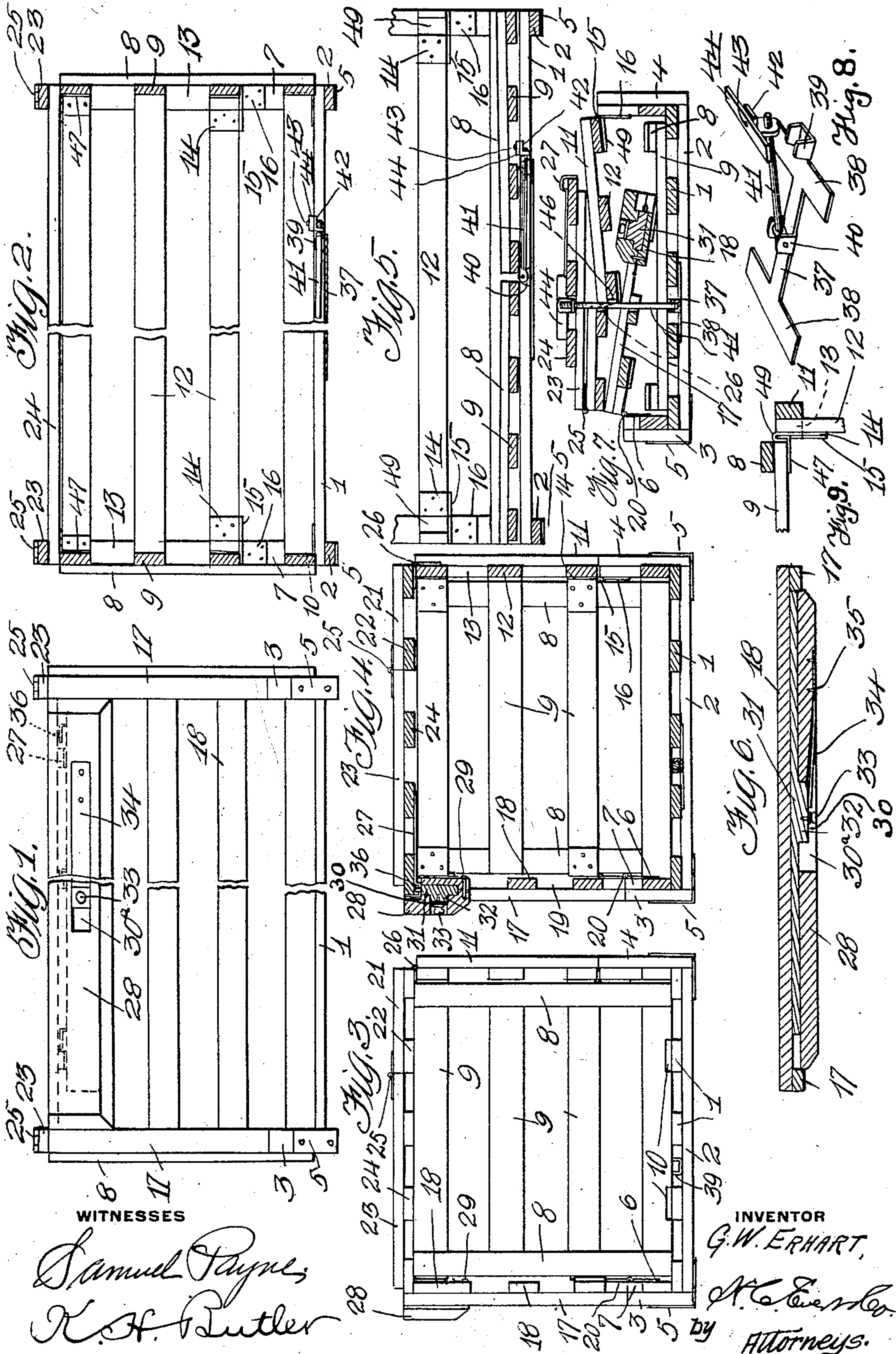


G. W. ERHART.  
FOLDING BOX AND CRATE.  
APPLICATION FILED MAY 21, 1910.

999,020.

Patented July 25, 1911.





# UNITED STATES PATENT OFFICE.

GEORGE W. ERHART, OF PITTSBURG, PENNSYLVANIA.

