

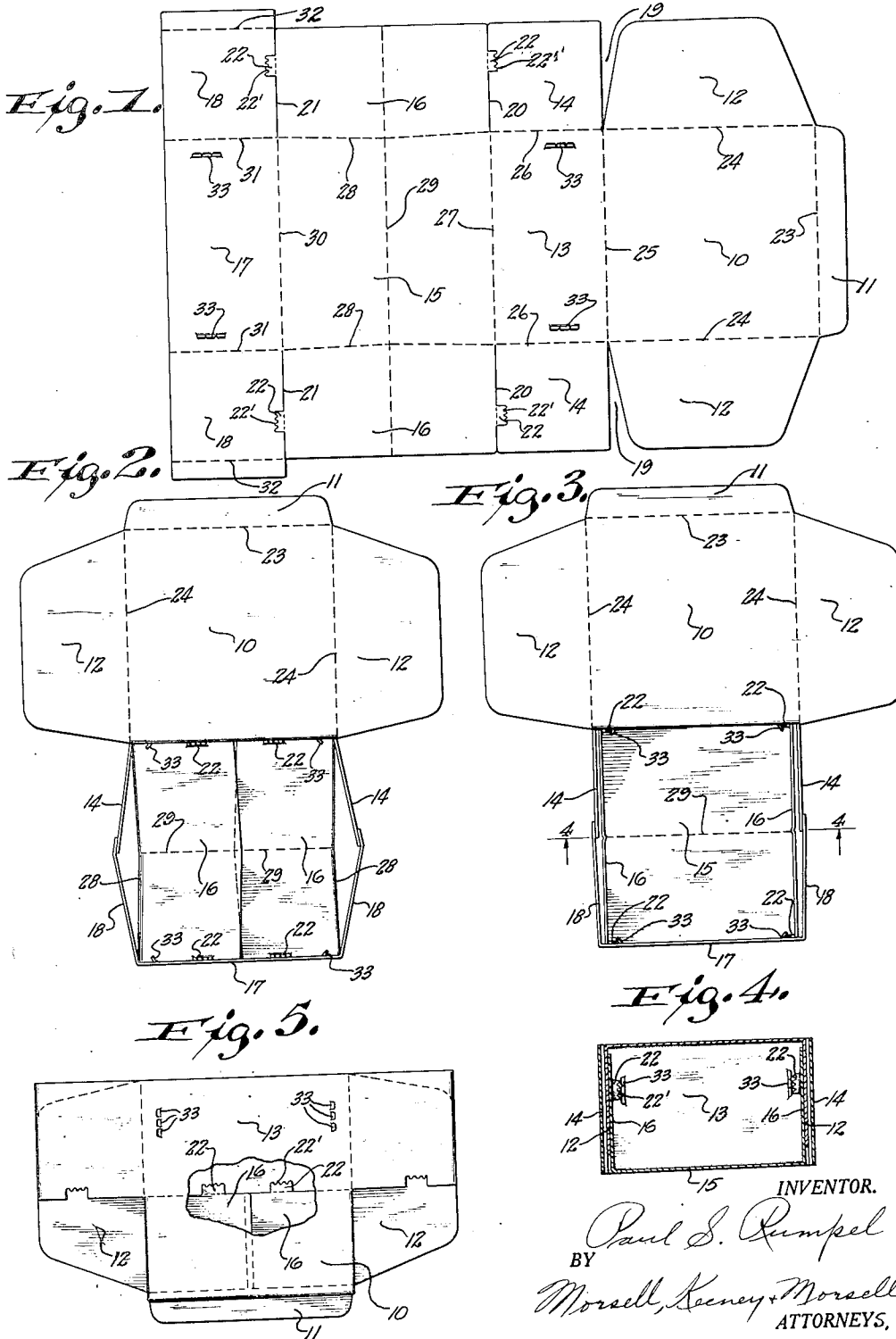
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FOLDING BOX

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FOLDING BOX

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This invention relates to improvements in folding boxes and more particularly to a folding box construction of such a nature that the movement of the box portions from folded to set-up condition is facilitated and made simple, which means also serve to hold the box in set-up condition.

