention resides in a cardboard box which may be collapsed into a flat condition for compact storing and shipping, and which may be expeditiously set up for use as the occasion arises.

Another feature of the invention resides in a folding cardboard box which may be instantly erected from a flat folded collapsed position by grasping the end walls of the box and swinging them to their vertical upstanding position, whereupon the other walls of the box are drawn into and automatically locked in their related positions.

Another feature of the invention is the provision of a collapsible box having the above features which is constructed from a single blank of cardboard which is cut, scored, folded, and metal stitched in a novel manner to make the same simple and inexpensive of manufacture, and rigid when set up for use.

Other features of the invention will become apparent as the following specification is read in conjunction with the accompanying drawings, in which:

Figure 1 is a plan view of the blank from which the box is constructed.

Figure 2 is a top plan view of the box in collapsed position with the cover extended.

Figure 3 is a perspective view of the box in collapsed position with the cover folded over the flattened body portion of the box.

Figure 4 is a perspective view of the box set up for use with the cover open.

Figure 5 is a horizontal sectional view on the line 5—5 of Figure 4.

Figure 6 is a fragmentary vertical longitudinal sectional view on the line 6—6 of Figure 4, with the cover in closed position.

Figure 7 is a vertical transverse sectional view on the line 7—7 of Figure 4, with the cover in closed position.

Referring to the drawings by reference characters the numeral 10 designates a blank of cardboard from which my improved folding box is constructed. The blank 10 is cut and scored to provide a bottom wall 11, separated from the front wall 12 by a longitudinal fold line 13, and a rear wall 14 which is separated from the bottom wall by a longitudinal fold line 15. Transverse fold lines 16—16 separate the ends of the bottom wall 11 from like end walls 17—17, and extending beyond the end walls 17—17 and foldable on the fold lines 18—18 are inwardly foldable flaps 19—19 having round corner edges. The front wall 12 has a longitudinal flap 20 formed integral therewith and which is provided with round corner edges and is adapted to be folded inwardly on the longitudinal fold line 21.

Rear corner webs 22—22 are provided at opposite ends of the rear wall 14 and are folded inwardly on the fold lines 23—23, which are disposed in alinement and form a continuation of the transverse fold lines 16—16. The rear corner webs 22—22 are integral with the rear ends of the end walls 17—17 along the fold lines 24—24, which fold lines are continuations of the fold line 15. Each corner web 22 is divided by a diagonal fold line 25 into a pair of like triangular shaped web sections 26 and 27, which sections fold upon themselves when the box is in a set up position for use. The diagonal fold lines 25 extend from the rear corners of the bottom wall 11 to the respective diagonally opposite corners of the webs. Formed integral with each web section 26 is an elongated pocket flap 28 having an attaching portion or tab 29 extending beyond the free side edge of the web 22 of the blank 10. The flaps 28—28 have their inner free corners rounded and are inwardly foldable on the respective fold lines 30—30.

Formed integral with the front ends of the end walls 17—17 are front corner webs 31—31 which fold inwardly on fold lines 32—32 which are coextensive with the longitudinal fold line 13. The front corner webs 31—31 are free of the front wall 12 and each web has its inner edge 33 cut at an angle with respect to the opposite outer edge, which outer edge is in alinement with the outer edge of the rear corner web 22, and fold line 18. Each front corner web 31 is divided by a diagonal fold line 34 into a triangular shaped web section 35 and a four sided attaching section 36. The fold line 34 extends from the front corner edge of the bottom wall 11 to the outer side edge of the corner web 31, but short of the free end thereof, whereby a portion of the attaching section 36 will extend beyond the sides of the triangular web section 35 when the corner web 31 is folded on the diagonal fold line 34.

Formed integral with the top of the rear wall 14 along the longitudinal fold line 37 is a cover 38 having a front flap 39 foldable on the longitudinal fold line 40.

After the blank 10 has been cut and scored in the manner hereinbefore explained, it is partially folded and stitched in a novel manner now to be explained and as clearly illustrated in Figure 2 of the drawings.

Assume that the blank 10 shown in Figure 1 has its inner side face up. The first step is to fold the front corner web flaps 31—31 on the lines 34—34. To accomplish this, the attaching web sections 36—36 are folded upwardly and over the section 35—35, after which the end walls 17—17 and rear corner webs 22—22 are folded inwardly on the fold lines 16—16 and 23—23. This operation causes the attaching sections 36—36 of the front webs to lie flat against the

front wall 12 and to extend inwardly beyond the edges of the triangular web fold sections 35—35. The flaps 28—28 are folded inwardly over the respective corner webs 22—22, whereupon the attaching portions 29—29 extend inwardly beyond the inner side edges of the webs 22—22. The flap 20 is folded inwardly over the folded front corner webs 31, and the blank is now folded in position to be stitched and metal staples or stitching 41 passes through the extension portions 29 of the flaps 28 and through the rear walls 14, and similar staples or stitching 52 passes through the flap 20 and the attaching sections 36—36 of the front corner webs 31—31.

