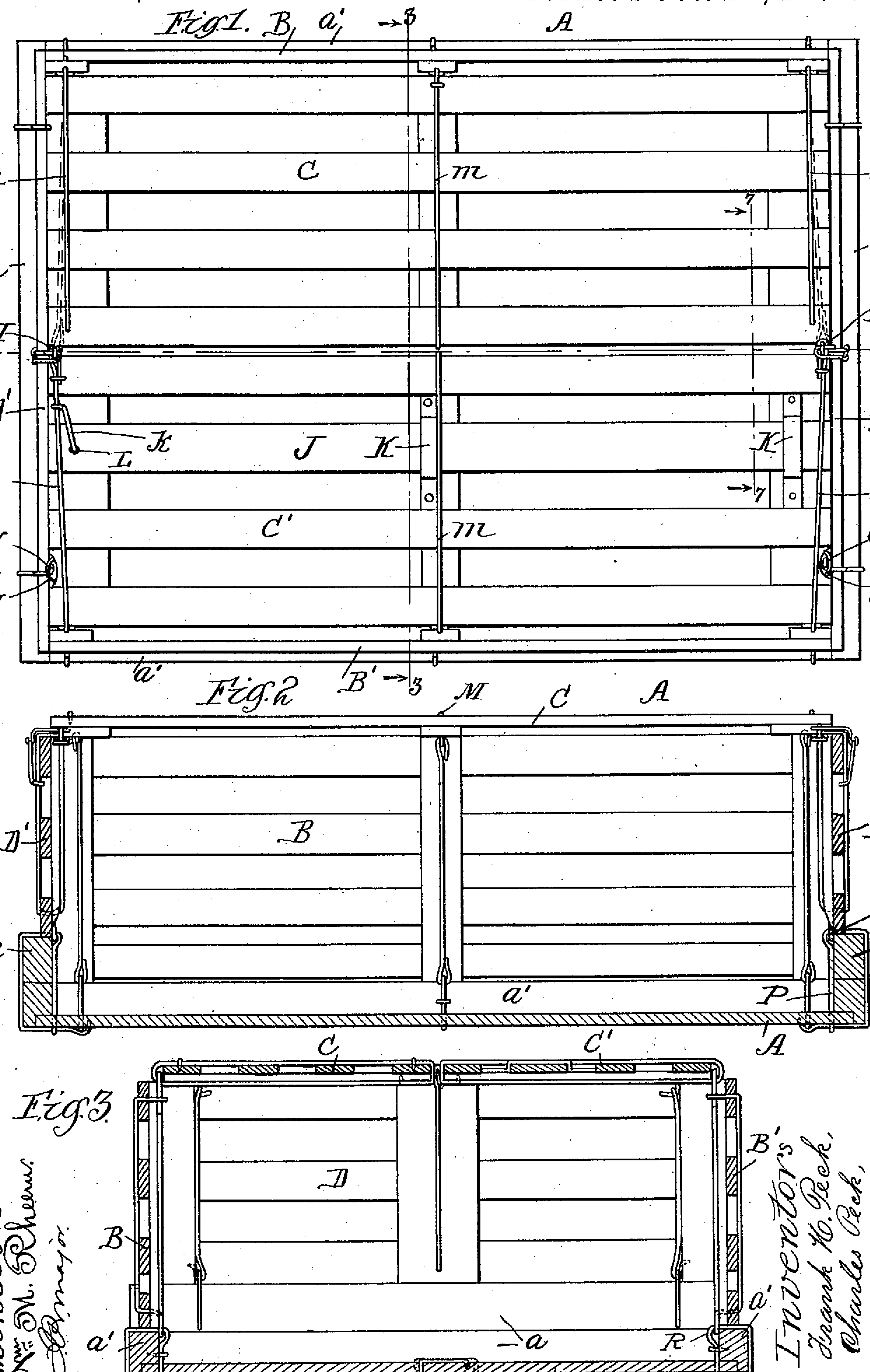
(No Model.) 2 Sheets—Sheet 1.

