

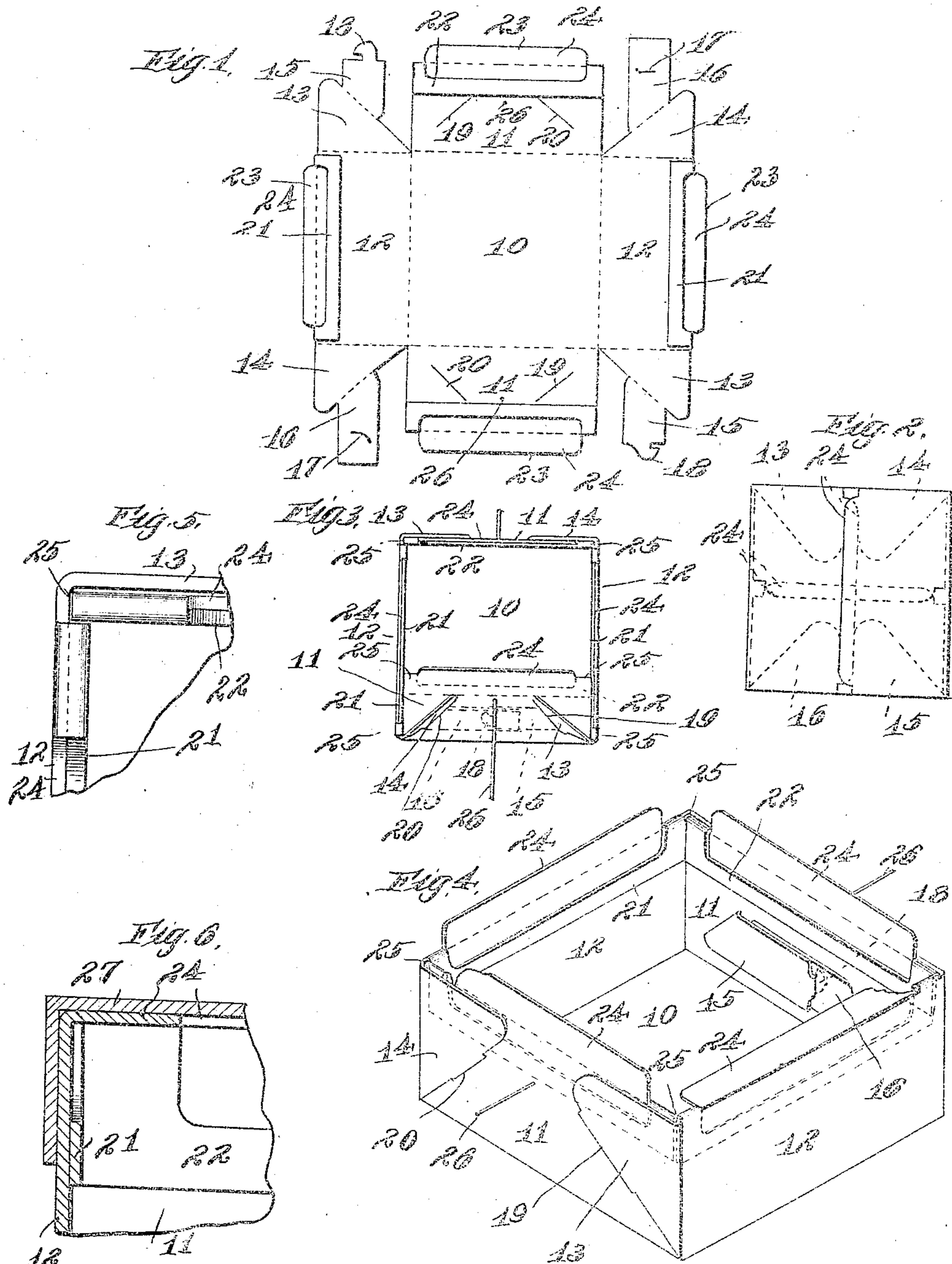
F. J. DENNIS.

FOLDING BOX.

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907,753.

Patented Dec. 29, 1908.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK J. DENNIS, OF CHICAGO, ILLINOIS.

FOLDING BOX.

No. 907,753.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK J. DENNIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Boxes, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in folding or knock-down boxes and the invention consists in the arrangements and combinations of parts hereinafter described and then pointed out in the appended claims.

In the accompanying drawing in which like reference numerals indicate similar parts in the several figures, Figure 1 is a plan view of the form of the blank used in constructing a box embodying my invention; Fig. 2 is a plan view of the completed box without the cover showing it in its folded or collapsed position with certain parts indicated in dotted lines; Fig. 3 is a plan view of the box without its cover showing the box in its partially erected form; Fig. 4 is a perspective view illustrating the box in its erected form, with parts broken away; Fig. 5 is a detail view showing the manner in which the sides and ends of the box interlock; and Fig. 6 is a detail sectional view with the cover in position.

In the present embodiment of my invention the box is substantially rectangular, though it is to be understood that the form thereof may be changed without departing from the scope of my invention, and is adapted to be constructed from a single blank of paper or other suitable flexible material. The blank illustrated in Fig. 1 comprises a bottom 10 and sides and ends 11 and 12, respectively, the ends having ears 13 and 14 whose ends are substantially diagonal or cut-back and are provided with flaps 15 and 16, the latter having slits 17 and the former hooked tongues 18. The sides are provided with diagonal slits 19 and 20, the slits of each side extending from the bottom at an inclination toward the central line of the side, and the corresponding slits on opposite sides being substantially parallel and lying in the same plane when the box is erected. Each end is provided with a strip 21 on its inner face, of slightly less length than the end, and secured to the end, the attachment of the strip to the end preferably being at or near the center of the strip so

that its ends are free to stand away from the inner face of the end. Each side is preferably provided with a strip 22 on its inner face and of substantially the same length as the side. The strips 21 and 22 are preferably formed by providing the sides and ends with extensions which may be turned inwardly upon the inner faces of the sides and ends, and in practice I prefer to cut or slit these extensions, as on the lines 23, to form wings 24.

