

No. 756,260.

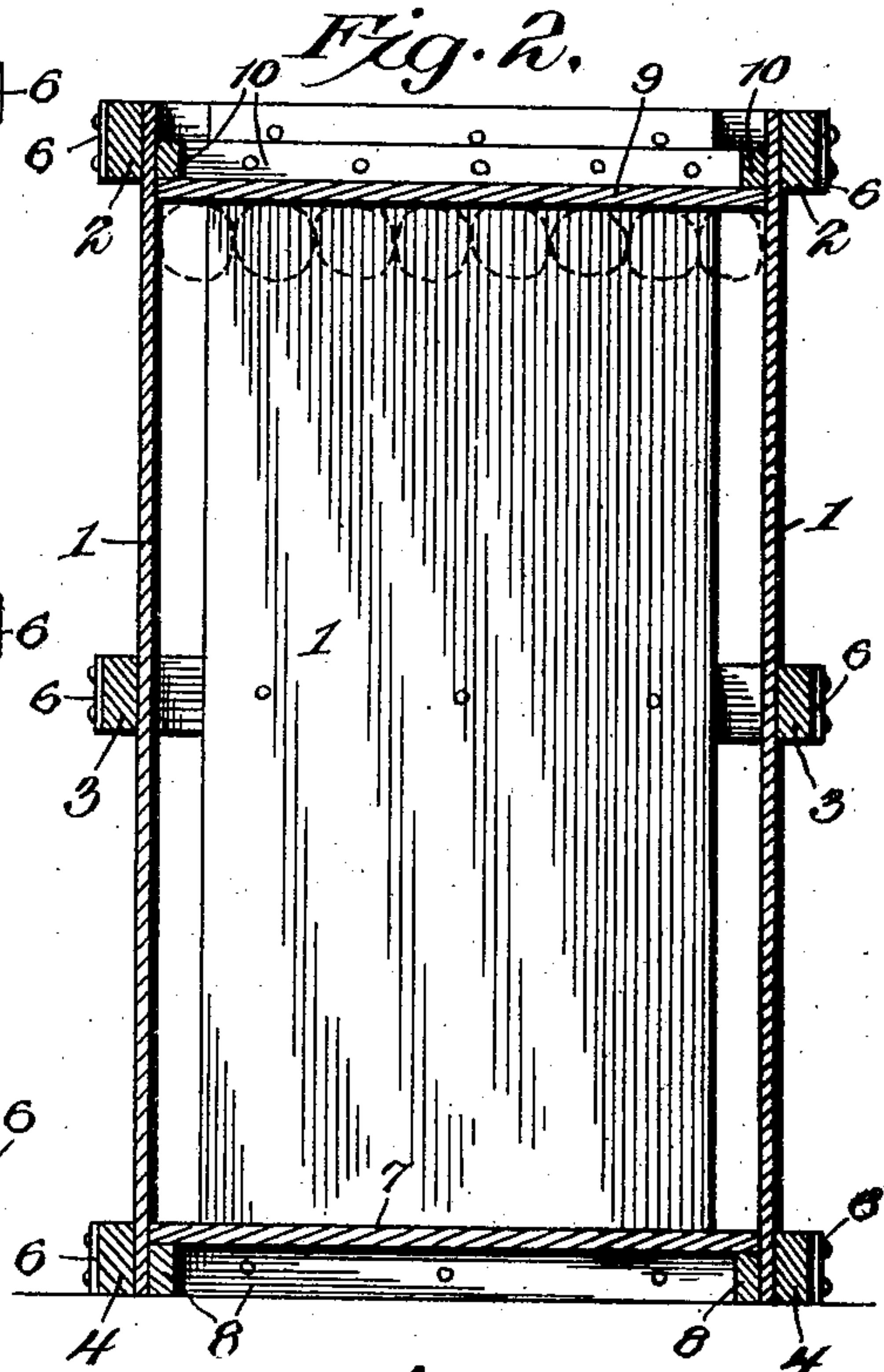