C. & F. H. PECK.

FOLDING BOX.

No. 592,253. Patented Oct. 26, 1897.



Witnesses
Wm. M. Rheem.
[illegible]

Inventors
Frank H. Peck,
Charles Peck,
by Charles H. Roberts
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

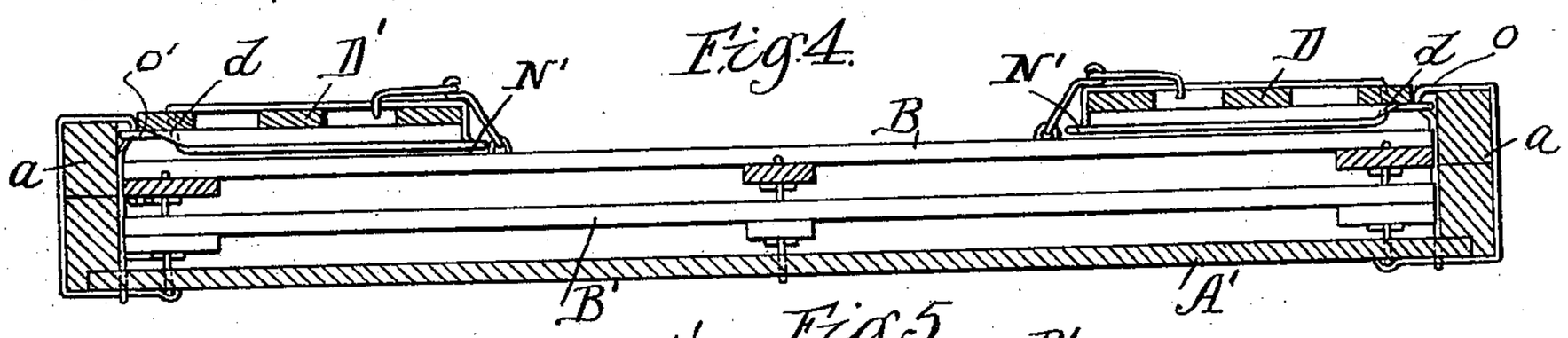


Fig. 5.

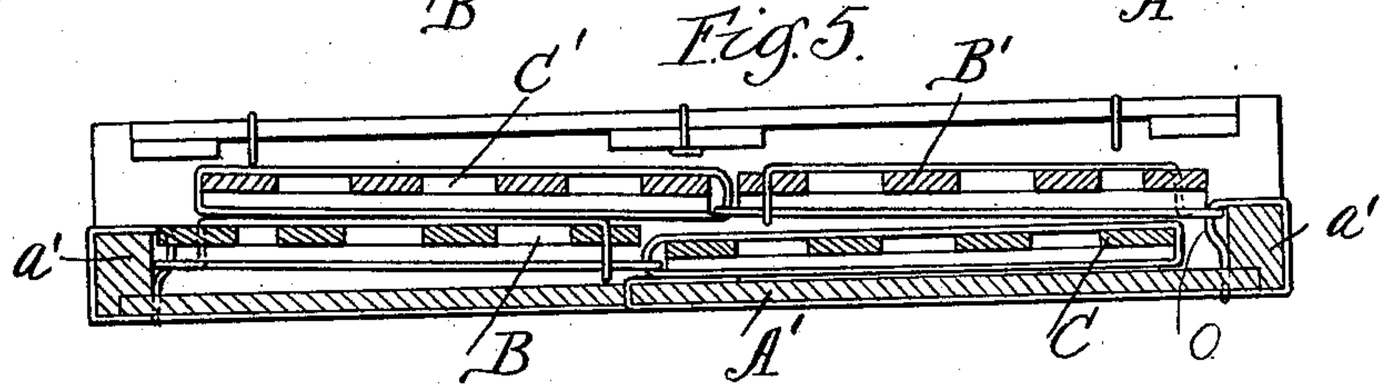


Fig. 6.