To unfold the blank from the position shown in Figure 2, it is only necessary for an operator to grasp the flaps 19—19 and/or end walls 17—17 and pull outwardly thereon which causes the end walls to move to vertical position. As the end walls 17—17 are swung outwardly, the rear corner webs 22—22 fold on the diagonal fold lines 25 whereas the front corner webs 31—31 unfold on the fold lines 34. The rear pocket flaps 28 and the front pocket flap 20 flex outwardly as the corner webs move to their opening position and when the corner webs reach their final position, the folded sections 27—27 are received beneath the pocket flaps 29—29 and the front corner webs 22—22 unfold and engage beneath the front corner flap 20 as best illustrated in Figure 5 of the drawings. With the corner webs locked beneath the flaps 29 and 29, the box assumes the set up position shown in Figure 4. The side flaps 19—19 may now be folded inwardly, and when it is desired to close the body of the box, the cover 38 is swung down and the flap 39 is inserted inwardly of the front wall of the box so as to lie against the inwardly folded locking flap 20. The inwardly extending side flaps 19—19 act to support the cover 38 at its opposite ends.

To collapse the box from its set up position, the cover 39 is swung open and the operator proceeds to pull outwardly on the end walls 17—17 which causes the corner webs to flex the pocket flaps 28—28 and the ends of the front locking flaps 20 away from the adjacent walls of the box to permit of the unfolding of the rear corner webs 22 and for the folding of the front corner webs 31, whereupon the box assumes the flat collapsed position shown in Figure 2. Should it be desired to more compactly fold the collapsed box, the same may be folded on the aligned score lines 15 and 24 to the position shown in Figure 3 of the drawings.

Whereas I have shown and described the pocket flaps 28 and the front lock flaps 29 as being secured by metal staples or stitching, the same may be glued if desired. However, I have found that metal staples or stitching provides a more positive and inexpensive means of attaching the inner ends of the pocket flaps 28—28 to the rear wall and the attaching sections 36—36 of the front corner webs and the pocket flaps 29 to the front wall.

By reason of the construction herein shown and described, it is possible for me to construct a collapsible cardboard box with a cover, at less cost than heretofore, for there is a minimum amount of waste when cutting the blank A from the stock material.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. A collapsible box comprising a single blank

of cardboard cut, scored and folded to provide a rectangular shape bottom wall, end walls hinged to said bottom wall, front and rear walls hinged to said bottom wall, a pair of rear foldable corner webs hinged to the rear ends of said end walls, each of said rear corner webs having a diagonal fold line dividing the same into an attaching section and a triangular shape web fold section having a free edge, pocket flaps connected to the attaching sections of said rear corner webs along hinge scores and being foldable inwardly thereover, fastening tabs integral with the outer ends of the pocket flaps extending beyond the plane of said free edge, said attaching sections lying flat against the inner side of said rear wall, means securing the fastening tabs of said pocket flaps to the rear wall, a pair of front foldable corner webs hinged to the front ends of said end walls, each of said front corner webs having a diagonal line dividing the same into an attaching section and a web fold section having a free edge, the attaching section of said front corner webs fitting flat against the inner side of said front wall, a front pocket flap folded inwardly from the top edge of said front wall and overlying said front corner webs, means securing the inner end portions of the attaching sections of said front corner webs and the front pocket flap flat against the front wall, whereby the free edges of the triangular shaped web fold sections of the front and rear corner webs flex the pocket flaps outwardly to enable portions of the web fold sections to interlock with the respective front and rear pocket flaps when the box is in set up position, and a cover hinged to the top of the rear wall for overlying the open top of the body of the box when the cover is in closed position thereover.

2. A corner lock construction for collapsible cardboard boxes having a rectangular shaped bottom wall, adjacent side and end walls integral with the bottom wall and connected to the side and end edges thereof along hinge scores, a square shaped corner web integral with the adjacent ends of the side and end walls and connected thereto along hinge scores, a diagonal hinge score extending across the corner web from the corner of the bottom wall to the opposite corner of the web and which divides the same into a triangular attaching web section and a foldable lock web section, a pocket flap integral with the top edge of the attaching web section and connected thereto along a hinge score disposed in alinement with the top edge of the side wall, a tab extension integral with the pocket flap and projecting beyond the plane of the free edge of the foldable lock web section, said end wall being folded inwardly over the bottom wall and said corner web being flatly folded over the adjacent end portion of the side wall, said pocket flap being folded inwardly over a portion of the corner web to lap a free edge portion of the lock web section and to cause the tab extension to project beyond the free edge portion to lap the adjacent portion of the side wall, and a staple passing through the tab extension and side wall for securing the same together, whereby outward swinging movement of the end wall to vertical position will cause the free edge of the lock web section to forcibly flex the pocket flap outwardly and swing the side wall to vertical position and subsequently permit the lock web section to assume a locked position intermediate the attaching web section and the locking flap.

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