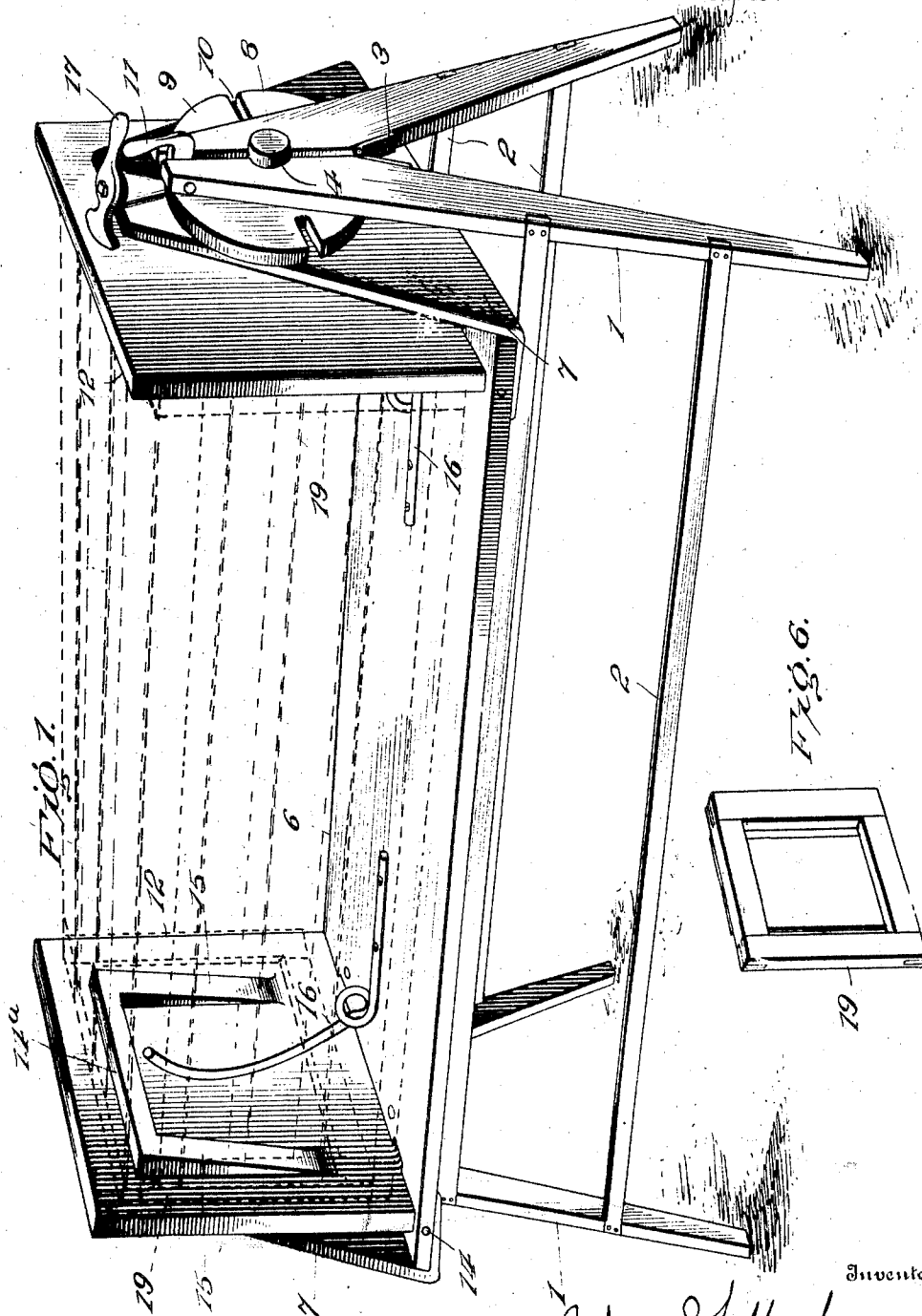


No. 811,448.

PATENTED JAN. 30, 1906.

