June 25, 1929. J. ORTIZ 1,718,872

COLLAPSIBLE BOX

Filed July 19, 1927

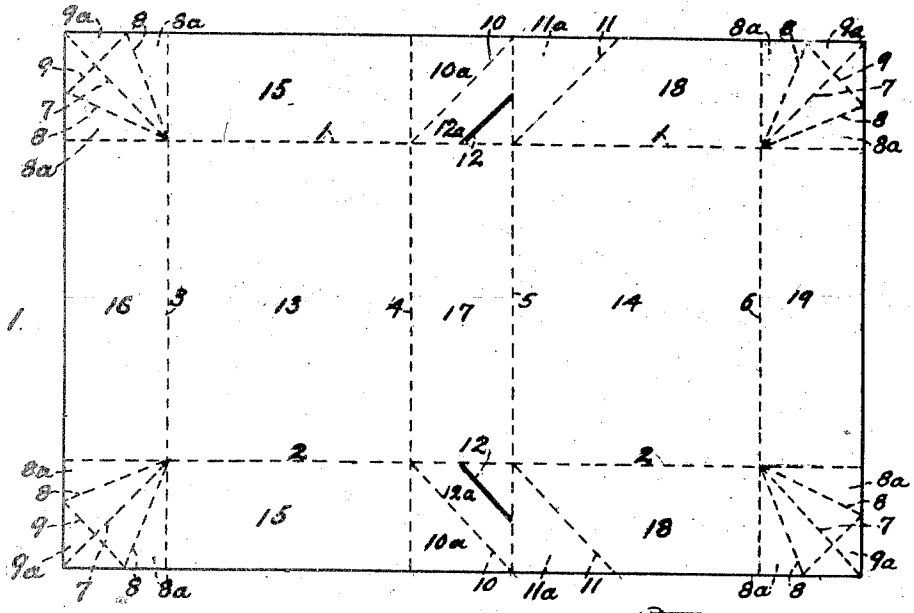


Fig. 1.

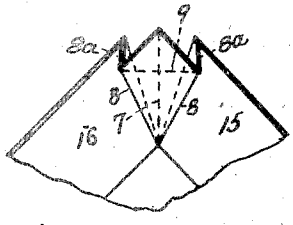


Fig. 4

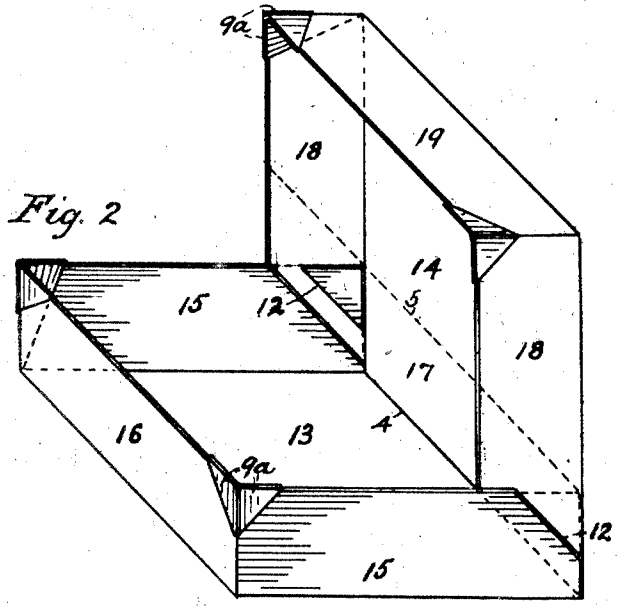


Fig. 2

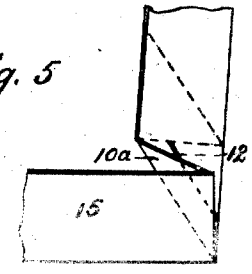


Fig. 5

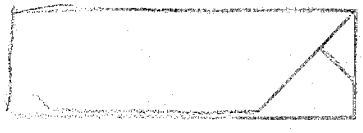


Fig. 3

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UNITED STATES PATENT OFFICE.

JOSEPH ORTIZ, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-TENTH TO WILLIAM BODGE, OF NUTLEY, NEW JERSEY.

COLLAPSIBLE BOX.

Application filed July 19, 1927. Serial No. 206,947.

The invention relates to collapsible boxes or containers of the type in which the body and cover portions are made from a single sheet of paper-board, cut to size and folded along a series of score lines to form the completed box.

Boxes of this general character are ordinarily formed from irregularly shaped blanks, having numerous flaps requiring the use of special dies, and necessitating considerable waste of material. Blanks thus formed with a number of marginal incisions are much reduced in strength and therefore require relatively heavy stock in construction.

Among the objects of the present invention is the provision of a box of simple construction in which the blank is made without waste from a single sheet of material and in which no incisions extend through the marginal edges thereof.

A further object is to provide corner joints for the box, in which the blank is folded to form overlapping sections or gussets locked together to secure greater strength at these points for maintaining the shape of the container.

The objects also include the provision of a hinge joint of sufficient rigidity to normally hold the cover of the box in an upright open position in order that the contents may be displayed together with description matter that may have been printed upon the inner surface of the cover.

For further comprehension of the invention, and of the objects and advantages thereof, reference is had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Figure 1 of the drawing is a plan view of the blank, showing the several score lines along which the folds are made for shaping the box.

Figure 2 is a perspective view of the bottom and cover members in folded condition, the latter member being shown opened in upright or display position.

