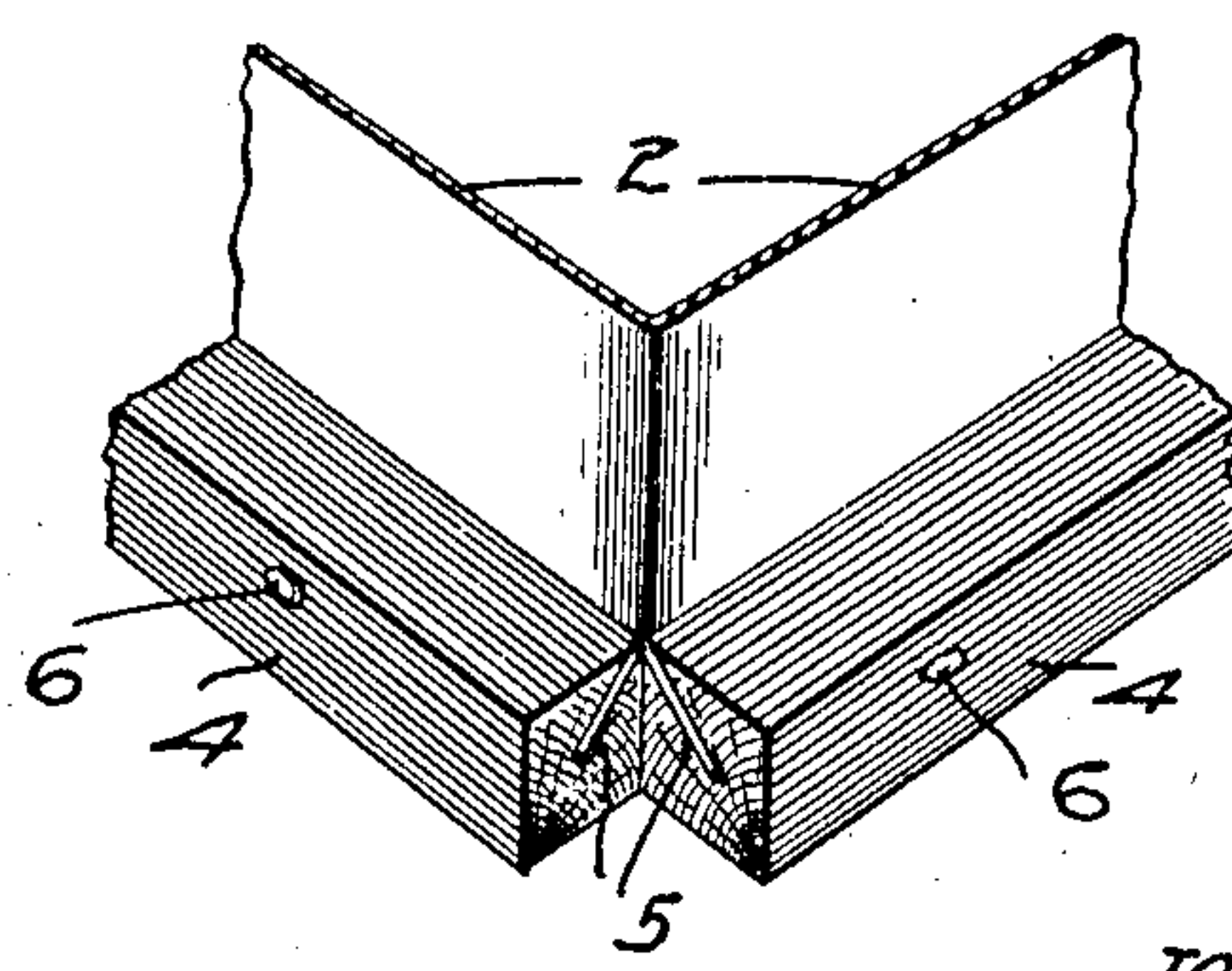
