

June 19, 1923.

1,459,309

E. MILLER

BOX REINFORCEMENT

Filed Feb. 5, 1921

2 Sheets-Sheet 1

Fig. 1.

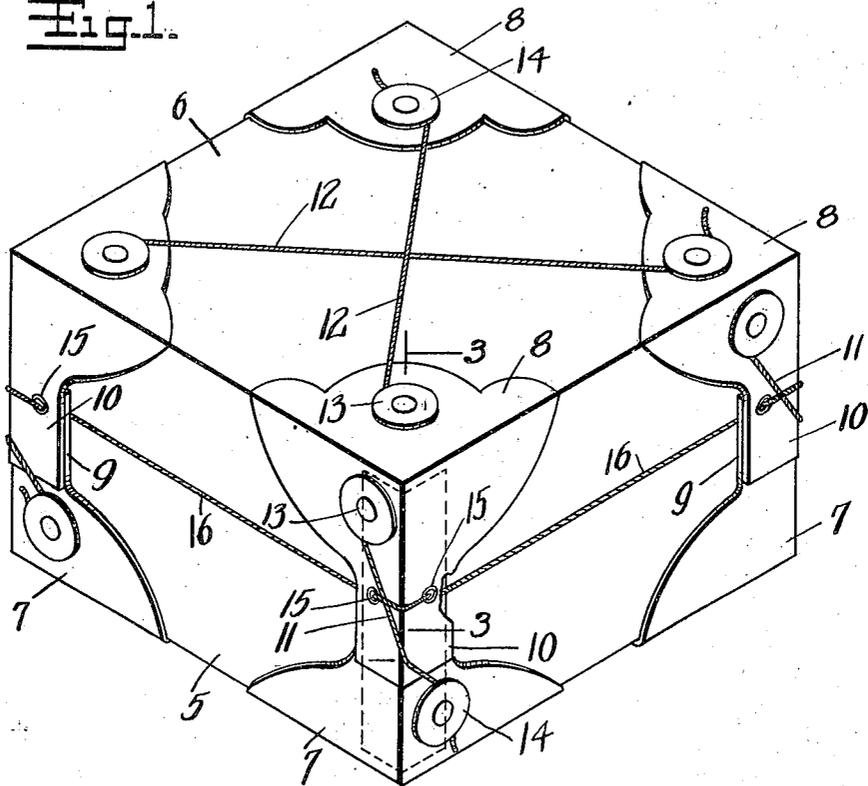


Fig. 2.

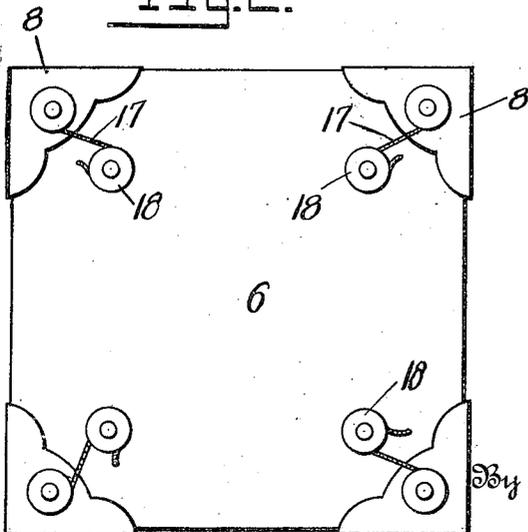
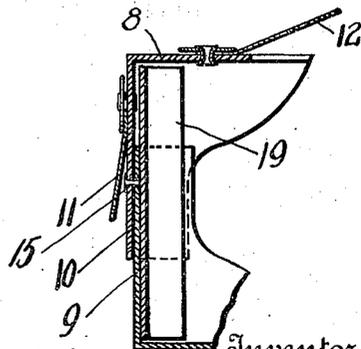


Fig. 3.



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2 Sheets-Sheet 2

Fig. 4.