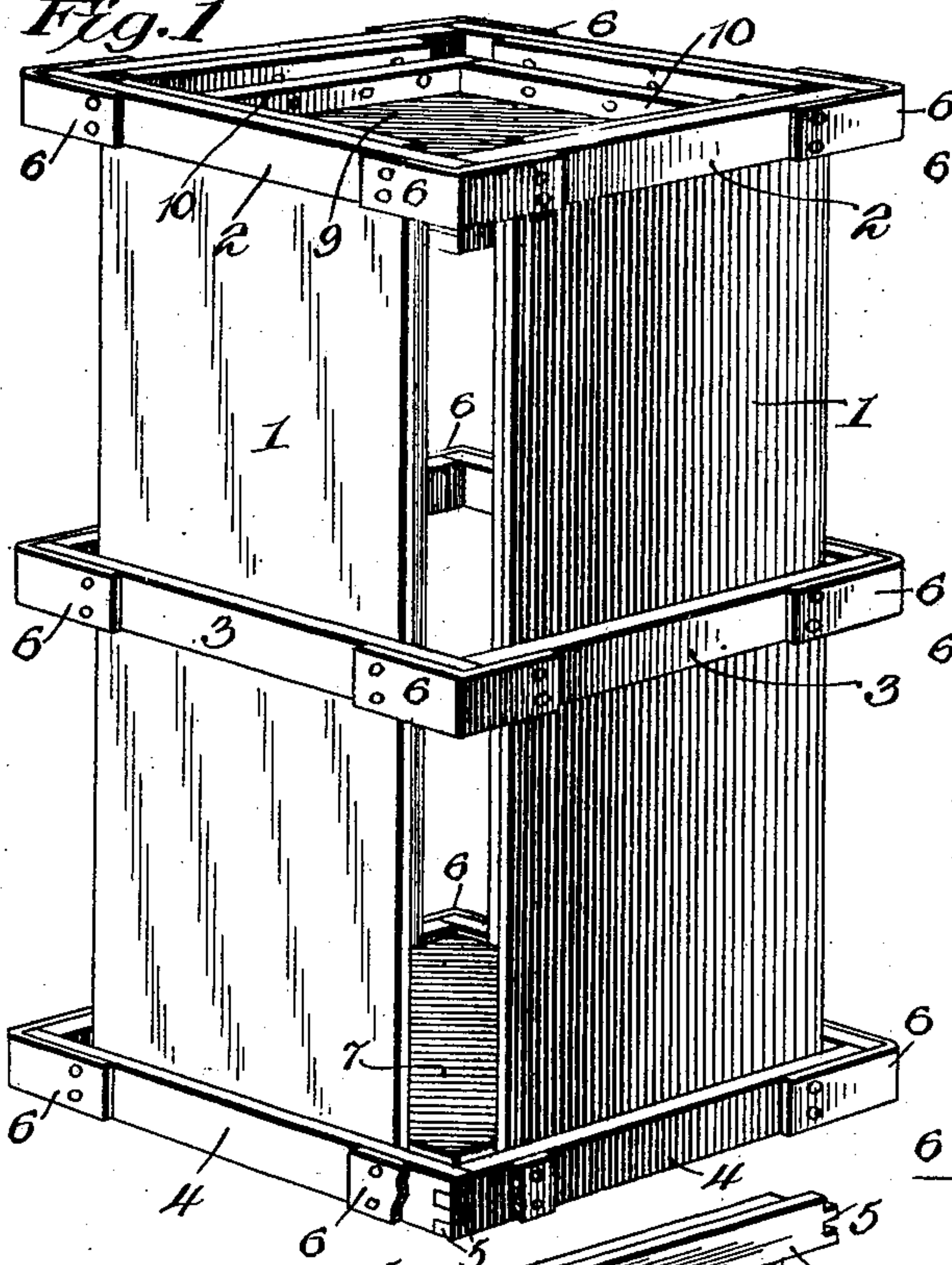
PATENTED APR. 5, 1904.