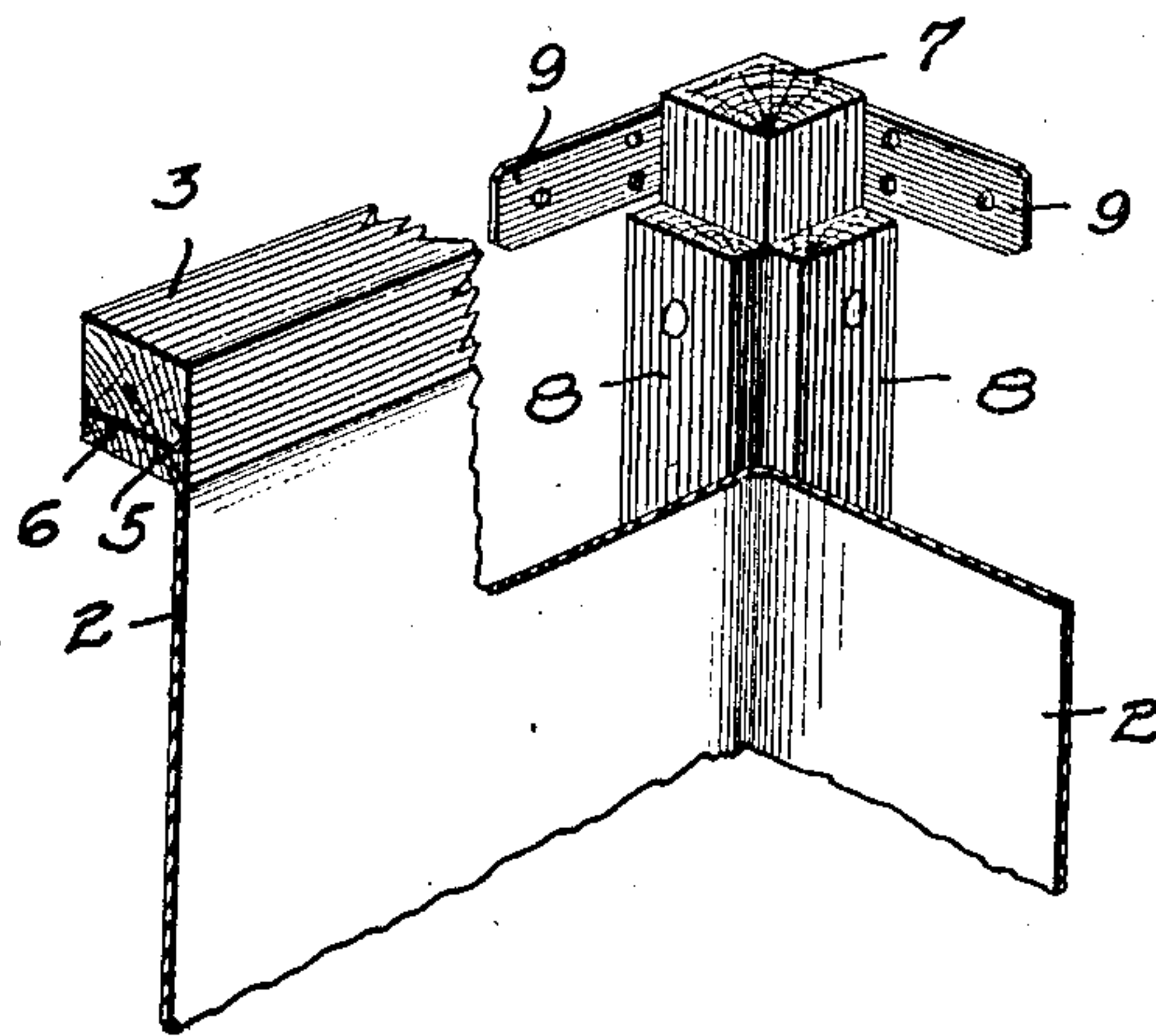
