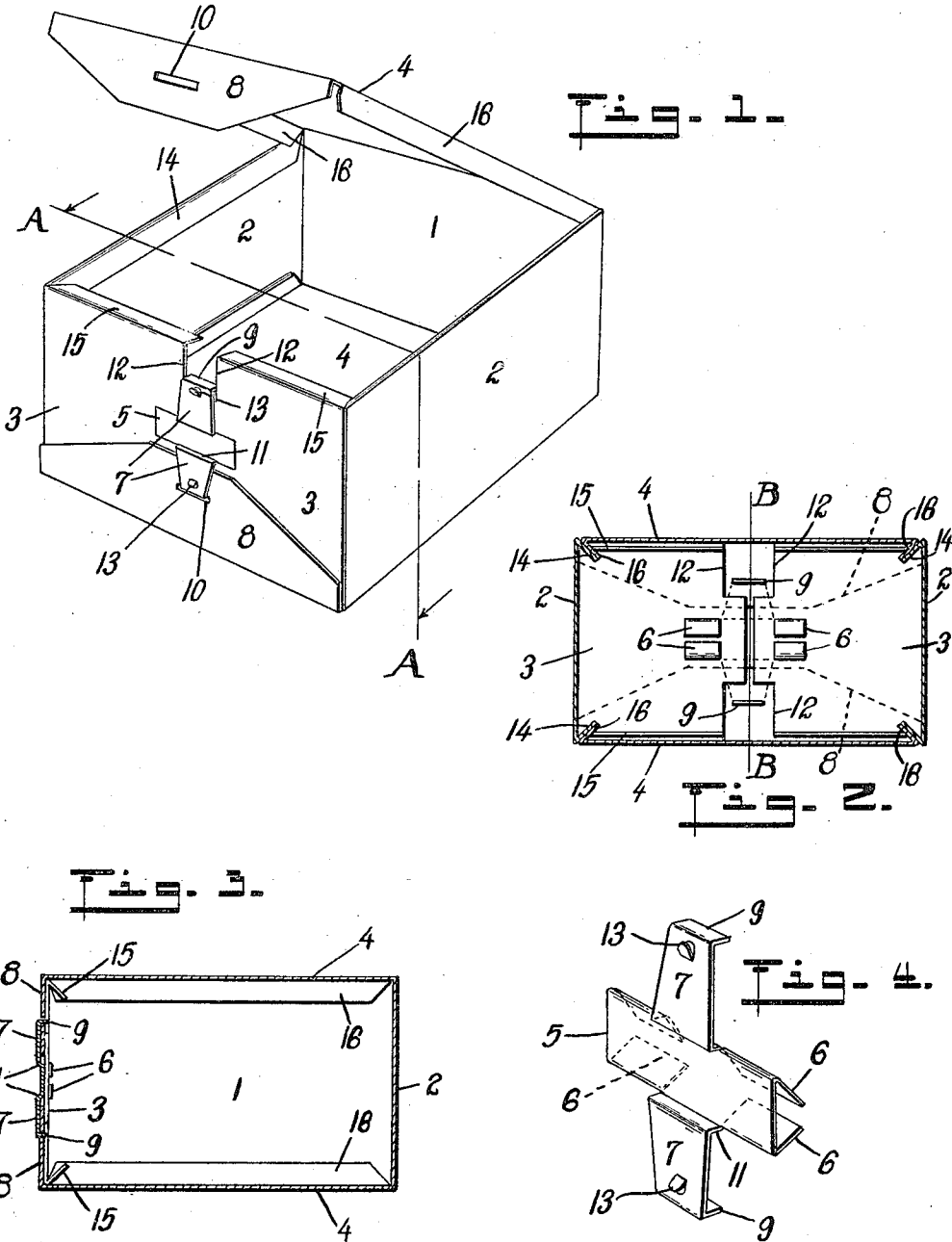


F. W. BADEN, SR.
BOX.

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BOX.

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To all whom it may concern:

Be it known that I, FREDRICK W. BADEN, Sr., a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Boxes, of which the following is a specification.

This invention relates to that class of boxes which are known as collapsible or knock-down boxes, and which are so constructed that they may be stored or shipped in flattened condition so that they will occupy little space and yet can be readily extended or set up for use.

The objects of the invention are to provide an improved construction of such box; to provide a construction which is readily manufactured from a single sheet and readily bent and secured in shape; to provide improved means for holding said sheet in the form of a box; to secure a construction which will form a strong and rigid box; to allow either of two opposite sides to be opened, as desired; to provide an improved fastener for retaining opposite sides in closed position; to obtain a construction which can be employed on boxes of all shapes and sizes; to secure simplicity of construction and operation, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts throughout the several views, Figure 1 is a perspective view of a box embodying my invention, with one of its sides open;

Fig. 2 is a cross-section of the closed box, on line A—A, Fig. 1, and looking in the direction indicated by the arrow;

Fig. 3 is a central section of the closed box, on line B—B, Fig. 2, and

Fig. 4 is a detail perspective view of a fastener for holding the parts of the box together.

