J. LIMONCELLE.

KNOCKDOWN BANANA CRATE.

APPLICATION FILED DEC. 4, 1917.

1,304,994. Patented May 27, 1919.

Fig. 1.

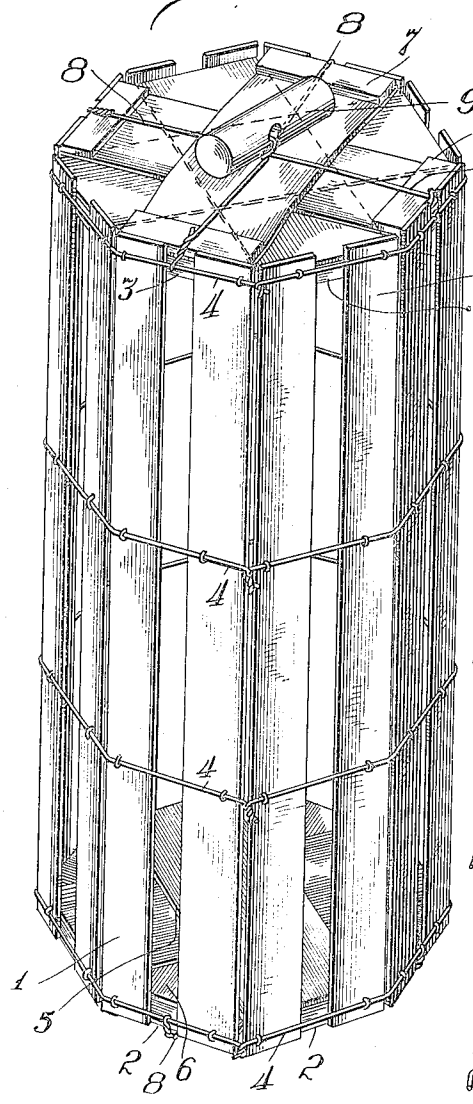
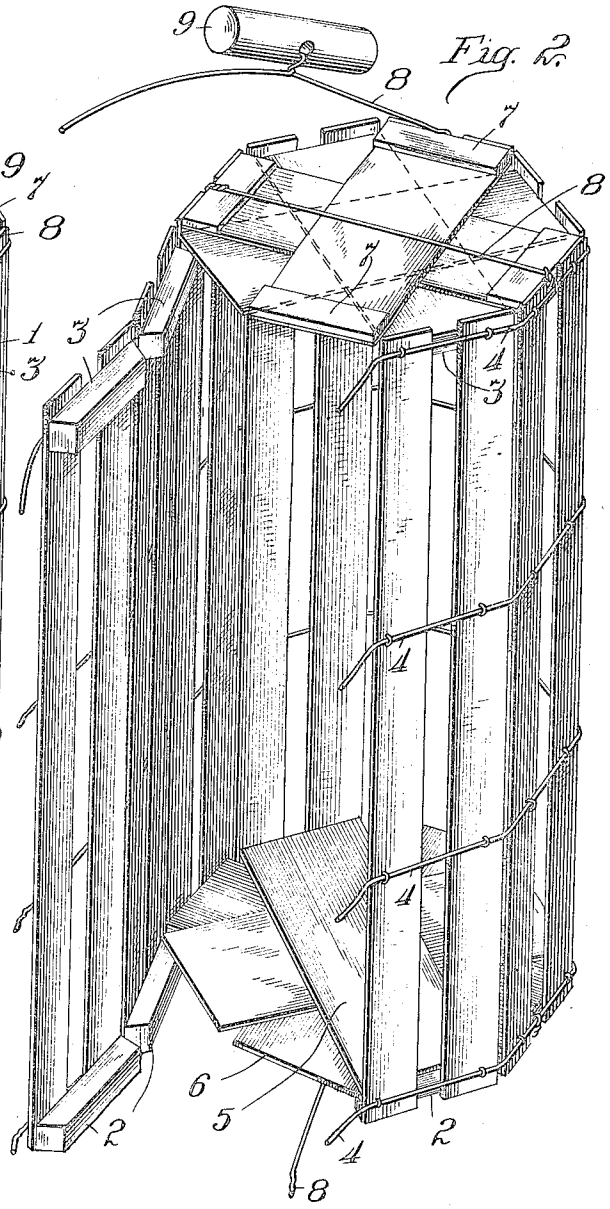


Fig. 2.



Witnesses
Milton Lenoir

Inventor
Joseph Limoncelle.
By Rudolph Inn
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH LIMONCELLE, OF CHICAGO, ILLINOIS.

KNOCKDOWN BANANA-CRATE.

1,304,994. Specification of Letters Patent. Patented May 27, 1919.

Application filed December 4, 1917. Serial No. 205,284.

