

No. 870,122.

PATENTED NOV. 5, 1907.

W. A. PERKINS.
KNOCKDOWN CRATE.

APPLICATION FILED MAR. 28, 1906.

3 SHEETS—SHEET 1.

Fig. 2.

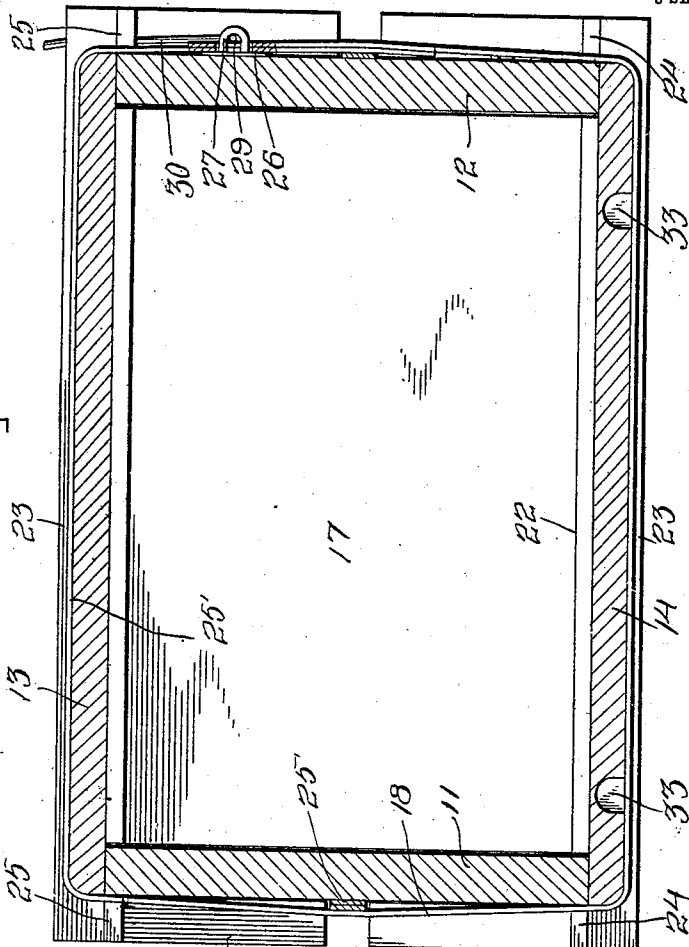
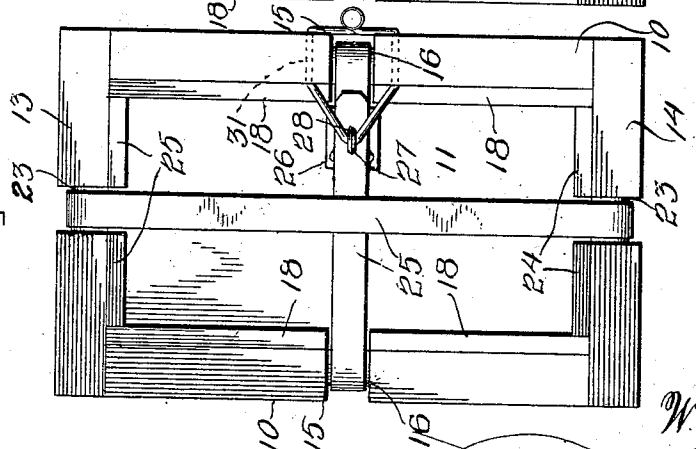


Fig. 1.



Witnesses

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3 SHEETS—SHEET 3.

