

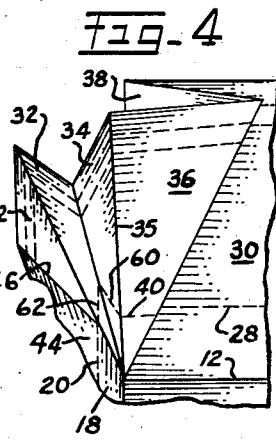
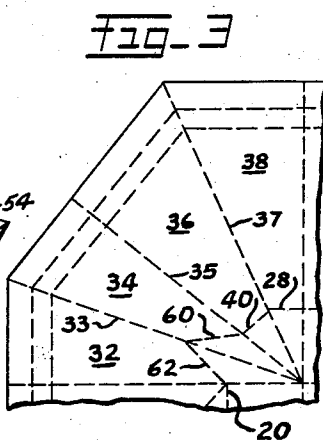
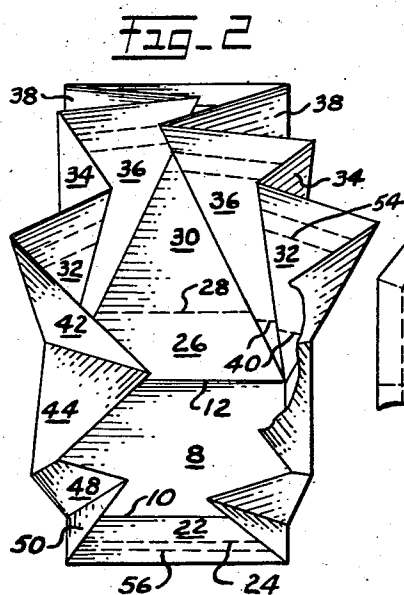
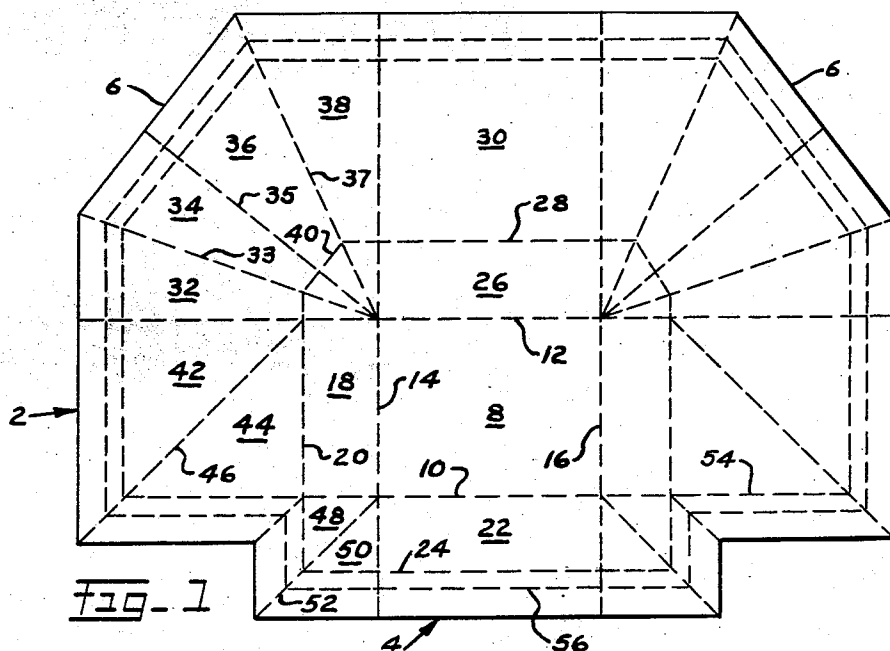
April 27, 1954

