April 21, 1936. N. ROSENTHAL 2,038,317

FOLDING BOX

Filed Nov. 27, 1935

Fig. 1.

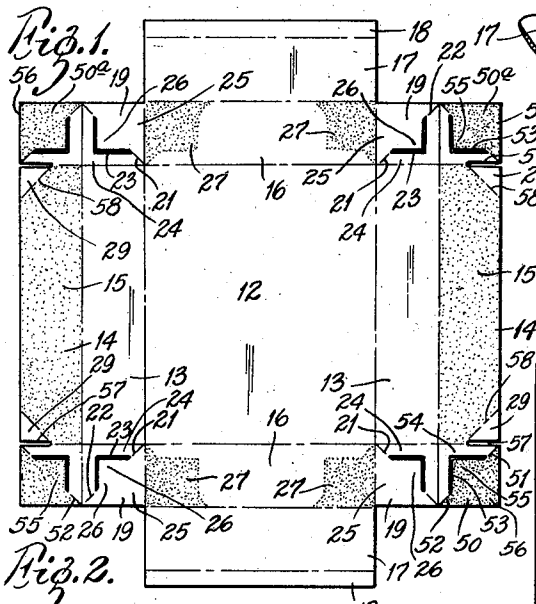


Fig. 2.

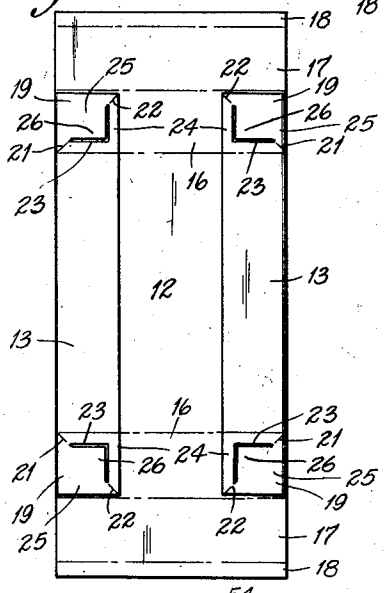


Fig. 3.

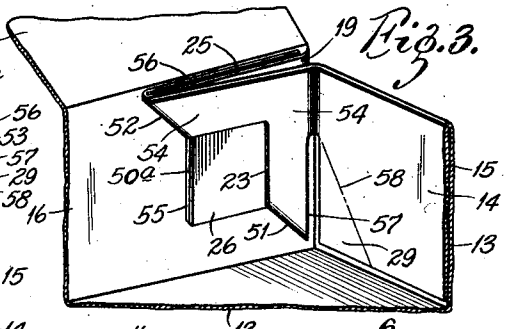


Fig. 4.

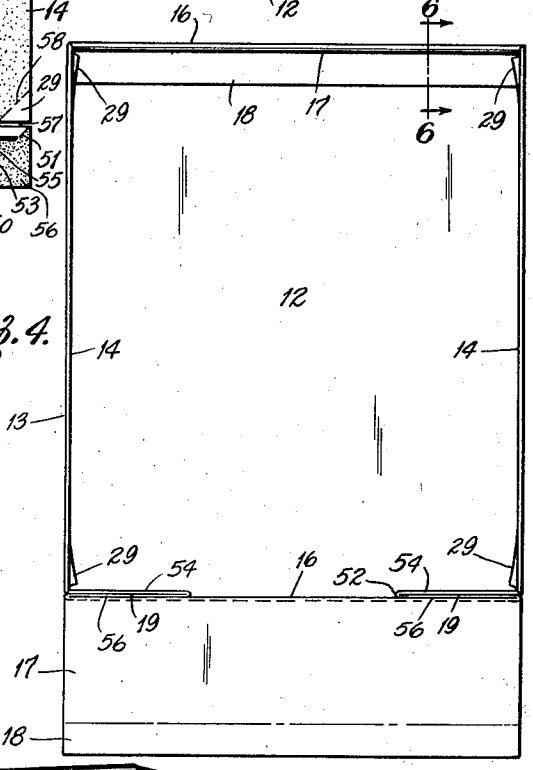


Fig. 5.