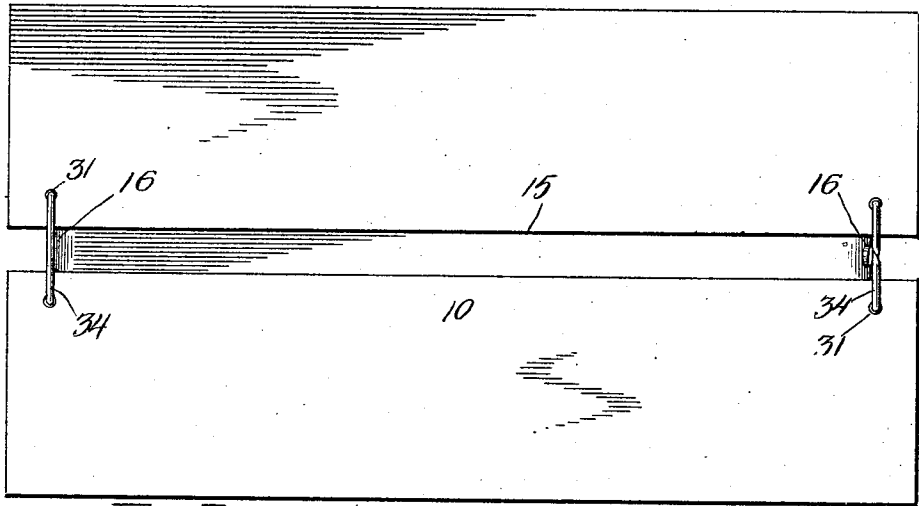


Fig. 6.

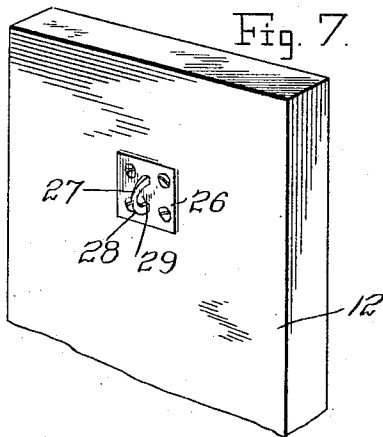


Fig. 7.

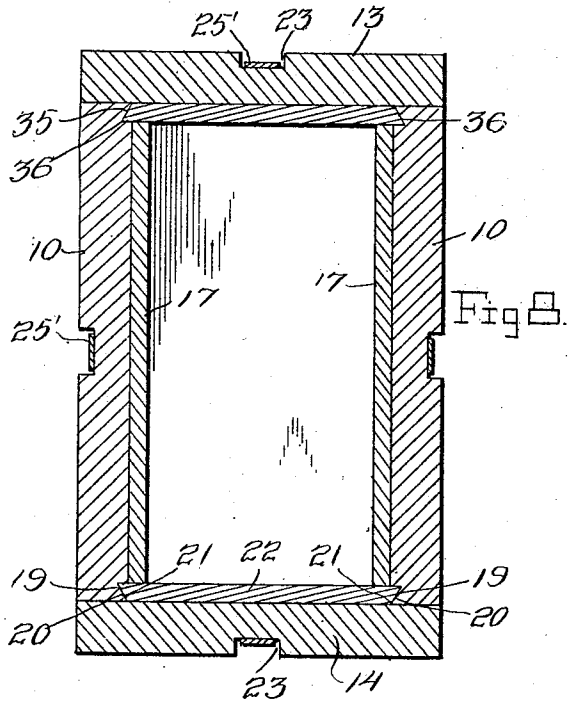


Fig. 8.

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UNITED STATES PATENT OFFICE.

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KNOCKDOWN CRATE.

No. 870,122.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed March 28, 1906. Serial No. 308,544.

To all whom it may concern:

Be it known that I, WILLIAM ALLAN PERKINS, a citizen of the United States, residing at Charlottesville, in the county of Albemarle, State of Virginia, have invented certain new and useful Improvements in Knockdown 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.

10 This invention relates to knockdown crates and has in view the provision of an article of this nature which will be of light weight and which will include means for holding the sections forming the crate rigidly in their proper position, both when the crate is in "set-up" and in "knockdown" condition.

15 A further object of the invention is to provide crate sections of such construction, that when placed in their proper "set-up" position, will be held in this position against accidental disconnection until they have been firmly bound together by means of straps which are in themselves of the ordinary construction, means being provided however upon certain of the crate sections whereby the straps may be secured around the crate to securely hold the sections in their proper relative positions.