## FOLDING BOX AND CRATE.

999,020.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed May 21, 1910. Serial No. 562,709.

*To all whom it may concern:*

Be it known that I, GEORGE W. ERHART, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Folding Boxes and Crates, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to folding boxes and crates, and the objects of my invention are to provide a collapsible crate that can be advantageously used for transporting various kinds of merchandise, the crate in a set up position being rigid and durable, and to provide a collapsible crate that will occupy a comparatively small space when in storage or reshipped to the owner.

Other objects of my invention are to furnish a collapsible crate with novel means for retaining the foldable parts thereof in a collapsed position, and to accomplish the above results by a structure that is inexpensive to manufacture, and efficient for the purposes for which it is intended.

These and such other objects as may hereinafter appear are attained by the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawing forming a part of this specification, wherein there is shown a preferred embodiment of the invention, but it is to be understood that the structural elements thereof can be varied or changed, as to the size, shape and manner of assemblage without departing from the scope of the appended claims.

In the drawing:—Figure 1 is a front elevation of the crate partly broken away, Fig. 2 is a vertical longitudinal sectional view of the same, Fig. 3 is an end view of the crate, Fig. 4 is a vertical cross sectional view of the same, Fig. 5 is a longitudinal sectional view of a portion of the crate showing the end walls thereof folded, Fig. 6 is a horizontal sectional view of a portion of the crate showing the lock for the lid, Fig. 7 is a cross sectional view of the crate collapsed, Fig. 8 is a perspective view of a detached lock employed in connection with the crate to retain the parts thereof in a folded posi-

tion, and Fig. 9 is a horizontal sectional view of a portion of the crate.

A crate in accordance with my invention comprises a bottom, hinged end walls adapted to fold upon said bottom, front and rear walls adapted to fold upon said end walls, a sectional lid hinged to the rear wall, a lock carried by the upper edge of the front wall to engage the front edge of said sectional lid, a lock carried by the bottom of said crate for holding the walls and lid thereof in a folded position, and other devices adapted to add rigidity to the structure when in a set up position.

The bottom of the box comprises longitudinal slats 1 having the ends thereof connected by transverse bars 2. Connected to the ends of the bars 2 are vertical corner pieces 3 and 4 provided with angle straps 5 extending under the bars 2. The corner pieces 4 are connected by longitudinal slats 6 and these slats at the corner piece 3 have the upper edges thereof provided with hinge supports 7. The corner pieces 4 and the hinge supports 7 thereof are of a greater height than the corner piece 3, whereby the front wall connected to the supports 7 can be swung inwardly and then the rear wall swung upon the front wall.

The end walls comprise vertical bars 8 connected by transverse slats 9, the lowermost slat of each end wall being hinged, as at 10 to the ends of some of the slats 1, whereby the end walls can be folded inwardly upon the slats 1.

The rear wall comprises vertical bars 11 connected by longitudinal slats 12 and secured to the bars 11 between said slats are spacer blocks 13. The lowermost slat 12 of the rear wall is provided with hinged members 14 hinged, as at 15 to similar members 16 carried by the supports 7 of the corner pieces 4.

The front wall comprises vertical bars 17 connected by longitudinal slats 18 and between these slats are spacer blocks 19 similar to the blocks 13 of the rear wall. The lower spacer blocks 19 are hinged, as at 20 to the supports 7 of the corner pieces 3.

The lid consists of two sections, one section comprising end bars 21 and longitudinal slats 22 and the other section end bars 23 and longitudinal slats 24. The end bars



21 and 23 are connected by hinges 25 and one of the slats 22 is connected by hinges 26 to the uppermost slat 12 of the rear wall. The slats 24 at the front edge of the lid are  
 5 provided with keepers 27 arranged upon the under sides of said slats.

The lock used in connection with the front wall for securing the lid in a closed position comprises a longitudinal plate 28 secured to  
 10 the uppermost slat 18 of the front wall by nails 29 or other fastening means. This plate is provided with a longitudinal slot 30 and intermediate its ends with an opening 30<sup>a</sup> communicating with the slot. Arranged  
 15 between said plate and the uppermost slat 18 is a longitudinal latch 31 having a projection 32 extending into the opening 30<sup>a</sup> of said plate. The projection 32 is provided with a suitable knob 33 whereby it can be  
 20 shifted and when shifted, a flat spring 34, secured to the plate 28, as at 35 is adapted to engage the end of the projection 32 and hold said projection until said spring is  
 25 moved out of engagement with the end thereof. The latch 31 has the upper surface thereof provided with hooks 36 adapted to engage in the keepers 27 of the lid.