To all whom it may concern:

Be it known that I, JOSEPH LIMONCELLE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Knockdown Banana-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 banana crates, and has for its particular object to provide a knockdown crate of this character which is simple, cheap, durable and easily assembled and knocked down, and which, when knocked down, will occupy a very small volume of space, thus rendering shipment of empty knocked down crates very cheap as compared to the present bulky crates which are incapable of being knocked down.

In the accompanying drawings illustrating a suitable embodiment of the invention:

Figure —1— is a perspective view of a banana crate in its assembled condition ready for shipment with contents.

Fig. —2— is a view similar to Fig. —1— showing the crate partially knocked down.

In accordance with my invention the banana crate is made of polygonal form preferably hexagonal or octagonal, the octagonal form being preferred for reasons which are hereinafter fully explained.

The outer peripheral wall of the crate consists of a number of parts equaling the number of sides of the polygon. In the present instance it consists of eight parts or peripheral wall portions 1. Each of these consists either of a single or of a plurality of strips of wood or other suitable material to which cleats 2 and 3 are secured, the cleats 2 being preferably secured to the lower edges of the wall portions and flush with the lower edges thereof. The upper cleats 3 are secured so that their upper edges are disposed slightly below and parallel with the upper edges of the strips of wood constituting the wall members. The said cleats 2 and 3 are of a length equal to the width of the wall portions to which they are secured, and are provided with beveled ends, the angle of bevel being such that when said peripheral wall is closed the joints formed by the abutment of the ends of adjacent cleats 2 and 3 against each other will lie in planes extending radially of the axis of the crate. In the instance illustrated the angle of bevel will be substantially 67 and a half degrees so that contiguous sections of wall will, when the ends of the cleats thereof abut against each other, extend at an angle of substantially one hundred thirty-five degrees to each other.

The several wall sections are secured together by means of bands 4 of ductile wire secured to the outer faces of the wall sections by means of staples or other suitable means. The uppermost and lowermost of the bands 4 are preferably secured to the outer faces of the wall sections in planes intersecting the cleats 2 substantially midway between their upper and lower edges. Any desired number of intermediate bands 4 may be used. Obviously the said bands 4 will easily bend to form yielding hinge joints between the wall sections and the ends of said bands 4 are adapted to be twisted about each other when the peripheral wall has been completed to hold the same firmly in shape.

The top and bottom walls of the crate are each composed of a number of strips of wood or other suitable material equaling half the number of sides of the polygon, that is to say, the crate in the instance illustrated being octagonal, each of the top and bottom walls will be composed of four strips or plates 5 and 6. Each of the plates 5 is substantially equal in width to one of the wall sections and is mounted to extend diametrically of the polygon and to abut at opposite ends against opposed inner faces of opposed wall sections, and will rest upon the cleats secured to said sections. The plates 5 of the bottom wall will rest upon those faces of the cleats which are disposed within the polygonal peripheral wall, while the plates 5 of the top wall of the crate will rest upon the outer faces of the cleats. After the first of the plates 5 has been mounted to rest upon the bottom cleats another of said plates is inserted to lie transversely of the first-named, and thereupon the plates 6 are successively inserted to extend at an angle of forty-five degrees to the plates 5 and ninety degrees to each other. In this way a substantially solid wall is provided for each end of the crate.

The plates 6 for the top wall are provided at their ends with cross-pieces 7, the upper

faces of which are adapted to become flush with the upper edges of the wall sections contiguous thereto.

Secured at one end to each of the uppermost and lowermost bands 4 of the crate, preferably at a point midway between the side edges of one wall section, are pieces 8 of wire of a length greater than the diameter of the crate, and which are adapted to extend diametrically of the same transversely to each other. The free ends of these pieces of wire are adapted to be inserted underneath and to be bent over the upper and lowermost bands 4 at points diametrically opposite those at which said wires are attached at the first-named end, and the last-named free end portions are then bent over upon and twisted about the body portions thereof. Said cross wires thus extend over the plates 6 of the top wall and the cleats 7 secured thereto and hold the same in place. The lower similar wires serve only to strengthen the crate as the bunch of bananas within the latter rests upon the plates 6 and thus hold the same and the plates 5 in place. One of the upper strips 8 of wire may have a handle 9 secured thereto if desired.

In assembling the crate the peripheral wall is first formed to the polygonal shape and the ends of the lowermost band 4 twisted about each other to effect closure. The upper end portion of the crate may then be expanded so as to provide a V-shaped slot in the peripheral wall extending from the top to the bottom of the crate through which the hand and wrist may be inserted for positioning the plates 5 and 6 upon the bottom cleats. After this has been accomplished the free end portions of the remaining bands 4 are twisted about each other, thus closing the said V-shaped recesses or slot whereupon the empty crate is ready to receive the bunch of bananas. The latter is then inserted and thereupon the plates 5 and 6 constituting the upper wall of the crate are successively mounted in position and thereupon the cross-wires 8 at both ends of the crate are secured in place as previously described. The crate is now finished and loaded ready for shipment and constitutes a very strong durable structure.