20 The means above referred to is in the form of a staple having a knife-edge which may be made to pierce the binding strips, after which suitable sealing devices are engaged with the staples to prevent disengagement of the binding strips therefrom, it being understood that by providing a construction of this nature, an ordinary length of sheet-metal strip may be used, thereby saving considerable expense, time and labor which would otherwise be involved in the construction and provision of a binding strip of special design.

25 With the above and other objects in view, the present invention consists in the construction and arrangement of parts, shown in the accompanying drawings, in which:

30 Figure 1 is an end elevation of the crate. Fig. 2 is a vertical longitudinal sectional view therethrough. Fig. 3 is a transverse vertical sectional view. Fig. 4 is a vertical longitudinal sectional view through the crate and showing the position of the parts when the crate is in "knock-down" position. Fig. 5 is a bottom plan view of the bottom section of the crate, a portion of the same being broken away to show one of the beveled edges of the inner facing plate thereof. Fig. 6 is a top plan view of the crate in "knock-down" condition and showing the means for holding the sections together while in this position. Fig. 7 is a detail perspective view of a portion of one of the ends of the crate and showing the specific construction of the staple for the attachment of the binding strips to the

crate, and, Fig. 8 is a vertical transverse sectional view 55 through the crate in "set-up" condition and showing a slightly modified form of top section therefor.

As shown in the drawings, the crate comprises sides 10, ends 11 and 12, a top 13 and a bottom 14. The sides 10 are each provided upon their outer faces with 60 grooves 15 which open through the sides at the ends thereof and which have their bottom walls at their ends rounded as at 16 to prevent bending of the binding strip at an acute angle, thereby rendering the same liable to fracture. Secured upon the inner faces of 65 the said side sections are facing boards 17, the grain of which runs in a direction at right angles to the direction of the grain of the side members themselves, it being understood that this construction of the side members prevents warping of the same and strengthens the 70 sections to such an extent that comparatively thin boards may be used in the manufacture thereof, thus saving not only considerable material but also rendering the device light in weight. It is a well known fact that in devices of this nature employing cleats as an 75 equivalent of the boards 17 shown by applicant, it is practically impossible to securely pack rectangular packages compactly in the crate or box as the cleats protrude inwardly from the sections thereof and prevent certain of the packages from resting squarely 80 against the said sections. In view of the above, it will be readily understood that the boards 17 cooperate with other facing boards to be hereinafter described to perform the additional function of presenting an unbroken interior for the crate. 85

Secured to the inner face of the sides 10 and extending in parallel relation to the ends of the board 17 are cleats 18 which extend from the side edges of the said sides proper to the point thereon through which the grooves 15 open. Formed in the inner faces of the 90 sides 10 and at the lower edge thereof are grooves 19 which have their ends terminating at the adjacent cleats 18, one of the walls of each groove being beveled as indicated at 20. The above mentioned grooves 19 are formed in the sides for the reception of the beveled 95 edges 21 of facing boards 22 which are secured to the inner face of the said bottom section, it being understood that the beveled edges 21 of the boards lie flush against the beveled walls 20 of the grooves 19 to prevent movement of the bottom section from the said side sections. Formed in the outer faces of the top and bottom sections 13 and 14 respectively are grooves 23 100 which, when the crate is in "set-up" position lie in a common vertical plane at right angles to the plane in which the grooves 15 lie when the crate is in the said 105 position. Secured to the inner faces of the top and bottom sections 13 and 14 are cleats 24, the said cleats being located at the ends of the said sections and in

spaced parallel relation with respect to the ends of the facing boards 22 upon the member 14 and similar boards 25 upon the member 13. The cleats 24 are located upon opposite sides of the point through which the grooves 23 open, as in the case of the cleats 18 but terminate short of the sides of their respective members.

The end members 11 and 12, when the crate is in "set-up" position are seated at their edges between the cleats above described and the adjacent facing boards, it being understood that the side edges of the end sections are engaged between the cleats and facing boards of the side and that the ends of the said end sections are engaged between the cleats and facing-boards of the top and bottom sections of the crate.

