L. A. WILLIAMS.

COLLAPSIBLE VENTILATED CRATE.

APPLICATION FILED MAR. 28, 1911.

1,029,161.

Patented June 11, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

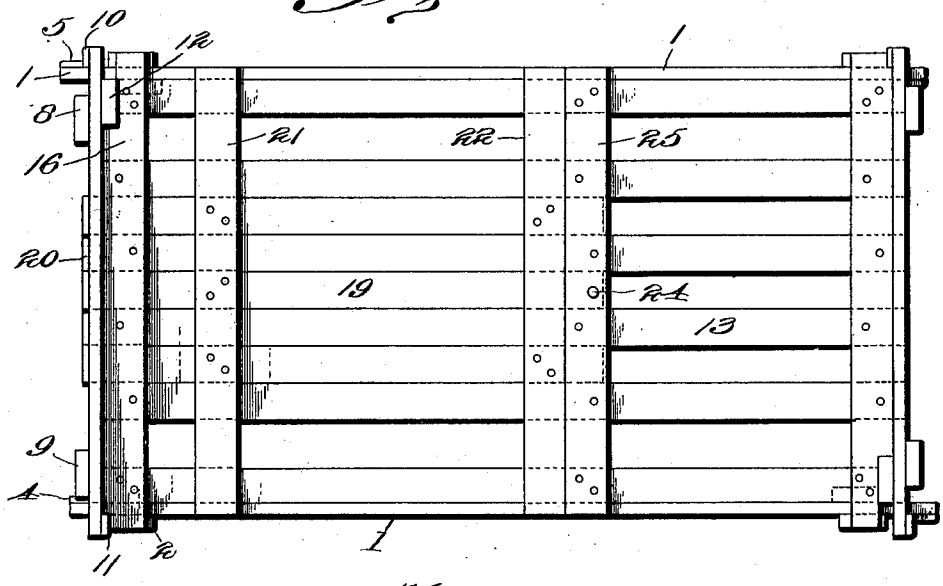
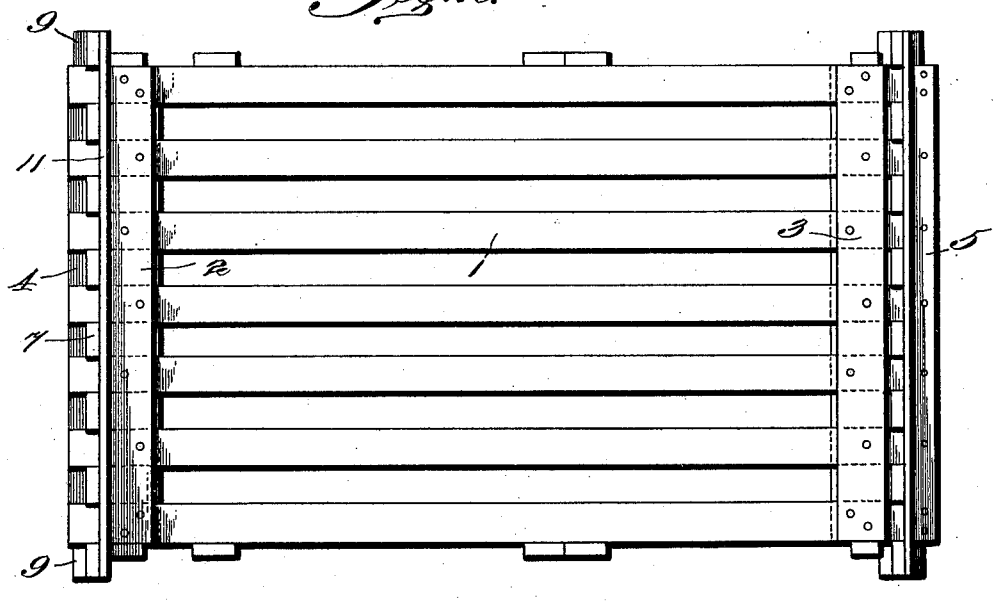


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

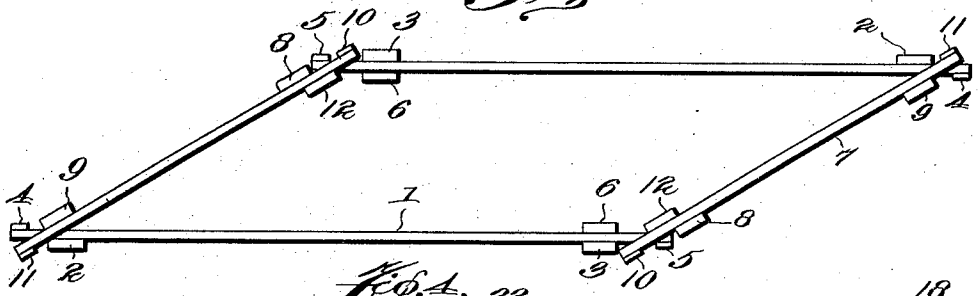


Fig. 4.

