

S. B. FIELD.
FOLDING METALLIC BOX.
APPLICATION FILED AUG. 6, 1915.

1,172,445.

Patented Feb. 22, 1916.
2 SHEETS—SHEET 1.

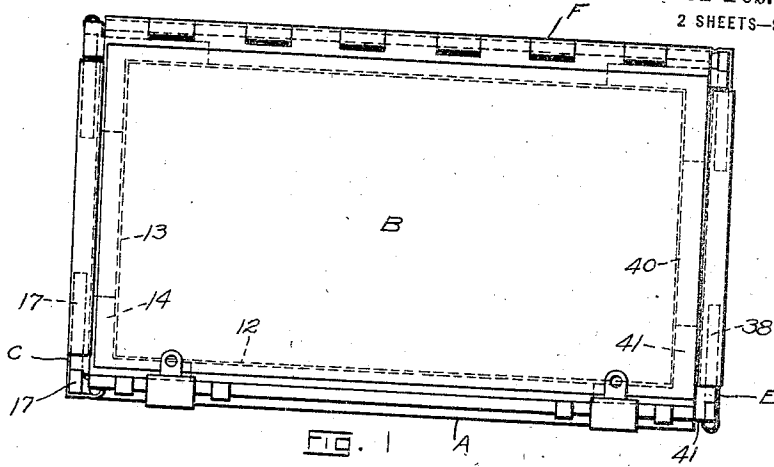


FIG. 1

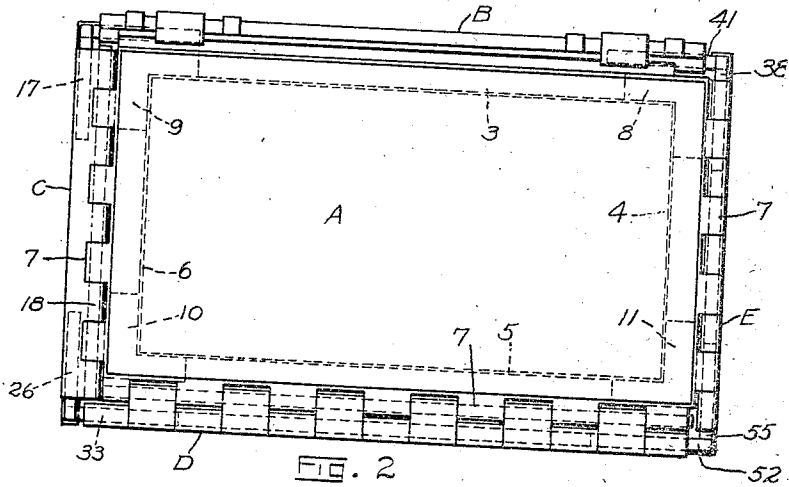


FIG. 2

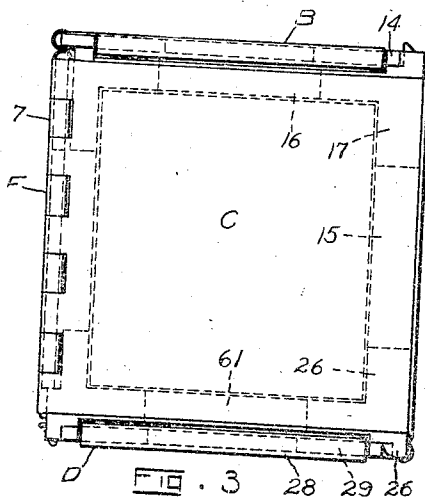


FIG. 3

INVENTOR

Samuel B. Field

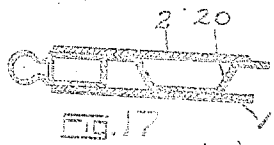
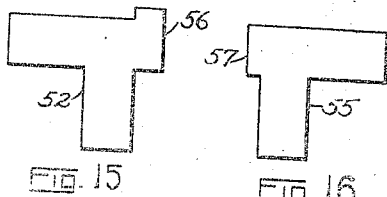
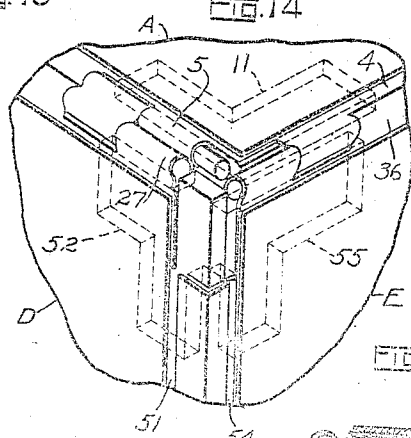
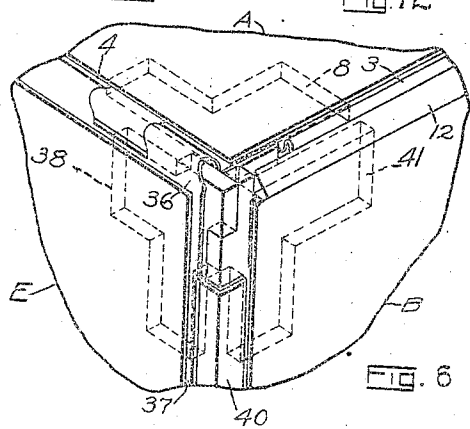
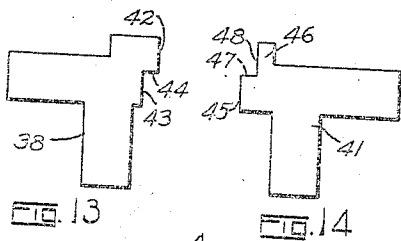
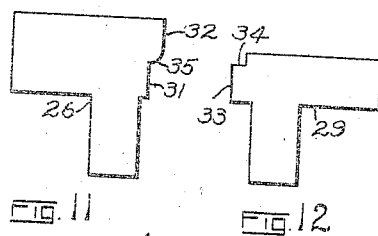
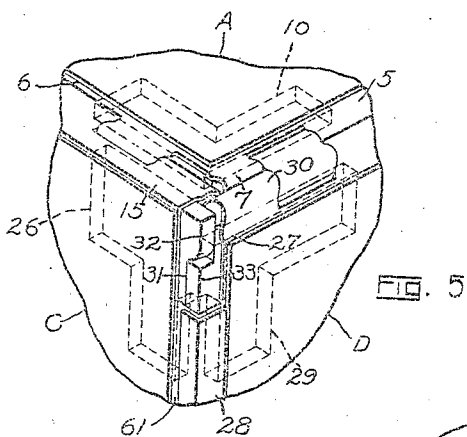
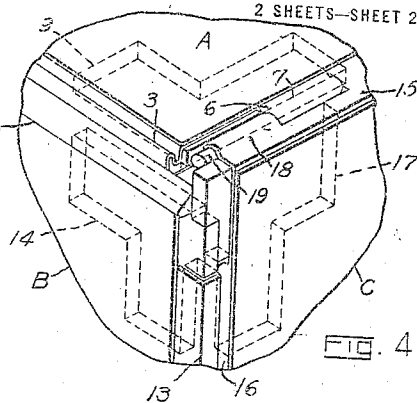
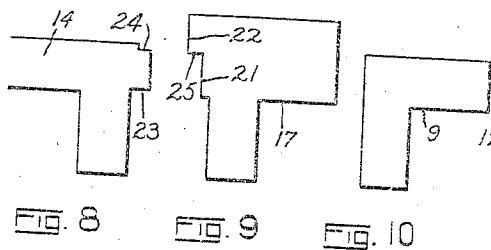
by Macleod, Calver, Copeland & Sibley
Attorneys.

S. B. FIELD.
FOLDING METALLIC BOX.
APPLICATION FILED AUG. 6, 1915.

1,172,445.

Patented Feb. 22, 1916.

2 SHEETS—SHEET 2.



INVENTOR
Samuel B. Field

By Macdonald, Calver, Copeland & White
Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL B. FIELD, OF HOLBROOK, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO PNEUMATIC SCALE CORPORATION, LIMITED, OF QUINCY, MASSACHUSETTS, A CORPORATION OF MAINE, AND THREE-FOURTHS TO WILLIAM H. DOBLE, OF QUINCY, MASSACHUSETTS.

FOLDING METALLIC BOX.

1,172,445.

Specification of Letters Patent.

Patented Feb. 22, 1916.

Application filed August 6, 1915. Serial No. 44,109.

