

J. L. WARE.
KNOCKDOWN BOX.
APPLICATION FILED OCT. 30, 1905.

991,569.

Patented May 9, 1911.

2 SHEETS—SHEET 2.

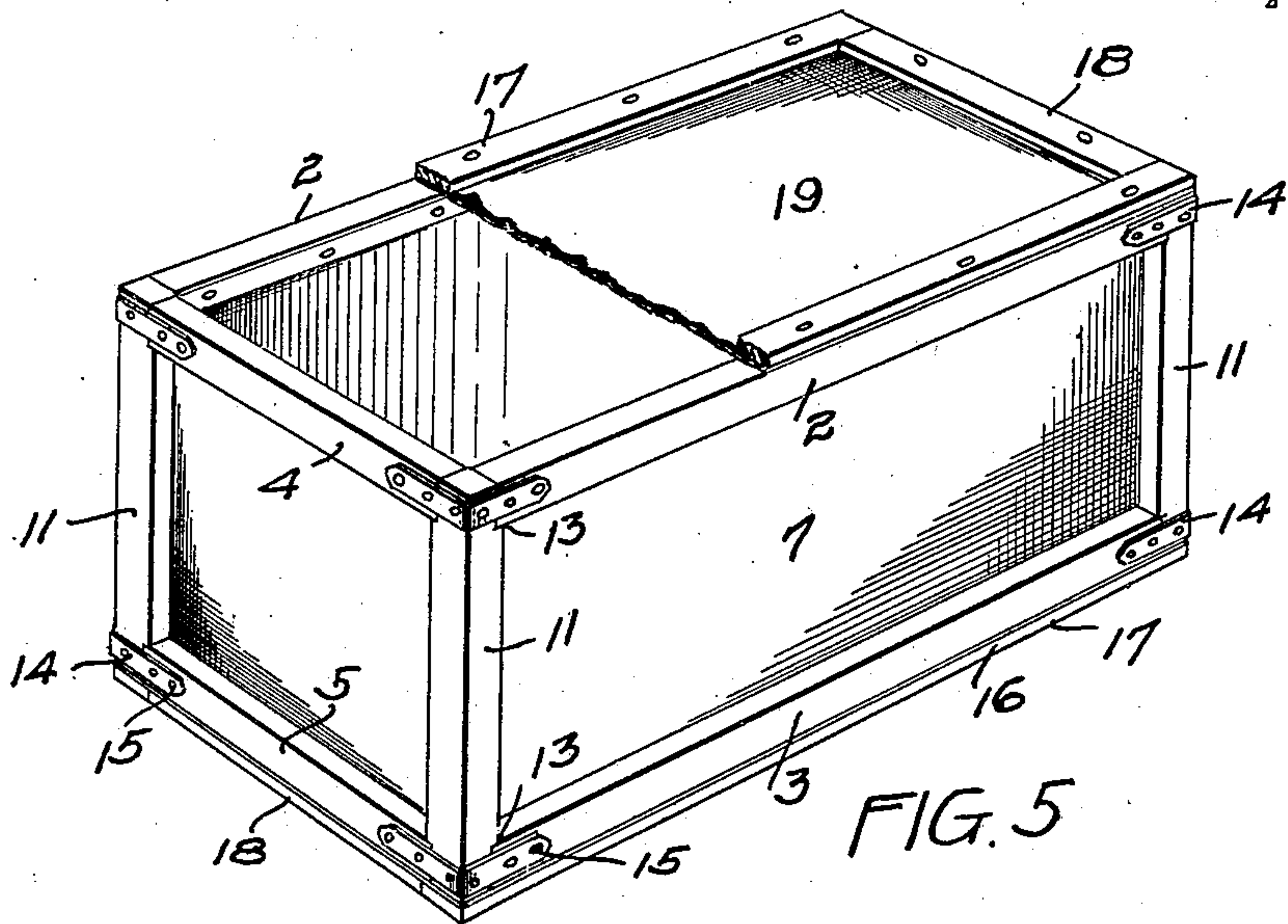


FIG. 5

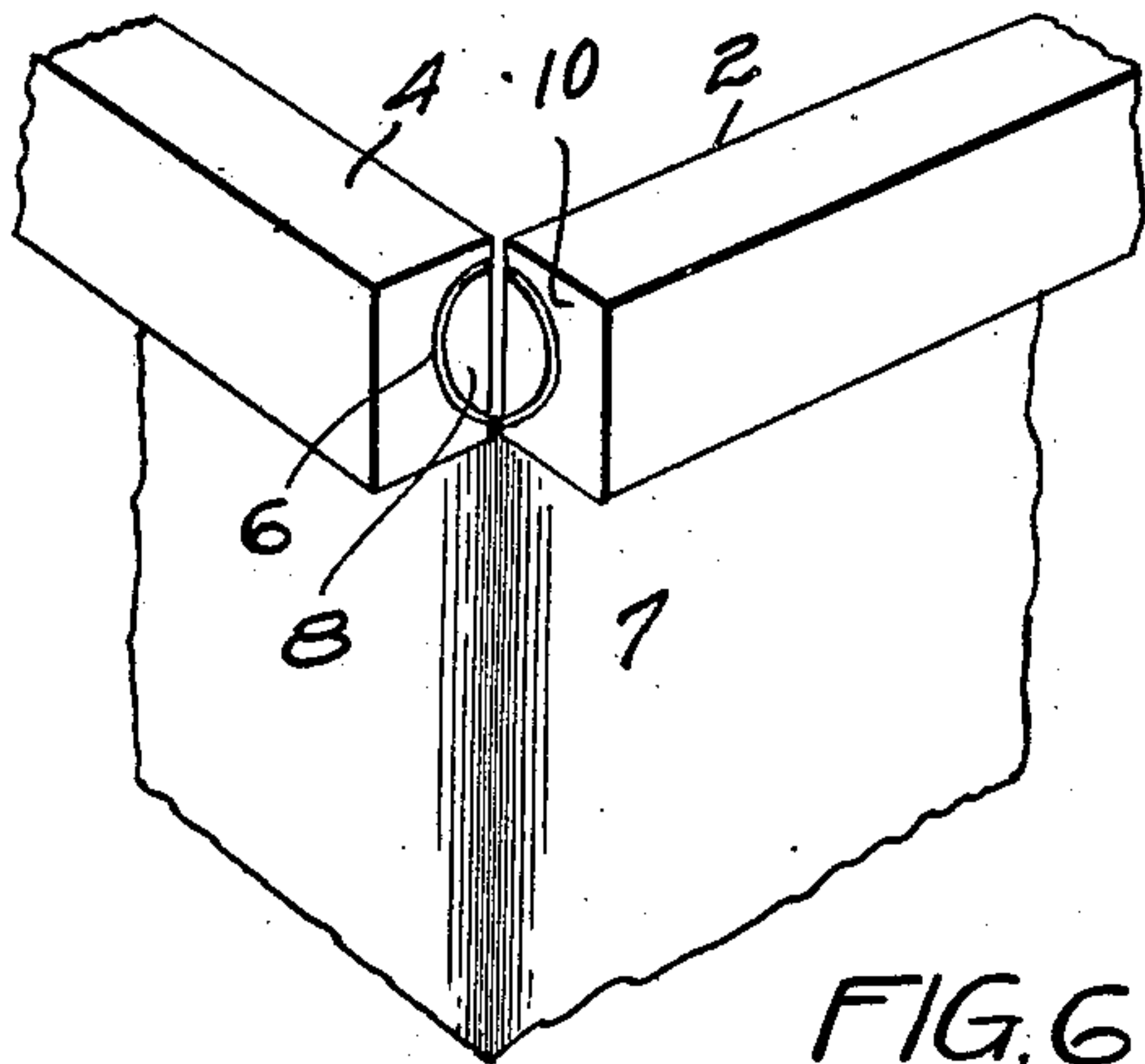


FIG. 6

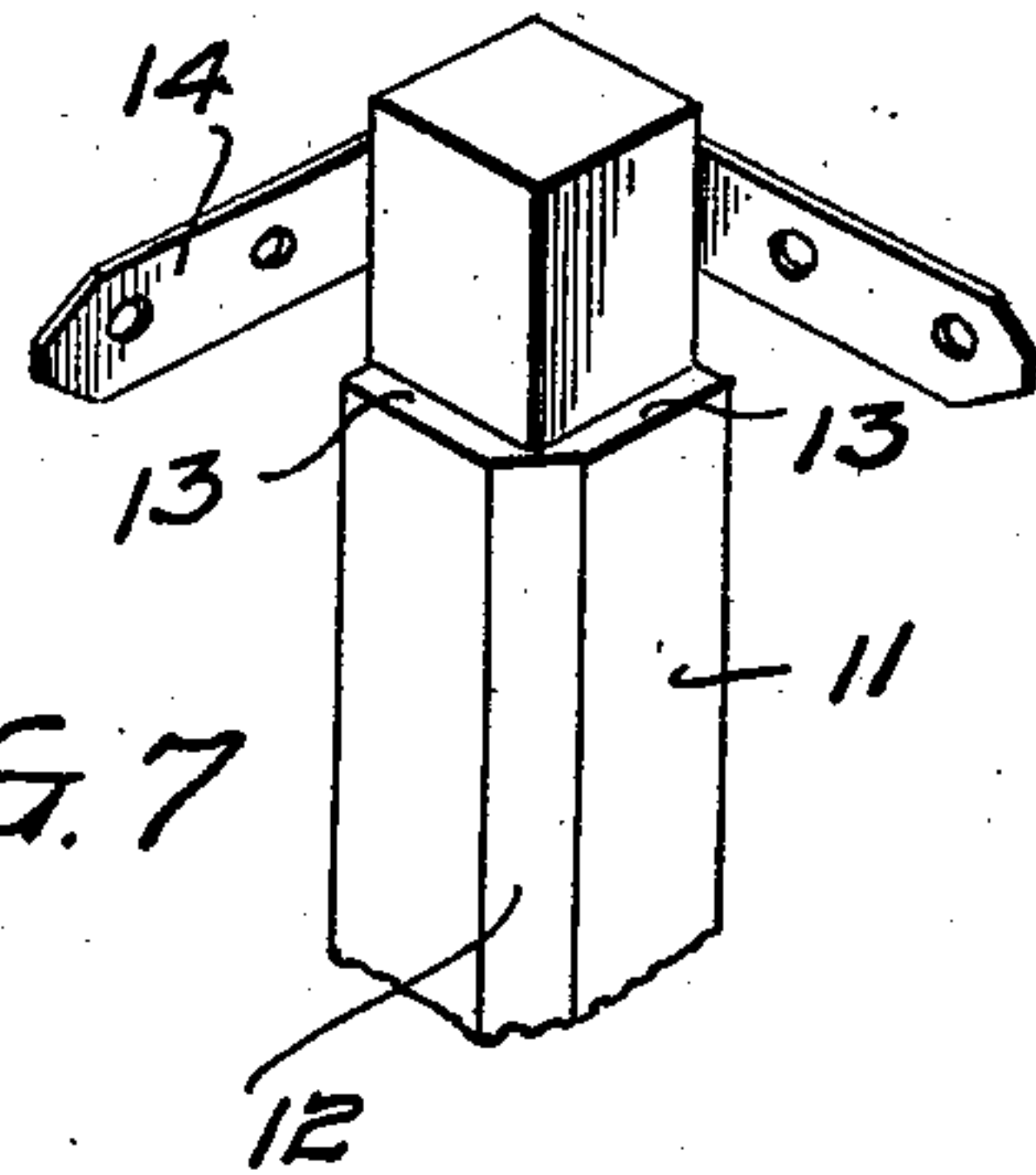


FIG. 7

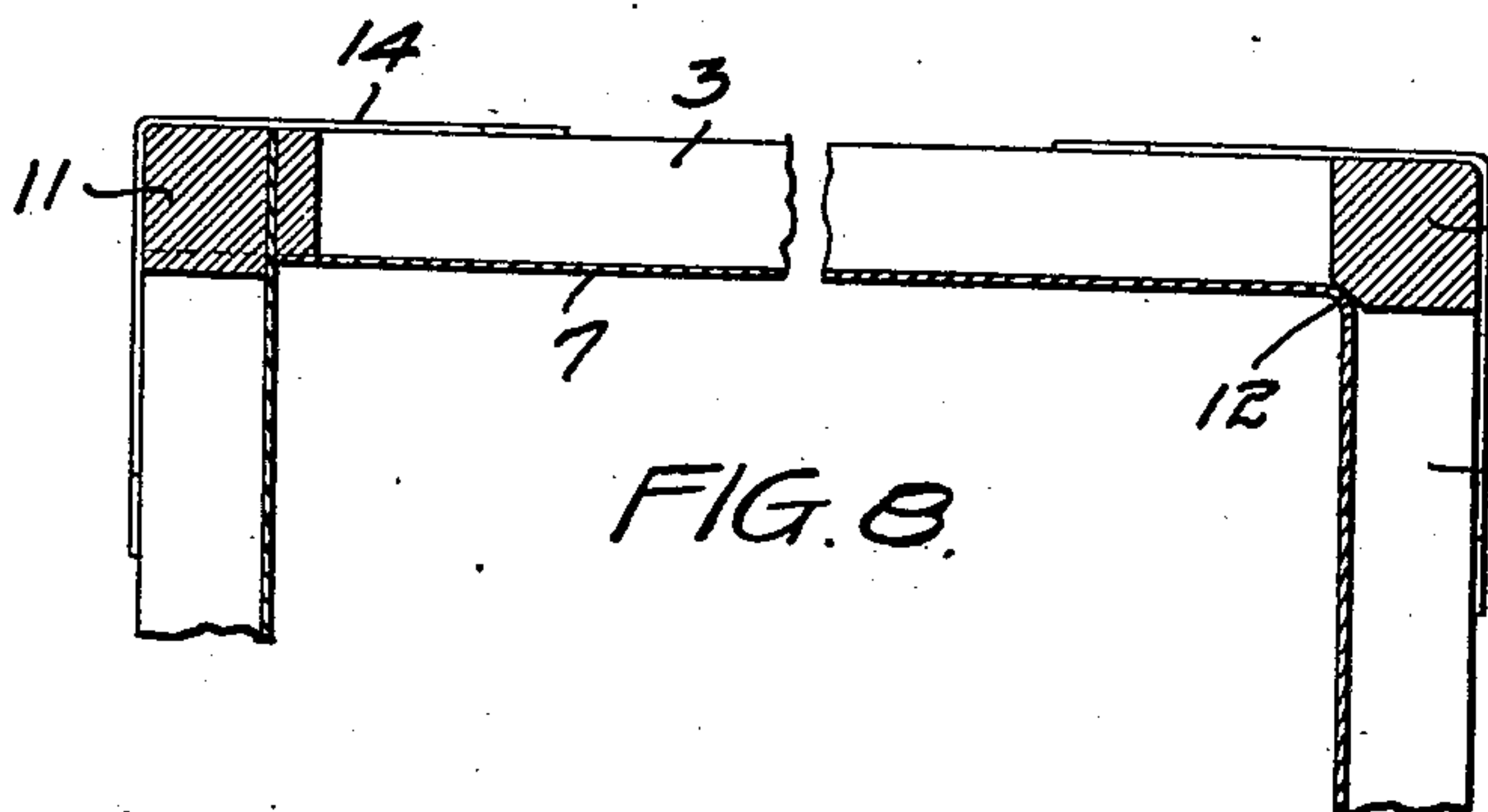


FIG. 8

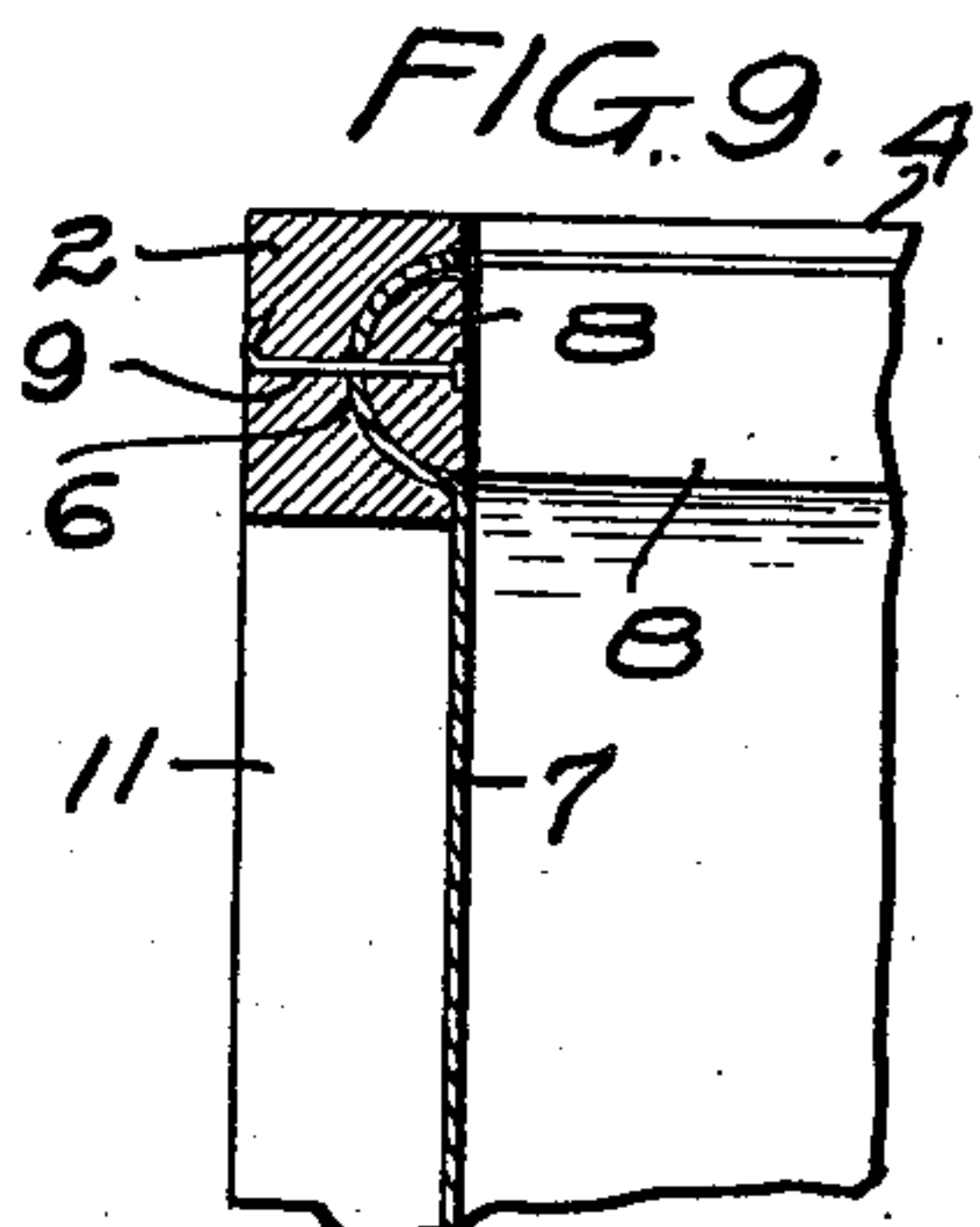


FIG. 9

WITNESSES
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UNITED STATES PATENT OFFICE.

JOSEPH L. WARE, OF ST. PAUL, MINNESOTA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
THE ROBERTS LUMBER COMPANY, A CORPORATION OF MINNESOTA.

KNOCKDOWN BOX.

991,569.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed October 30, 1905. Serial No. 284,939.

To all whom it may concern:

Be it known that I, JOSEPH L. WARE, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Knockdown Boxes, of which the following is a specification.

My invention relates to boxes adapted for packing, storing or shipping purposes, and the object of my invention is to provide a box of simple, inexpensive construction, and one that will be very strong and durable.

A further object is to provide a box which can be shipped in knock-down form, and easily and quickly assembled by the purchaser.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a plan view of the blank forming the box sides in knock-down form. Fig. 2 is an edge view of the same. Fig. 3 is a plan view of the box. Fig. 4 is a transverse vertical section. Fig. 5 is a perspective view of the box completed and ready for use, a portion of the cover being broken away. Fig. 6 is a detail view of the corner of the box. Fig. 7 is a detail perspective view of one of the corner posts. Fig. 8 is a transverse section showing the manner of securing the posts at the corner of the box, and Fig. 9 is a detail sectional view showing the manner of securing the flexible panels to the rails of the box.