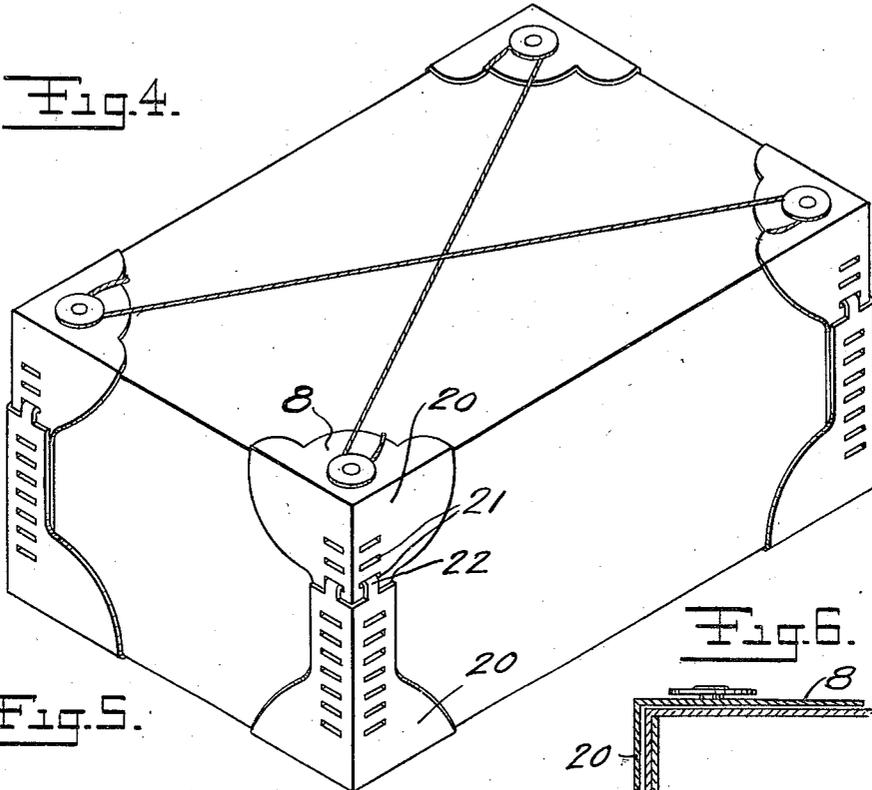


Fig. 5.

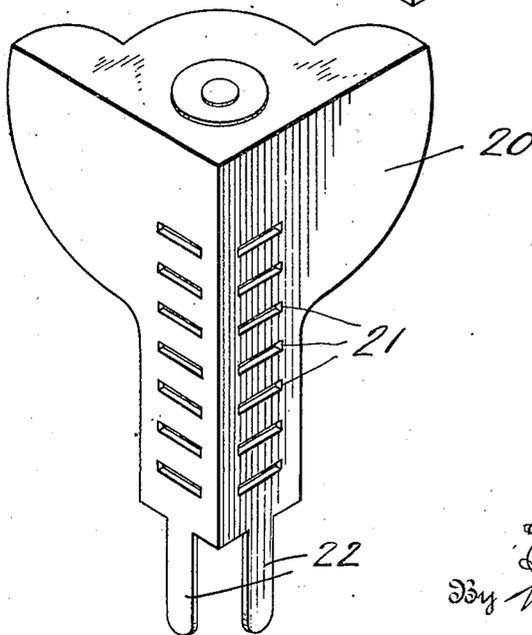
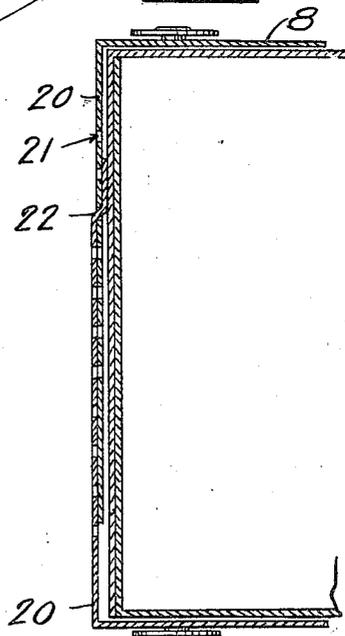


Fig. 6.



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UNITED STATES PATENT OFFICE.

ELIZABETH MILLER, OF NEW YORK, N. Y.

BOX REENFORCEMENT.

Application filed February 5, 1921. Serial No. 442,615.

