

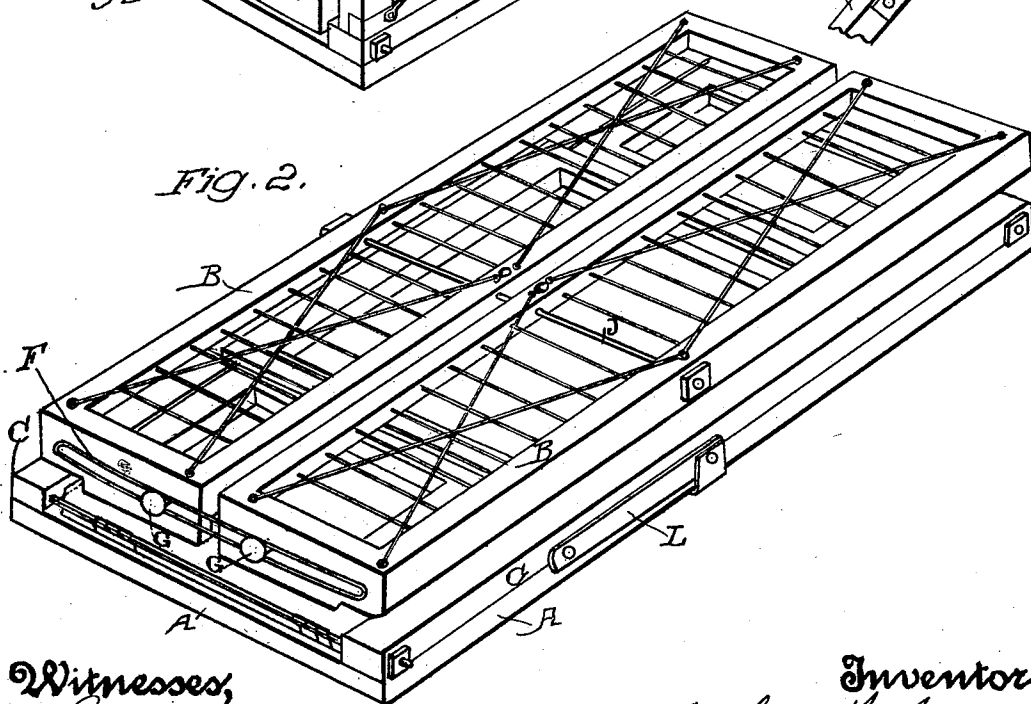
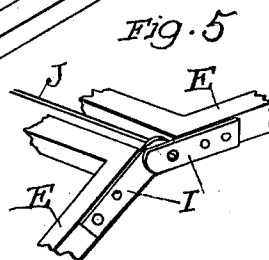
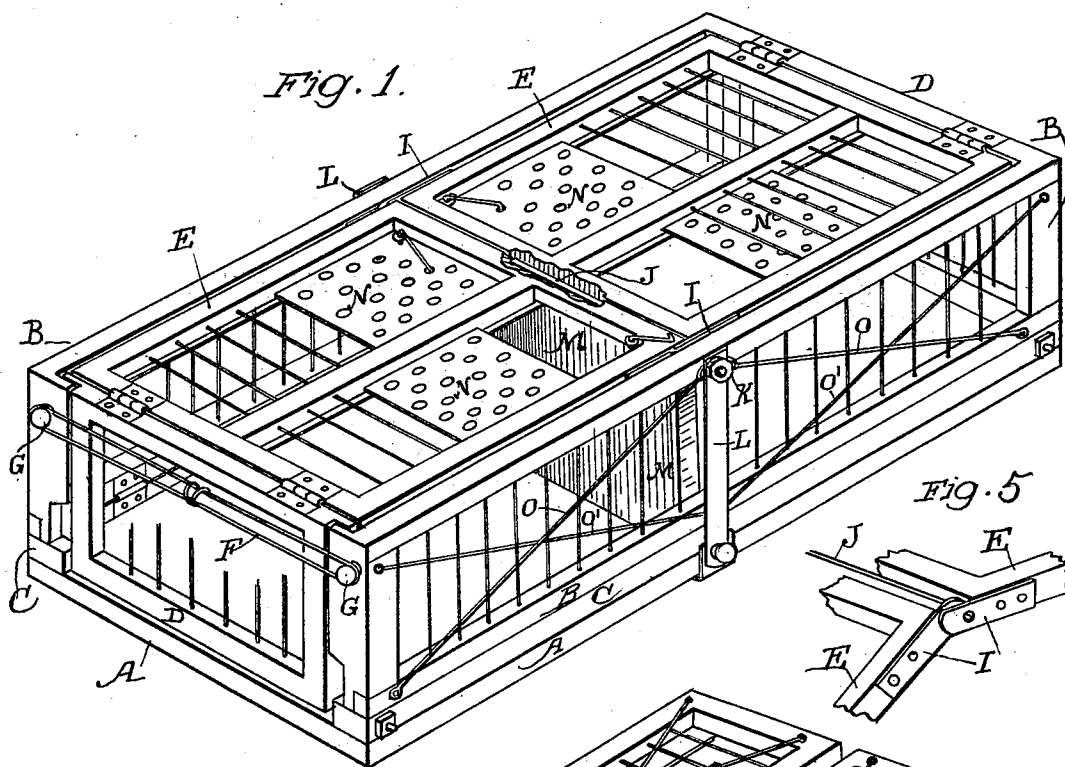
(No Model.)