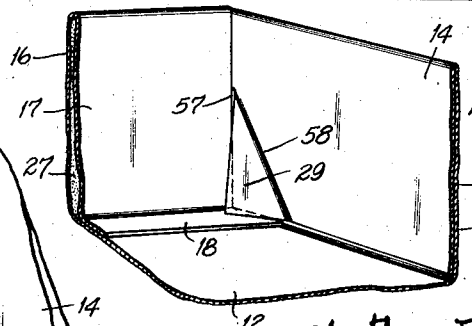
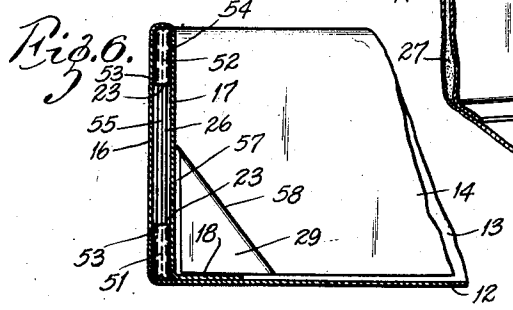


Fig. 6.



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HIS ATTORNEYS.

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2,038,317

UNITED STATES PATENT OFFICE

2,038,317

FOLDING BOX

Nathan Rosenthal, St. Louis County, Mo., assignor to Rosenthal Paper Company, St. Louis, Mo., a corporation of Missouri

Application November 27, 1935, Serial No. 51,794

6 Claims. (Cl. 229—34)

My invention relates to folding boxes of the type shown in my copending application Serial No. 38,726, filed Aug. 31, 1935, wherein the sides and ends are connected by corner portions that are creased diagonally to form a bellows fold; and it has for its principal object to strengthen and otherwise improve the corner construction of such a box.

The invention consists in the box and in the parts and combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawing,

Fig. 1 is a plan view of a blank suitable for the manufacture of my box, the creasing or scoring thereof being shown by dotted lines and the portions that are glued or pasted together being shown by stippling,

Fig. 2 is a plan view of a box in its knock-down or initially folded condition,

Fig. 3 is an isometric projection of the corner portion of the box after the main side and end flaps have been erected but prior to the swinging-down operation,

Fig. 4 is a plan view of the box, showing one end thereof set up and showing the other end at the stage of the setting-up operation represented by Fig. 3,

Fig. 5 is an isometric projection of the corner portion of the box in set-up position; and

Fig. 6 is a vertical sectional detail on the line 6—6 of Fig. 4.

As shown in Fig. 1, the blank comprises a single piece of pasteboard or other suitable material which is creased or scored along four parallel longitudinal lines and along six transverse lines that cross or meet the longitudinal lines at right-angles and divide them into rectangles.

The middle portion thus defined constitutes the bottom 12 of the box. The panels next to the long bottom portion 12 of the box constitute main side flaps 13 and the outer panels contiguous with said main side flaps 13 constitute the inner side flaps 14. These inner side flaps 14 are folded back along their crease lines and secured flatwise by glue or other adhesive, indicated at 15, to the main side walls 13 of the box, triangular tabs 29 being left free at the lower end corner portions of the inner side flaps. These tabs 29 constitute locking members, as hereinafter described. The panels contiguous with the ends of the bottom portion constitute the main end flaps 16 of the box and the panels contiguous with the edges of said main end flaps constitute the main locking flaps 17. The panels contiguous with the long outer edges of the main locking flaps 17 constitute the bottom locking flaps 18.

The main side flaps 13 are extended beyond the bottom 12 of the box and the main end flaps 16 are extended beyond the sides of the box, thereby forming main corner members 19 that are integral with the main side flaps 13 and end flaps 16 of the box. Each of these main corner members 19 has a crease or score 21 that extends diagonally outward from a corner of the bottom of the box and a second diagonal crease or score 22 extending inwardly from its edge in alinement with said last mentioned crease 21. The adjacent edges of the alined creases 21, 22 of each corner member 19 are connected by an angular or offset slit 23 which is cut in that triangular leaf or fold 24 which is next to the main side flap 13 of the box. The other triangular leaf 25 together with the tongue or extension 26 formed thereon by said slit 23 is secured flatwise to the main end flap 16 of the box, as by glue or other adhesive indicated at 27.