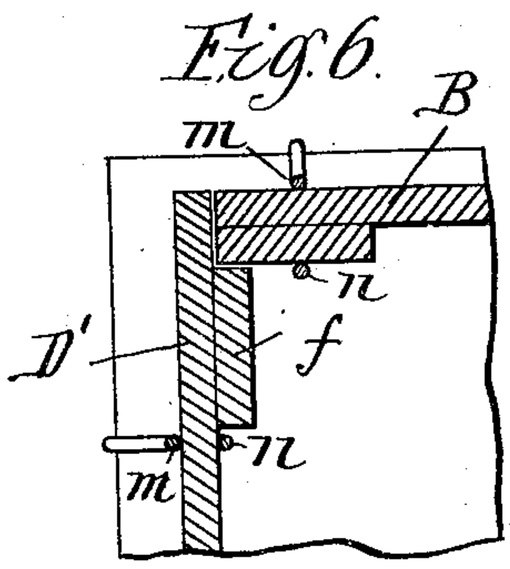


Fig. 7.

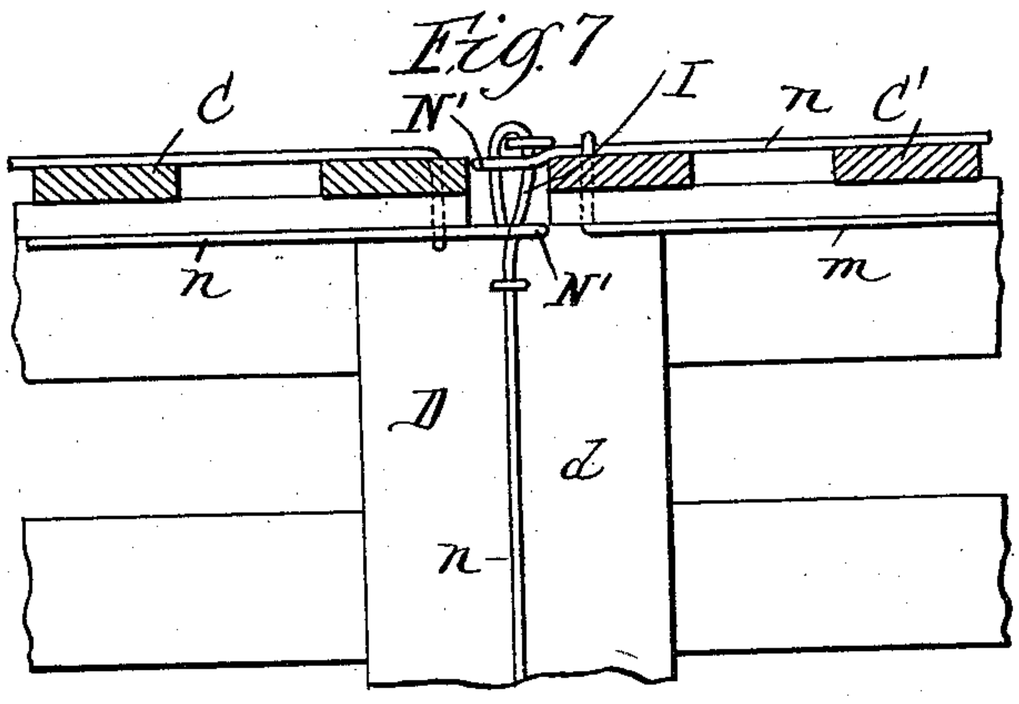


Fig. 9.