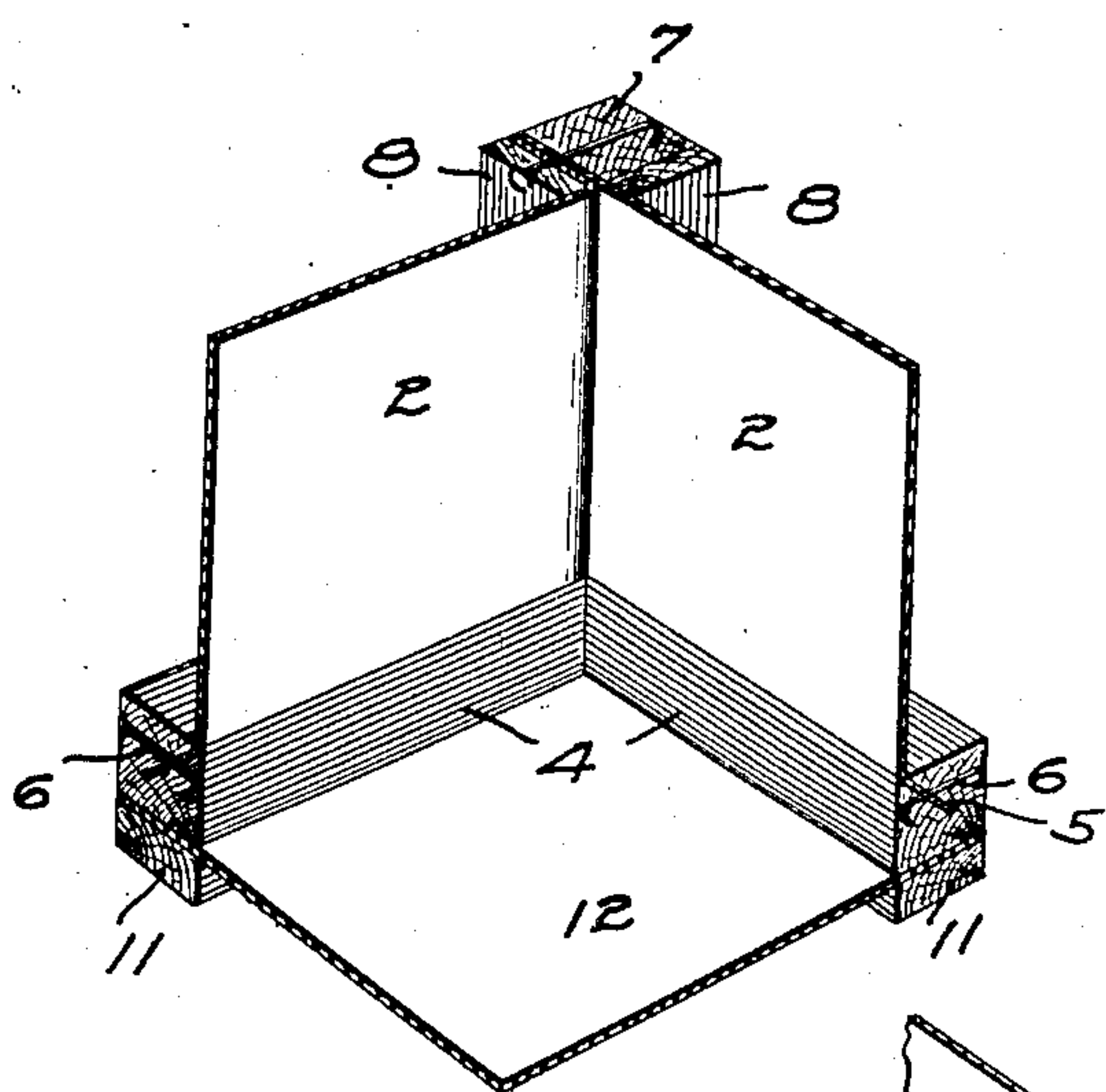