G. MILLER & W. BUTLER.  
SHIPPING CRATE.

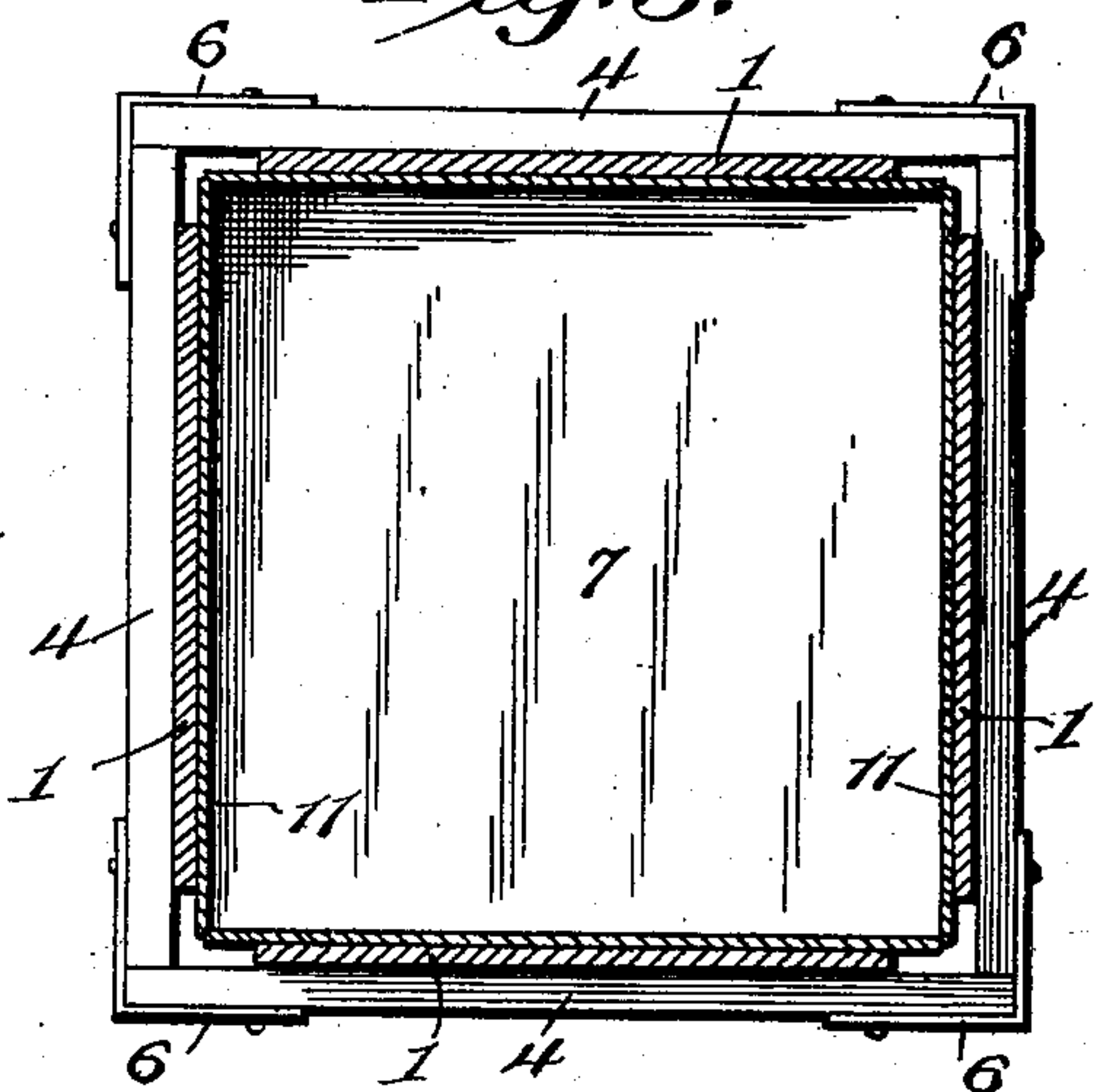
APPLICATION FILED SEPT. 16, 1902.

NO MODEL.