It is one of the objects of the present invention to provide a collapsible or folding box formed from a one-piece paper or paste-board blank and so arranged that when the parts of the box are being moved to cause the box to assume its set-up condition the tendency of said parts is to move towards said position and to be retained in said condition.

A more specific object of the invention is to provide in a folding box of the class described, bottom end flaps provided with projecting tabs adapted to cooperate with ridges or corrugations in the front and rear portions of the box to lock said bottom end flaps in set-up vertical position against the outer ends of the box.

A further object of the invention is to provide a folding box of the class described in which the longitudinal creases in the box blank are medially slightly inwardly offset, which arrangement serves to force the end flaps of the box into nearly vertical position when the box is pressed against a surface when being set up for use.

A further object of the invention is to provide a one-piece, centrally longitudinally creased folding box having means formed therein and thereon for forcing and holding various box portions in their proper positions when the box is set up.

A further object of the invention is to provide a folding box of the class described so arranged that it can be manufactured and shipped in a collapsed or knock-down condition to the consumer who is not required to perform any mechanical operations on the same to put it into condition for use as a container, but which may be unfolded from its collapsed position to its usable position very easily and quickly.

A further object of the invention is to provide a folding box which is of very simple construction, is inexpensive to manufacture,

is strong and durable and is well adapted for the purposes described.

With the above and other objects in view the invention consists of the improved folding box and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawings in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a plan view of the box blank;

Fig. 2 is a plan view of the box blank partially set up;

Fig. 3 is a plan view of the box blank set up with the cover thereof opened;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 3 only with the cover in closed position; and

Fig. 5 is a view of the box in its collapsed or folded condition with part broken away to show details of construction.

Referring now more particularly to the drawings it will appear that the box blank shown in Fig. 1 is of one piece and is formed with the following portions: A top 10, a top front flap 11, top end flaps 12, a back 13, complementary end portions 14, a bottom 15, bottom inner end flaps 16, a front 17, and complementary end portions 18. It will be noted that the top end flaps 12 are separated from the complementary end portions 14 by means of V-shaped slots 19, while the bottom end flaps 16 are separated from the complementary end portions 14 and 18 respectively by slits or cuts 20 and 21 respectively. Also, the edge portions of said bottom end flaps 16 where they are separated from the complementary end portions 14 and 18 respectively are provided with tabs 22 cut by dies out of portions of the stock of the flaps 14 and 18, said tabs being formed with serrated or tooth-like outer edge portions designated by the numerals 22'. The top front flap and the top end flaps are adapted to be folded with respect to the top along scored fold lines 23 and 24 respectively. The back 13 folds with respect to the top along a scored line 25 and the complementary ends 14 fold from said back along fold lines 26. The bottom 15 folds with respect to the back along the scored line 27 and

the bottom end flaps 16 fold upwardly on fold lines 28. Also, a scored line 29 extends longitudinally medially through said bottom and bottom end flaps 16. The front 17 folds along a scored line 30 and the complementary end portions 18 fold sidewise on lines 31. Also, these latter portions are formed near their end portions with scored lines 32 which are brought into use when the box is in a folded or collapsed position, as the portions of the flaps 18 beyond the fold lines 32 are overlapped on the flaps 14 and the same are secured together. It should be observed that the scored lines 24, 26, 28 and 31 form a pair of separated continuous scored lines extending longitudinally of the entire box blank. As particularly shown in Fig. 1 the portions 28 of said longitudinal scored lines are offset or tapered slightly inwardly where they are crossed by the scored line 29. The purpose of the inwardly offset arrangement of the scored lines 28 which is referred to will be more particularly hereinafter set forth.

