

1,002,271.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

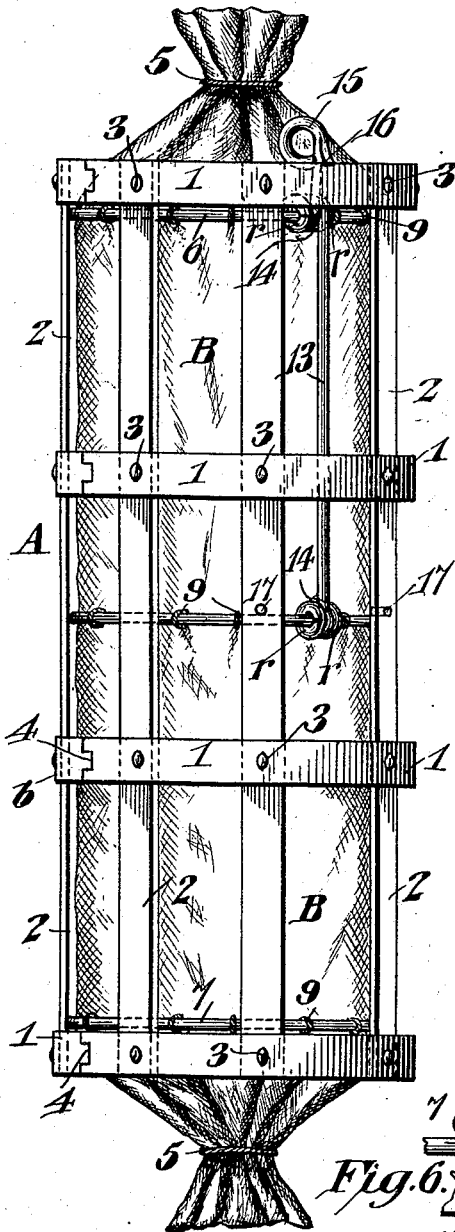


Fig. 2.

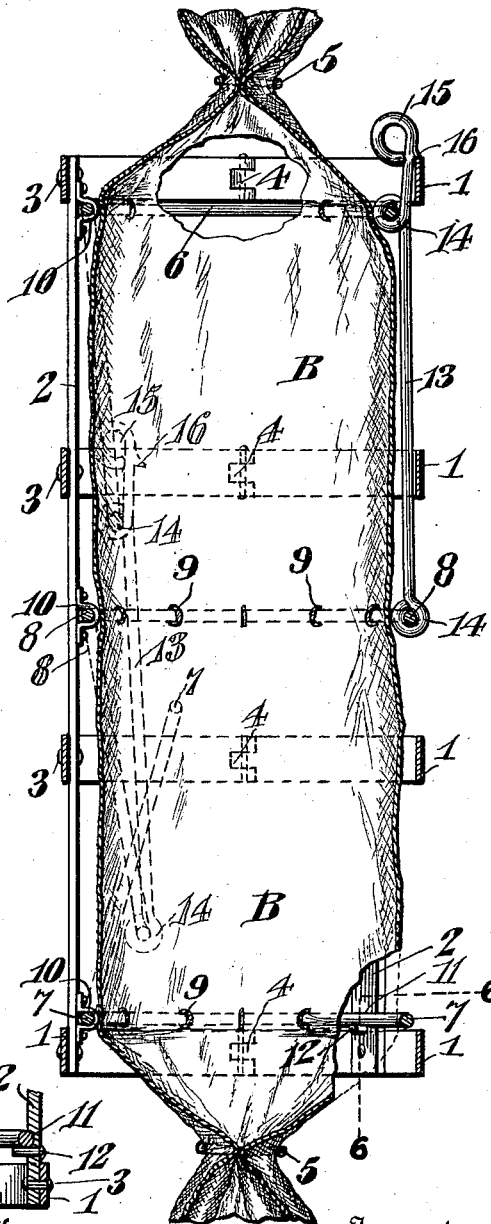


Fig. 6.