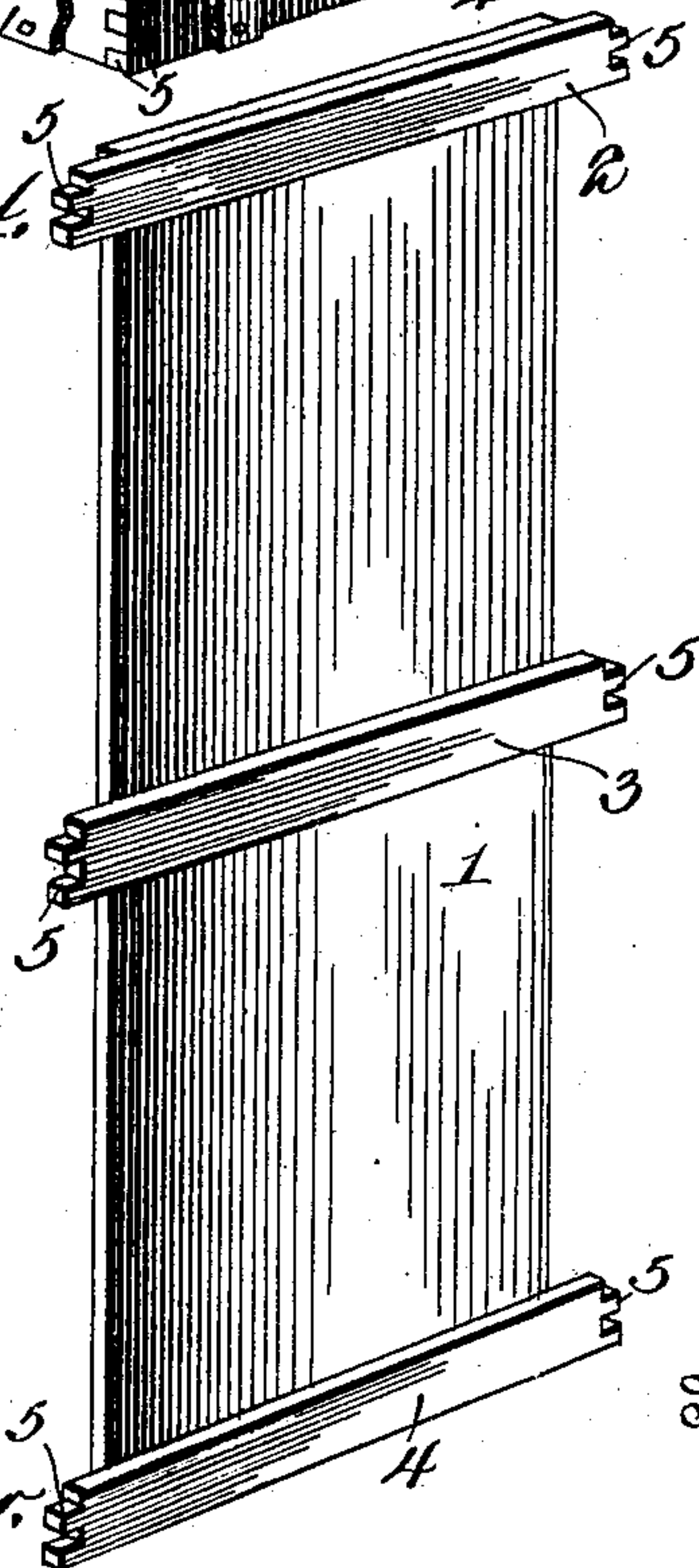
*Fig. 1.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

GEORGE MILLER, OF HOLSTEIN, AND WILLIAM BUTLER, OF SHELBY,  
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## SHIPPING-CRATE.

SPECIFICATION forming part of Letters Patent No. 756,260, dated April 5, 1904.

Application filed September 16, 1902. Serial No. 123,633. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE MILLER, residing at Holstein, and WILLIAM BUTLER, residing at Shelby, in the county of Oceana and State of Michigan; citizens of the United States, have invented a new and useful Shipping-Crate, of which the following is a specification.

This invention relates to shipping-crates, and has for its object to provide an improved device of this character which is designed for shipping fruit, especially apples, and has all of the advantages of a barrel, and in addition thereto is capable of being returned in a collapsed or knocked-down condition. It is furthermore designed to provide for quickly converting the device from a ventilated crate to a non-ventilated crate and at the same time to maintain the required strength, rigidity, and durability.