To all whom it may concern:

Be it known that I, SAMUEL B. FIELD, a citizen of the United States, residing at Holbrook, county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Folding Metallic Boxes, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to an improvement in folding metallic boxes to serve as shipping cases in which the goods may be packed for shipping, and which can be folded into small compass to be returned to the shipper to be again used. The invention relates to that class of such folding boxes in which the panels are each formed with an inner and outer wall plate spaced apart from each other and having channel plates, so-called, 20 to close the edge space between the two plates of each panel. In the construction of this type of boxes I have made them with six sides or panels in such manner that the front is hinged to the bottom and to two ends, and 25 the top or cover is hinged to the back, the front having a separable connection with the top, and the back having a separable connection with the bottom.

The hinge members are channel plates 30 having shank portions inserted in between the inner and outer plates of the wall, and having knuckle or barrel portions which project out beyond the edges of the panels. This leaves angular recesses at the corners of 35 the boxes which should be filled out in order to make a finished box, and also to strengthen the corners. Owing to these spaces the panels have sometimes been bent at the corners to such an extent that the box 40 could not be properly set up again.

The object of the present invention is to provide angle plates of such form as to fill out symmetrically the corners of the panels, and to interengage with each other in such 45 manner as to strengthen and stiffen the panels and render them less liable to be bent at the edges, either when the box is set up or knocked down.

50 The invention will be fully understood from the following description, taken in connection with the accompanying drawings, and the novel features thereof will be

clearly shown and pointed out in the claims at the close of this specification.

In the drawings, Figure 1 is a plan view 55 of a box embodying the invention. Fig. 2 is a front elevation of the box shown in Fig. 1. Fig. 3 is an end view of the box shown in Fig. 1. Fig. 4, Fig. 5, Fig. 6 and Fig. 7 are perspective views of the two upper front 60 corners and two lower front corners of the box, but taken when the box is lying with the back side downward, that is, the box is turned over ninety degrees from the normally upright position shown in Fig. 2, so 65 that what is the back panel of the box in Fig. 2 comes on the under side, so that the four perspective views may be all successively taken by looking at each corner successively from an elevation slightly higher and away 70 from the upper side of the box. Fig. 4 shows the corner formed by the front, bottom and that one of the end panels which is the left hand end when the box is in its normally upright position of Fig. 2. Fig. 5 75 shows the corner formed by the front, left hand end and the bottom. Fig. 6 shows the corner formed by the front, top and right hand end. Fig. 7 shows the corner formed by the front, bottom and right hand end. 80 Figs. 8 to 16 inclusive are detail views of the angle plates for the corners of the box on a slightly smaller scale than shown in Figs. 4 to 7. Fig. 17 is a sectional view broken away of a panel showing the inner and outer 85 plates.

Referring now to the drawings, B represents what is termed herein the top panel or cover, A the front panel, C the left hand end panel, E the right hand end panel, D 90 the bottom panel, and F the back panel.

Figs. 1, 2 and 3 show the box standing on its real bottom.

In taking the views Figs. 4, 5, 6 and 7 the box is turned over so that back panel 95 F is on the bottom, but it will be herein always referred to as the back panel, whatever its position in the drawings and the other panels will be referred to by the terms which are applicable when the box is in up- 100 right position, even though the box is in the changed position.

The inner plate of each panel is designated by 1 and the outer plate by 2. The

inner and outer plates of each panel are spaced apart and strengthened in the intermediate area by corrugated plates 20 welded thereto. They do not come quite to the edges, on account of the edge space being left to be filled by the channel plates. The said central or intermediate corrugated plates do not form part of the present invention, but are mentioned above merely to explain how the inner and outer plates are spaced apart and held together.

Each one of the panels is formed with separate channel plates in each of the four edges. The front panel A has channel plates designated respectively 3, 4, 5, 6, projecting beyond the edges of the inner and outer plates. The channel plates 4, 5 and 6 have projecting hinge portions or knuckles 7. At the four corners of the panel A there are L-shaped angle plates designated respectively 8, 9, 10, 11. The two arms of each angle plate are respectively inserted into the channels formed between the legs of two adjacent channel plates.