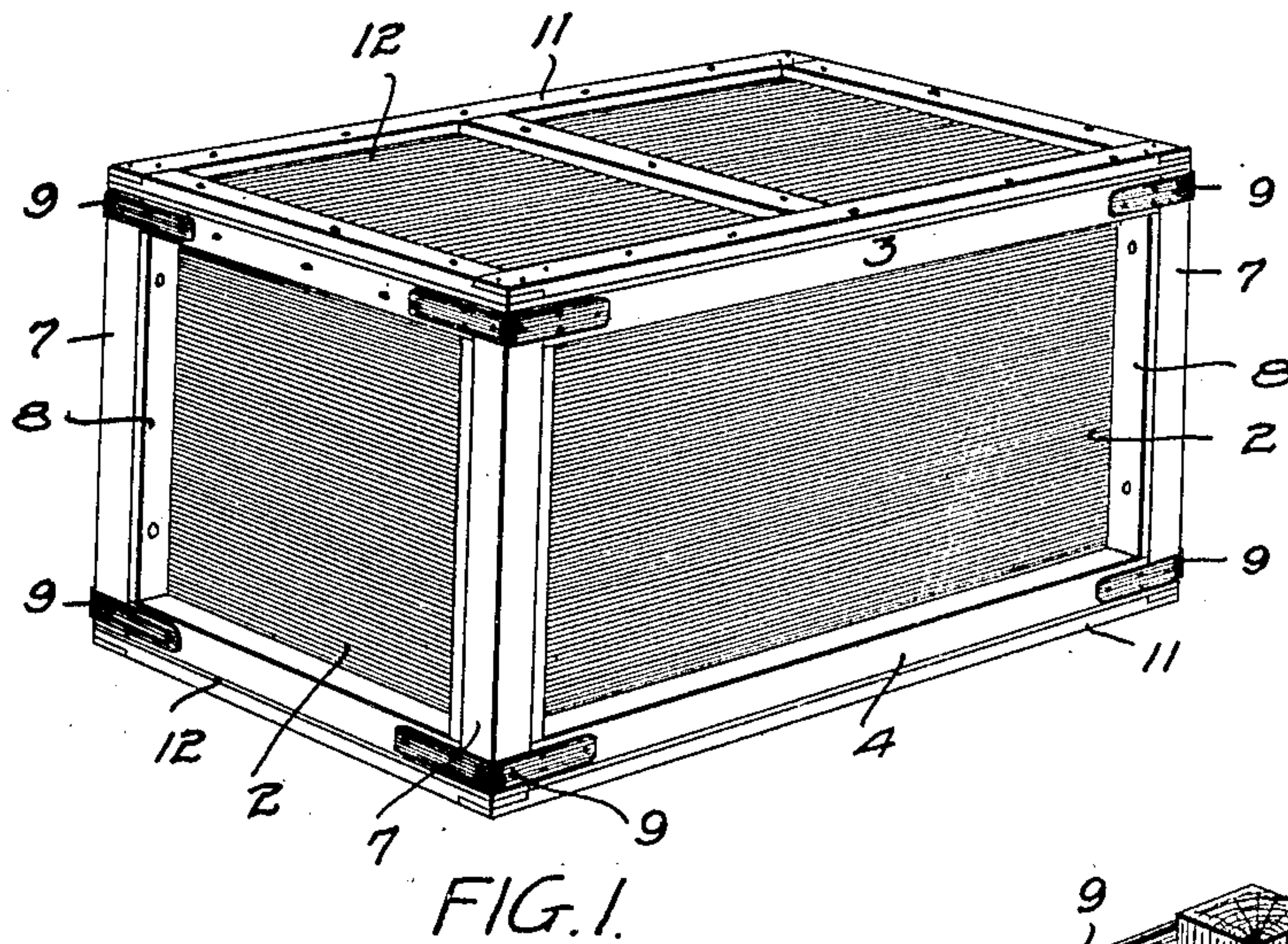


