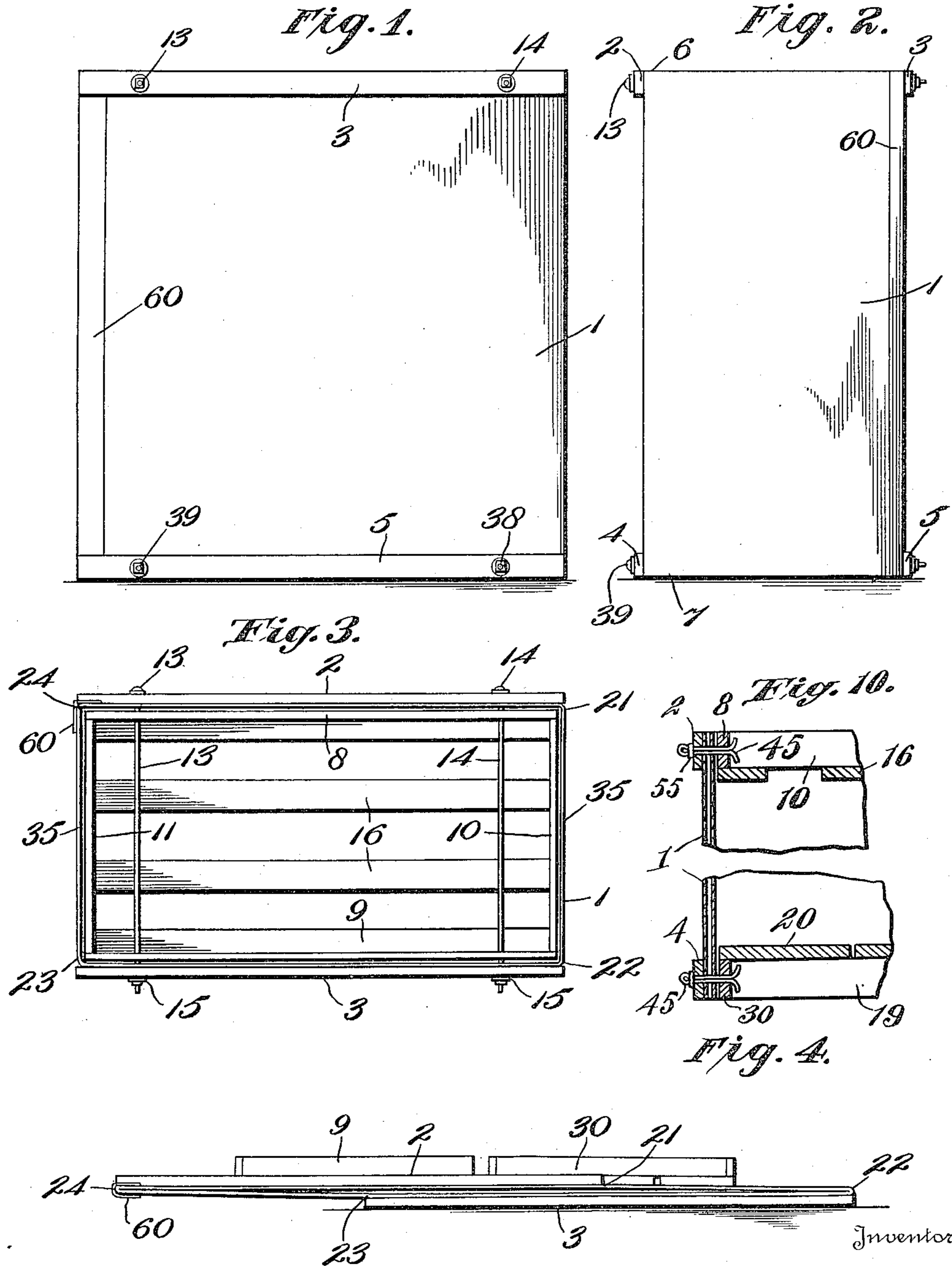


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 KNOCKDOWN CRATE.  
 APPLICATION FILED MAR. 3, 1915.

1,154,831.

Patented Sept. 28, 1915.  
 2 SHEETS—SHEET 1.