At the corner of the box shown in Fig. 4 the top panel B has two channel plates 12, 13, in the two adjacent edges and is provided with an angle plate 14 which engages with the channels therein. The end panel C is provided with two channel plates 15, 16 in the two adjacent edges shown in Fig. 4, and is provided with an angle plate 17 which engages with the channels therein. The channel plate 15 has an offset knuckle portion 18 to receive a hinge pin 19 which also passes through a knuckle portion 7 of the channel plate 6 in panel A. At the corner of the box where the ends of the six channel members are nearest together there is left a peculiarly shaped recess which it is the purpose of the angle plates to fill. The angle plate 17 is formed with two arms in L-shaped relation to each other to enter the two channel plates of the panel C. The heel of the angle plate is formed with two projections 21, 22 in the same plane as the angle plate, the projection 22 extending somewhat farther than the projection 21. The angle plate 14 is also of a general L-shape, the heel being formed with an extension 23 whose face bears against the edge of the projecting portion 21 of the angle plate 17, while the edge 24 of said extension engages the edge 25 of the portion 22. The two angle plates thus brace each other as well as partially fill out the angular recess at the corners.

At the corner of the box shown in Fig. 5 the panel A has two channel plates 3, 5, engaged by the angle plate 10. The panel C has the two channel plates 15, 61 engaged by the angle plate 26. The panel D has the two channel plates 27, 28 engaged by the angle plate 29. The channel plate 27 is formed with knuckle projections 30. The

angle plates 26 and 29 are both of a general L-shape. The angle plate 26 is formed with a rearward extension 31 somewhat above the base of the heel and a still further rearward extension 32 at the base of the heel. The angle plate 29 is formed with a rearward extension 33 somewhat above the base. The edge of the projection 31 engages the inner face of the projection 33, and the shoulder 34 of the projection 33 engages the shoulder 35 of the projection 32.

At the corner of the box shown in Fig. 6, the panel A has the two channel plates 3, 4, engaged by the angle plate 8. The panel E has the two channel plates 36, 37 engaged by the angle plate 38. The panel plate B has the two channel plates 12, 40, engaged by the angle plate 41. The angle plates 38 and 41 are each of a general L-shape. The angle plate 38 has a projection 42 at the heel which extends both from the base and from the rear of the heel. A portion 43 of the heel extension above the base does not extend quite so far out as the base portion, thus making a shoulder 44 of a depth about equal to the thickness of the angle plate. The angle plate 41 has a projection 45 at the rear above the base of the heel of the same length as the projection 43 on angle plate 38. It also has a projection 46 from the base of the heel whose longest side is equal to the length of the rear edge of the projection 42 on angle plate 38. When the parts are assembled, the two angle plates being in planes at right angles to each other, the edge of the projection 43 will engage the face of the projection 45 on angle plate 41, the edge 47 of said projection 45 will engage the shoulder 44 of angle plate 38, and the edge 48 of projection 46 will be engaged by the face of the projection 42 on angle plate 38.

At the corner of the box shown in Fig. 7, the panel A has the two channel plates 4, 5, engaged by the angle plate 11. The panel D has the two channel plates 27, 51 engaged by the angle plate 52. The panel E has the two channel plates 36, 54, engaged by the angle plate 55. The angle plate 52 has a heel extension 56 which also extends somewhat below the base of the heel. The angle plate 55 has a heel extension 57 which when the parts are assembled as in Fig. 7 butts against the face of the extension 56 of angle plate 52.

While I have particularly described the angle plates shown in the drawings, as to their several interengaging portions, it is obvious that the said engaging portions may be varied in form, the essential feature being that the adjacent angle plates shall have projections which abut against or interengage with each other. The other four corners of the box will be duplicates of the four corners above described and shown in Figs. 4, 5, 6 and 7.

What I claim is:

1. In a metallic box, a panel composed of inner and outer plates spaced apart from each other, channel members for closing the spaces between the said inner and outer plates on two adjacent edges of the panel, and an angular filling member at the corner of the panel formed by the said two adjacent edges, said filling member having two arms which respectively engage with the adjacent ends of said two channel members.

2. A folding rectangular metallic box having panels each of which is composed of an inner and an outer wall plate spaced apart from each other, channel plates inserted between each pair of inner and outer plates to close the opening between the plates at the edges of the panel, some of said channel

plates having portions which protrude outside beyond the edges of the plates, thereby forming angular recesses between the protruding portions of the channel plates in adjacent panels, and angle plates which fit into the space between the legs of the channel plates near a corner of the box and having projecting, shouldered portions, the projecting portions of one angle plate engaging with portions of an adjacent angle plate.

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

SAMUEL B. FIELD.

Witnesses:

WILLIAM A. COPELAND,
ALICE H. MORRISON.