No. 876,120.

PATENTED JAN. 7, 1908.

J. L. WARE.
KNOCKDOWN BOX.
APPLICATION FILED APR. 23, 1906.

2 SHEETS—SHEET 1.



WITNESSES
M. M. Lewis
O. J. Hanson

INVENTOR
JOSEPH L. WARE
BY *Paul & Paul*
HIS ATTORNEYS

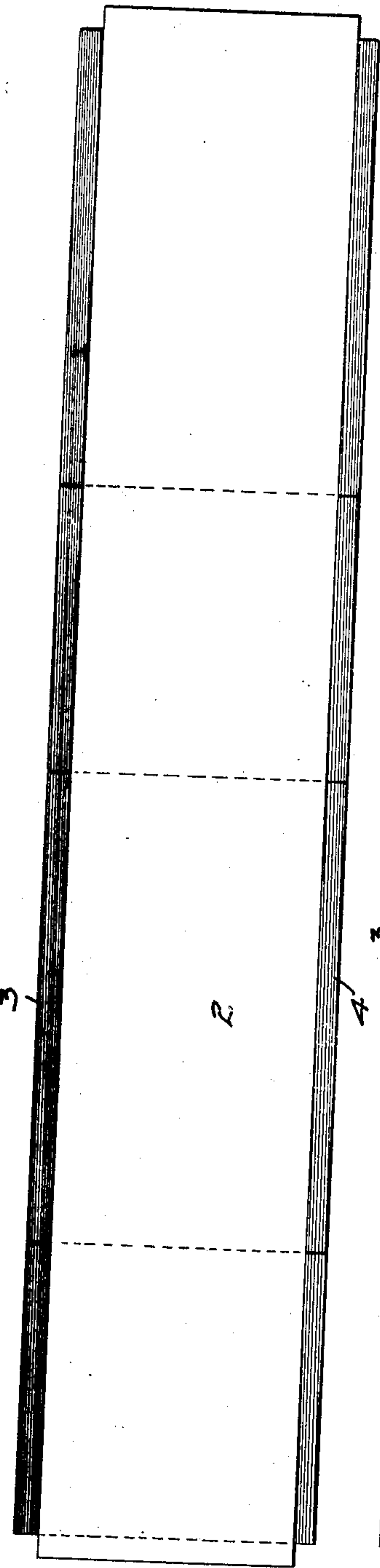
No. 876,120.

PATENTED JAN. 7, 1908.

J. L. WARE.
KNOCKDOWN BOX.

APPLICATION FILED APR. 23, 1906

2 SHEETS—SHEET 2.



WITNESSES
M. M. Lewis
Q. E. Hanson.

FIG. 5.

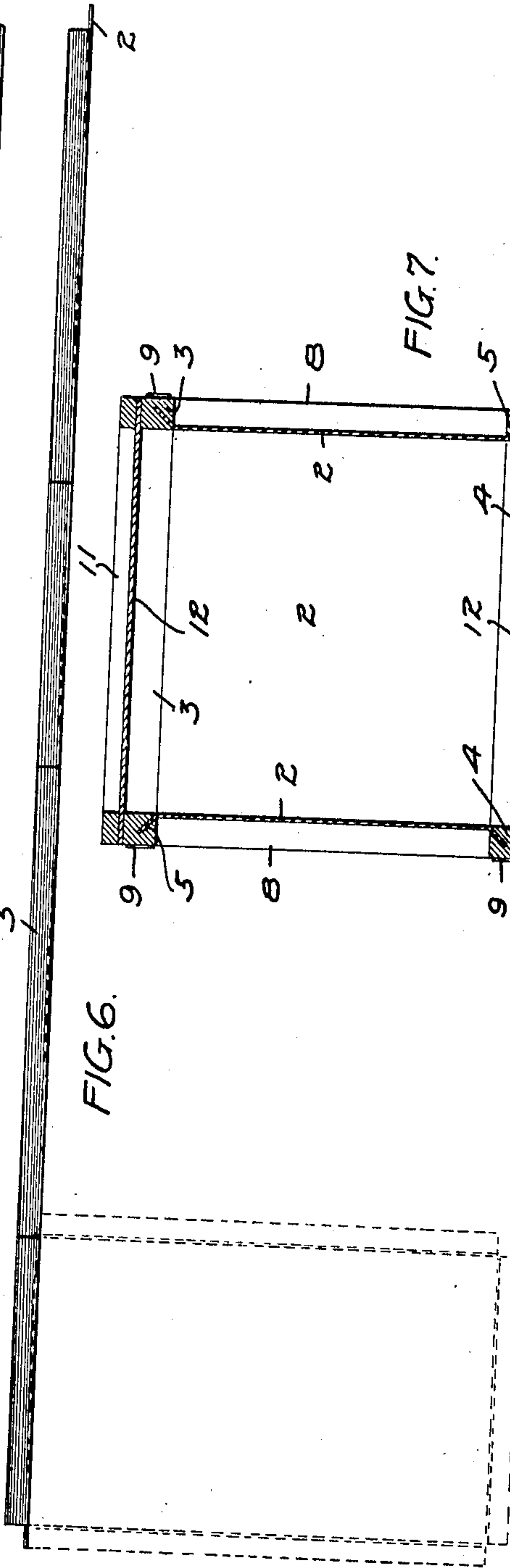


FIG. 6.