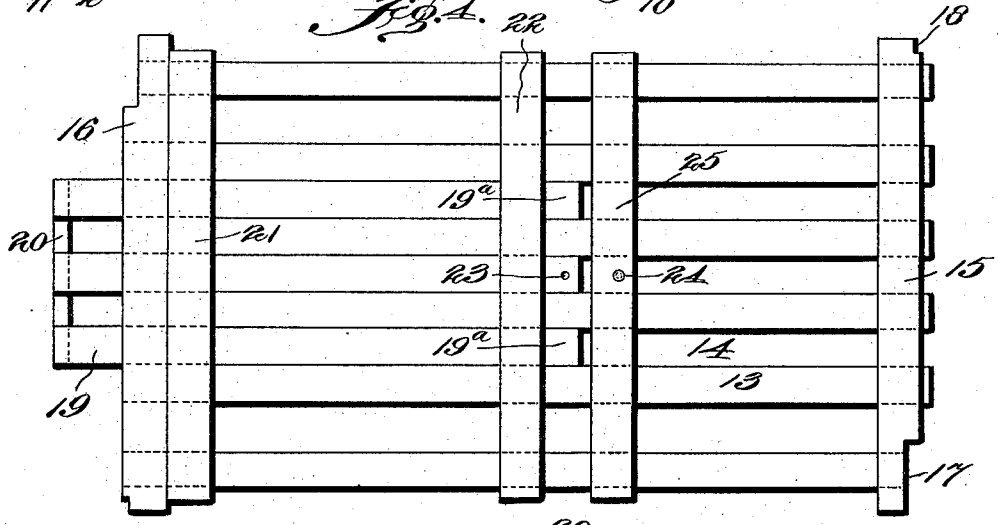


Fig. 5.

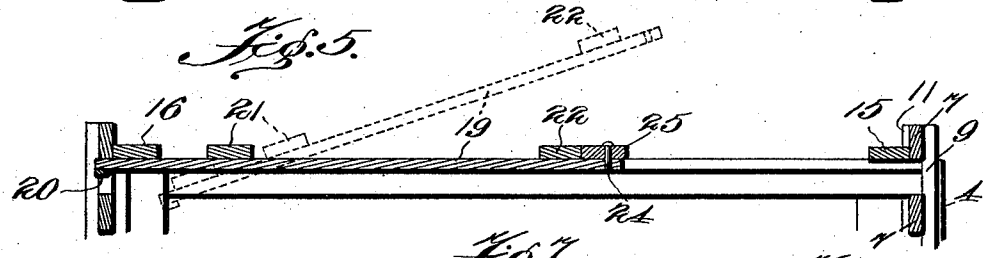


Fig. 6.

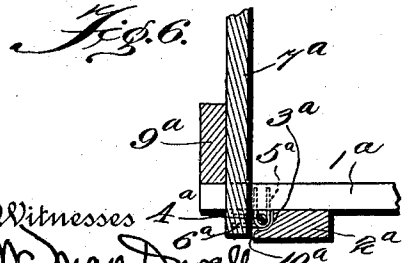


Fig. 7.

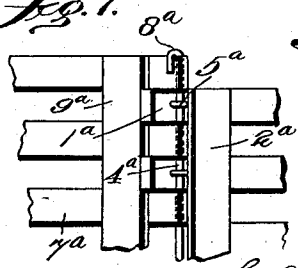
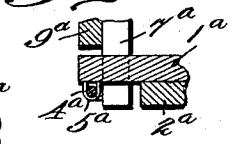


Fig. 8.



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LEWIE A. WILLIAMS, OF HOUSTON, TEXAS.

COLLAPSIBLE VENTILATED CRATE.

1,029,161. Specification of Letters Patent. Patented June 11, 1912.

