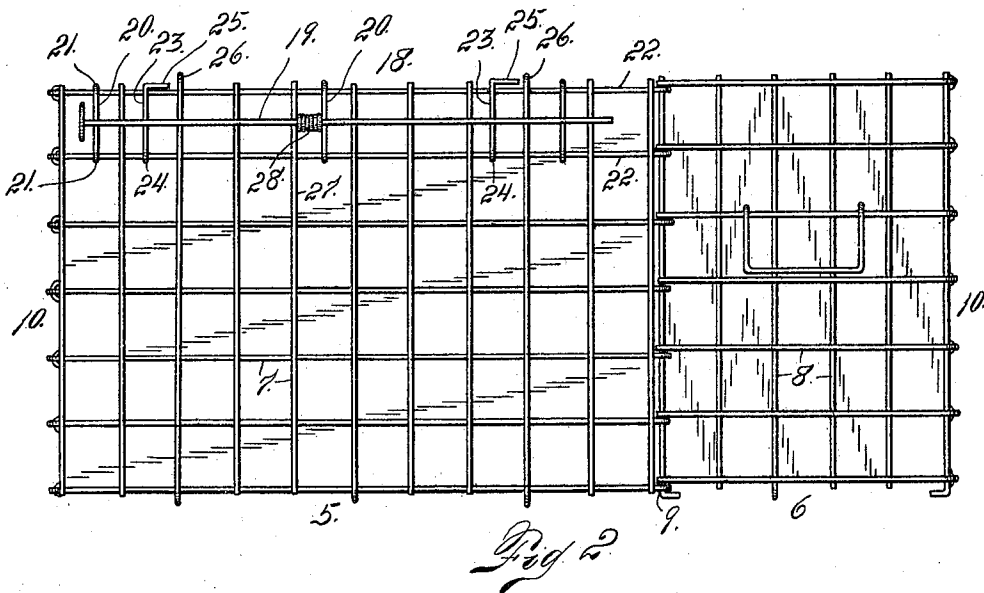
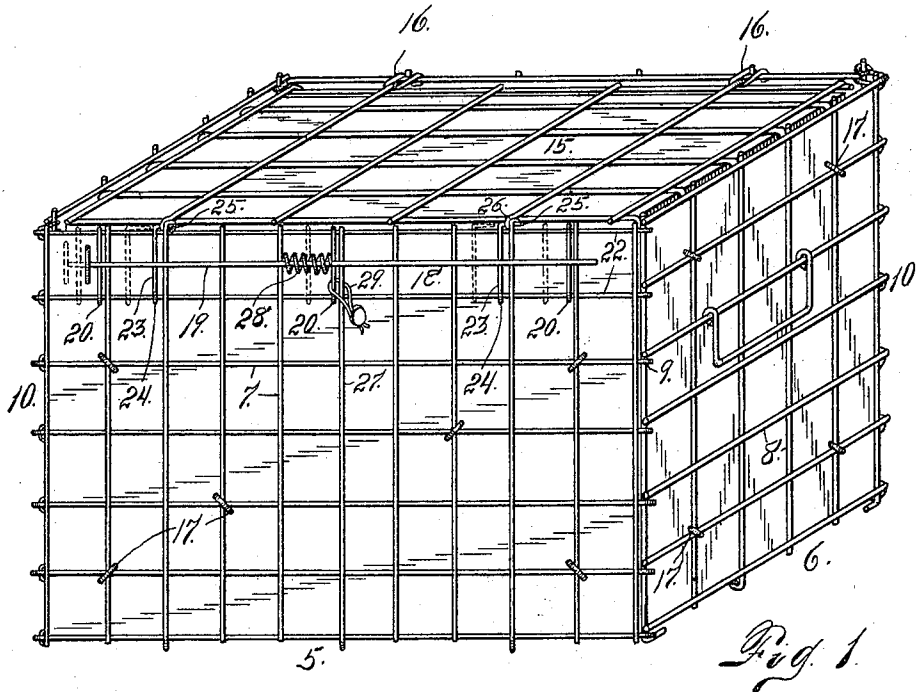


F. E. STERRETT.
 COLLAPSIBLE CRATE OR BOX.
 APPLICATION FILED AUG. 9, 1909.

975,000.

Patented Nov. 8, 1910.

4 SHEETS—SHEET 1.



Witnesses

Otto E. Haddick.
J. D. Thornburgh.