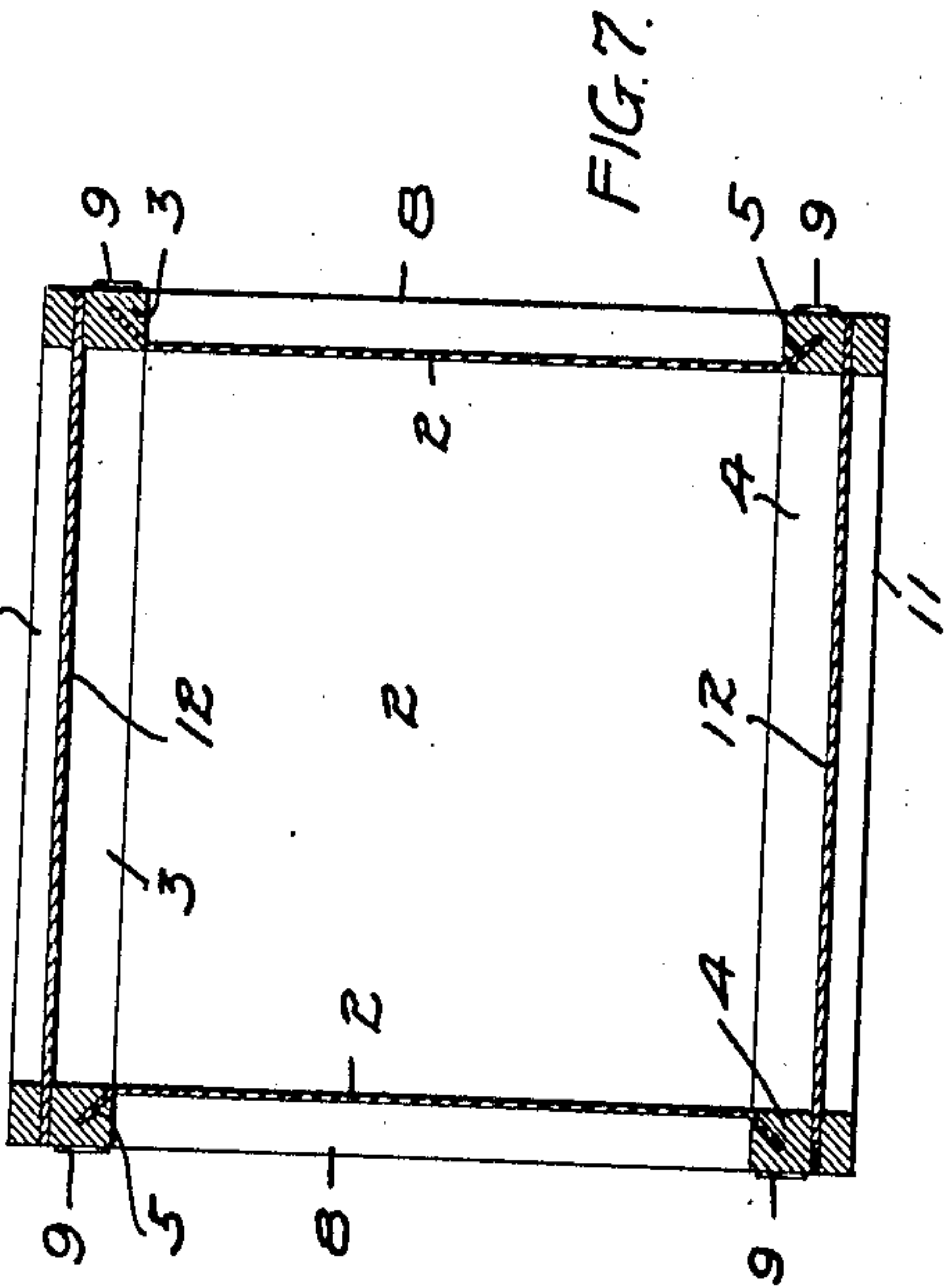


FIG. 7.