2 Sheets—Sheet 1.

A. W. COATS.
FOLDING CRATE.

No. 521,640.

Patented June 19, 1894.



Witnesses,
J. H. Payne
J. H. Payne

Inventor,
Arthur W. Coats
By *Devoe & Co.*
attys

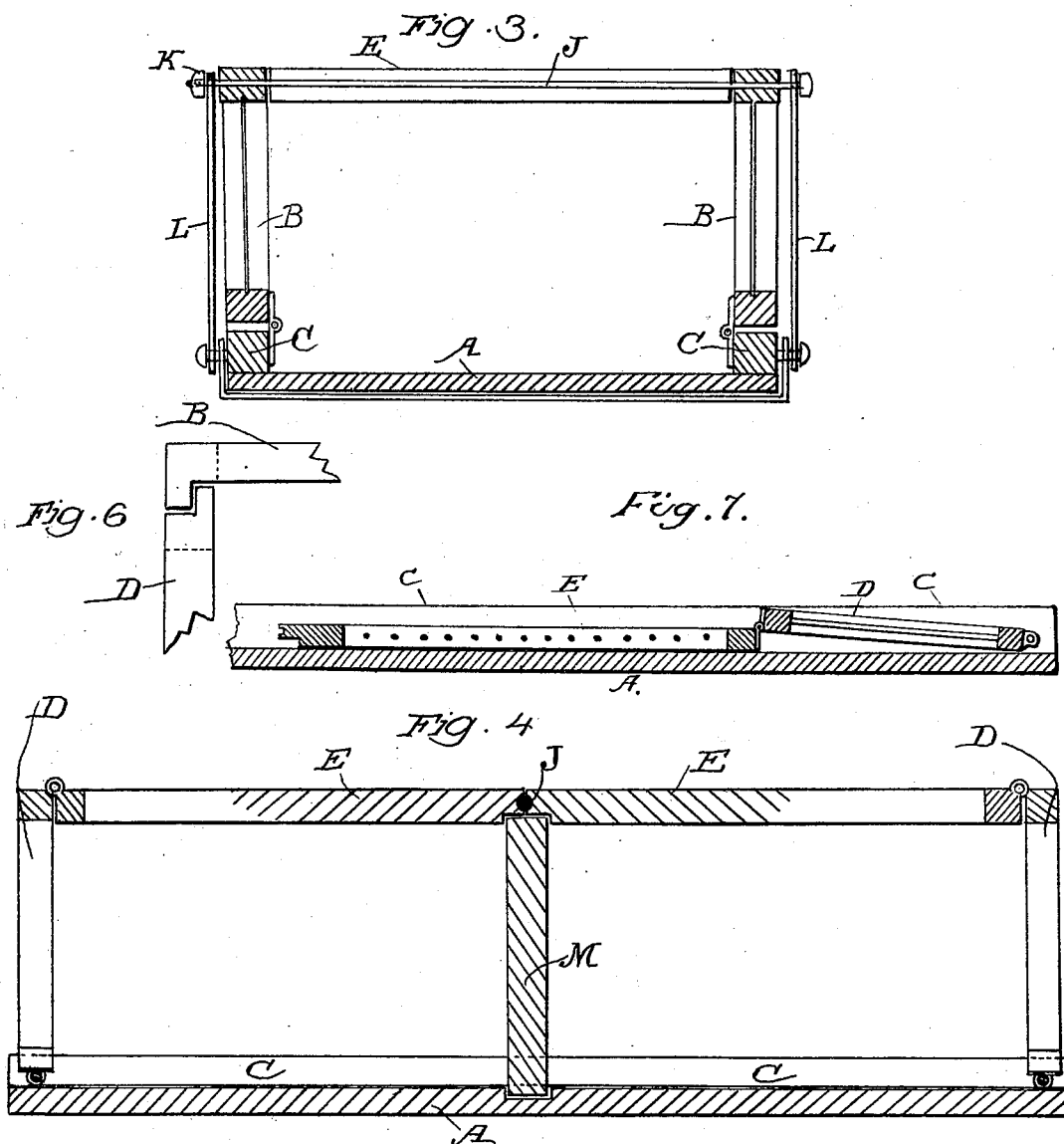
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A. W. COATS.
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Arthur W. Coats
By Dewey & Co.