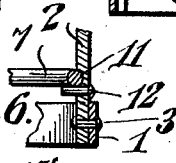
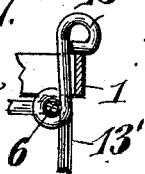


Fig. 7.



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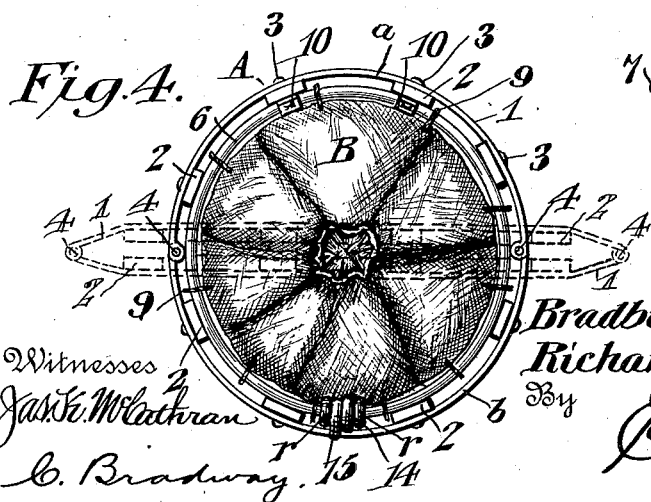
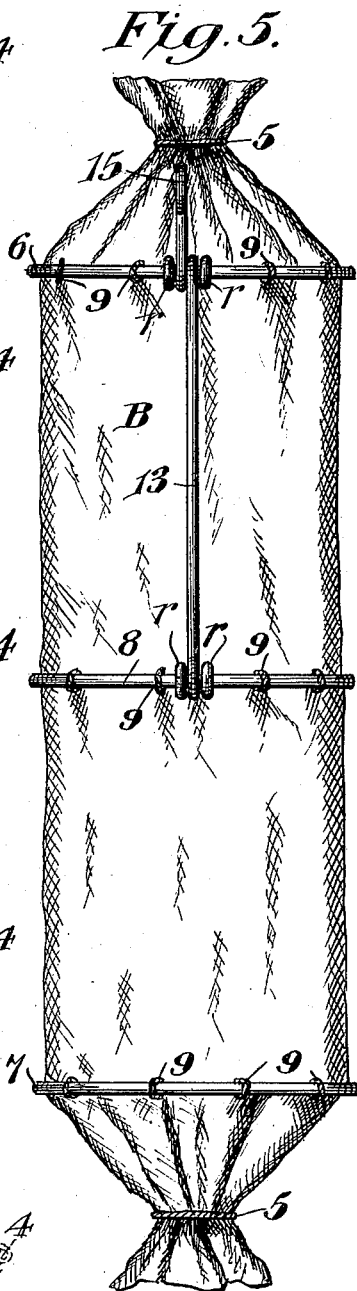
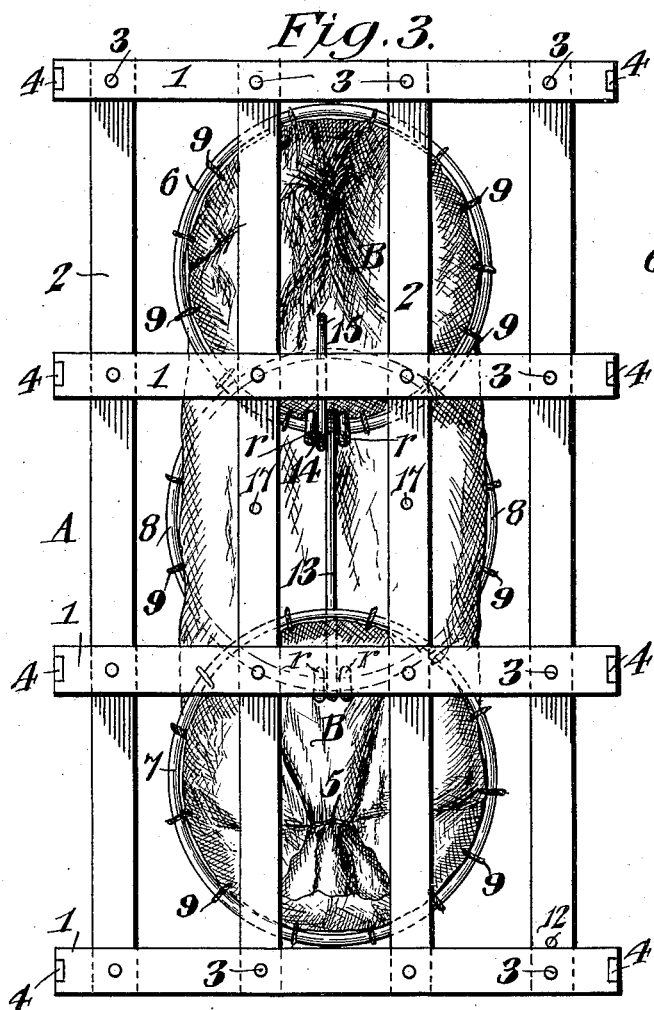
Attorney