Witnesses

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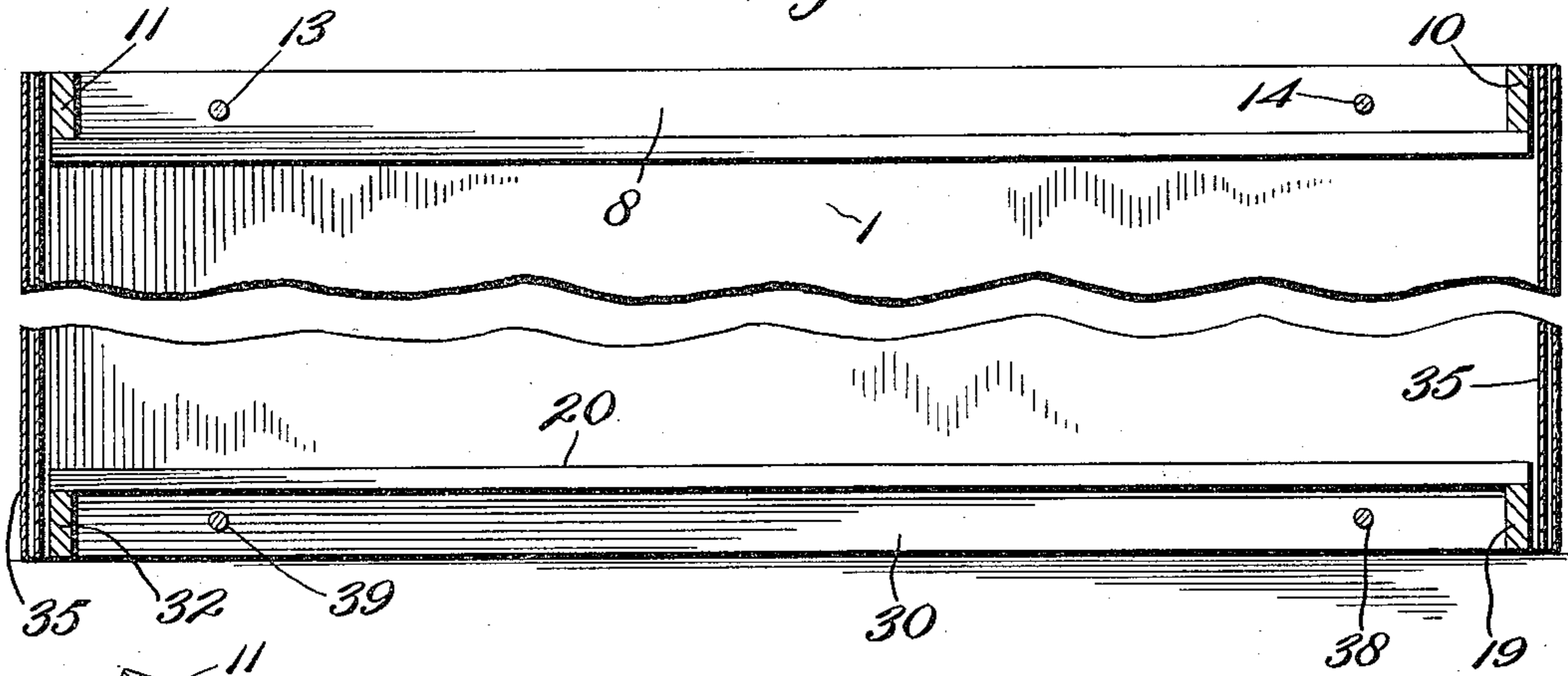
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2 SHEETS—SHEET 2.