The blank is divided by suitable scores into the bottom, sides, and ends, and along the lower edges of the wings 24 and the inner ends of the ears 13 and 14, as indicated by dotted lines, in order to expedite the folding and unfolding of the parts. In initially erecting the blank into box-like form, the sides and ends are brought to vertical position with the ears 13 and 14 outside of the sides 11, and the flaps 15 and 16 are passed inwardly through their slits 19 and 20 respectively and interlocked on the inside of the box by their slits 17 and hooks 18, all as shown in Fig. 4. The length of the strips 21 being slightly less than that of the ends 12, the ends of the strips form recesses or pockets 25 in which the upper portions of the ends of the sides rest, so that the sides are held from folding or collapsing inwardly; the depth of the pockets will vary more or less according to the width of the strips 21, and as the ends of these strips preferably are free from the ends 12 they may incline more or less away from the ends in order to increase the width of the pockets and the hooking effect on the sides.

The box having been erected as clearly illustrated in Fig. 4, in order to change it to its collapsed form as shown in Fig. 2, as for shipping or storage purposes, the sides 11 are withdrawn from the recesses 25 and depressed inwardly, the locking-flaps 15 and 16 bending at their line of union with the ears 13 and 15 which are drawn down by the sides to which they are secured by the flaps and folded under the ends along their scores at their line of union with the ends 12, and the ends are drawn down by the ears and rest upon them when they are folded down. The wings 24 of the box in its collapsed condition are straightened out and lie flat as shown in dotted lines in Fig. 2 which also shows in dotted lines the relative positions of the ears 13 and 14.

In order to restore the box to its open or

erected form for use the sides are pulled upwardly, as by strings 26 secured thereto in any suitable manner until they are vertical, the sides bearing against the ends and ears to raise the former to vertical position also, the ends of the sides slipping readily and automatically into the recesses 25.

Because of the flexibleness of the paper or other material of which the box may be constructed the parts readily assume their erected or collapsed positions, and the interlocking-flaps 15 and 16 by reason of their width and the manner in which they are locked together reinforce the sides giving them greater rigidity. The ends of the sides snap into the pockets 25 so that the sides are automatically locked in vertical position by the mere operation of drawing them up and are held from falling inwardly while the box is in use; the middle portion of the strips 21 being secured to the ends 12 presents a substantially flush surface and does not interfere with the unfolding of the sides, while the ends of those strips being free from the ends 12 may spring out more or less behind or inside of the sides to more securely lock the parts in place. The sides thus automatically interlock with the ends, and these parts are held from collapsing. The strips 21 and 22 serve to add rigidity to the sides and ends, and the wings 24 being bent to horizontal position when the cover 27 is applied act as braces for the same purpose. The string 26 will of course be tied over the cover thus drawing the sides apart and aiding in keeping the box in erected form.

While I have used the terms "sides" and "ends" as referring to the parts of an ordinary box, it is of course understood that these parts may be of the same or different sizes according as the box is square or rectangular, and the term "ends" is merely conventional and would of course designate any of the walls of a box; the pockets may of course be made in either the side or end walls.

I claim—

1. A folding box made from a single blank providing a bottom, side and end walls adapted to be folded down upon the bottom, the end walls having pockets into which the side walls automatically enter when the walls are raised to erected position.

2. A folding box made from a single blank providing a bottom, side and end walls adapted to be folded down upon the bottom, strips on the inner faces of the end walls and providing pockets into which the side walls automatically enter when the walls are raised to erect position.

3. A folding box made from a single blank providing a bottom, side and end walls adapted to be folded down upon the bottom,

strips secured to the ends intermediate their lengths and disconnected at their ends to form pockets into which the sides automatically enter when the walls are raised to erect position.

4. A folding box made from a single blank providing a bottom, side and end walls adapted to be folded down upon the bottom, strips on the inner faces of the ends forming pockets, ears on the ends adapted to lie against the outer faces of the sides which are provided with slits, and interlocking-flaps carried by the ears and passing through the slits, the sides automatically entering the pockets as the walls of the box are raised to erect position.

5. A folding box comprising a bottom, side and end-walls adapted to be folded down upon the bottom, ears on one pair of walls connected to the other pair of walls intermediate their ends, and strips on said first pair of walls forming end-pockets for the other pair which automatically enter the pockets as the walls are raised to erect position.

6. In a folding box, a bottom, side and end walls integral with the bottom and adapted to be folded down upon the bottom, ears connecting the side and end walls and being disconnected from the side walls adjacent the end walls, and strips secured at their centers on the end walls and forming end-pockets for the side walls which automatically enter the pockets as the walls are raised to erect position.

7. In a folding box, a bottom, side and end walls flexibly secured to the bottom and adapted to be folded down upon the bottom, ears flexibly secured to the end walls and connecting the side walls at points intermediate the length thereof, and flexible strips secured at their centers on the end walls and forming end-pockets into which the side walls are adapted to automatically enter as the walls are raised to erect position.

8. In a folding box comprising a bottom, side and end walls integral with the bottom and adapted to be folded down upon the bottom, ears connecting the side and end walls, strips secured at their centers on the end walls and forming end-pockets for the side walls which automatically enter the pockets when the walls are raised to erect position, a cover, and wings on the side and end walls adapted to brace the same and support the cover.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK J. DENNIS.

Witnesses:

C. G. McROBERTS,
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