UNITED STATES PATENT OFFICE.

ARTHUR W. COATS, OF UKIAH, CALIFORNIA, ASSIGNOR OF ONE-HALF TO
JAMES BARTLETT, OF SAME PLACE.

FOLDING CRATE.

SPECIFICATION forming part of Letters Patent No. 521,640, dated June 19, 1894.

Application filed April 13, 1894. Serial No. 507,430. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. COATS, a citizen of the United States, residing at Ukiah, county of Mendocino, State of California, have
5 invented an Improvement in Folding Crates; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a crate of that class which is adapted to be folded up into small
10 compass for the purpose of transportation.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is an exterior view of my crate
15 set up. Fig. 2 shows it folded. Fig. 3 is a transverse vertical section. Fig. 4 is a longitudinal vertical section. Figs. 5 and 6 are details of construction. Fig. 7, is a sectional detail showing a portion of the bottom with
20 one of the ends and its attached section of the top folded inward upon said bottom.

A is the bottom of the crate, and B B are the sides which, in the present case, are shown as made of rectangular frames with vertical
25 bars or iron rods to form an open work crate for fowls or other similar uses. The sides B rest upon longitudinal strips C of sufficient thickness to allow the end and top sections to lie approximately flush between them when
30 extended along the bottom, in folding the crate. The side sections have their bottom rails hinged upon the tops of the strips C, either by plates extending into slots formed in the vertical end posts of the sides and having
35 pivot pins through them about which the sides turn, or by means of angle iron hinges fixed to the bottom and bent up along the inner part of the ends of the strips C while the other part of the hinges is attached to the
40 sides. In either case the sides are elevated sufficiently by this construction to allow them to fold down over the end and top sections when the latter are extended upon the bottom of the crate. The end sections D have their
45 bottom rails hinged upon rods which extend through the ends of the strips C so that these end sections turn freely by means of straps about the rods to lie approximately flat between the strips C when folded upon the bot-
50 tom. The top section is made in two approxi-

mately equal parts E E, each of which is hinged by straps to the top of its appropriate end section, so that a joint is formed which allows one end and top to be extended, and
55 lie in the bottom of the crate between the sides C, while the other one is extended above the first one and lies sufficiently low so that the sides may be folded in over the whole.

When the crate is to be set up, the sides are opened about their hinges until they
60 stand in a vertical position.

In order to arrest the sides when they reach a vertical position, and prevent their turning outwardly too far, I have shown links F
having a length equal to the distance be-
65 tween the centers of the end posts of the sides when the latter stand upright. In these end posts are fixed suitable pins G upon which the long slots in the links slide, so that
70 when the sides are closed down, the pins will move toward the centers of the links, and the links will extend along the end posts which then lie approximately in a line horizontally. When the sides are opened up,
75 the pins slide outwardly until they reach the ends of the links, and the sides then stand vertically. The end posts have a portion projecting inwardly in the form of the letter
80 L in cross section, and against this portion, the corresponding projections upon the ends about when the ends are opened so that they
form a support to hold the ends in their vertical position against these posts, as shown
85 in plan view, Fig. 6. When the ends are thus set up, the top sections stand in line with each other, their meeting ends abutting
90 together. Upon each side of these top sections is a plate I. These plates are made of thin metal, overlapping each other, and have
95 holes made through them, and semi-circular channels are made in the meeting ends of the top sections, corresponding with these
holes so that a rod J pushed through the center of the top rails of the sides, will pass
100 through the holes in these plates, and through the central channel between the ends of the top sections, thus uniting the whole together. This rod has a head on one end, and extends through the opposite side far enough to receive a nut K upon the screw-threaded end

which serves to draw the parts closely together at this point. As there is usually considerable weight upon the bottom of a crate of this sort, I make the sides serve as truss frames to assist in supporting the bottom, by employing flat metal strips L, the lower ends of which are pivoted to the bottom, or to a rod or flat metal strip passing through or beneath the bottom as shown. The upper ends are attached to the rod J which passes through them, and when the nut is screwed on to its threaded end, these sides are firmly united with the bottom, and thus assist to support it and prevent its sagging. The top, or a portion of it, may be closed or formed with rods or bars fastened across at intervals.

