

A. J. CONE.
FOLDING CRATE.
APPLICATION FILED FEB. 5, 1910.

982,350.

Patented Jan. 24, 1911.

Fig. 1.

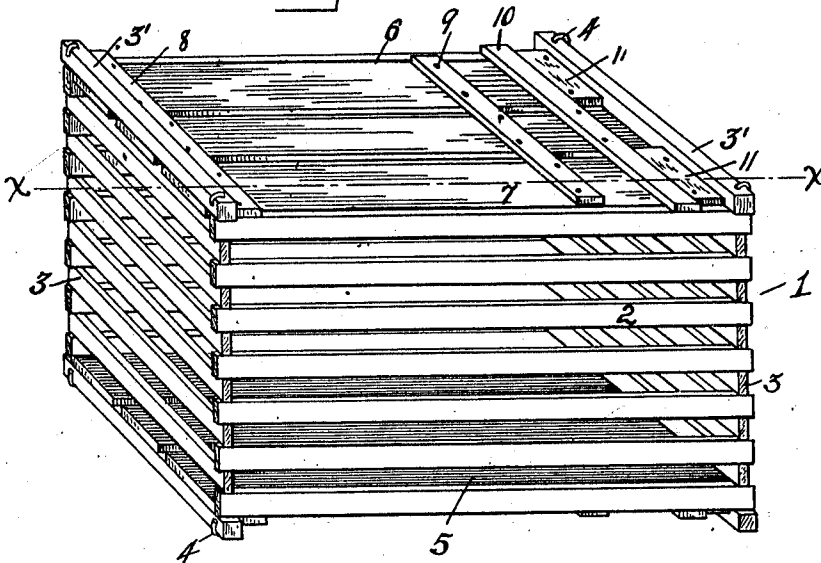


Fig. 2.

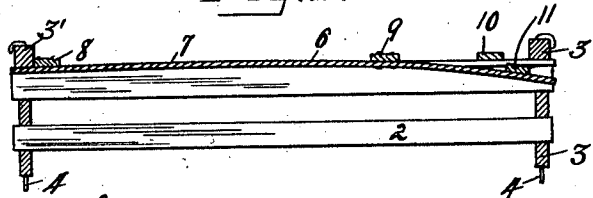
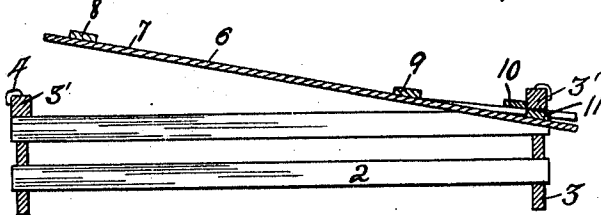


Fig. 3.



WITNESSES:

S. C. Walter
Ernest Schiebel

INVENTOR.

Arthur J. Cone,
By Brown & Brown,
his attys.

UNITED STATES PATENT OFFICE.

ARTHUR J. CONE, OF TOLEDO, OHIO.

FOLDING CRATE.

982,350.

Specification of Letters Patent.

Patented Jan. 24, 1911.

Application filed February 5, 1910. Serial No. 542,335.

To all whom it may concern:

Be it known that I, ARTHUR J. CONE, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Folding Crate; 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in folding or collapsible crates, and has particular reference to the construction of the bottoms and covers of such crates.

The object of my invention is the provision, in a crate of this class, of a simple, improved and highly efficient construction of bottom and cover for the same, whereby such parts are capable of being easily and quickly placed in engagement with or removed from a crate, and which when in locked position are rigidly held against movement relative to the crate body or accidental removal therefrom.

The operation, construction and arrangement of the parts of the invention are fully described in the following specification, and a preferred embodiment thereof illustrated in the accompanying drawings, in which,—

Figure 1 is a perspective view of a crate with the parts comprising my invention in position therein. Fig. 2 is section of the same on the line $x-x$ in Fig. 1, with the locking means of the cover depressed to permit a removal of the cover, and Fig. 3 is a similar section with one end of the cover partly raised.

Referring to the drawings, 1 designates the body of a crate, which is shown as being rectangular in form, and as having its sides and ends composed of parallel slats or bars 2 and 3, respectively, the upper and lower slats of the ends being designated 3' and serving as holding-strips for the bottom and cover. These slats or bars are arranged at the corners in alternating or staggered relation, so that the slats of the same side or end are spaced apart, as shown. Rods or bolts 4 pass vertically through the corners and pivotally connect the sides and ends together to adapt them to be folded in compact form when not in use.

The closures forming the bottom 5 and the top or cover 6 of the crate, in which the features of my invention reside, are of duplicate construction, each comprising a series of strips 7, preferably broader than the slats or bars 2 and 3, and being of sufficient length for their ends to project under and over the top and bottom holding-strips 3', respectively. Three strips 7 are connected together by cross-pieces 8 and 9, the former of which has its ends projected beyond the edges of the closures to rest on or bear against the outer edge of the upper and lower side slats 2, to limit the inward movements of said parts.