The grooves 15 and 23 formed in the sections of the crate are for the reception of binding strips 25 and in order that the common form of binding strip may be applied to the crate, I provide upon the outer face of each of the end sections a staple which includes an attaching plate 26 by means of which the staple may be attached to the said end sections, there being attaching screws engaged through the said plate and into the said sections. Each of the staples proper comprises a blade 27 which is rectangular in form and which has its upper edge in the form of a knife edge 28, the said blades being formed of any suitable metal, preferably of tempered steel, in order that they may be made to pierce the binding strips 25 as will be explained. One of the staples 27 is secured to the end section 11 adjacent one side edge thereof and in a plane with the grooves 15 and the other of the staples is secured to the end sections 12 adjacent the end thereof and in a common plane with the grooves 23 in the top and bottom sections. In practice, the crate sections are set up in their proper positions as shown in the drawings and one end of a length of binding strip 25 is disposed against the knife edge 28 of one of the staples 27 and is struck by means of a die (not shown) and of any suitable construction, to cause the said staple to pierce said end of the strip after which the strip is engaged around the crate and in one pair of grooves with its opposite end upon the knife edge, the piercing operation being then repeated to engage both ends of the strap with the staple. It will be understood of course, that a second strip 25 is engaged around the crate and in the remaining pair of grooves and at its ends with the remaining staple 27. In order that the ends of the strips may be held against accidental movement from engagement with the staples, I provide through the said staples, openings 29 through which may be engaged the bail of a lock or a length of wire 30. In order that the length of the wire 30 may serve as a sealing device for the crate, I provide through the ends of the sides and top and bottom sections of the crate, openings 31 which extend, as stated, through the said sections and also through the cleats thereon and through certain of these openings the wires 30 are engaged. As shown in the drawings, the strands of

wire 30 are engaged through the openings nearest the respective staples through which the strands of wire are engaged, a lead seal being formed upon the ends of the wires beyond the openings.

When the crate is to be returned to the sender the sections thereof are disconnected and are placed against each other with the side sections outermost, the top and bottom sections against the opposing faces of the side sections and the end sections in position between the said top and bottom sections. The side sections are placed with their grooved faces outermost and the top and bottom sections with their grooved faces opposing each other, the bottom wall of the groove being recessed adjacent its opposite ends as at 33 for the reception of the staples 27. It will be noted that the sections when placed in this position have the ends of their grooves in alinement and that either one strip 25 may be engaged around the sections and secured at their ends in any convenient manner or that a length of wire 34 may be engaged around the said sections and through all of the openings 32 therein and the ends of the said wire twisted to bind the said sections together.

In the form of my invention shown in Fig. 8, the top section of the crate is slidably engaged with the side sections by beveling the longitudinal edge of the said top section as indicated at 35 and forming in the opposing faces of the said sections adjacent their upper ends grooves 36 having each a beveled wall which abuts the beveled longitudinal edges of the top section as in the case of the bottom sections and side sections shown in the first seven figures of the drawing. It will of course be understood that one pair of the cleats 24 of the top section is omitted to permit sliding movement of the said sections.

What is claimed is:

A knockdown crate comprising sides, ends, a top, and a bottom, all of which are separable, the ends of the sides, top and bottom being adapted to project beyond the end sections of the crate when the same is in set up condition, the sides, top and bottom being grooved longitudinally, a staple carried by one of the end sections of the crate, a binding strip engaged around the crate, in the grooves in the side sections thereof and having its ends adapted for the engagement therethrough of the staple, the ends being overlapped, a staple carried by the other end section of the crate, in the grooves in the top and bottom thereof, the ends of the binding strip being overlapped and arranged for the engagement therethrough of the said staple, a wire threaded through the first named staple and through the adjacent projecting end of the adjacent side section of the crate at opposite sides of the groove therein, the ends of the wire having a seal connection, and a similar wire threaded through the last named staple and through the adjacent projecting end of the top section of the crate at opposite sides of the groove therein, the ends of the wire having a seal connection.

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

WILLIAM ALLAN PERKINS.

Witnesses:

C. H. JOHNSON,
F. G. SMITH.