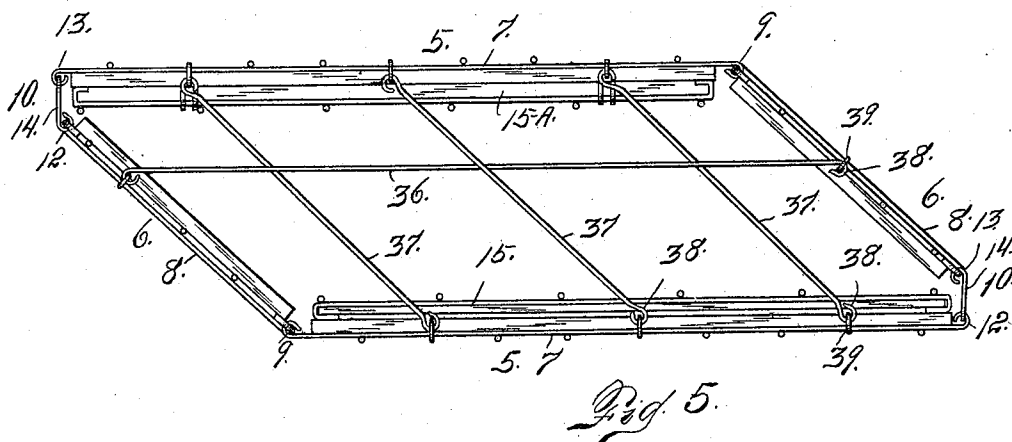
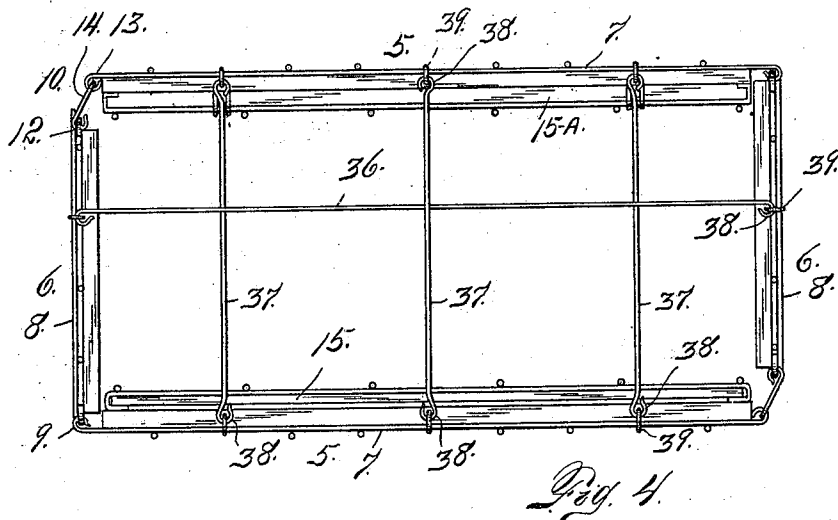
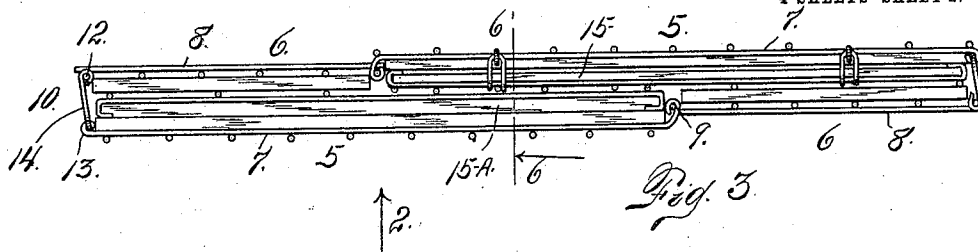
Inventor
Frank E. Sterrett.
 By *A. J. O'Brien.*
 Attorney

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4 SHEETS—SHEET 2.