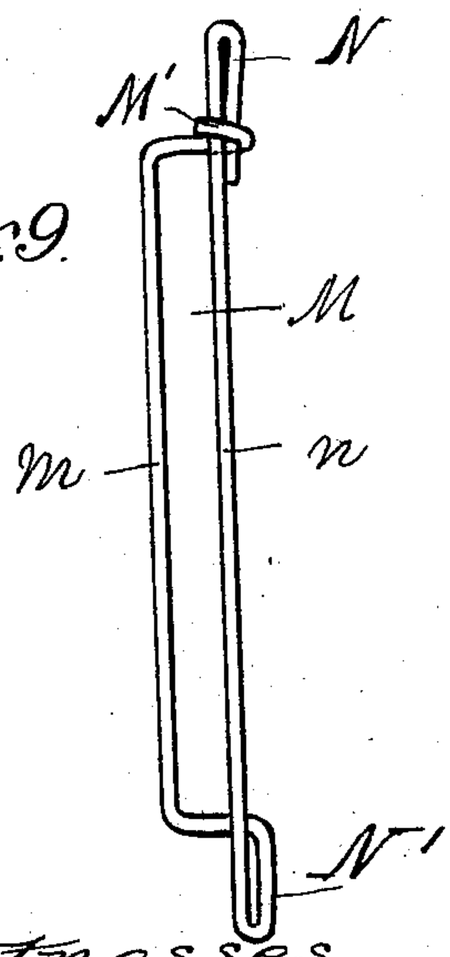
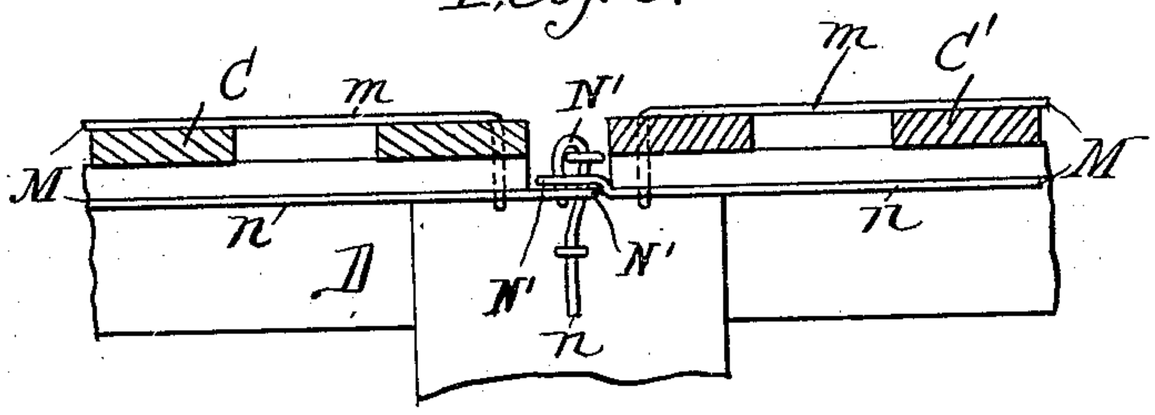


Fig. 8.



Witnesses.
Wm. N. Rheem.
R. Major.

Frank H. Peck
Charles Peck
Inventors
By Charles H. Roberts
Atty

UNITED STATES PATENT OFFICE.

CHARLES PECK, OF CHICAGO, AND FRANK H. PECK, OF LOMBARD, ILLINOIS.

FOLDING BOX.

SPECIFICATION forming part of Letters Patent No. 592,253, dated October 26, 1897.

Application filed August 29, 1896. Serial No. 604,305. (No model.)

To all whom it may concern:

Be it known that we, CHARLES PECK, residing at Chicago, Cook county, and FRANK H. PECK, residing at Lombard, in the county of Du Page, State of Illinois, citizens of the United States, have invented new and useful Improvements in Folding Boxes, of which the following is a specification.

Our invention relates to improvements in folding boxes which may be used in the transportation of merchandise and then folded and knocked down and returned to the shipper for use again and again until worn out; and the objects of our invention are to provide a simple device easily constructed and adapted to be readily used by any one for marketing merchandise, &c., and which shall be more durable than wood and lighter and better adapted to the purpose than metal, and the sections of which shall be joined together in a more simple, less expensive, and at the same time more efficient way than has heretofore been done. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a poultry-crate constructed by our method. Fig. 2 is a central longitudinal section. Fig. 3 is a transverse section on the line 3 3 of Fig. 1. Fig. 4 is a longitudinal section of the box when folded. Fig. 5 is a section showing it folded transversely and also showing the wire skeleton of the sections. Fig. 6 shows a corner. Figs. 7 and 8 illustrate the fastening of the top sections, Fig. 7 being a modification. Fig. 9 shows a typical strengthening-wire as used in the box.