Application filed March 28, 1911. Serial No. 617,447.

To all whom it may concern:

Be it known that I, LEWIE A. WILLIAMS, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Collapsible Ventilated 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 improvements in crates, and particularly provides for a ventilated crate of the collapsible type comprising side and end sections foldingly interconnected and coöperating with top and bottom closures, one or both of which closures may be provided with a suitable locking member coöperating between the end sections of the crate and the closure.

The primary object of the invention is to provide a crate of this character which is simple in construction but strong and durable, and which may be economically manufactured, and in the construction of my improved crate the use of special machinery is dispensed with, the crate being made of strips of wood fastened together in such a manner that the joints allow the crate to be folded flat but which locks them against collapse in the opposite direction when the crate assumes a rectangular position, whereby the top and bottom closures can be readily adjusted in position.

The invention is not restricted to the exact details shown and described, but for the purpose of disclosure reference is had to the accompanying drawings illustrating a practical and preferred embodiment of same, in which drawings like characters designate the same parts in the several views, and in which—

Figure 1 is a plan view of the set up box with the closures shown in their locked position. Fig. 2 is a similar view in side elevation. Fig. 3 is a plan view with the top and bottom closures omitted, and showing the end and side sections in partly collapsed position. Fig. 4 is a plan view of one of the closures removed, the parts being shown in their unlocked position for removal or attachment to the body of the crate. Fig. 5 is a fragmentary longitudinal section showing in full lines the position of a locking member with reference to its closure and the body of the crate, when in its locked position, and showing its unlocked position in dotted lines. Fig. 6 is a fragmentary cross sectional view of one end of the body of the crate showing a modified joint. Fig. 7 is a fragmentary view in elevation looking toward the corner of the joint shown in Fig. 6, and Fig. 8 is a similar view to Fig. 6, showing the disposition of the connecting rod at the opposite side of the crate but at the same end, the joinder between the interpenetrating ends of the sections being the same at diagonally opposed corners but different at the opposite corners.

Referring particularly to Fig. 3, in the construction of the side sections I provide a plurality of longitudinal slats 1, held spaced apart by the end standards 2 and 3, and at the end of the section adjacent the standard 2 and on the opposite side therefrom I provide an auxiliary standard 4, while at the opposite end of the section and on the same side as the standard 3 there is another auxiliary standard 5, the standards 4 and 5 being disposed at the end of the section and the standards 2 and 3 arranged a little inside of the ends of each section. The end sections are similarly provided with slats 7 held spaced apart by the standards 8 and 9 arranged a short distance from each end of the section, and these end sections are also provided with auxiliary standards 10 and 11 disposed on opposite sides of the section. 6 and 12 designate abutment strips arranged on the inside faces of one end of the end and side sections respectively, and it will be observed that the construction of the crate is such that the interlocking elements and abutments are so arranged that the diagonally opposite corners of the crate are similar. It will be observed that the auxiliary standards of either of the end or the side sections will be attached to their sections after the slatted ends of one section are inserted between the slats and the main and auxiliary standards of the other section, it being understood that in my construction of crate the same is folded but the sections are not detachable.

In providing closures for the top and bottom of the crate it will be obvious that it is not necessary that both closures be of exactly the same construction, but in practice I prefer to have both closures of the same construction whereby they may be readily

attached or detached from the crate, and in the following description reference will be had to one closure only. In carrying out this feature the closure consists of a plurality of longitudinally disposed slats 13, spaced apart as at 14 and provided with the end battens 15 and 16 cut away as at 17 and 18 on their outer edges to receive the abutment strip and the inside auxiliary standard of the end sections. The slats 13 at the end adjacent the batten 15 project a little beyond the latter to engage beneath the top slat of the end section, and the other end of the closure is provided with a locking member comprising a plurality of longitudinal slats 19 provided at their outer end with a cross bar 20 disposed on their underneath face, the slats 19 being adapted to ride in the spaces 14 with the cross bar 20 beneath the slats 13.

21 designates an abutment bar forming a batten for the slats 19 and located a substantial distance from the cross bar 20. This abutment bar 21 projects substantially the width of the closure. At the other end of the closing member is similarly provided an abutment bar 22 allowing for the projecting ends 19^a of the slats. One of the slats 19, at its inner end, is not secured to the abutment bar 22, so that it may be pressed away therefrom, and is provided with an aperture 23 adapted to engage with a pin 24 carried on the underneath face of a central batten 25 of the closure.