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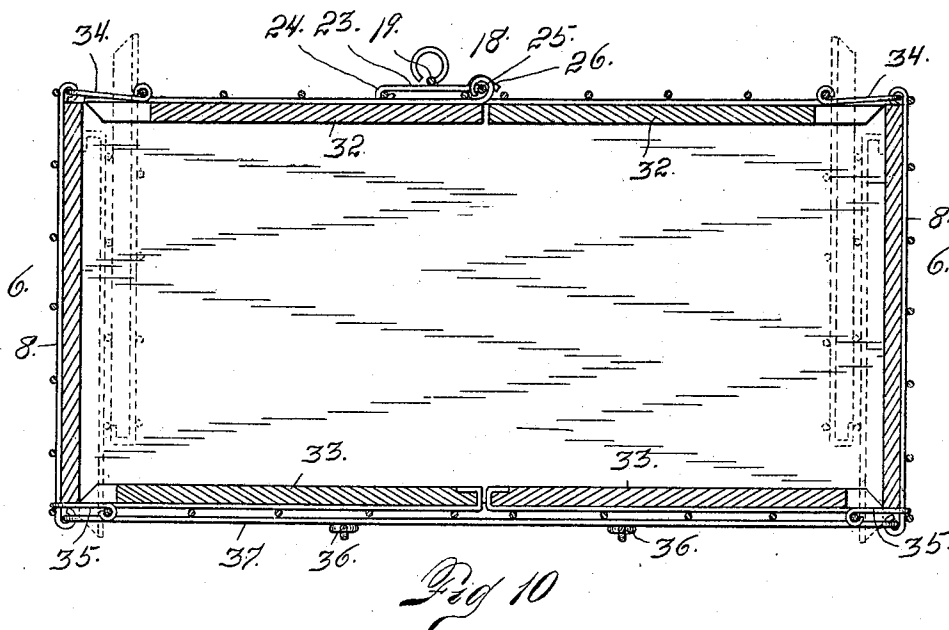
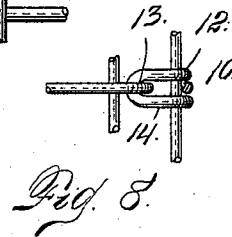
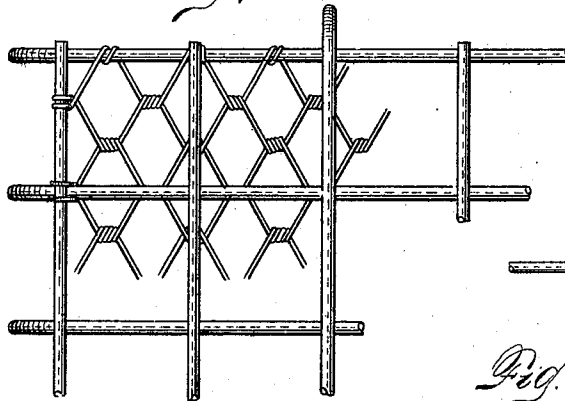
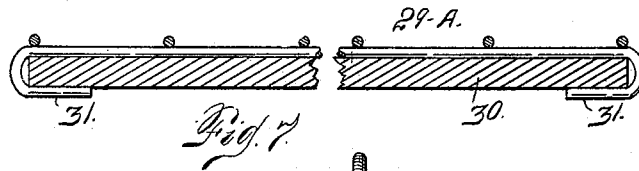
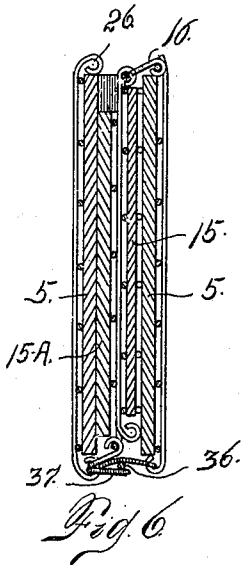
Inventor
Frank E. Sterrett.
By A. J. O'Brien.
Attorney

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4 SHEETS—SHEET 3.



Witnesses

Otto E. Haddick.
J. D. Thornburgh.