F. LANGE
FOLDED BOX

2,676,747

Filed Nov. 24, 1950

2 Sheets-Sheet 1



INVENTOR.
FERDINAND LANGE
BY
Bailey, Stephens & Huettig
ATTORNEYS

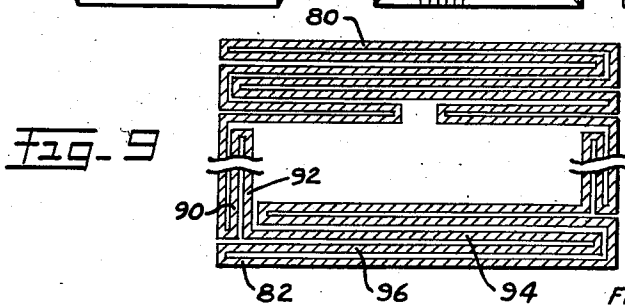
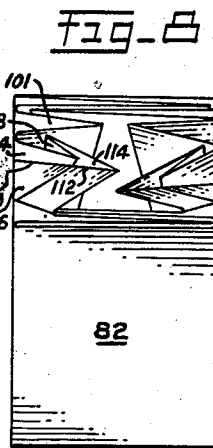
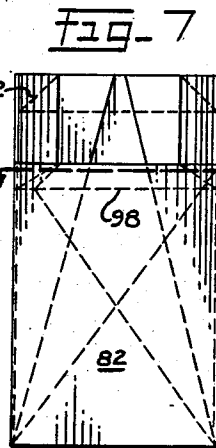
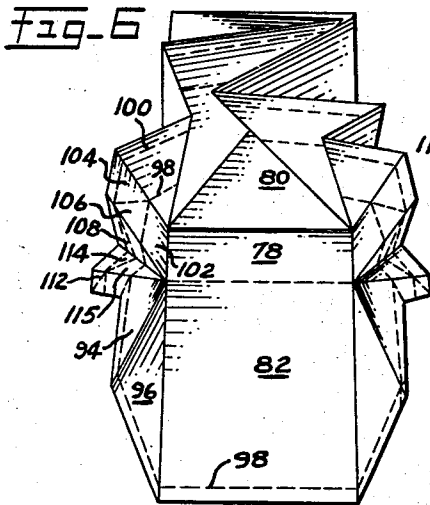
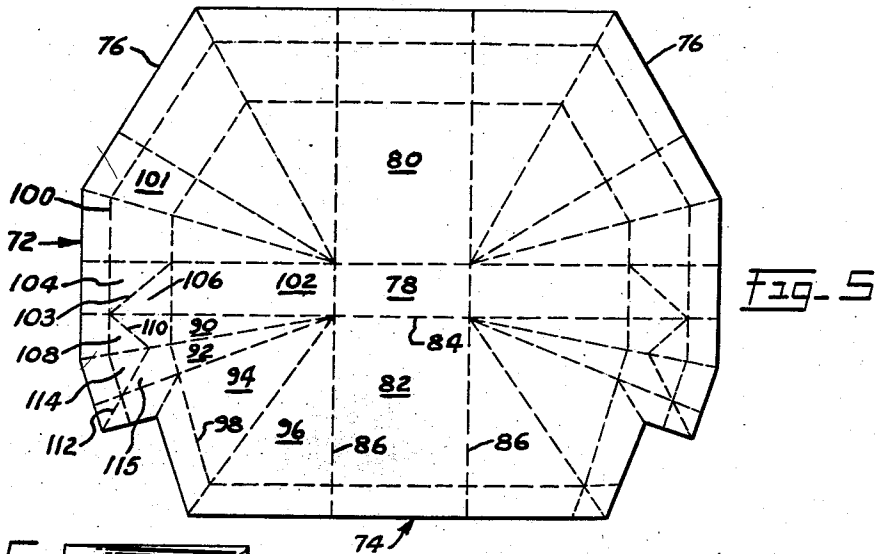
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INVENTOR.
FERDINAND LANGE
BY
Bailey, Stephens & Huettig
ATTORNEYS

UNITED STATES PATENT OFFICE

2,676,747

FOLDED BOX

Ferdinand Lange, Minden in Westphalia, Germany, assignor to Werner Bahlsen, Hannover, Germany

Application November 24, 1950, Serial No. 197,305

2 Claims. (Cl. 229—31)

1

This invention relates to a box. In particular, the invention relates to the folding of a box from a single sheet of material so that all marginal edges of the blank are assembled in overlapping order upon only one edge of the folded box. As such, this invention constitutes a further development of my invention set forth in co-pending application Ser. No. 162,844, filed May 19, 1950, for "Box."