*Fig. 5.*



*Fig. 6.*

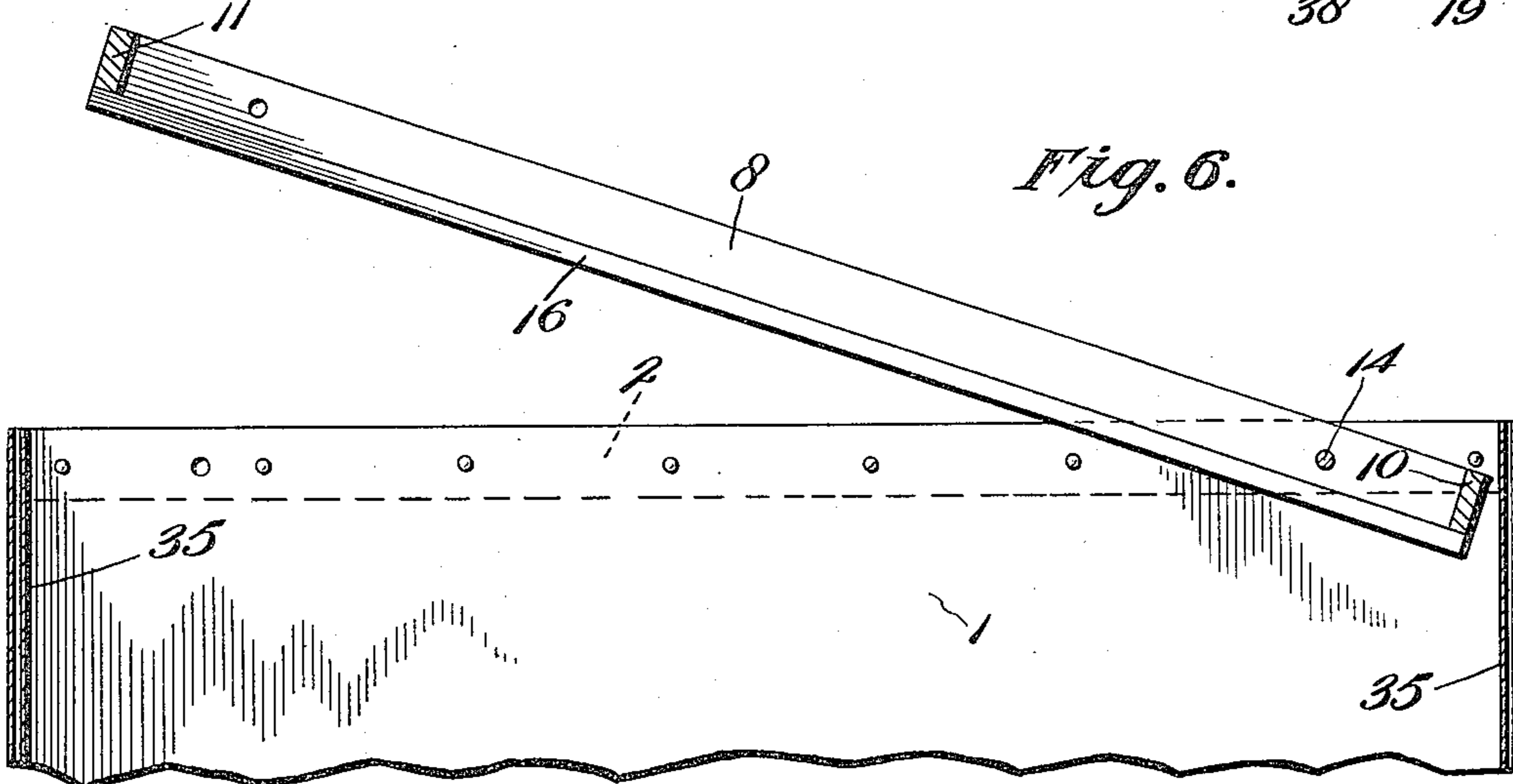