The main corner members 19 are extended beyond their sides and the inner side flaps 14 are extended beyond their ends to form inner corner members 50 corresponding in size to the above mentioned main corner members 19. Each inner corner member has a diagonally extending crease or score 51 extending from the corner adjacent to the marginal edge of the inner side flap 14 and a second diagonal crease 52 in alinement therewith and converging at its end with the second diagonal crease 22 of the main corner member 19. The adjacent ends of the alined creases 51, 52 of each inner corner member are connected by an angular slit 53 which is cut in that triangular leaf or fold 54 which is adjacent to the inner side flap and the main corner member, thus forming a tongue or extension 55 in the other leaf 56. Extending from the marginal edge of each inner side flap 14 along the crease line separating the inner side flap and the inner corner member is a slot 57 which functions, as hereinafter described, as a part of the locking mechanism.

In setting up the box, the inner side flaps 14 and the inner corner members 50 are folded over against the main side flaps 13 and the main corner members 19, the inner side flaps being secured to the main side flaps, as by glue or other adhesive indicated at 15, the inner corner members 50 being secured to the main corner members 19, as by glue or other adhesive 50a and the inner corner members 50 being secured to the end flaps 16, as by glue or other adhesive in-

dicated at 27. As indicated, triangular tabs or flaps 29 are left free at the bottom of each end of each inner side flap, these free portions being adjacent to the locking slots 57. Preferably, these free portions 29 are defined by creases 58.

When the sides 13 and ends 16 of the box are raised and the main 19 and inner corner members 50 folded along the diagonal crease lines, the main locking flaps 17 are turned down into the box against the folded corner members 19, 50. Preferably, said main locking flaps 17 are as long as the width of the bottom of the box or slightly longer, so as to have their ends extend into the slots 57 and engage frictionally with the main side flaps 13. Likewise, the main locking flaps 17 are of proper width crosswise to insure engagement of the bottom locking flaps 18 beneath the edges of the inner side flaps 14. Said free corner portions 29 of the inner side flaps 14 may be bent away from the main side flaps 13 along the creases 58 so as to fit over the bottom locking flaps.

The above described construction retains the important advantages of the construction of my copending application, reducing the force required to operate the bellows fold, increasing the area available for gluing the bellows fold to the end flap of the box and minimizing the difficulties experienced when the creases extend contiguously across the corner member, as in the prior art. In addition, the present construction greatly strengthens the corner of the box by providing double corner members and it somewhat simplifies the locking mechanism and the operation of setting up the box. Obviously, the invention may be embodied in box lids as well as in box bodies and the word "box" should be understood as meaning either lid or body. Likewise, numerous changes may be made in the proportions of the various parts without departing from the invention and I do not wish to be limited to the precise construction shown.

What I claim is:

1. A folding box comprising main side flaps, end flaps, main corner portions integrally connected with said main side and end flaps, each main corner portion having diagonally disposed creases spaced apart in alinement and an angular slit connecting said creases whereby said main corner portion is divided into two leaves with a tongue on one of them, said slit being in the leaf next to the side flap and the tongue being integral with the leaf next to the end flap, inner side flaps integral with said main side flaps and inner corner members integral with said main corner members and said inner side flaps, said inner corner members having alined creases and a connecting slot that aline with the creases and the slot of the main corner member when said inner side flap and said inner corner members are folded over on the main side flaps and main corner members.

2. A folding box comprising main side flaps, end flaps, main corner portions integrally connected with said main side and end flaps, each main corner portion having diagonally disposed creases spaced apart in alinement and an angular slit connecting said creases whereby said main corner portion is divided into two leaves with a tongue on one of them, said slit being in the leaf next to the side flap and the tongue being integral with the leaf next to the end flap, inner side flaps integral with said main side flaps and inner corner members integral with said main corner members and said inner side flaps, said inner corner members having alined creases and a connecting slot that aline with the creases and the slot of the main corner member when said inner side flap and said inner corner members are folded over on the main side flaps and main corner members, said inner side flaps being adhesively secured to said main side flaps and said inner corner members being adhesively secured to said end flaps.