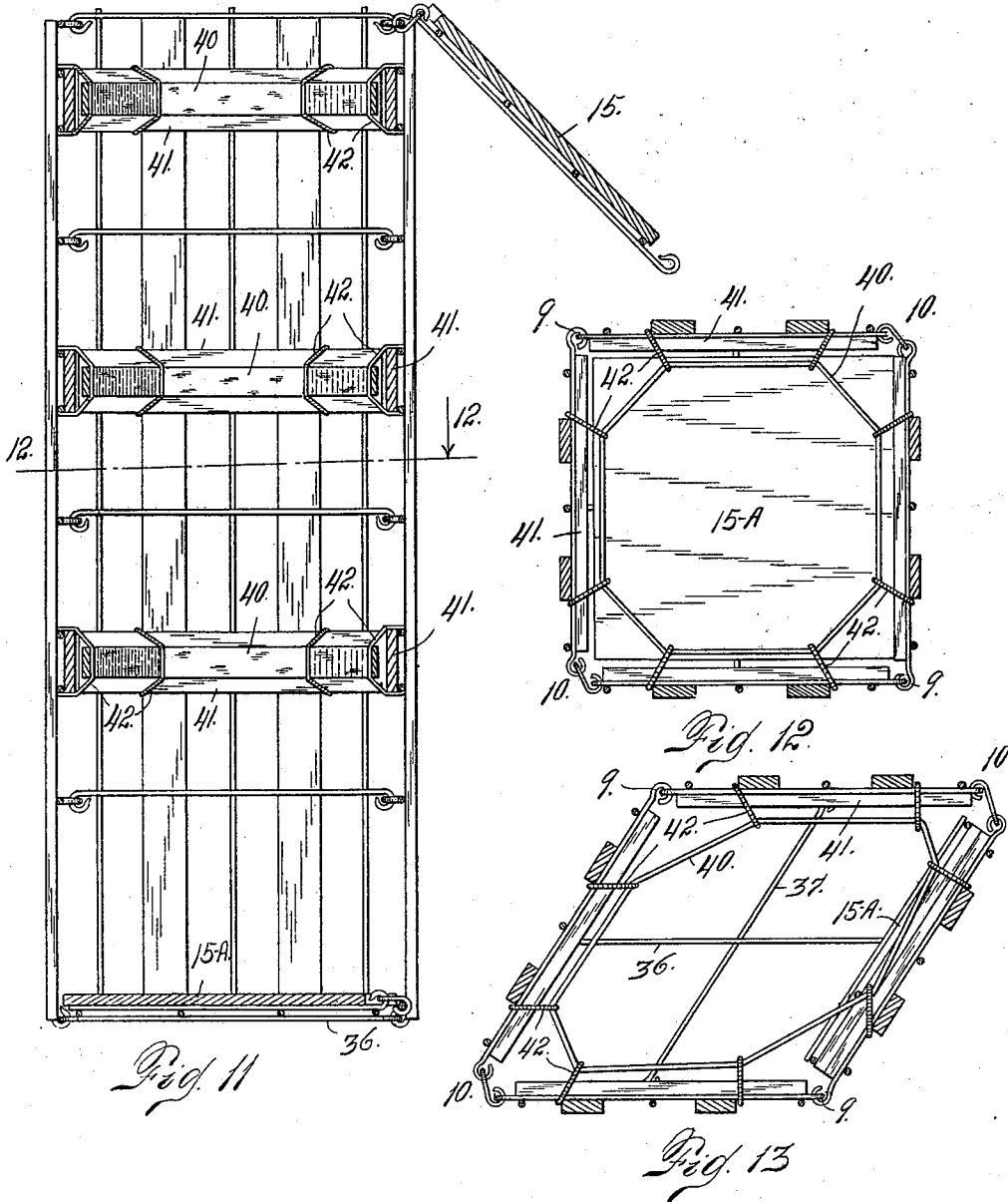
Inventor
Frank E. Sterrett.
 By *A. J. O'Brien.*
 Attorney

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4 SHEETS—SHEET 4.



Witnesses
Otto E. Hoddick.
J. W. Thornburgh.

Inventor
Frank E. Sterrett.
 By *A. J. O'Brien.*
 Attorney

UNITED STATES PATENT OFFICE.

FRANK E. STERRETT, OF DENVER, COLORADO.

COLLAPSIBLE CRATE OR BOX.

975,000.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed August 9, 1909. Serial No. 511,854.

To all whom it may concern:

Be it known that I, FRANK E. STERRETT, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Collapsible Crates or Boxes; and I do 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 letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in collapsible or folding crates or boxes, my object being to provide a construction of this class, which shall be comparatively simple, reasonably cheap, and which shall at the same time be reliable and efficient in use.

My improved box or crate, as illustrated in the drawing, is composed of wire mesh material and relatively thin boards or members which reinforce and strengthen the wire mesh and cause the latter to maintain its shape. The wire mesh, however, may be used with any sort of a skeleton or supporting framework, to give it the necessary strength and stability.

My improved folding or collapsible box is so constructed, that its top and bottom are hinged to the opposite, vertical sides of the box, whereby one is adapted to fold upwardly and the other downwardly before collapsing the structure. When this is done, however, the box will collapse so that two of its opposite, diagonal corners will form the extremities of the folded structure, while the joints formed by the other two hinged corners will occupy staggered positions on opposite sides of the folded box.