In making a collapsible box from the blank, the front and back 17 and 13 are folded upwardly with respect to the bottom 15, which latter portion should also be unfolded to a flat position, and the two sets of complementary end portions 14 and 18 are folded sidewise and the portions 18 overlap the portions 14 at distances between the edges of the portions 18 and the scored lines 32. Then the overlapped portions of said members 14 and 18 are secured together with glue or any other suitable medium. Said portions thus connected form outer ends for the box. The box is usually shipped or sent to the user in the folded condition shown in Fig. 5 and in this condition the flaps 14 and 18 are joined as previously described. In setting up the box from the position shown in Fig. 5 the bottom thereof is naturally pressed against a surface or table top and when so pressed, due to the offset arrangement of the scored lines 28 for the bottom inner end flaps 16, said inwardly offset arrangement of the scored lines will cause said end flaps 16 to move toward a vertical position. Prior to being so moved the tabs 22 carried by said end flaps are directed upwardly or outwardly as shown in Fig. 2 and as pressure on the bottom of the box has caused the end flaps 16 to move upwardly somewhat they are manually moved the remaining distance to vertical position against the outer ends 14—18 of the box. In being so moved the serrated end portions of the tabs 22 engage properly positioned ribs or corrugations 33 formed on the inner surfaces of the front and rear of the box and engagement between said ribs or corrugations and the tabs will cause said tabs to be moved to a reverse position or directed inwardly, as shown in Figs. 3 and 4, and as thus arranged the bottom inner end flaps 16 will be maintained practically se-

cure in vertical set-up position against the outer ends 14—18 of the box, as the edges 22' of the tabs will be in engagement with the ribs or corrugations 33. Also, the offset arrangement of the scored lines 28 where the same are crossed by the scored line 29 will put the bottom end flaps 16 slightly under tension in vertical position and this arrangement will co-operate with the tabs and corrugations described to effect a very secure disposition of the bottom end flaps when they are set up as described. The foregoing describes the manner in which the arrangement of the box in the form shown in Fig. 3 is effected and as so arranged the box is ready for use, and its arrangement in this condition was very easily and quickly effected. The box is, of course, closed by means of the cover 10 and when the cover 10 is closed the front cover flap 11 is inserted inwardly of the upper edge portion of the front 17 of the box and the top or cover end flaps 12 are inserted between the members 16 and 14—18, as shown in Fig. 4.

From the foregoing description it will be seen that the box is formed from a one-piece blank and is of a longitudinal foldable type, it being folded longitudinally on the scored line 29 which extends through the bottom 15 and the bottom end flaps 16. The box in its set-up condition is very substantial and is readily retained in this position against undesired collapsing by the engagement of the tabs 22 with the ribs or corrugations 23, which engagement is automatically effected when the end flaps are moved into vertical position and the offsetting of the fold lines 28 for the bottom end flaps 16 co-operates with said tabs and corrugations in effecting a rigid and firm position of the flaps 16 when set up and also the offsetting of said fold lines facilitates and makes very simple any movement of the parts of the box to set-up position.

Furthermore, the improved folding box is both simple and novel and is well adapted for the purposes described.

What is claimed as the invention is:

1. A folding box, comprising in one piece when set up, a flat bottom, sides, ends and bottom end flaps, said parts being foldable with respect to one another on fold lines, there being a longitudinal fold line extending centrally through said bottom and bottom end flaps on which the adjacent portions fold when the box is collapsed, and the fold lines between the bottom end flaps and the bottom being off-set inwardly where the same are intersected by said longitudinal fold line.
2. A longitudinally folding box, comprising in one piece, a bottom, sides, ends and bottom end flaps, said parts being foldable with respect to one another on fold lines, there being a longitudinal fold line extending centrally through said bottom and bottom end

flaps, and the fold lines between the bottom
end flaps and the bottom being off-set in-
wardly where the same are intersected by
said longitudinal fold line, whereby an un-
folding of said bottom will cause an unfold-
5 ing tendency in said bottom end flaps and
tend to direct the same toward their upright
positions, shouldered ribs formed on inner
surfaces of said box sides, and foldable tabs
10 projecting from the outer side edges of the
bottom end flaps and engageable with said
shouldered ribs during movements of said
bottom end flaps to effect a reversal of posi-
15 tion of said tabs and a flap position retain-
ing engagement between said reversed tabs
and said shouldered ribs.

In testimony whereof I affix my signature.
PAUL S. RUMPEL.

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