Another object is to arrange for pressing or forcing the head or top of the crate into the body thereof, so as to press or pack the contents of the crate, and to rigidly hold the head or top against accidental displacement after the contents have been sufficiently packed, and at the same time to arrange for conveniently removing the head or top to give access to the interior of the crate for removing the contents thereof.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a ventilated shipping-crate embodying the features of the present invention. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a cross-sectional view of the crate having a filler inserted therein to render the crate non-ventilated. Fig. 4 is a detail per-

spective view of one of the sides or longitudinal members of which the crate is formed.

Like characters of reference designate corresponding parts in all the figures of the drawings.

In the construction of the present crate it is designed to combine strength and lightness, and therefore each longitudinal side consists of a rectangular strip or board 1 of veneer, which is stiffened and braced by means of upper, intermediate, and lower cross-bars 2, 3, and 4, respectively, which are nailed or otherwise secured across the outer face of the veneer strip with their ends projected equally at opposite edges of the strip, the upper and lower cross-bars being flush with the respective ends of the strip and the intermediate cross-bar being substantially midway between said ends. The projected ends of the cross-bars are provided with spaced tongues or tenons 5 to fit the corresponding mortises in the ends of the cross-bars of the adjacent sides of the crate, so as to form a detachable mortise-and-tenon joint between the sides of the crate. At the ends of the short cross-bars are metallic guard-plates 6, which are nailed or otherwise secured to the outer faces of the cross-bars, and when the crate is set up these plates are bent across and against the outer faces of the adjacent cross-bars and nailed or otherwise secured thereto, so as to form angular clips embracing the corner edges and forming a positive connection or joint between the cross-bars. Besides connecting the cross-bars, the plates or clips embrace the abutted ends thereof, so as to protect the same against blows, and thereby prevent the tongues or tenons from becoming broken or damaged by the rough treatment to which crates are commonly subjected. In the original manufacture of the crate the plates or clips are straight and the sides are packed flat against each other, whereby the crate takes up but comparatively little room when in its knocked-down or collapsed condition.

It will here be noted that as the cross-bars project beyond the longitudinal edges of the veneer sides there is considerable space be-



tween the edges of said side pieces, said spaces extending throughout the length of the crate and forming ventilation-openings.

In connection with the longitudinal edge openings for ventilation it will be observed that the cross-bars embrace the outer side of the crate and bridge the said openings to form guards, whereby when a plurality of crates are closely packed the ends of the cross-bars prevent the corners of one crate from entering the edge openings of another crate, to the injury of the contents thereof.

The bottom 7 of the crate is loose therein and is supported upon ledges formed by cleats or strips 8, nailed to the inner faces of the veneer strips. The bottom of course fits snugly within the crate, so as to prevent looseness thereof, but is not otherwise fastened, whereby the bottom may be conveniently removed when it is desired to collapse the crate. It will of course be understood that the bottom cleats or strips 8 are permanently connected to the side members of the crate, as it is not necessary to remove the same when collapsing the same.

A very important feature of the present device resides in the arrangement of the head or top 9, which is of a size to fit loosely within the crate, so that it may be forced down into the same and against the top of the apples or other fruit, so as to press or pack the same sufficiently to prevent looseness thereof, after which the strips or cleats 10 are placed down snugly upon the top of the head and then nailed to the inner faces of the veneer sides, so as to hold the head in place and prevent looseness thereof. This arrangement of the head is very important, as the sole support of the head is the contents of the barrel, whereby the latter may be properly packed or pressed by applying pressure to the head. By this arrangement the contents of the barrel may be effectually packed whether the crate is entirely filled or partially filled. The head can be readily removed by prying off the strips or cleats 10, whereby convenient access may be had to the interior of the crate without damaging any portion of the latter, and the crate is thereby preserved for repeated use.

From the foregoing description of the manner of fastening the heads of the crate it will be understood that both heads are secured in precisely the same manner, wherefore either end of the crate may serve as the head or top. Moreover, each head is set inwardly from the extreme end of the crate, whereby it may be formed of veneer, as it is not exposed to blows, which might split and damage the same.