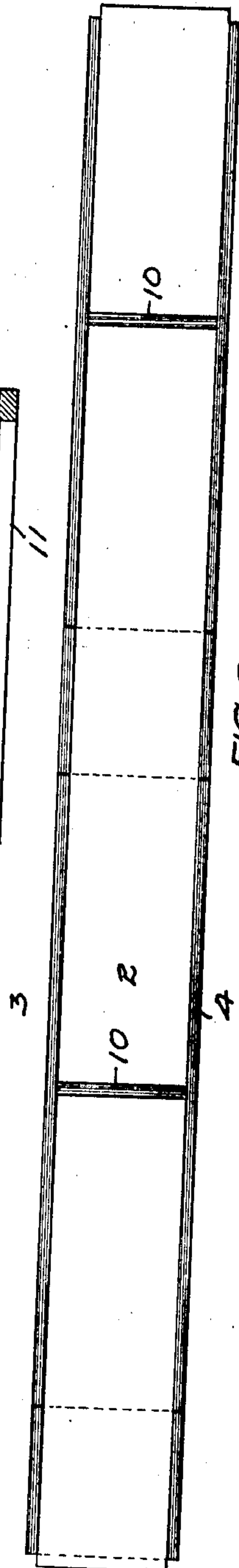


FIG. 8.

INVENTOR
JOSEPH L. WARE
BY
Paul & Paul
HIS ATTORNEYS

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.

No. 876,120.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed April 23, 1906. Serial No. 313,253.

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 the 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 that can be shipped in knock-down form and easily and quickly assembled by the purchaser.

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

In the accompanying drawings, forming part of this specification; Figure 1 is a perspective view of a box embodying my invention. Figs. 2, 3 and 4 are perspective views showing details of the box, and illustrating the manner of constructing the same. Fig. 5 is a plan view of the blank forming the box sides and ends. Fig. 6 is an edge view of the blank forming the box sides and ends, and showing, in dotted lines, the manner of folding the same. Fig. 7 is a transverse vertical section of the complete box. Fig. 8 is a plan view of one of the blanks forming the sides and ends of the box, showing additional posts or supports arranged on the blank in position to be in the center of each side of the complete box.

In constructing this box I provide a continuous sheet 2 of flexible material, preferably wood-pulp board which is selected on account of its strength and tenacious character. This sheet is of sufficient length to form the sides and ends of the box that it is desired to construct. I also provide the top and bottom rails 3 and 4, each of which is of the same length as the sheet of pulp and I form diagonally in each rail a slot 5 extending the full length thereof. These slots are cut deep enough so that when the edges of the sheets are inserted therein the rail may be closed together so as to clamp the edge of the sheet between the walls of the slot, and said edges are then locked in place by nails 6 driven through the rail and through the edges of the sheet (see Fig. 3). These blanks may be shipped in this form, together

with the flat tops and bottoms for the boxes, thereby giving the shipper the advantage of the low freight rate to which the boxes in knock-down form are entitled.

When it is desired to set up the box, the top and bottom rails are sawed through at the points where the corners are to be (see Figs. 5 and 6) and the blank is then bent into rectangular form. This furnishes the sides and ends for a rectangular box of any dimensions with a smooth interior surface, and without any joints at the corners, except at the one corner where the ends of the blank meet (see Fig. 6). I then provide a corner post 7, preferably of rectangular form in cross section and of sufficient area to fill the space formed by turning the sections of the top and bottom rails at right angles to each other. I preferably secure these posts to the ends of the rail sections by the right-angled metallic straps 9 (see Figs. 1 and 3), and I also prefer to provide upon each inner side of the corner post 7 the supporting strip 8. These strips are of preferably the same width as the corner posts and a square corner space is thus formed between them, which receives the corner of the continuous sheet at three of the corners of the box. At the other corner the ends of the sheet are carried between one of the supporting strips 8 and the corner post 7 and they are secured in this position by suitable nails driven through the supporting strips, the ends of the sheet and the corner post (see Fig. 2). I may also provide additional supporting strips 10 at intervals extending from the top to the bottom rail outside of the pulp board sheet (see Fig. 8). These strips may be applied to the continuous blank, before the rails are cut across to permit the folding of the blank into shape for the box body. For the top and bottom of the box, I prefer to provide a rectangular frame 11 having a sheet of similar pulp board 12 secured to the inner side of said frame. These tops and bottoms of the boxes are similar and may be made up separately and shipped in flat form with the flat blanks for the sides and ends of the boxes. The tops and bottoms of the boxes are secured to the top and bottom side and end rails by nails or other suitable means when the boxes are set up.