B. HILL & R. C. JOHNSON.  
COLLAPSIBLE BANANA CRATE.  
APPLICATION FILED OCT. 27, 1909.

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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## COLLAPSIBLE BANANA-CRATE.

1,002,271.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed October 27, 1909. Serial No. 524,919.

*To all whom it may concern:*

Be it known that we, BRADBURY HILL and RICHARD C. JOHNSON, citizens of the United States, residing at Waterloo and Albert Lea, respectively, in the counties of Blackhawk and Freeborn and States of Iowa and Minnesota, respectively, have invented a new and useful Collapsible Banana-Crate, of which the following is a specification.

This invention relates to a shipping crate intended more particularly for bananas, and the principal object of the invention is the provision of an improved crate which can be collapsed when emptied so as to take up comparatively little space when returning the empty crate to the banana shipper.

A further object of the invention is to provide a device of this character which is of comparatively simple and inexpensive construction, reliable and efficient in use, and so designed as to be readily set up or knocked down.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a side view of the crate set up. Fig. 2 is a central vertical section thereof, with portions of the inclosing sack broken away. Fig. 3 is a plan view of the crate collapsed. Fig. 4 is an end view of the crate, showing the latter in open position, and by dotted lines in closed position. Fig. 5 is a side elevation of the sack or casing removed from the outer framework of the crate. Fig. 6 is a detail sectional view on line 6-6, Fig. 2. Fig. 7 is a detail view of a modification.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the outer framework of the crate which is composed of a plurality of spaced hoops or bands 1 and longitudinal spaced slats 2 connected with the hoops by rivets 3 or equivalent means. The hoops are preferably, although not necessarily, made of metal, while the slats are of wood. The framework is preferably made in two parts

by having the hoops composed of half sections *a* and *b*, with their adjacent ends hingedly connected at 4, and the hinges of the various hoops are arranged in alignment so that one half of the crate can be collapsed flat against the other half, as shown by dotted lines in Fig. 4, the bands being flexible to permit of this collapsing.