J. SHELLENBERGER.
CRATE NAILING UP FORM.
APPLICATION FILED MAY 4, 1905.

2 SHEETS—SHEET 1.



Witnesses

John H. Schmitt
Louis H. Schmitt.

By

John S. Shellenberger
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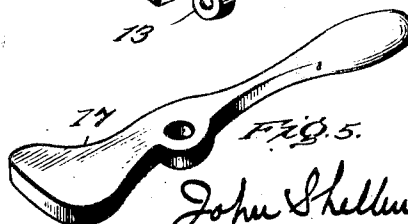
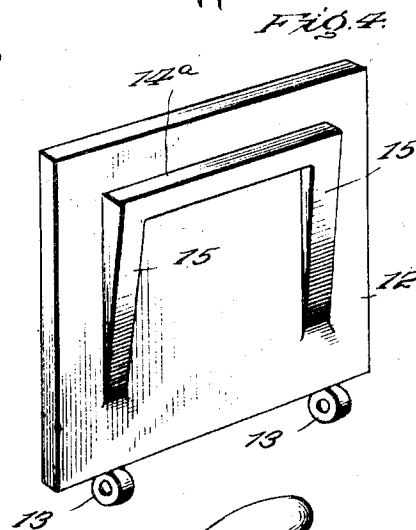
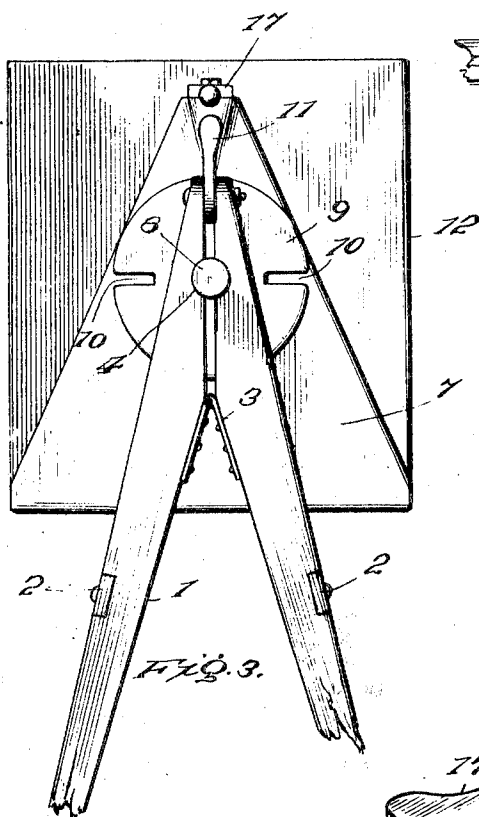
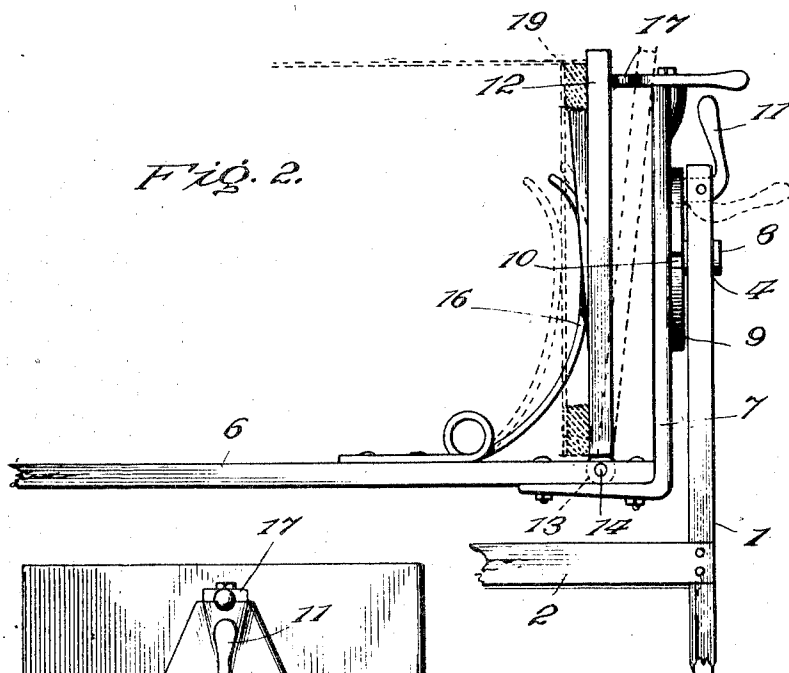
Attorney

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN SHELLENBERGER, OF ROME, GEORGIA.