At its destination the crate is knocked down by reversing the order of the operations aforesaid and the bunch of bananas removed. As the plates 5 and 6 are all of equal area they can be tied in a little bundle separately from the peripheral wall which is flattened out, and which may be wrapped in the reverse direction and tied about the stack of top and bottom plates. Where a large number of crates is to be reshipped to the point of origin it is preferable to merely flatten out the peripheral walls and stack them and tie them substantially in a bale and to make separate stacks or bales or other packages of the end wall sections.

The wall sections may be slatted as shown or may be devoid of openings as will be obvious.

It will be observed that the plates constituting the top and bottom members not only serve to hold the slats of the peripheral wall in proper relative position independently of the cleats, but are themselves held by said slats against relative rotation or displacement.

While I have illustrated the preferred embodiment of the invention in the accompanying drawings it will be obvious, of course, that such embodiment may be changed and varied in details of construction within the bounds of mechanical skill without departing from the invention as defined in the appended claims.

I claim as my invention:

1. A knock-down polygonal crate having an articulate peripheral wall composed of a plurality of substantially equally spaced slats of equal width adapted to be turned relatively to each other to lie in a common plane, cleats mounted upon the end portions of the inner faces of the slats and having beveled abutting faces adapted to maintain the slats disposed at substantially equal angles relatively to each other, manually operable means for removably coupling the end slats of the series and coacting with said cleats to form and maintain the peripheral wall, the same being adapted to be completed to form a container open at both ends and adapted to receive end closures, and closures for the ends of the peripheral wall each comprising a number of separate plates substantially equal in length to the inner diameter of the crate and of the same width as said slats and of one-half the number of said slats, said plates angularly disposed to and overlapping each other and diametrically spanning the ends of the peripheral wall for holding the slats of the latter in proper relative position independently of the cleats and being themselves held by said slats against relative rotation and displacement.

2. A knock-down polygonal crate having an articulate peripheral wall composed of a plurality of substantially equally spaced slats of equal width adapted to be turned relatively to each other to lie in a common plane, cleats mounted upon the end portions of the inner faces of the slats and having beveled abutting faces adapted to maintain the slats disposed at substantially equal angles relatively to each other, manually operable means for removably coupling the end slats of the series and coacting with said cleats to form and maintain the peripheral wall, the same being adapted to be completed to form a container

open at both ends and adapted to receive end closures, and closures for the ends of the peripheral wall each comprising a number of separate plates substantially equal in length to the inner diameter of the crate and of the same width as said slats and of one-half the number of said slats, said plates angularly disposed to and overlapping each other and diametrically spanning the ends of the peripheral wall for holding the slats of the latter in proper relative position independently of the cleats and being themselves held by said slats against relative rotation and displacement, the closure plates for one end of the crate supported upon and held by the inner faces of the cleats at one end of the peripheral wall and adapted to be held in place by the crate contents.

3. A knock-down polygonal crate having an articulate peripheral wall composed of a plurality of substantially equally spaced slats of equal width adapted to be turned relatively to each other to lie in a common plane, cleats mounted upon the end portions of the inner faces of the slats and having beveled abutting faces adapted to maintain the slats disposed at substantially equal angles relatively to each other, manually operable means for removably coupling the end slats of the series and coacting with said cleats to form and maintain the peripheral wall, the same being adapted to be completed to form a container open at both ends and adapted to receive end closures, and closures for the ends of the peripheral wall each comprising a number of separate plates substantially equal in length to the inner diameter of the crate and of the same width as said slats and of one-half the number of said slats, said plates angularly disposed to and overlapping each other and diametrically spanning the ends of the peripheral wall for holding the slats of the latter in proper relative position independently of the cleats and being themselves held by said slats against relative rotation and displacement, the other closure plates supported upon the outer faces of the other cleats, and manually operable means for removably securing the last-named plates.

4. A crate comprising a polygonal peripheral wall composed of substantially equal sections, supports for closures for the open ends of the latter disposed on the inner face of the same at the end portions thereof, and closures for said ends each comprising a number of separate rectangular plates equal to one-half the number of sides of the polygon and of substantially the same width as the latter, the length of said plates being equal to the inner diameter of the peripheral wall and adapted to span the same so that the ends thereof abut against opposed wall sections, said plates adapted to be angularly disposed to and overlap each other for holding the sections of the peripheral wall in proper relative position and to be themselves held against relative displacement by said sections.

JOSEPH LIMONCELLE.