To all whom it may concern:

Be it known that I, ELIZABETH MILLER, a citizen of the United States, residing at New York, in the county of New York and
 5 State of New York, have invented certain new and useful Improvements in Box Reenforcements, of which the following is a specification.

This invention relates particularly to the
 10 reenforcement of relatively large paste-board boxes such as are used by milliners. These boxes, as well known, are necessarily, by reason of their size and the material of
 15 which they are made, rather flimsy and are liable to be crushed under even a moderate pressure.

The objects of the invention are to provide a simple and practical form of reenforcement which may be readily applied to the
 20 box and which will effectually brace the box against the crushing and breaking tendencies referred to.

The invention involves the employment of
 25 special corner pieces shaped to fit over the adjacent corners of a box and having angular extensions projecting toward each other and preferably arranged in overlapping relation to thereby protect and reinforce both
 30 the corners and the corner edges joining the same. Special means also are provided for holding these corner braces in position on the box.

Various other novel features of the invention will appear as the specification proceeds.
 35

In the accompanying drawing I have illustrated different preferred embodiments of the invention, but wish it understood that the structure may be otherwise modified
 40 without departure from the true spirit and scope of the invention as herein defined and claimed.

In the drawings referred to, Figure 1 is a perspective view of a box as reinforced in
 45 accordance with my invention; Figure 2 is a plan view thereof illustrating a slight modification in the manner of attaching the corner braces to the box body; Figure 3 is a vertical sectional view taken through one
 50 of the corners shown in Figure 1; Figure 4 is a view similar to Figure 1 illustrating the application of another form of corner brace; Figure 5 is a perspective view of one of the corner braces; and Figure 6 is a
 55 sectional view taken on the line 6—6 of Figure 4.

The box illustrated is of ordinary commercial form consisting of a body portion 5 and a telescopically fitting cover 6.

Applied to the four corners of the body
 60 portion are the corner braces 7, having the three angularly related sides closely fitting over the sides of the box and applied to the corners of the cover are the similarly constructed corner braces 8. These corner
 65 braces 8 and 7 are provided with angular extensions 9 and 10 embracing the corner edges of the box and preferably arranged in overlapping relation, as shown in Figure 1.

This construction provides an easily
 70 attachable reenforcement for the upper and lower corners and also for the vertical corner edges connecting the same. The overlapping relation of the corner pieces permits of a certain adjustment to boxes of
 75 different height.

The reenforcements are detachably secured to the box body, in the first form illustrated, by means of cords 11 securing the
 80 corner braces of each pair together and by means of the diagonal cords 12 extending across the top and bottom of the box and securing together the corner braces at diagonally opposite corners.

A convenient method of adjustably and
 85 detachably securing said cords is to anchor them each at one end as by means of a rivet washer 13 provided on one corner of the brace and to wrap the opposite or free
 90 end of the cord beneath a securing washer 14 provided on the companion corner brace. This method enables the corner braces being quickly secured without requiring the
 95 tying of any knots and also enables the reenforcements to be readily removed from the box. The cords 11 may be twisted over the
 100 corner edge, from one side of the adjoining side of the box, as illustrated particularly at the center in Figure 1. This twist serves to secure the corner braces of each pair somewhat more firmly together and causes the overlapping portions thereof to securely hug the corner edge of the box.

If desired, the overlapping edge bracing
 105 extensions 9 and 10 may be secured together in definite relation as by means of tubular rivets 15 applied as by means of an ordinary rivet punch after the proper spacing
 110 of the corner braces has been determined as by first experimentally applying them to the box. This method of securing the braces together fixes them in the necessary

spaced relation and causes them to oppose any crushing force. This is also of advantage in that it fixedly ties each pair of braces permanently together so that they
5 may then be handled as a single unit.

The braces for the corner edges of the box may be caused to more firmly hug the box by extending a cord 16 through the openings provided by the tubular rivets and entirely
10 about the box. This cord draws the intermediate portions of the corner braces inward against the sides of the box and causes them to resist the bulging out tendency which would result from the applica-
15 tion of a crushing force to the corners of the box.

In Figure 2 I have shown how the corner braces may be secured in position by means of cords 17 fastened to the braces and twisted
20 about washers 18 applied directly to the top or bottom of the box. With this construction less cord is necessary.