In order to separate the crate into two parts, I employ an intermediate diaphragm or partition M. This may be made of wood or metal, and may be placed within or upon the crate in any suitable and well known manner when the crate is in its folded condition.

The bottom of the crate has a transverse groove or channel formed in it vertically beneath the meeting ends of the top sections to receive the lower edge of the partition, and these two meeting ends have a corresponding channel formed between them into which the upper edge of the partition fits, and when the rod J which unites the sides and top sections is in place and the whole locked together, the partition remains firmly fixed in place without other fastening.

In order to obtain access to the interior of the crate, I have shown sliding doors N movable in proper guides in the top sections. These doors slide longitudinally beneath the transverse rods which form the top, and may be opened at any time to obtain access to the crate, and when closed they are secured by hooks, clasps, or any suitable closing device. In order to strengthen the crate against such forces as might knock it out of shape by blows upon the corners, I have shown diagonal braces O extending from the lower outer angles of the sides to meet in the center and be connected by the uniting rod J which passes through holes made in these braces. Other braces O' extend from the upper outer angles and meet at the center of the lower side rail, thus bracing these rails against any strain which would be liable to wrench them out of shape by throwing the crates down upon the corners or striking them with other boxes, while the ends are well locked by reason of the overlapping projecting vertical strips which form their supports when they are open.

When the crate is to be folded, the rod J is withdrawn, the vertical bracing strips L being disengaged from the rod, may be folded down alongside of the bottom, the ends and top sections are folded over each other in the bottom of the crate, and lastly the side sections are folded inwardly over the end and top sections, lying flat upon them, while the links at their ends extend along the meeting

end posts which now lie flat. The rod J is then introduced through holes made in line through the top and bottom rails of the side sections which now lie flat with the top rails along the center of the crate, and the rod having been passed through them and the nut placed upon it, the whole crate is properly locked together in its folded position and may then be transported with little difficulty.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a folding crate, the bottom having the supplemental side strips fixed permanently upon it, sides hinged upon the top of said strips adapted to open outwardly into a vertical position about their hinges and slotted links extending across the ends of these sides, pins passing through the slots and into the ends, and slidable within the links of the slots so as to allow the sides to be folded or unfolded, substantially as herein described.

2. In a folding crate, the bottom having side strips permanently fixed upon it, sides having their lower edges hinged upon these strips adapted to open upwardly and outwardly about their hinges, slotted links through which pins pass into the upper ends of the sides, said pins being slidable within the links so as to retain the sides in the vertical position when opened, end sections pivoted between the permanent supplemental side rails, and adapted to turn about their hinge bars to stand in a vertical position, projections upon the vertical end posts of the side and end sections adapted to interlock to hold the parts when opened, and top sections hinged to the top bars of the end sections and meeting in the center with overlapping perforated plates at each side and a groove or channel made between these meeting ends, together with a rod passing through the top rails of the sides through the holes in the plates and the slot between the ends, said rod having a head upon one end and a nut upon the other whereby the whole is locked together by a single fastening as described.

3. A folding crate composed of the bottom having the supplemental permanently fixed side strips, sides hinged upon the top of said strips to open outwardly and upwardly, with end links and pins whereby they are retained in position, top and end sections hinged together, the end sections also hinged between the supplemental side strips of the bottom, a fastening consisting of a rod extending through the center of the top rails of the sides through overlapping plates upon the meeting ends of the top sections and a groove or channel formed between them, and vertical truss plates L attached to the center of the bottom having the upper ends adapted to fit upon the central securing rod whereby the top and bottom are connected and the latter is supported and prevented from sagging as described.

4. A folding crate composed of a bottom

with permanently fixed side strips, sides
hinged to the top of said strips, to open or
close about the hinges, and slotted end links
and pins, top and end sections hinged to-
5 gether, the end sections also hinged between
the side strips of the bottom, a rod extending
through the upper rails of the sides and
adapted to lock the meeting ends of the top
sections together, vertical truss plates L and

diagonal plates O and O' from the angles to 10
the centers of the sides, substantially as here-
in described.

In witness whereof I have hereunto set my
hand.

ARTHUR W. COATS.

Witnesses:

H. B. MUIR,
J. Q. WHITE.