CRATE-NAILING-UP FORM.

No. 811,448.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed May 4, 1905. Serial No. 258,876.

To all whom it may concern:

Be it known that I, JOHN SHELLENBERGER, a citizen of the United States, residing at Rome, Floyd county, Georgia, have invented certain new and useful Improvements in Crate-Nailing-Up Forms; 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 certain improvements in forms or holders for use in assembling and nailing up boxes, such as fruit-crates.

Usually fruit-crates and the like are shipped from the factory in knocked-down condition with the ends, sides, tops, and bottoms in condition to be assembled and nailed together. These knocked-down crates are usually nailed together on the farm or in the orchard by inexperienced hands and without proper facilities, which results in much waste of time and poor and unsightly work and improperly fitted and assembled crates.

It is an object of my invention to provide an improved form, holder, or device which can be readily set up on the farm or in the orchard and in which the parts of the crate can be easily, quickly, and accurately assembled or nailed up by inexperienced persons and by the use of which crates can be expeditiously produced, with the parts thereof properly fitted and united.

It is a further object of my invention to provide an improved device for use in assembling and nailing up parts or members of fruit-crates, such as panel end crates, wherein means are provided to hold the panel ends in proper relation, and whereby the same can be turned or rotated to receive the bottom and sides, and whereby said bottom and sides will be guided to their proper positions on the said ends.

A further object of the invention is to provide certain improvements in combinations, constructions, and arrangements of parts, whereby a highly-efficient holder or form will be produced for use in assembling or nailing up fruit-crates and the like.

The invention consists in certain novel features in constructions or in combinations, as more fully set forth and described herein-after.

Referring to the accompanying drawings, which show what I now consider the preferred embodiment of my invention as an

example for purposes of explanation of a device from among other arrangements within the spirit and scope of my invention, Figure 1 is a perspective view of the nailing-up form set up with its parts in operative position, dotted lines indicating the crate ends, sides, and bottom in position in the form. Fig. 2 is a side elevation of a portion of the device, dotted lines indicating the spring and crate-end-receiving head in different positions, a crate end and crate-bottom being indicated by dotted lines. Fig. 3 is an end view of the nailing-up form. Fig. 4 is a detail perspective of one of the crate-end-receiving heads. Fig. 5 is a detail perspective of one of the locking levers or cams for the crate-end-receiving heads. Fig. 6 is a detail reduced perspective of a panel crate end.

I show a holder or nailing-up form provided with a portable folding support or frame in which the holder is detachably mounted to rotate or oscillate, whereby the device can be easily set up for operation in the field or orchard and can be readily shifted from place to place as desired.

The portable folding support comprises two pairs of end legs 1, the corresponding legs of which are properly spaced and rigidly united by horizontal side bars 2. The legs of each pair are hinged together at 3, so that the pairs of legs can be spread when set up, as shown in Fig. 1. The hinges 3 are arranged a short distance below the upper ends of the legs, so that the upper ends of the legs close together when the legs are set up, with their lower ends spread and the upper ends separate when the support is collapsed and the legs folded together. The inner edges of the upper ends of the legs are shown formed with corresponding recesses which coincide when the legs are spread at their lower ends, and thereby form bearing-openings 4 at the upper ends of the legs to receive and form the bearings for the trunnions or journals of the rotary holder or nailing-up form.