When it is desired to convert the crate into a non-ventilated device, a filler 11 is fitted into the crate through one end thereof and is of a size to snugly fit the same, so as to entirely close the edge openings. While this filler

may be formed in sections, it is preferred to have the same in one piece and is formed of strawboard, veneer, or the like, which is scored and folded so as to form an open-ended tubular filler to fit the interior of the crate. When the crate is in its collapsed or knocked-down condition, the filler is folded out flat and packed between the sides of the crate.

From the foregoing description it will be noted that by the present construction and arrangement of parts the sides of the crate are effectually braced by external cross-bars which form bands to protect said sides, and therefore the latter may be of comparatively thin and light material, such as veneer, so as to secure a comparatively light device without sacrificing strength and durability. The sheets of veneer are held in position by exterior rectangular frames the cross bars or members of which are interlocked at the corner-openings, where the frames bridge the spaces between the sheets of veneer, and the latter are also supported by the heads, which are located within the crate. Moreover, the device is in the nature of a barrel—that is to say, it has removable heads—which is the most convenient form of device for shipping apples and similar fruit, and the heads of the crate are arranged to lie directly against the contents of the device, so that pressure may be applied thereto to properly pack the contents and prevent looseness thereof, so as to obviate bruising of the fruit during transportation and handling of the crate.

The removable filler enables the crate to be readily used either as a solid or ventilated crate, and the arrangement of the rectangular frames on the exterior of the sheets of veneer provides a smooth interior for the removable filler.

What we claim is—

1. The combination of a shipping-crate provided with ventilating-openings and having a smooth interior extending the entire length of the sides of the crate, the latter being also provided on its exterior at the said openings with projecting guards, and a removable filler conforming to the configuration of and fitting snugly within the crate and covering the ventilating-openings thereof, said filler being adapted to be detached, whereby the crate may be used either as a ventilated crate or a solid crate, substantially as described.

2. The combination of a polygonal shipping-crate having imperforate sides spaced apart to form intervening longitudinal ventilating corner-openings, said crate being provided with cross-bars arranged on the exterior of and projecting beyond the sides and connected at the corner-openings and forming exterior projecting guards, and a removable imperforate filler conforming to the configuration of the crate and fitting snugly against the sides thereof and covering the corner-openings and projecting into the same, said filler being adapted



to be detached, whereby the crate may be used either as a ventilated crate or a solid crate, substantially as described.

3. A polygonal shipping-crate presenting a smooth interior to enable it to receive a filler, and comprising imperforate sides consisting of sheets of veneer spaced apart at the corners of the crate to provide ventilating-openings, exterior rectangular frames secured to the outer faces of the sides and bridging the spaces between the sheets of veneer and holding the same in position, said frames having projecting angular portions at the corners of the crate, and heads arranged within and closing the top and bottom of the crate, substantially as described.

4. A polygonal crate comprising sides consisting of imperforate sheets of veneer spaced apart at the corners to provide ventilating-openings, exterior frames secured to the outer faces of the sides and bridging the ventilating-openings and having interlocked joints thereat, angular metallic guard-plates secured to the said frames and covering the said joints, and heads arranged within and closing the ends of the crate, substantially as described.

5. In a shipping-crate, the combination of

longitudinal side members, and intermediate cross-bars secured to the outer faces of the side members and projecting at the opposite longitudinal edges thereof to form angular guards, the adjacent ends of the corresponding cross-pieces having interlocking joints, angular guard-plates embracing and covering the joints and secured to the respective cross-bars, the adjacent longitudinal edges of the side members being separated by longitudinal inner spaces, a removable open-ended tubular filler of scored material fitting snugly within the crate and covering the edge openings, heads fitted within the ends of the crate and capable of being forced inwardly, and cleats secured to the inner faces of the side members and bearing against the outer faces of the heads to prevent upward displacement thereof, substantially as described.

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

GEORGE MILLER.

WILLIAM BUTLER.

Witnesses:

J. A. HARRISON,

MAMIE CHURCHILL.