In order to allow the box members to fold flat or snugly together, it is necessary that the joints formed at two of the opposite, diagonal corners shall be hinged or connected by links of sufficient length, to span the thickness of the folded box.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a perspective view of my improved box shown in position for use, the top of the box being locked in

position. Fig. 2 is a top plan view of the collapsed structure. This view would be obtained by looking in the direction of arrow 2, Fig. 3. Fig. 3 is an edge view of the collapsed box. Fig. 4 is a bottom plan view with the bottom and top folded inwardly ready to collapse. Fig. 5 is a similar view showing the structure partly collapsed. Fig. 6 is a section taken through the folded structure on the lines 6—6, Fig. 3. Fig. 7 is a section taken through a special construction for the top of the box, showing a removable board. Fig. 8 is a detail view, illustrating the manner of connecting two of the opposite diagonal corners of the box for folding purposes. Fig. 9 is a fragmentary, detail view, showing a skeleton frame, composed of coarse wire covered with a comparatively light woven mesh. Fig. 10 is a vertical section taken through a box whose width is such that the top and bottom must be divided, in order to permit the structure to fold or collapse. Fig. 11 is a vertical section taken through my improved crate equipped for carrying bananas or similar fruit. Fig. 12 is a cross section taken on the line 12—12, Fig. 11, looking downwardly. Fig. 13 is a similar sectional view, showing the structure in a position partly folded.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the opposite sides and 6, the ends of the crate. The sides and ends of the box are suitably hinged to allow the vertical walls to collapse, when the top and bottom are folded inwardly out of the way. The hinging for two of the opposite, diagonal corners is accomplished by the interlocking of the adjacent extremities of wires 7 and 8, of which the sides and ends of the box are partly composed. As shown in the drawing, these wire strands constitute part of a relatively coarse wire mesh. The hinging of the adjacent edges is accomplished by forming eyes and connecting them, as shown at 9. In the case of the other two opposite, diagonal corners, viz: those designated 10 in the drawing, the eyes 12 and 13, formed in the wires 8 and 7, respectively, are connected by U-shaped links or clips 14, which are of sufficient length to span the thickness of the folded structure. (See Fig. 3.)

The bottom 15^A of the box may, if desired, consist of a number of rods arranged to cross

each other, their extremities being loosely connected with eyes formed in the wire or rod members, with which the lower edges of the vertical sides and ends of the structure are provided. The top 15, of the folded structure is hinged to the upper edge of one of the vertical sides by U-shaped clips or hinges 16, of substantially the same construction as the links or clips 14. These links 16, are of sufficient length to span the thickness of the top and one of the side walls of the structure when the top is folded downwardly thereinto. The folding bottom member of the box is also similarly equipped.

As shown in the drawing, the side walls of the box are composed of an outer layer of coarse wire mesh material, and an inner relatively thin wood member, to which the mesh material is secured by means of staples 17, or other suitable fasteners.

A locking device 18, is slidably mounted upon one of the side walls of the box at the top thereof and is adapted to lock the top to the upper edge of the adjacent side wall of the structure. This lock consists of a rod 19, made fast to a number of guide members 20, whose opposite extremities are formed into eyes 21, which slide freely upon the two upper wire strands 22, of the adjacent side of the box structure. In addition to the guides 20, the rod is equipped with a locking device 23, having eyes 24, adapted to slide freely upon the wire 22. The opposite extremity of each locking device is provided with a pin 25, adapted to enter the eye 26, formed on the upper extremity of one of the vertical members 27, constituting the wire mesh or fabric of the box. As shown in the drawing, there are two of these locking devices 23, and they both operate in the same way. Surrounding the rod 19, about midway thereof is a coil spring 28, interposed between one of the wire members and one of the guide stops 20, of the lock 18. When the latter is moved to the unlocked position (see Fig. 2), the coil spring is compressed and as soon as the lock is released, the recoil of the spring returns it to the locked position. When in the latter position (see Fig. 1,) a seal 29, may be employed so that the box cannot be opened without leaving indications thereof, resulting from the destruction of the seal.

In the form of construction shown in Fig. 7, the top of the box consists of a wire holder 29^A, having the wire strands turned downwardly and inwardly at two opposite edges of the top of the box, as shown at 31, whereby supporting hooks are formed, having a removable top board 30. This board may have the name and address of the shipper or consignor on one side, while the name of the consignee may be painted or stenciled on the opposite side. After the boxes have been emptied by the consignee, it is only

necessary to remove the top board 30, turn it over and reinsert it in the wire holder. The box is then properly marked to be returned to the owner or consignor, after which it may be refilled, the board again removed and reversed, and returned to the same consignee or may, of course, be remarked with the name of any other consignee.