Similar letters refer to similar parts throughout the several views.

The case A has a floor A′, provided with end pieces *a* and side pieces *a′* and side sections B and B′.

The side sections B and B′ form the sides of the crate or box, and to them are linked, in a manner to be hereinafter stated, additional sections C C′, which form the top of the case.

On the end pieces *a*, which are raised above the level of the floor to allow of the folding in of the parts, are end sections D D′, which are chamfered off at the lower edges to admit of the folding in of the sections, as aforesaid, when the box is "knocked down." This chamfered edge is marked *d*.

While our box may be used for any purpose and may be either slatted or solid, we have designed it with special reference to the transportation of poultry, for which purpose the drawings show a slatted box.

The cleats *f*, used to hold the slats together, are placed on the inside to be out of the way and also to stay the box at the corners. For this purpose the cleats on one end or side are withdrawn from the end of the section, so that when the corners come together the cleat on the flush corner fits into the space from which its fellow is withdrawn, thus bracing the corner inwardly both ways when the side and end sections are brought together, as shown in Fig. 6. When the box is made solid instead of slatted, the cleats still add rigidity to the corners, although not necessary to the use of the box, and although the loop and hasp G and *g* alone will hold and stay them, as also will the loops H and hasp I.

On the under side and inner edge of the top sections B′ and C′ are loops of wire *g*, and when the corners are brought together and inwardly braced, as aforesaid, and the top sections are unfolded or extended into place these loops *g* pass over upright stanchions N′ or N, as shown in Fig. 1, which are the loop extensions of the wire fastening M, attached to the end sections and protruding slightly above them. This locks the box from opening outwardly and in combination with the inward bracing aforesaid fastens the corners both ways. The top or cover sections B′ and C′ are also provided on their under edges with loops N′, which fit over other stanchions N′ in the center of the box, thus holding the top sections together and staving the entire box. The stanchions and hasps N′, three in number, as shown at Fig. 8 and more plainly at Fig. 7, are extensions of and integral with the wire binding or supports of the sections, a type of which is shown at Fig. 9.

A movable slat J moves in straps K, fastened by the bended-wire fastening *k*, which travels loosely on the wire by a ring in one end on the wire E, and is bent or curved to fit in the hole L in the slat, which hole registers in a similar hole in the cleat beneath, thus fastening the slat to the section.

To release the slat J, the wire *k* is simply lifted out of the hole L. It will then hang from the fastening-wire *n*, ready to be used again when needed.

When the sections are thrown outward to set up the box, the bottoms of the side and end sections rest on the top of the end and side pieces *a* and *a'*, but are held from falling outward by the hinges O O', which allow the sides and ends to flare slightly from the perpendicular, but do not allow them to fall flat outwardly. This flaring has the double advantage of, first, allowing the side sections to fold in without interfering with the end sections; second, the operator can set up the box without aid. The ends of the sections at each corner flaring but slightly from the perpendicular are readily grasped and brought together by one person, whereas four people would be needed to bring the four sides of the box perpendicular if the sides when thrown outward rested flat upon the ground. To allow the side sections to rise and fall freely the inner edges of the ends are chamfered off, as shown at *d* of Fig. 4.

An important feature of our device is the use of wire-strengthened sections to overcome the defects of the wooden box and the use of wire for substantially all the connections, hinges, staples, and locks required about the folding box. The supporting and strengthening wire is a skeleton, which carries the articulations or joints on which the wooden sections fold. The addition of the wire adds toughness and strength to the wood of the box, and the wood in turn adds stiffness and resilience to the wire, the wire always performing in the construction a double and sometimes a triple function. Even when broken the box will perform its functions.