Arranged within the framework is a sack or casing B which forms the inner section of the crate, and this sack is of tubular form and constructed of burlap or the like with the ends open and adapted to be drawn together and fastened in any suitable manner, as for instance, by cords 5, as shown in Fig. 5. Encircling the sack B are upper, lower and intermediate wire or other hoops 6, 7 and 8, which are attached to the sack by stitches or equivalent means 9. These hoops are hingedly connected to one half of the outer section or framework of the crate, so that they can swing flat against that half of the framework to which they are connected when the crate is collapsed. As shown in Figs. 2 and 3, the wire hoops are connected by straps, staples or the like 10, to the two middle slats of one half of the framework of the crate. These hoops are entirely free from the other half of the framework and they serve to hold the crate in set-up position. The lower hoop 7 swings inwardly to the dotted line position, Fig. 2, when the crate is collapsed, while the hoops 6 and 8 also swing inwardly, as shown by the dotted lines in Fig. 2. The bottom hoop engages in recesses 11 on the inner faces of the slats 2 when the crate is set up, as clearly shown in Figs. 2 and 6. In order to prevent the hoop from swinging out of the bottom of the crate, stop pins 12 are provided on certain of the slats. The upper and intermediate hoops are connected by a latch bar 13 hingedly connected at 14 with the respective hoops so that both swing inwardly or outwardly together. The latch bar extends upwardly from the top hoop 6 and terminates in an eye 15 that constitutes a handle, and this extension has a notch 16 for forming a shoulder which engages over the top band 1 of the outer framework of the crate, as clearly shown in Fig. 2, the latch bar having an outward tension so as to maintain its engagement with the upper band. The upward or opening movement of the wire hoops 6 and 8 is limited by one

or more stop pins 17 on the middle of the slats 2 so as to be engaged by the hoop 8. These pins coöperate with the shoulder 16 of the latch for preventing the hoops 8 and 9 from moving from open position except by deliberately releasing the latch. In other words, the hoops cannot swing inwardly to folded position because of the shoulder engaging the upper band 1 and the hoops cannot swing upwardly from their normal position on account of the stop pins 17.

The crate, when set up for shipment, is represented by Figs. 1, 2 and 4, in which the outer section is of cylindrical form and locked by means of the hoops 6, 7 and 8 of the inner section of the crate. The skeleton framework serves to prevent injury to the bunch of bananas during transportation by contact with other objects, while the casing or sack B keeps the bananas clean, free from insects, and otherwise protects them. After the bunch of bananas is removed from the crate and it is desired to return the same to the shipper, it is merely necessary to release the bottom hoop 7 from the notches 11 and swing the hoop inwardly to the dotted line position shown in Fig. 2, and thereafter the latch 13 is released from the upper band 1 by exerting an inward pressure on the handle 15 for disengaging the shoulder 16, and then by exerting a downward pressure on the handle, the upper and intermediate hoops 6 and 8 are swung inwardly to the dotted line position, Fig. 2. The two parts of the outer section of the crate can then be compressed together so that the parts will assume the position shown in Fig. 3. It will thus be seen that very little space will be required when the crate is collapsed and the crates can be piled one on top of another for convenience in shipping them empty.

In the modification shown in Fig. 7, the eye 15' on the latch bar 13' is arranged to extend outwardly so as to engage over the top band 1 and thus take the place of the notch 16 of the latch bar 13 shown in Fig. 2.

It may be desirable to provide means on the hoops 6 and 8 for preventing lateral displacement of the latch bar, and for this purpose, stop rings *r* are rigidly secured on the said hoops at opposite sides of the eyes 14 of the latch bar.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while we have described the principle of operation of the invention, together with the apparatus which we now consider to be the best embodiment thereof, we desire to have it understood that the apparatus shown is merely

illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is:—

1. A knock-down shipping crate comprising two like sections connected together at the edges and collapsible one flat against the other, internal end and intermediate hoops hingedly connected to the inner side of one of the said sections and serving to hold the framework in the set up position, and a sack fast to the several hoops.

2. A knock-down shipping crate comprising an outer frame work composed of longitudinal strips and connecting hoops therefor, said hoops each being formed of two members hinged together at the meeting ends, internal end and intermediate hoops hinged to the interior of the outer framework at one side thereof and serving to hold the framework in the set up position, and means for locking the second named hoops in the active position.