In the event that the width of the box is greater than the depth (see Fig. 10,) the top and bottom of the box are each divided into two members, the top members being designated 32, and the bottom members 33. In this event the top members 32, are connected with the end members 6, of the box by U-shaped links or clips 34; while the bottom members 33, are connected with the ends 6, by similar clips 35. The clips 35, as shown in the drawing, are somewhat shorter than the clips 34, since the former only need be of sufficient length to span two thicknesses of the walls of the crate; while the clips 34, must span three thicknesses thereof. (See dotted lines in Fig. 10.) Where the top of the box is formed of two members, as in Fig. 10, the inner edges of these members are connected by the sliding lock 18, heretofore described.

As shown in the drawing, the sides and ends of the box may be connected and tied together at the bottom by longitudinal and transverse rods 36 and 37, respectively. The extremities of these rods have eyes 38, interlocking with similar eyes 39, with which the sides and ends of the box are provided. This gives the structure strength and stability. In the form of construction shown in Figs. 11, 12 and 13, my improved box is formed relatively high, whereby it is adapted for holding bunches of bananas arranged lengthwise of the box and supported in a vertical position. The box is constructed to hinge in the same manner as other forms of box. Its height, however, is much greater in proportion than in the other forms, in order that the box may accommodate relatively long bunches of bananas or other similar fruit. At suitable intervals between the top and bottom of the box, the latter is provided with belts 40, which are connected with transverse slats 41, forming a part of the sides of the box, by loops 42. As shown in the drawing, there are three of these belts arranged one above another at suitable intervals. The sack or receptacle not shown, containing the bunch of bananas may be connected with these belts in any suitable manner, whereby the package may be suspended within the crate and properly supported to prevent injury thereto, while shipping.

In all forms of the construction of my improved folding or collapsible crate or box, the top and bottom of the structure are adapted, when the box is in use or in posi-

tion for use, to pass in between the vertical walls of the box and prevent any tendency to collapse, until the said members are folded into the box, as heretofore explained.

5 From the foregoing description, the use and operation of my improved folding crate will be readily understood and need not be described further in detail.

Attention is called to the fact that the top 10 15, of the box which is connected with one side by the U-shaped clips or links 16, may fold outwardly as well as inwardly. In fact when the relatively long clips or members 16, are employed, the top may fold equally 15 well either way. The bottom, however, must always fold inwardly, since the sides and ends of the box are connected below the bottom by rods or wires 36 and 37, which form a support for the bottom and prevent 20 the latter from falling outwardly, when the box is in use. These wires 36 and 37 also serve to support the sides and ends of the box and prevent them from spreading when the box is full.

25 Having thus described my invention, what I claim is:

1. A folding box or crate, whose four side walls are hinged to collapse, and transverse intersecting rods, pivotally connected at 30 their extremities to the bottom of the side and end members of the box at such positions as to permit the box to fold, and arranged to support the bottom of the box thereon, substantially as described.

35 2. A folding crate or box, comprising a structure whose vertical side and end walls are hinged to permit the said walls to collapse, the top and bottom of the box having a hinged connection to the opposite side 40 walls of the box, and adapted to fold thereinto, transverse rods provided with loops at their extremities, and connected with the side and end members of the box at such

positions as to permit the box to fold, the said rods serving as braces and arranged to 45 support the bottom of the box thereon, substantially as described.

3. A collapsible or folding crate or box having its vertical side and end walls hinged to collapse, the box being provided at suitable intervals between the top and bottom 50 with a flexible belt, and loops connecting the belt with the walls of the collapsible structure, substantially as described.

4. A folding box or crate whose vertical 55 side and end walls are hinged to collapse, the sides and ends of the box at two of the opposite, diagonal corners being connected by links of sufficient length to span the thickness of the walls of the box when in the collapsed position, the bottom of the box 60 being hinged to one side thereof and adapted to fold inwardly, the top of the box being hinged to one side and adapted to fold either inwardly or outwardly, and transverse intersecting rods, provided with loops at their 65 extremities, and connected with the side and end members of the box in such a way as to permit the box to collapse, the said rods being arranged to support the bottom of the 70 box, and to serve as braces, for the side and end members of the box.

5. A folding box or crate whose vertical 75 side and end walls are hinged to collapse, the top and bottom of the box being hinged to fold, the sides and ends of the box being connected at the bottom by intersecting wires, whose extremities are loosely attached to the connected parts to permit the latter 80 to fold, substantially as described.

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

FRANK E. STERRETT.

Witnesses:

A. J. O'BRIEN,
JESSIE F. HOBART.