Boxes constructed according to said aforesaid application are limited to certain proportions by reason of the shape of the blank and the type of pleats. The object of the instant invention is to produce a blank and form of pleat by means of which boxes having the same and other proportions can be constructed. Another object of the invention is to obtain a box in which the front panel can be opened obliquely to provide an easier access into the box.

In general, these objects are obtained by forming a blank from a rectangle which has a projection on one edge thereof and truncated corners on the side opposite said projection. Fold lines are arranged so that from a corner of the box to and adjacent the truncated corners, a plurality of right angle triangles are formed, the base of each triangle having a length equal to or less than the length of the side against which the triangular panel is to be folded. By varying the size of the triangles the proportions of the box may be varied over a very wide range.

The means by which these and other objects of the invention are obtained are described more fully with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a box blank with the fold lines indicated thereon;

Figure 2 is a front view of the blank of Figure 1, partially folded into box form;

Figure 3 is a partial plan view of a modified box blank, showing one corner;

Figure 4 is a front view of a box corner partially formed from the blank of Figure 3;

Figure 5 is a plan view of another modified form of box blank;

Figure 6 is a front view of the blank of Figure 5, partially folded into box form;

Figure 7 is a front view of the box of Figure 6 completely folded except for the closing of the lid;

Figure 8 is a front view of the box of Figure 7 with the lid partially closed; and

Figure 9 is an exaggerated cross-sectional view through the completed box, on the line 9—9, Figure 7.

2

In Figure 1, a blank 2 of general rectangular outline is provided with a projection 4 and truncated corners 6. Bottom panel 8 is delineated by front fold line 10, rear fold line 12, and side fold lines 14 and 16, respectively. As the two sides of the box are symmetrical, a description of one side suffices for both. The top edge of side panel 18 is defined by fold line 20. Front panel 22 has a top edge fold line 24, while rear panel 26 has an upper edge fold line 28, which is an edge common to top panel 30. Fold lines 12 and 14 are each extended to the outer marginal edge of blank 12. Between them are created four right angle triangles 32, 34, 36, and 38. Triangles 32 and 34 have a common fold line 33, and together form a pleat. Triangles 36 and 38 form a pleat with the common fold line 37, while the two pleats thus formed are joined by fold line 35.

Upper box edge line 20 is extended to line 33, and likewise line 28 extends to line 37, the ends of lines 20 and 28 being joined by fold line 40.

Side panel 18 is continued into a pleat composed of panels 42 and 44 connected by fold line 46. The corner between side panel 18 and front panel 22 also constitutes a pleat of panels 48 and 50 having fold line 52. Marginal fold lines 54 and 56 extending parallel to the outer edge of blank 2, complete the blank.

To fold the box, the front, back, and side panels are bent upwardly as shown in Figure 2. One pleat composed of panels 36 and 38 is laid against panels 26 and 30, and in turn is overlaid by the similar panel from the other side of the box. Then the pleat 32, 34 is laid against the previously folded pleats and covered by the similar pleat from the other side. Fold line 40 thus becomes substantially coincident with line 28 so that panel 30, with the overlying pleats, can be folded down as the box lid. In the meanwhile, pleat 42, 44 folds inwardly beneath panel 30, and pleat 48, 50 folds against panel 22 to complete the front of the box.