3. A collapsible crate comprising an outer framework made up of longitudinal spaced strips and bands at the ends and at intermediate points of said strips and secured thereto, each of said bands being formed of two members hinged together at the ends, rings within the framework each hinged to one of the strips and capable of folding within the framework, a sack connected to the hoops for distention thereby, and locking means for the hoops active when the framework is in the distended position to hold the hoops in distending relation to the said framework.

4. A collapsible crate comprising an outer framework made up of longitudinal spaced strips and bands at the ends and at intermediate points of said strips and secured thereto, each of said bands being formed of two members hinged together at the ends, hoops within the framework each hinged to one of the strips and capable of folding within the framework, a sack connected to the hoops for distention thereby, and locking means for the hoops active when the framework is in the distended position to hold the hoops in distending relation to the said framework, said locking means comprising a latch bar connected to a plurality of the hoops and formed at one end with a latch adapted to engage the corresponding end band, and pins on certain of the longitudinal strips for stopping the hoops when they have reached the extended position.

5. A collapsible crate comprising a framework made up of longitudinal spaced strips and encircling bands connected to the strips and each formed of two members hinged together at the meeting ends, end and intermediate hoops within the framework hinged

to one of the longitudinal strips and of a size to distend the framework, a latch bar connected to one of the end hoops and an intermediate hoop and provided at one end with a latch member adapted to engage the corresponding end band of the framework, limiting pins carried by the framework in the path of the connected hoops, and limiting pins on the framework in the path of the other end hoop, certain of the longitudinal strips of the framework being recessed to receive the last named hoop when in engagement with the limiting pins.

6. A knockdown shipping crate comprising a cylindrical framework composed of two sections collapsible flat against each other, a plurality of hoops hingedly connected with one of the sections and arranged to engage the other section for holding the framework in open position, a latch bar connected with certain of the hoops and engaging the framework for locking the crate in set-up position, and a sack housed within the framework and supported by said hoops.

7. A knockdown crate comprising a framework of cylindrical form and composed of two sections collapsible flat toward each other, upper, lower and intermediate hoops hingedly connected with one of the sections and foldable flat toward the same, means for holding the bottom hoop in normal position to maintain the bottom of the framework open, a latch bar connected with the upper and intermediate hoops and engaging the framework for cooperating with the bottom hoop to hold the framework open, and a container housed within the framework and carried by said hoops.

8. A collapsible crate comprising a framework made up of longitudinal spaced strips and encircling bands connected to the strips and each formed of two members hinged together at the meeting ends, end and intermediate hoops within the framework hinged to one of the longitudinal strips and of a size to distend the framework, a latch bar connected to one of the end hoops and

an intermediate hoop and provided at one end with a latch member adapted to engage the corresponding end band of the framework, limiting pins carried by the framework in the path of the connected hoops, and limiting pins on the framework in the path of the other end hoop, certain of the longitudinal strips of the framework being recessed to receive the last named hoop when in engagement with the limiting pins, and a bag fast to the hoops and distended thereby.

9. A collapsible crate comprising a framework consisting of flexible bands and slats connected therewith, a plurality of circular hoops arranged within the framework and movably connected therewith, a latch bar hingedly connected with the hoops, means on the bar for engaging one of the bands of the framework to hold the latter open, and means on the hoops for preventing lateral movement of the latch bar thereon.

10. A collapsible crate comprising a cylindrical framework composed of two sections hinged together at diametrically opposite points and collapsible flat against each other, end and intermediate hoops hingedly connected with the inner side of one of the sections and of proper size to fit across, within and bear against said framework and distend the same when set up, said hoops being adapted to fold down flat upon said framework when it is collapsed, and a container housed within said framework and arranged within the hoops and rigidly connected thereto and collapsible therewith.

In testimony, that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

BRADBURY HILL.  
RICHARD C. JOHNSON.

Witnesses to signature of Bradbury Hill:

A. B. LOVEJOY,  
PEARL M. LARNAN.

Witnesses to signature of Richard C. Johnson:

HENRY A. MORGAN,  
ARRA E. JEFFRIES.