The lock employed for securing the parts of the crate in a folded or collapsed position  
 30 comprises a strap 37 having apertured lugs 38 suitably connected to the under side of the slats 1 of the bottom of the crate approximately centrally thereof. The strap 37 has one end thereof provided with guide  
 35 lugs 39 and midway of the ends of said strap are the apertured lugs 40 serving functionally as a bearing for a pivoted tie rod 41. Adjustably mounted upon the end of the tie rod 41 is a bracket 42 and pivot-  
 40 ally connected to said bracket, as at 43 is a cleat 44. The tie rod 41 is adapted to be swung upwardly and then the walls of the crate folded inwardly, the tie rod being lo-  
 45 cated at such a point that an inward movement of the end walls will not interfere with the same and in order that the front and rear walls can be folded, as well as the  
 50 lid of the crate, one of the slats 18 of the front wall is cut away, as at 45 and the slats 12 of the rear wall and the slats 22 of the lid are cut away, as at 46, thus permit-  
 55 ting of the tie rod extending upwardly through said walls and the lid, it being understood that the cleat 44 is in alinement with the tie rod while the walls and lid are  
 60 being folded, and after the lid has been folded upon the front and rear walls, the cleat 44 is shifted to engage the slats 24 of the lid section. When the crate is in a set  
 up position the tie rod 41 normally rests between the guide lugs 39 of the strap 35, the tie rod being swung longitudinally between the slats 1 of the bottom.

The devices employed for adding rigidity to the crate in a set up position comprise an-  
 65 gle arms 47 carried by the slats 9 of the end walls, these angle arms engaging in keepers 48 carried by the ends of the slats 12 and 18 of the rear and front walls respectively.

It is thought that in view of the draw-  
 70 ing, particularly Fig. 7 the utility and manner of manipulating the crate to set up or collapse the same will be fully understood without further description, and with the  
 75 exception of the locks, hinges and devices previously described which are made of metal, the remainder of the crate is made of light and durable wood.

Having now described my invention what I claim as new, is:—  
 80

1. The combination with a folding crate having a slatted bottom, of a longitudinally-extending I-shaped strap having its ends se-  
 85 cured to a pair of slats and provided with a pair of apertured lugs disposed in the space between the said pair of slats, said strap further provided at one end with a  
 90 pair of guide lugs in alinement with the first pair of lugs, a tie rod having its lower end pivotally connected to the apertured lugs and adapted to extend between the  
 95 other pair of lugs when in an inoperative position, and an adjustable bracket carried by the outer end of said rod and adapted to engage the rod when the crate is knocked  
 down thereby holding the parts of the crate in folded position.

2. The combination with a folding crate, of keepers secured to and depending from  
 100 the lid of the crate, a longitudinally-slotted plate secured to the outer face of the front wall of the crate at the upper portion there-  
 of and provided intermediate its ends with an opening communicating with said slot, a latch arranged in the slot and having a  
 105 projection extending in said opening, a spring bearing against the projection for maintaining the latch in its adjusted position, and hooks projecting upwardly from  
 110 the top of the latch and adapted when the latch is shifted in one direction to engage in the keepers for securing the lid of the crate in a closed position.

3. The combination with a folding crate, of keepers secured to and depending from  
 115 the lid of the crate, a longitudinally-slotted plate secured to the outer face of the front wall of the crate at the upper portion there-  
 of and provided intermediate its ends with an opening communicating with said slot, a  
 120 latch arranged in the slot and having a projection extending in said opening, a spring bearing against the projection for maintain-  
 125 ing the latch in its adjusted position, hooks projecting upwardly from the top of the latch and adapted when the latch is shifted

in one direction to engage in the keepers  
for securing the lid of the crate in a closed  
position, angle-shaped arms carried by the  
end walls, and keepers connected to the front  
5 and rear walls and adapted to engage the  
said arms thereby adding rigidity to the  
crate when the latter is set up.

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

GEORGE W. ERHART.

Witnesses:

MAX H. SROLOVITZ,  
K. H. BUTLER.

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