Finally, the various marginal edges have all become coincident with upper front edge 24 of panel 22, thus forming a lip which can be bent, downwardly, and refolded on line 56 to seal the box.

In this construction the apexes of panels 32, 34, 36, and 38 lie on a common point, and the bases of the triangles cannot be greater than the width of panel 30. Thus it is possible to vary greatly the proportions of the box.

In the modified corner construction of Figure 3, line 40 extends only between lines 35 and 37.

The point of intersection of lines 35 and 40 is

joined to line 33 by an outwardly directed fold line 60, and this point on line 33 joined to line 20 by line 62. When folded pleat 36, 38 is laid against panel 30, and fold line 35 defines the inside vertical edge at the box corner. Pleat 32, 34 folds against panel 42, and when pleat 42, 44 is of the box, line 60 is brought into coincidence with lines 40 and 28, and line 62 becomes coincident with line 20.

An example of the variation in the form of the box is illustrated in Figures 5 to 9. Instead of having a base of approximately square size as in Figure 1, the principal of the invention is applied to the making of a narrow elongated base such as is found in an ordinary package for cigarettes. Blank 72 has the projection 74 as in Figure 1 and the truncated corners 76. The bottom panel 78, rear panel 80, and the associated corner panels adjacent truncated corners 76 are the same as described for Figures 1 and 2. However, the principle of construction disclosed in Figures 3 and 4 is used in the extensions of the side and front panels. Front panel 82 is joined to bottom panel 78 by fold line 84, said fold line extending to the margin of the blank. The side fold lines 86 of bottom panel 78 likewise extend to the margin of the blank 72.

The corner between lines 84 and 86 is subdivided into four right angle triangles having a common apex. These triangles are intersected by a fold line 98 which becomes the upper edge of the completed box, and fold line 100 which defines a marginal portion 101 of the blank to form a closing lip. At the outer end of side panel 102, a pleat 104, 106 formed by a fold line running diagonally between lines 98 and 100. Pleat 108, 114 is formed by line 110 in panel 90 and line 112 in panel 92. Line 112 extends to the outer margin of the blank and terminates in a corner of the blank. The outer margin of the blank is cut at an angle so as to establish panels 92 and 94 as right angle triangles.

To fold the box, panel 80 and the adjacent corners are assembled as described for Figure 2. Pleat 94, 96 is folded against front panel 82. Pleat 90, 92 is folded against side panel 102. This brings fold lines 103, 110, and 112 into coincidence as a common fold line. Then overlapping pleats 104, 106 and 108, 114 are folded inwardly along the coincident fold lines to place panel 114 against the pleats assembled on panel 80, while panel 115 falls across the open end of the box,

and in turn is covered by panels 104, 106, and 110 when the lid of the box is closed. Note Figures 8 and 9.

The box has all the advantages of the box described in the aforesaid application, Ser. No. 162,844, and in addition thereto can be made in various proportions by the expedient in forming the corners of the blank into a plurality of right angle triangles having a common apex, and each triangle having its base on or parallel to the marginal edge of the blank, the length of the base being not greater than the width of the panel against which the triangular panel is to be folded.

Having now described the means by which the objects of the invention are obtained, I claim:

1. A box composed of a single piece of blank material and including a front panel, three side panels, a bottom and a cover comprising a marginal edge portion extending from said front panel, a bottom panel, side panels foldably joined to said bottom panel, a single cover panel joined to a side panel and extended side panels of similar extent joined to the respective adjacent side panels, at least four right angle triangular panels having a common apex and interconnecting said cover panel and its side panel with said adjacent side and extended panels, marginal edge portions extended from said cover panel and from said extended side panels, said extended and triangular panels in at least their portions remote from said apex all folded and lying in overlapping order against said cover panel, and the marginal edge portions overlapping and projecting beyond a side edge of said box, whereby the closure seal is effected at an edge of said box.

2. A box as in claim 1, the base of each of said triangular panels having a length not greater than the width of said cover panel.

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