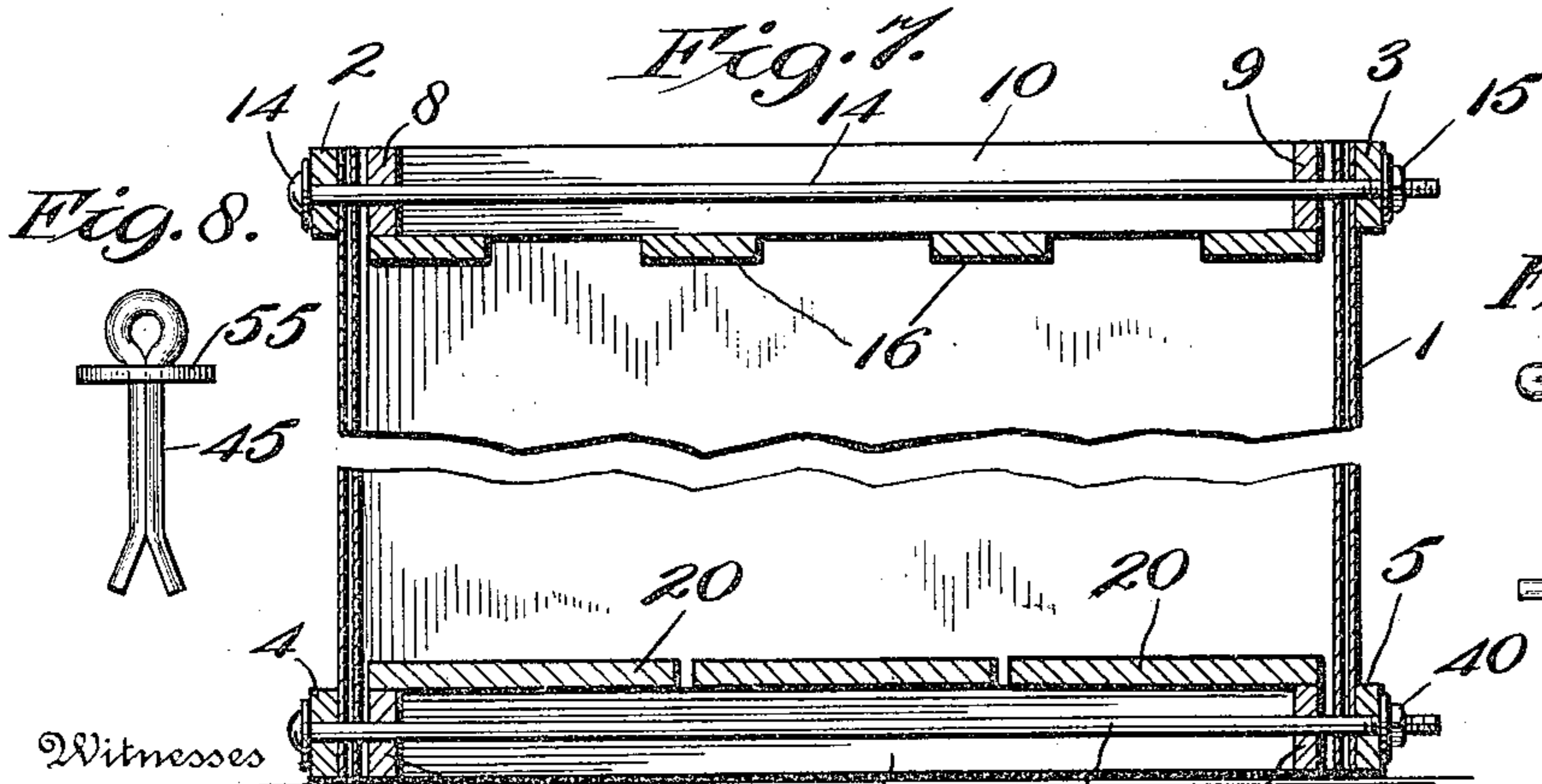
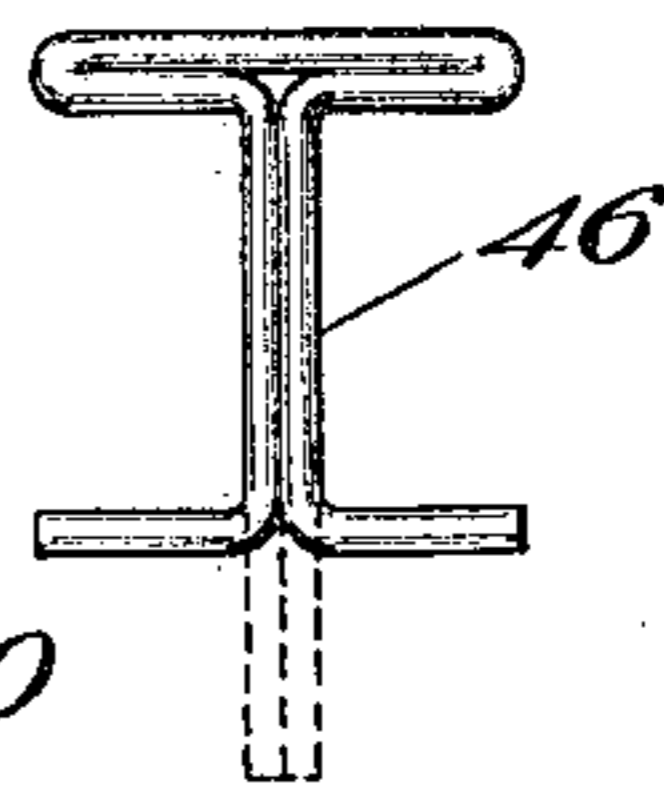