In operation it will be obvious that the diagonally opposite joints at the end of the crate being similar the same may be collapsed flat with the main standards 2, 3 and 9 and the auxiliary standards 4, 5, 10 and 11 disposed in substantial alinement on opposite sides of the folded crate, the auxiliary standards 5 and 10 being contained in the space between the main standards 3 and 8 of the end and side sections. When the crate is opened up at a rectangular position the abutments 6 and 12 coöperate to prevent the crate from collapsing in the opposite direction. With the closure in the open position shown in Fig. 4 to apply to the crate, the projecting end adjacent the batten 15 is shoved beneath the top slat of one of the end members, and with the closing member elevated, as shown in dotted lines in Fig. 5, the top will then fit snugly in place, whereupon the closing member is tilted downwardly and forced toward the left and the bar 20 and the ends of the slats 19 will pass beneath the batten 16 and between the first and second slats of the end member, permitting the projecting ends 19^a to rest in the position shown in Fig. 4, whereupon the central slat 19 is depressed and the closing member shoved to the right with the projecting ends 19^a passing beneath the central battens 25, and upon the aperture 23 alining with the pin 24 the central slat will spring upwardly and securely lock the closure in position.

In the construction shown in Figs. 6, 7 and 8, the general arrangement is somewhat similar to the prior disclosure, but in these devices there are only two standards for each section, one at each end, and both arranged on the outside of the slats of the end and side sections. In these views 1^a designates the slats of the side section and 7^a the slats of the end section, while 2^a and 9^a designate the standards. Two of the standards 2^a, diagonally disposed, are cut away as indicated at 3^a, and in this cut-away portion is arranged a vertical rod 4^a, at each corner engaged by the staples 5^a and 6^a projecting at right-angles from the slats 1^a and 7^a. The upper and lower ends of this rod 4^a may be bent over, as at 8^a, for securing the same to the top and bottom slats of the end sections. At the opposite diagonal corners, as shown more clearly in Fig. 8, the standards 2^a are not cut away, but the rod 4^a is disposed in the space formed between the projecting interpenetrating ends of the slats 1^a and 9^a. It will be obvious that with this construction, or with the top and bottom closures removed, the crate may be folded flat, owing to the corner connections and the interpenetrating ends, while the edges 10^a of the standards 2^a will prevent the crate from collapsing in the opposite direction when opened up into rectangular shape.

Having thus described the invention, the particular features of novelty will now be pointed out more succinctly in the following claims:—

1. In a collapsible crate, the combination with side and end sections having interpenetrating slats, of means interlocking the interpenetrating ends of said crate body comprising main and auxiliary standards secured to said slat sections whereby they may be folded flat, and top and bottom closures, substantially as described.

2. In a collapsible crate, the combination with side and end sections comprising slats having interpenetrating ends, of means interlocking the adjacent corners of the crate body comprising spaced main and auxiliary standards secured to said sections on the outside thereof and abutment strips on the inside thereof at two of the diagonally opposed corners of the crate body and provided with a main standard on the outside and an auxiliary standard on the inside secured to said sections at the other two diagonally opposed corners whereby the sections may be folded flat but are locked against collapse in the opposite direction, and top and bottom closures, substantially as described.

3. In a collapsible crate, the combination

of side and end sections having interpenetrating slats, main standards fixed to the outside of the slats of the side and end sections near the ends thereof, auxiliary standards fixed to the outside of the slats of the side and end sections at the ends at two diagonally opposite corners of the crate, auxiliary standards fixed to the inside of the slats of the side and end sections at their ends at the other two diagonally opposite corners of the crate, and top and bottom closures, substantially as described.

4. In a collapsible crate, the combination of side and end sections having interpenetrating slats, main standards fixed to the outside of the slats of the side and end sections near the ends thereof, auxiliary standards fixed to the outside of the slats of the side and end sections at the ends at two diagonally opposite corners of the crate, auxiliary standards fixed to the inside of the slats of the side and end sections at their ends at the other two diagonally opposite corners of the crate, abutment strips on the inend sat the other two diagonally opposite corner the ends thereof at the two first mentioned diagonally opposite corners of the crate, and top and bottom closures, substantially as described.

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

LEWIE A. WILLIAMS.

Witnesses:
G. O. BORTLE,
W. N. BROWN.