This box is an 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 is only necessary to divide the continuous rails into sections of suitable length to form the sides and ends according to the size and shape of box desired. The material used is inexpensive, being small pieces of low grade lumber and sheets of wood pulp or similar material of suitable gage. The panels or walls of the box are held in the slots in the rails and the inner surface of each panel is substantially flush with the corresponding surfaces of the rails and allows the contents to be snugly packed and permits the convenient and rapid filling or emptying of the box. The smooth interior of the box also presents a neat finished appearance and adapts it particularly for packing such articles as crackers, biscuits, etc. The metal straps on the corner posts brace and strengthen the box to a considerable degree, but whenever desired these straps may be omitted and the posts merely nailed to the top and bottom rails.

The box is practically water tight and any number of boxes when filled with any material which it may be desired to ship therein, may be piled one on top of another without crushing.

The boxes are accepted by the railroads at the same rate of freight as is provided for ordinary wooden boxes which is not the case with the usual packages formed of paper or wood pulp.

The details of the construction may be varied in many particulars without departing from my invention.

I claim as my invention:—

1. A box blank comprising parallel rails and an intermediate flexible panel having portions thereof adjacent to the rails deflected and inclosed within the rails, one surface of the panel and the corresponding faces of the rails being substantially flush with each other, and said rails being transversely severed at intervals to permit the blank to be bent to form the walls of a box with the rails extending parallel therewith, substantially as described.

2. A knock-down box having wooden strips forming the top and bottom rails of the sides and ends of the box, each of said strips being provided upon its inner surface with a diagonal slot extending throughout the length of said strip, a continuous sheet or panel of flexible material having its longitudinal edges secured in said slots and bent or folded at right angles to form the corners of the box, and posts fitting the spaces between the contiguous ends of the top and

bottom rails at the corner, substantially as described.

3. A knock-down box having top and bottom rails for the sides and ends of the box, each having a slot extending longitudinally therein and a continuous flexible sheet or panel having its longitudinal edges secured in said slots and its inner surfaces flush substantially with the corresponding surfaces of said rails, said panel being bent to form the corners of the box, posts fitting into the spaces between the ends of the side and end rails and bearing on said panel corners, and supporting strips secured to said corner posts between the top and bottom rails, substantially as described.

4. A knock-down box having side and end rails for the top and bottom of the box, each having longitudinal slots therein, a continuous flexible sheet or panel having its longitudinal edges secured in said slots, posts fitting into the spaces between the contiguous ends of the side and end rails, and metallic straps securing said posts to said rails, substantially as described.

5. A knock-down box having a flexible plate or panel, and strips secured to the upper and lower edges of said plate or panel on one side thereof to form top and bottom rails for the sides and ends of the box, said strips being transversely cut at points corresponding to corners of the box, and said panel being bent at such points to bring portions thereof into position to form the sides and ends of the box, and said strips into position leaving spaces between their adjacent ends at their points of severance, and pieces filling said spaces, substantially as described.

6. A knock-down box having top and bottom rails for the sides and ends of the box, and a flexible panel or plate having its longitudinal edges secured to said rails and its inner surface flush substantially with the corresponding surface of said rails, said panel being bent to form the corners of the box, and the adjacent ends of said top and bottom rails spaced apart from each other, and posts fitting into the spaces between the ends of the side and end rails and bearing on said panel corners and having shoulders bearing against the adjacent ends of the rails at opposite sides of the corners of the box, substantially as described.

In witness whereof, I have hereunto set my hand this 16th day of April 1906.

JOSEPH L. WARE.

Witnesses:

C. G. HANSON,
A. C. PAUL.