Fig. 7.



*Fig. 9.*



Witnesses

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# UNITED STATES PATENT OFFICE.

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## KNOCKDOWN CRATE.

1,154,831.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed March 3, 1915. Serial No. 11,725.

*To all whom it may concern:*

Be it known that I, OLIVER B. ANDREWS, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Knockdown Crates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to knock down crates, and has for its object to produce a shipping vessel which will be comparatively inexpensive to construct, will be strong and durable in use and will be easily opened and closed.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views—Figure 1 is a side elevational view of a crate made in accordance with my invention; Fig. 2 is an end elevational view of the parts shown in Fig. 1; Fig. 3 is a plan view of the parts shown in Figs. 1 and 2; Fig. 4 is an edge view showing the parts in their knocked down condition ready for shipment; Fig. 5 is a sectional view partly broken away illustrating the side walls and end closures of my crate; Fig. 6 is a sectional view showing the top closure partially elevated for access to the interior of the crate; Fig. 7 is a view similar to Fig. 5 taken on a plane at right angles to the plane on which Fig. 5 is taken; Fig. 8 is a diagrammatic view of one form of cotter key which may be employed for securing the closures of the body portion of the crate; Fig. 9 is a modified form of cotter key for securing said closure in place; and Fig. 10 is a diagrammatic view of one side of the crate illustrating the employment of the cotter keys shown in Fig. 8 instead of the rods 14 shown in the other figures.

1 indicates a body portion made of any suitable material such as corrugated paper, paper board or other inexpensive sheet material, 2 and 3 represent strips of wood or other stiffening material secured to the outer edge of the body portion 1 on each

side thereof at the top of the crate, and 4 and 5 represent similar strips of wood or other material secured at the bottom of the crate on each side thereof as illustrated. The said strips of wood, 2, 3, 4 and 5 are preferably located flush with the top and bottom edges 6 and 7 of the body portion 1 so as to protect the same from injury.

Fitting the interior of the top opening of the body portion 1 is a four sided frame having side members 8 and 9 and the end members 10 and 11 as shown. The stiffening members 2 and 3 are provided with holes passing through the wood material and through the paper body portion 1, while the corresponding frame members 8 and 9 are likewise provided with holes which register with the holes passing through said members 2 and 3. In order to secure the interiorly fitting frame members 8, 9, 10 and 11 on the inside of the crate, rods or other fastening members 13 and 14 are passed through said registering holes, and are conveniently provided with nuts 15 for holding said rods in place. To the interiorly and loosely fitting frame members, is preferably secured at the top portion of the crate the slats 16 thereby furnishing ventilation to the interior of the crate. The bottom end of the body portion 1 is provided with a similar interiorly fitting frame 19; 30, 31 and 32 to which are secured the bottom or floor members 20 which may be closely fitted together as illustrated or they may have wide spaces therebetween as in the case of the top closure if desired. The members 20 are preferably located on the top edges of the frame 19, 30, 31 and 32, so that they are raised above the floor or other support of the crate and thereby protect the contents of the crate from moisture or other objectionable substances. The bottom closure is further provided with securing rods 38 and 39 passing through holes with which the outer strips 4 and 5 and the bottom frame members are provided, and said rods 38 and 39 are conveniently provided with nuts 40 in a manner similar to the rods 13 and 14.

The body portion 1 is preferably made of a single sheet of material which is conveniently creased and bent at its four corners 21, 22, 23 and 24, so that when the top and bottom closures are removed the whole may be collapsed into the flat form illustrated in

Fig. 4. When in this condition a plurality of the crates may be readily packed in a close space and their end closures either shipped with them or they may be shipped separately, thus greatly economizing in the costs of freight. The ends of the single sheet of material of which the bottom 1 is composed may be conveniently overlapped and secured together or they may be brought together at one corner such as 24 and a suitable fabric such as 60 pasted thereover.