In the specific embodiment of the invention illustrated in said drawings, the reference numeral 1 indicates what I will designate as the first side of my box, since obviously it may be either the bottom or one of the side walls, according to the shape of the box. To two of the opposite edges of this first side 1 are hingedly connected second sides 2, 2 each having at its edge opposite that by which it is connected to the first side 1 an extension 3 hingedly connect-

ed thereto, and which hinged extensions 3, 3, together form the third side of my box opposite the first side 1. To the other two opposite edges of the first side 1 are hingedly connected the fourth sides, 4, 4, of my improved box. It will be understood that all these sides and extensions are preferably made of one integral piece of cardboard or the like, the lines of hinged connection being simply scored, and suitable fastening means being provided for holding the abutting ends of the extensions 3, 3, together to form that side and securing the sides 4, 4, in closed position.

The fastener which I have shown is of sheet metal and comprises a body portion 5 adapted to lie flatwise upon the outside of the extensions 3, 3, and longitudinally thereof. Said body portion 5 is provided at opposite edges of its middle portion with means for engaging the opposite sides 4, 4 of the box to hold them closed, and upon the opposite edges of its end portion are ears 6, the pair of ears at each end of the fastener being adapted to project through an extension 3 and be bent over upon the inner side thereof, as clearly shown in Fig. 2. By this means the extensions 3, 3 are connected end to end and held in the same plane to form together the third side of the box, and yet the box can be collapsed by laying the fourth sides 4, 4 back into the plane of the first side 1 and then letting the sides 2, 2 tip over sidewise until the side formed by the extensions 3, 3 is substantially in the plane of the other sides.

The means which I have shown upon the fastener for engaging the opposite sides 4, 4 are catches 7, 7 which are just alike, although obviously different means could be employed if desired, either for holding both sides so that they could be opened or for holding them so that one side could be opened and the other permanently closed. In the latter event, however, the box would not be collapsible, and therefore I prefer to secure the sides 4, 4 so that they can both be opened. In order to do this each of said sides has at its edge opposite its hinged edge a flap 8 which is adapted to stand at right angles to the side and close down over the side 3, 3, outside the same, when the side 4 is closed, as clearly shown in the drawings. Each catch 7 comprises a resilient tongue projecting from the body portion 5 of the fastener and having at its end an inwardly

projecting lip 9 adapted to enter a slit 10 in the flap 8. The tongue 7 is preferably offset from the body portion 5, as indicated at 11, to accommodate the thickness of the material of which the box is made, and furthermore the ends of the extensions 3, 3 may be cut away at their opposite edges, as at 12, 12, to form an opening for the lip 9 to project into and thus enable it to be made longer than otherwise.

Preferably each tongue 7 has a little finger piece 13 under which the finger nail may be caught to release it or spring it outward to let a flap 8 enter beneath, and opening may be very readily accomplished by using the thumb nail and a finger nail, one engaging said finger piece 13 and the other pushing oppositely upon the edge of the flap 8.

In order to stiffen and strengthen my box, the second sides 2, 2 are each provided along its top and bottom edges with inwardly directed flanges 14, and the extensions 3, 3 with similar flanges 15. The sides 4, 4 have also along their lateral edges similar inwardly directed flanges 16. It is to be understood that all these flanges are preferably bent edge portions of the sides formed integral therewith and that the resiliency of the material of which the box is made tends to hold the said flanges at an angle to the sides, as shown. Therefore, when the box is closed the flanges 14 and 16 along a given corner edge of the box lie flatwise together, as shown in Figs. 1 and 2, and constitute a strengthening rib, so that the corner edges of the box are greatly strengthened and the box will better resist being distorted. There are no flanges to cooperate by lying flatwise against the flanges 15 on the side 3, but the overlying flap 8 reinforces said side even more effectively. The ends of all of said flanges are preferably cut off upon the slant at the corners of the box, that is, so that the free longitudinal edge of the flange is

shorter than its edge by which it is hinged. In this manner, the flanges where they meet at the corners of the box do not interfere with each other to such an extent as to prevent them from standing at an angle of about 45° to the sides.

Obviously various detail modifications may be made in manufacturing my box without departing from the spirit and scope of the invention, and I do not wish to be understood as limiting myself except as required by the following claims when construed in the light of the prior art.

Having thus described the invention, what I claim is—

1. In a box of the character described, the combination with sides adapted to form a dihedral angle when the box is closed, of a flange bent inwardly from the edge of one of said sides, and means for holding said flange substantially in a plane bisecting said dihedral angle when the box is closed, whereby the corner edge of the box is strengthened.

2. In a box of the character described, the combination with sides adapted to form a dihedral angle when the box is closed, of flanges bent inwardly one from a meeting edge of each of said sides and adapted to lie flatwise together substantially in a plane bisecting said dihedral angle when the box is closed, whereby the corner edge of the box is strengthened.

3. In a box of the character described, the combination with the sides thereof, of flanges bent inward from the free edges of said sides, and means for holding said flanges substantially in planes bisecting the angles formed by the sides when the box is closed, the adjacent ends of flanges upon edges which meet at an angle being beveled or cut off slantwise so as to clear each other.

FREDRICK W. BADEN, SR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."