As another means of overcoming the crushing force and of maintaining the corner braces spaced apart in the desired
25 spaced relation, I have shown in Figure 3 how an angle piece 19 may be entered in the trough provided by the angular overlapping extensions 9 and 10, said piece providing a more or less rigid strut embracing
30 the corner edge of the box and effectually opposing crushing tendencies. This angle piece 19 ordinarily may be hidden from sight, as will be clear from the showing in
35 Figure 1.

In Figures 4, 5 and 6 I have shown another form of the device, in which the corner braces are provided with means for interlocking them in adjusted relation against
40 movement of approach when they are in position as shown in Figure 4. The corner braces are identical and interchangeable, and one of them is indicated in a general way by the reference character 20 in Figure 5.
45 Here the side members are provided with sets of apertures 21, and the outer ends of the side pieces are formed into tongues 22, the tongues 22 of one angle piece adapted to engage in the apertures 21 of the complementary angle piece. It will evident that
50 by this arrangement I secure an adjustable relation of opposite angle pieces in which relative movement of approach of the bottoms 8 towards each other is prevented.
55 Movement of separation may be prevented by any of the means already described, and in fact I intend the arrangement shown in Figures 4, 5 and 6 to be used not only by itself, but in connection with any or all
60 of the arrangements shown in the other figures of the drawing.

What I claim is:

1. In a box reenforcement, corner braces applicable over the corners of a box and hav-
65 ing angularly related sides to fit such cor-

ners, said corner braces being arranged in pairs and having angular extensions to embrace the corner edges of the box and means for securing the braces over the box in such
70 paired relation.

2. In a box reenforcement, corner braces shaped to fit over the corners of a box and provided with angular extensions embracing the corner edges of the box and overlapping
75 to doubly reinforce such corner edges and means for securing said corner braces to the box in the relation specified.

3. In a box reenforcement, corner braces shaped to fit over the corners of a box and provided with angular extensions embracing the corner edges of the box and overlapping
80 to doubly reinforce such corner edges, means for securing said corner braces to the box in the relation specified and means for securing the corner braces spaced apart in definite relation.
85

4. In a box reenforcement, corner braces shaped to fit over the corners of a box and provided with angular extensions embracing the corner edges of the box and overlapping
90 to doubly reinforce such corner edges, means for securing said corner braces to the box in the relation specified and means for securing the corner braces spaced apart in definite relation, including fastenings engaged with the overlapping angular extensions of the
95 braces.

5. In a box reenforcement, corner braces shaped to fit over the corners of a box and provided with angular extensions embracing the corner edges of the box and overlapping
100 to doubly reinforce such corner edges, means for securing said corner braces to the box in the relation specified and means for securing the corner braces spaced apart in definite relation, including angular struts embracing the corner edges and extending between opposed corner braces.
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6. Box reinforcing means comprising corner braces shaped to fit the corners of a box, fastenings detachably securing together opposed braces at the upper and lower corners of the box and fastenings detachably securing together the braces at the diagonally opposite corners of the box.
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7. Box reinforcing means comprising corner braces shaped to fit the corners of a box, fastenings detachably securing together opposed braces at the upper and lower corners of the box, fastenings detachably securing together the braces at the diagonally opposite corners of the box, said fastenings including cords each secured at one end to one of the corner braces and other corner braces having securing washers beneath which the free ends of the cords may be wrapped.
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125

8. Box reinforcing means comprising corner braces shaped to fit the corners of a box, fastenings detachably securing together opposed braces at the upper and lower corners
130

of the box and fastenings detachably securing the diagonally opposite corner braces on the box.

5 9. Box reinforcing means comprising corner braces shaped to fit the corners of a box, fastenings detachably securing together opposed braces at the upper and lower corners of the box, fastenings detachably securing the diagonally opposite corner braces on the
10 box and including cords extending diagonally inward from the corners of the box.

10. In a device of the kind described, a corner brace having an aperture in each side piece of the brace and having the end of each side piece formed into a tongue. 15

11. In a device of the kind described, a corner brace having in each side piece a series of spaced apertures, and having the outer end of each side piece formed into a tongue. 20

In testimony whereof I affix my signature.
ELIZABETH MILLER.