In practice it is found that the bracing structure comprising the outer bracing strips 2, 3, 4 and 5, the corresponding interior strips 8 and 9 at the top, the strips 30 and 31 at the bottom, with the rods 13 and 14 passing through the top strips, and the rods 38 and 39 passing through the bottom strips, makes an exceedingly strong and firm crate when the inexpensiveness of the material is considered, and one that will stand considerable shipping or rough usage before wearing out. The strength and durability of the crate is greatly enhanced by the interior cross strips 10 and 11 at the top, and the corresponding cross strips 19 and 32 at the bottom, which serve to prevent the end walls 35 of the crate from collapsing. Further, since the rods securing the top and bottom frames may be readily removed it is evident that in the case of shipping poultry the bottom can be readily gotten at for cleaning purposes and that the top can be readily taken out and replaced without injuring either the body portion 1 or the said top closure. In addition to the above, when it is desired to get at the contents of the crate without entirely removing the top closure, only one of the rods 13 or 14 need be removed and the said top closure may be swung on the other rod such as 14 as indicated in Fig. 6. As a matter of fact this feature is quite convenient when handling poultry because one can readily take from, or add to, the contents of the crate without undergoing the necessity of driving nails or of destroying any portion of the closure. Further the crate is capable of use in many shipments and reshipments without material deterioration.

Instead of the rods 13, 14, 38 and 39 disclosed above, I may employ cotter keys such as 45 illustrated in Fig. 8, or I may employ other shaped fastenings such for example as the bent wire 46 shown in Fig. 9. In such cases the nuts 15 and 40 are done away with and the keys or wire fastenings are slipped through the registering holes with which the outer and inner bracing members are provided, and the ends of the said keys may be conveniently bent back against the interiorly fitted frame members so as to form pivoting fastening members. In the case of the cotter key 45 it will be convenient to employ a washer 55 on one end and if desired of course

a similar washer may be provided on the interior of the crate in connection with the other end of the key 45.

It is obvious that those skilled in the art may vary the details of construction, as well as the arrangement of parts without departing from the spirit of the invention and therefore I do not wish to be limited to the above disclosure except as may be required by the claims.

What I claim is:

1. In a knock down crate the combination of a collapsible body portion; a pair of oppositely disposed bracing strips secured to the outer top edges of said body portion; a second pair of oppositely disposed bracing strips secured to the outer bottom edges of said body portion; a top closure comprising a frame having a pair of bracing strips fitting the inside of the top opening of said body portion parallel and in close proximity to said first named pair of strips; readily removable fastening and pivoting members passing through said first and last named pairs of strips; a bottom closure having a pair of bracing strips fitting the interior of the bottom end of said body portion and located parallel and in close proximity to said second named pair of outer strips; and readily removable securing members passing through said interior and exterior bottom bracing strips, substantially as described.

2. In a knock down crate the combination of a collapsible body portion made from a single sheet of material; a pair of oppositely disposed bracing strips secured to the outer top edges of said body portion; a second pair of oppositely disposed bracing strips secured to the outer bottom edges of said body portion; a top closure comprising slats and a frame having a pair of bracing strips fitting the inside of the top opening of said body portion parallel and in close proximity to said first named pair of strips; readily removable fastening and pivoting members passing through said first and last named pairs of strips; a bottom closure having a pair of bracing strips comprising slats on their upper edges, said strips fitting the interior of the bottom end of said body portion and located parallel and in close proximity to said second named pair of outer strips, each of said top and bottom closures being provided with cross strips adapted to contact with that portion of the inner wall of said body portion which lies between said outside strips; and readily removable securing members passing through said interior and exterior bottom bracing strips, substantially as described.

3. In a knock down crate the combination of a body portion comprising a single piece of paper sheet material creased at the corners of the crate to permit folding, and secured together at its meeting ends to form

an open ended four sided tubular member; a pair of bracing strips secured flush with the top edge of said member on outer opposing sides; a rectangular frame fitting the interior of the top of said tubular member, having a pair of bracing strips parallel and in close proximity to said outer strips, and having a pair of bracing strips on the interior of the wall between said outer strips; readily detachable pivoting fasteners passing through said outer strips and their corresponding interior strips, whereby said top closure may be readily removed or pivotally secured in place; a second pair of outwardly disposed bracing strips located opposite each other on

the lower end of said tubular member; a bottom closure having a pair of bracing strips parallel and in close proximity to said outer strips; readily removable fastening means passing through said bottom strips; and said bottom closure also provided with bracing strips fitting the interior of the bottom walls between the outside strips, substantially as described.

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

OLIVER B. ANDREWS.

Witnesses:

O. L. BUNN,

M. G. HOPE.

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