In the construction shown in the drawings the wire is passed around the section at each of the three cleats by which the section is strengthened, passing preferably through some portion of the wood of the section to give it grasp of the same, and is finally bent into a looped fastening, as shown at N of Fig. 9. This looped fastening is adapted to encompass the opposite end of the wire, and is also adapted to be driven into the wood of the section, thus fastening both ends of the skeleton strengthening-wire firmly against the wood and giving the wire an additional bearing against the wood of the section.

In Fig. 9, M is a typical wire as used in the sections of our box, the parts *m* and *n* clasping and strengthening the wood of the section, the end loops, as at N and N', which may be used interchangeably, serving for a hasp or half-hinge, and the looped fastening M' preferably passing into the wood and holding both ends of the wire. The skeleton wire adds flexibility to the box and its joints, which allows them to yield to blows and yet retain their shape.

At the corners the wood of the floor of the box is doubly supported by being transversely encompassed by two wires, both wires performing double functions, thus the wires Q grasp the floor near its center and each passes near the corner about the end piece A' and a portion of the floor, strengthening the floor, binding floor and corner together, and affording a hinge R, and then returning about itself passes into the side sill *a'* as a staple. The wire P encompasses the corner transversely to Q, affords a hinge at R', and a staple to fasten both ends of the wire. We thus produce a box having sufficient rigidity for all purposes, yet also possessing a degree of pliability which prevents it from being easily shattered and broken by the shocks and abuse of transportation, its articulations being wire and flexible.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. In a knockdown box of wood and wire the combination of, first, a floor for the box said floor being strengthened by binding-wires which, at the edges of the floor, are formed into and present loops or half-hinges adapted for the hanging thereto of side and end sections of the box; second, side sections and end sections also strengthened with wire or wires which said section-wires are formed into and present, at the section edges, loops or half-hinges linked into said half-hinges of the floor-wires said section-wires also presenting, at the section edges opposite the floor-hinges, loops adapted to serve as half-hinges for the top sections, and also, loops adapted to serve as stanchions formed to engage with hasps on the top sections to support the box when set up; third, top sections also strengthened by wires which said wire or wires are formed into, and present, at the section edges, loops or half-hinges, linked into half-hinges of the side sections, and, at the opposite top section edges, presenting loops or hasps adapted to fit over upright stanchions on the lateral sections to support and lock the box, substantially as described and shown.

2. In a folding or knockdown box composed of connected sections, a wooden section, bound and supported with a wire, which wire also is formed into, and serves on both its opposite sides as, a loop or half-hinge to connect the section with another section or part, substantially as described and shown.

3. In a folding or knockdown box composed of sections, a wooden section bound and supported with a wire which passes around part or all of the section, said wire being also formed into and presenting a loop or half-hinge on one edge and on the other edge a stanchion or hasp adapted to pass into a loop on another section substantially as described and shown.

4. In a knockdown box, a wooden section supported by a wire which passes through part of the wood of the section and also surrounds and supports part of the section, which said

supporting-wire is formed into loops on opposite edges of the section, said loops being adapted to be used, either as half-hinges to connect the section with half-hinges of other sections, or, as loops or hasps to fit over other loops or stanchions to support and lock the sections of the box when set up, substantially as described and shown and for the purposes specified.

5. In a knockdown box a wooden section supported by a wire which surrounds part of the wood of the section, which said supporting-wire is formed into loops on opposite edges of the section, said loops being adapted to be used, the loop on one side of the section as a half-hinge, and the loop on the opposite side of the section as a hasp, to pass over a stanchion to lock the section, substantially as described and shown.

6. In a knockdown wooden box the strengthening-wire M having the parts *m* and *n* to surround portions of the wood of the sections, the loops N and N′ to afford half-hinges and fastening-loops and the fastening-loop M′ substantially as described and shown.

7. In a knockdown wooden box the strengthening-wire M having the parts *m* and *n* to surround portions of the wood and the opposite loops N and N′ to afford half-hinges and fastening-loops substantially as described and shown.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES PECK.
FRANK H. PECK.

Witnesses:
MASSY GEDDES,
W. F. SWITZER.