The strip 8 is disposed near one end of its closure member, and when such member is in locked position within the crate is intended to abut against the contiguous end slat 3' and serve as a stop-piece for the closure, as shown in Figs. 1 and 2. The other cross-piece 9 is disposed at some distance from the other end of the closure for the purpose hereinafter described. A third cross-piece 10 is secured to such closure near the end thereof which is opposed to that to which the strip 8 is secured, and is spaced a short distance from the contiguous end slat 3' of the crate, when the closure is in locked position, to permit the securing of one or more lock-blocks or pieces 11 to the closure, between the end slat 3' and piece 10. The blocks or pieces 11 are preferably of suitable width to fill such space, and are adapted to abut against the contiguous end slat when the closure is in locked position or with the stop-piece 8 abutting against its end slat, as shown in Fig. 1. The ends of the stop-piece 10 project beyond the side edges of the closures to adapt them to rest on or bear against the outer edges of the outer side slats or bars 2, as in the case of the stop-piece 8.

In the present instance the closures are shown as each comprising three strips 7 and the cross or stop-piece 10 is secured at its center to the center one of these, thus leaving the ends of the outer strips 7 free to oscillate to and from the cross-piece 10 with the cross-piece 9 as the fulcrum or fixed point from which they oscillate, as shown in Figs. 2 and 3. The blocks 11 are carried by the ends of the strips 7 which are thus free to oscillate thus adapting them to be depressed below the plane of the co-acting slat 3' to permit the closure to be

moved endwise until the stop-piece 10 moves into contact with such slat, which movement is sufficient to withdraw the opposite end of the closure from engagement with its slat 3'. While the cross-piece 10 is shown as being secured to the center strip 7 of the closure and the blocks 11 to the side strips thereof, it is to be understood that the invention is not restricted to this particular arrangement, as such arrangement may be reversed or changed to suit the number of strips 7 used.

It is of course understood that the strips 7 are of resilient material to adapt the ends of the ones to which the lock-blocks 11 are secured to be sprung inwardly from the cross-piece 10, and also that the cross-piece 9 is disposed a suitable distance from the piece 10 to give the resilient ends of the strips 7 the desired resiliency or stiffness.

When a closure is positioned in the top or bottom of a crate the cross-piece 8 and lock-blocks 11 abut or fit closely against the respective end slats 3' so as to rigidly and securely hold the closure against endwise movements relative to the crate body. To remove the closure it is only necessary to depress the lock-blocks 11 below the plane of the associated end slat 3' as indicated in Fig. 2, when the closure may be moved lengthwise until the cross-piece 10 abuts against such end-slat, which movement is sufficient to release the opposite end of the closure from engagement with the associated end slat 3' to permit it to be raised as indicated in Fig. 3, and the closure removed. In securing a closure in position within the crate, the end carrying the blocks 11 is first inserted on an incline under an end-slat 3' until stopped by the contact of the cross-piece 10 with such slat. The opposite end of the closure is then forced down to a plane parallel with the slats 2 and moved endwise to force its free end under the associated slat 3' until stopped by the contact of the cross-piece 8 with such slat 3'. As the stop-piece 8 moves into contact with its end slat the blocks 11 are freed from the contacting end slat and influenced by the resiliency of the strips 7 to move outwardly in advance of the associated end slat 3', as is apparent. The cross-piece 10 in addition to serving as a stop for limiting the endwise movement of the closure within the crate, also serves to square or place the sides and ends at right angles when it moves into flush contact with an end slat.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

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

1. A crate having holding-strips at one edge of opposite walls thereof, a removable closure comprising a plurality of longitudinal strips, cross-pieces carried by the closure a portion, at least, of which have their ends extended beyond the side edges of the closure, the cross-piece adjacent to one end of the closure being free from at least one of the closure strips and spaced from the adjacent holding-strip when positioned in the crate, and a lock-block carried by the free strip between the cross-piece which is free therefrom and the adjacent holding-strip to lock the closure against movement within the crate except when such lock-block is depressed.

2. A crate having holding-strips at one edge of opposite walls thereof, a removable closure comprising a plurality of longitudinal resilient strips, stop-pieces adjacent to the opposite ends of such strips, one of such pieces being free from a portion of such strips, lock-blocks carried by the free strips intermediate said last mentioned stop-piece and the adjacent end of the closure, and a cross-piece carried by the closure intermediate the stop-pieces and adapted to serve as a fulcrum piece for the free ends of the strips carrying such blocks to permit a depression of such blocks, a portion at least of such pieces having their ends extended beyond the side edges of the closure, substantially as described.

3. The combination with a crate body having openings in opposite walls near the upper and lower edges thereof, of a removable top and bottom, each comprising a plurality of resilient strips adapted to have their ends inserted into said openings, and having stop-pieces 8 and 10 adjacent the opposite ends thereof, the stop-piece 10 being disposed farther from its end of the closure than the stop-piece 8 is from its end, and being free from a portion of said strips, a cross-piece 9 intermediate said stop-pieces and adapted to serve as a fulcrum for the ends of said strips, which are free from the stop-piece 10, and lock-blocks 11 secured to the free strips without the stop-piece 10 and adapted to abut against the inner side of the contiguous end wall when the closure is in position within the crate and to be depressed to permit a releasing movement of the closure relative to the crate, said stop-pieces having their ends extended beyond the side edges of the closure, substantially as described.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR J. CONE.

Witnesses:

C. W. OWEN,
C. H. BILLS.