Figure 3 is a view showing the side elevation of a completely closed box.

Figure 4 is a fragmentary perspective interior view illustrating the assembling or folding of the four corners of the blank.

Figure 5 is a fragmentary perspective exterior view illustrating the assembling of the hinge corners of the blank.

As shown in Figure 1 of the drawing, the blank from which the box is formed consists of an elongated, rectangular, sheet of material having a pair of longitudinal score lines 1 and 2 extending the full length thereof, and extending transversely the full width of the blank are a series of score lines 3, 4, 5 and 6 which form with the longitudinal ones right-angle score lines. Extending from the four corners of the blank to the adjacent point of intersection between the longitudinal and transverse score lines are a series of diagonal score lines 7, and on opposite sides of the latter are formed oblique score lines 8 which extend from said point of intersection to the marginal edges of the blank and bisect the angles formed by the diagonal lines 7 and the right-angle score lines. The corners of the blank are also provided with score lines 9 which extend at right angles across said diagonal lines to meet the marginal ends of the oblique lines and form triangular locking sections 9^a. Intermediate its ends, the blank is provided on opposite side edges with two pairs of diagonal score lines 10 and 11, disposed in relation with the transverse lines 4 and 5 to form the gusset sections 10^a, 11^a, and 12^a, in one of which is formed the locking slits 12.

With the blank thus provided with score lines, the bottom and cover members are respectively indicated by 13 and 14, the former bounded by the lines 1, 2, 3, 4 and the latter by the lines 1, 2, 5, 6. The bottom member 13 is provided with side wall sections 15 and front and rear end wall sections 16 and 17, and the cover member 14 with side wall sections 18 and a front end wall section 19. In the formation of the box the blank is folded upwardly at right angles along the longitudinal score lines 1 and 2 to form the side walls, and then upwardly at right angles along the transverse score line 4. In this latter fold the blank bends along the diagonal lines 10 and forms the gusset sections 10^a which overlap and fold against the inner faces of the side walls 15, as indicated in Fig. 5, the folded end of the side walls being then inserted in the locking slits 12 to form a three-ply fold, as shown assembled in display position in Fig. 2.

In the construction of the four corners of the side and front end wall sections of the

bottom and cover members, the blank is folded upwardly at right angles along the lines 3 and 6, and during this latter fold the blank is bent along the oblique lines 8 and the sections 8^a fold inwardly against their adjacent side and end walls, as indicated in Fig. 4. The ends of the latter folded corners are then brought together and the projecting sections 9^a are folded along the line 9 outwardly over said corners, the folded sections being then bent along the diagonal lines 7 to form right-angle corners held in place by the locking sections 9^a, as indicated in Figs. 2 and 3.

On closing the box form the position shown in Fig. 2, the cover section 14 bends along the score or hinge line 5 and the diagonal lines 11, the latter folds serving to form the sections 11^a which fold over and close against the outer surface of the side walls 15, thus forming two-ply overlaps for the side-walls 15 tending to stiffen the box at these points. During the closing movement of the cover, the front wall 19 thereof closes over the front wall 16 of the bottom member 13, the reinforced corner sections of the former overlying those of the latter to greatly increase the stiffness of the box by means of the three-ply interior overlap provided for the several corners and the exterior overlapping locking sections thereof.

From the above description it will be obvious that the box may be made without waste of material and that its stiffness will be increased by the undivided or uncut condition of the marginal edges of the blank and of the several sections from which the box is made.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A collapsible box comprising a sheet of material in the form of a rectangular quadrilateral free from marginal incisions, and folded to form hingedly connected bottom and cover members provided with enclosing walls, the said walls having corner members composed of a plurality of integral overlapping sections, and locking means for said corner sections formed from an undivided part thereof.

2. A collapsible box comprising a sheet of material in the form of a rectangular quadrilateral free from marginal incisions, and folded to form hingedly connected bottom and cover members provided with integral side and end walls, corner members formed integral with the side and front-end walls of said bottom and cover members, the said corners of the latter member being adapted to close over those of the former when the cover is closed.

3. A collapsible box comprising a sheet of material in the form of a rectangular quadrilateral free from marginal incisions, and folded to form hingedly connected bottom and cover members provided with enclosing walls and gusset sections integrally formed with the walls of said members and disposed to normally retain said cover member in an open upright position with respect to said bottom member.

4. A collapsible box comprising a sheet of material in the form of a rectangular quadrilateral free from marginal incisions, and folded to form hingedly connected bottom and cover members provided with enclosing walls, gusset sections integrally formed with said walls and inwardly folded together to form multifold ends for the side walls of said bottom member, and locking slits formed in said gusset sections for the reception of said ends.

5. A collapsible box comprising a sheet of material in the form of a rectangular quadrilateral free from marginal incisions, and folded to form hingedly connected bottom and cover members provided with enclosing side walls, a pair of gusset sections integrally formed with said side walls, one of said gusset sections being folded to overlap the inner surface of the bottom side wall when the cover is in display position, and the other of said gusset sections being folded to overlie the outer surface of the bottom side wall when the cover is closed.

6. A box-blank comprising a single piece of material in the form of a rectangular quadrilateral free from marginal incisions, and provided with a series of score lines forming integral sections, and along which score lines the blank may be folded to form the bottom and cover members of a box having enclosing side and end walls.

Signed at New York, in the county of New York and State of New York, this 12th day of July A. D. 1927.

JOSEPH ORTIZ.