3. A folding box comprising main side flaps, end flaps, main corner portions integrally connected with said main side and end flaps, each main corner portion having diagonally disposed creases spaced apart in alinement and an angular slit connecting said creases whereby said main corner portion is divided into two leaves with a tongue on one of them, said slit being in the leaf next to the side flap and the tongue being integral with the leaf next to the end flap, inner side flaps integral with said main side flaps, inner corner members integral with said main corner members and said inner side flaps, each inner corner member having alined creases and a connecting slot that aline with the creases and the slot of the main corner member when said inner side flap and said inner corner members are folded over on the main side flap and main corner members, and main locking flaps integral with said end flaps, a marginal slot being provided along the meeting edges of the inner corner members and inner side flaps extending upwardly from the bottom of the box, said slot accommodating the edge of said main locking flap.

4. A folding box comprising main side flaps, end flaps, main corner portions integrally connected with said main side and end flaps, each main corner portion having diagonally disposed creases spaced apart in alinement and an angular slit connecting said creases whereby said main corner portion is divided into two leaves with a tongue on one of them, said slit being in the leaf next to the side flap and the tongue being integral with the leaf next to the end flap, inner side flaps integral with said main side flaps, inner corner members integral with said main corner members and said inner side flaps, each inner corner member having alined creases and a connecting slot that aline with the creases and the slot of the main corner member when said inner side flap and said inner corner members are folded over on the main side flaps and main corner members, said inner side flaps being adhesively secured to said main side flaps and said inner corner members being adhesively secured to said end flaps, main locking flaps integral with said end flaps, a marginal slot being provided along the meeting edges of the inner corner members and inner side flaps extending upwardly from the bottom of the box, said slot accommodating the edge of said main locking flap, and bottom locking flaps integral with said main locking flaps.

5. A folding box comprising main side flaps, end flaps, main corner portions integrally connected with said main side and end flaps, each main corner portion having diagonally disposed creases spaced apart in alinement and an angular slit connecting said creases whereby said main corner portion is divided into two leaves with a tongue on one of them, said slit being in the leaf next to the side flap and the tongue being integral with the leaf next to the end flap, inner side flaps integral with said main side flaps, inner corner members integral with said main corner members and said inner side flaps, said inner corner members having alined creases and a connecting slot that aline with the creases and the slot of the main corner member when said inner side flap and said inner corner members are folded over on

the main side flaps and main corner members, said inner side flaps being adhesively secured to said main side flaps with their lower end corner portions free, main locking flaps integral with said end flaps, a marginal slot being provided along the meeting edges of the inner corner members and inner side flaps extending upwardly from the bottom of the box, said slot accommodating the edge of said main locking flap, and bottom locking flaps integral with said main locking flaps and interlocked with said corner portions of said inner side flaps.

6. A folding box comprising main side flaps, end flaps, main corner portions integrally connected with said main side and end flaps, each main corner portion having diagonally disposed creases spaced apart in alinement and an angular slit connecting said creases whereby said main corner portion is divided into two leaves with a tongue on one of them, said slit being in the leaf next to the side flap and the tongue being integral with the leaf next to the end flap, inner side flaps integral with said main side flaps, inner corner members integral with said main corner members and said inner side flaps, said inner corner members having alined creases and a connecting slot that aline with the creases and the slot of the main corner member when said inner side flap and said inner corner members are folded over on the main side flaps and main corner members, said inner side flaps being adhesively secured to said main side flaps and said inner corner members being adhesively secured to said main corner members and the opposite side of said inner corner members being secured adhesively to said end flaps, and main locking flaps integral with said end flaps, a marginal slot being provided along the meeting edges of the inner corner members and inner side flaps extending upwardly from the bottom of the box, said slot accommodating the edge of said main locking flap.

NATHAN ROSENTHAL.