In the drawing, 2 and 3 represent the top and bottom rails of the box sides, and 4 and 5 the corresponding rails of the ends. The top and bottom rails of one side of the box are preferably formed in one piece with the corresponding rails of the other side and the ends, so that in preparing to manufacture the box it is only necessary to get out two strips of the same dimensions to form the top and bottom rails. In each of these strips forming the box rails I provide on one side a longitudinal groove 6 semi-circular in cross section. A plate or panel 7 of flexible material, preferably a wood pulp board on account of its strength and tenacious character, is placed on the strips with its edges over the grooves 6, and then strips 8 semi-circular in cross section are pressed into said grooves and the edges

of the plate 7 forced into the grooves beneath the strips and secured by nails 9. The forcing of the flexible plate into the groove 6 will have the effect of drawing it over the inner edges of the grooves and holding it taut between them and prevent sagging or buckling. The nailing strips 8 will have a broad bearing surface on the plate throughout their length, and as the pull on the edges secured by the nailing strips will be indirect owing to the bend at the inner edges of the grooves, a very secure fastening for the plate edges will be provided, and much lighter nailing strips may be employed than would ordinarily be required for this purpose where the strain was direct. When the plate has been secured in the strips the rails will be cut to a suitable length on the line of the saw slits 10 and then folded to form the desired box.

In Figs. 1 and 2 I have shown the manner of securing the plate or panel to the strips constituting the rails and showing how the strips are cut transversely at suitable intervals and the plate bent to form the corners of the box. When the box has been set up and the side and end walls placed at right angles to one another, a space will be formed between the abutting ends of the top and bottom rails respectively, as shown in Fig. 6; and to close this space and strengthen the box at this point I provide an upright post 11 having a flat surface 12 to bear on the corner or angle formed in the flexible plate, and shoulders 13 to slip under the ends of the top rails and form a substantial bearing surface therefor and allow a series of boxes to be piled one upon another without danger of crushing. I may prefer also to provide metallic angle straps 14 secured to the ends of the posts and adapted to lap by the contiguous ends of the side and end rails and be secured thereto by nails 15 when the box is set up. The bottom plate 16—also of flexible material—is provided with side and end strips 17 and 18 which are nailed to the bottom rails, and the top plate 19 has similar strips secured to the top rails in a corresponding manner when the box is closed.

This box will be a very inexpensive one to manufacture, as the top and bottom rails and the plate or panel between them can be quickly and inexpensively secured together and shipped in flat form to the customer, it

being only necessary to divide the side strips into the side and end rails of suitable length according to the size of the box desired.

The material used is inexpensive, being
5 small pieces of low grade lumber, and wood pulp or similar material of suitable gage.

The panels or walls of the box will be held
securely between the rails, and the inner sur-
face of each panel will be flush substantially
10 with the corresponding surfaces of the rails and allow the contents to be snugly packed and permit the convenient and rapid filling or emptying of the box. The smooth interior of the box will also present a neat fin-
15 ished appearance, and adapt it particularly for packing such articles as crackers, biscuit, etc. The metal straps on the corner posts will brace and strengthen the box to a considerable degree, but whenever de-
20 sired these straps may be omitted and the posts merely nailed to the ends of the top and bottom rails.

I claim as my invention:

1. A box forming blank comprising a
25 plate or panel of flexible material, wooden strips along the upper and lower edges of said plate or panel to form the top and bottom rails of a box and formed with a longitudinal groove in the faces which consti-
30 tute the inner surfaces of the rails when the blank is formed into a box, the upper and lower portions of said plate or panel fitting in said grooves, and nailing strips fitting in said grooves and confining the plate or panel

between said strips and the top and bottom
35 rail forming strips, substantially as described.

2. A knock-down box comprising side and end rails at the top and bottom of the box, said rails having on the inside of the box
40 longitudinal grooves semi-circular in cross section and correspondingly shaped nailing strips fitting therein, a flexible plate or panel having its longitudinal edges secured in said grooves beneath said strips, the ad-
45 jacent ends of said rails being spaced apart at the corners of the box, and braces or posts fitting into the spaces at the corners between the contiguous ends of the side and end rails, substantially as described. 50

3. In a box of the kind described, the combination with the skeleton frame work, certain of the rails or bars of which are provided with longitudinally extended grooves having outwardly diverging walls and
55 clamping strips independent of the said bars seated in said grooves, and panels having edges pressed into said grooves by said clamping strips and devices driven through said clamping strips and panels and into
60 said rails or bars for rigidly connecting the same, substantially as described.

In witness whereof, I have hereunto set my hand this 26th day of October 1905.

JOSEPH L. WARE.

Witnesses:

RICHARD PAUL,
C. MACNAMARA.