While I have thus specifically described an advantageous form of support for the holder or form, yet I do not wish to limit all features of my invention thereto, as various constructions of supports might be employed. The frame of the form or holder comprises a longitudinal base, board, or plate 6, provided with rigid ends 7, such as end plates or heads, arranged at right angles to the longitudinal base. The base 6 is usually flat and of greater width and length than the width and length

of the crates to be formed and nailed up, and the ends 7 can be of suitable dimensions with respect to the length and width of the ends of the crates to be nailed up. The ends 7 rise 5 perpendicularly from the base 6 and are rigid therewith and can be formed in one piece with the base or can be formed by angle-plates rigidly secured to the base.

Each end 7 at its outer face has a central 10 horizontal trunnion or bearing-stud 8, and these trunnions 8 are mounted to turn in the bearing-openings 4 at the upper ends of the support hereinbefore described. The form-frame is detachably mounted in said support, 15 as the trunnions 8 can be lifted from the upper ends of said support when the legs thereof are folded together.

As the form or holder frame thus far described is free to rotate in the support, some 20 means can, if so desired, be employed to temporarily hold or lock said frame at various positions. For instance, I show disk 9 rigid with one of the trunnions 8 and formed with three edge notches 10, spaced about ninety 25 degrees apart, and a pivoted latch 11, carried by the support and free to be swung by hand successively into said notches, whereby the frame can be temporarily locked against rotation at positions at each quarter-turn through 30 two hundred and seventy degrees of a complete revolution.

The form-frame is provided with two movable holding or clamping heads or plates 12, arranged at opposite ends of the frame. 35 Each head 12 is arranged a short distance from a frame end and approximately parallel therewith. In the specific embodiment illustrated the heads 12 are similar in shape and dimensions and each is of greater length and 40 width than the length and width of the ends of the crates to be formed in the device. The heads 12 at their ends or edges are pivotally joined to the base of the frame, so that the upper or free ends of said heads can swing toward 45 and from the frame ends. Any suitable means can be employed to pivotally join the base and said heads. For instance, I show the heads formed with eyes 13, depending from the lower edges of the heads into sockets in 50 the base and loosely confined therein by transverse pivots or pins 14. Each head 12 is formed with a stop, platen, or support for a crate end. In the present instance I show each head particularly formed to receive 55 panel crate ends 19—i. e., crate ends composed of a rectangular frame across one face of which a sheet of thin stuff or veneer is secured, forming a panel, so that the frame is arranged on one face of the panel. The stop or 60 platen of a head 12 can consist of an inwardly-projecting strip or ledge 14^a, arranged on the inner face of the head parallel with and a distance from the edge of the free end of the head, and parallel end strips or 65 ledges 15 on the inner face of the head and

extending at right angles from the ends of the ledge 14^a toward the hinged end of the head and longitudinally tapering or beveled off, about as shown. The ledges 14^a 15 thus partially form three sides of a square and are so 70 proportioned as to fit within the rectangular frame of a crate end such as described, with the ledges resting against the inner edges of three frame side bars of the crate end and with the panel of said crate end arranged at 75 the outer edges or faces of said ledges and the lower bar of the crate end resting on the base of the form-frame. The ledges are so arranged that the head 12 will project outwardly beyond the frame of the crate end 80 and forms stops or gages for the end edges of the crate sides and bottom as they are fitted and nailed on the ends. Suitable mechanism is provided to detachably hold the crate 85 ends to said heads and in the specific embodiment illustrated to constantly tend to swing the free ends of the heads to the upper edges of the base ends. As an example of what may be employed for this purpose I show 90 spring-arms 16, secured to the base between the heads 12 and having upwardly-projecting free ends engaging the inner faces of said heads, respectively, and constantly tending to swing said heads in opposite directions and to the adjacent base ends. Means are 95 also provided to hold said heads in position at right angles to the base and against the tension of said spring-arms. For instance, I can provide a cam or lever 17 for each head. Each lever 17 is fulcrumed between its ends 100 at the top edge of a base end, so that one end of the lever forms a handle and the opposite or cam end of the lever can be swung against the rear face of the head to force the head inwardly against the tension of its spring and 105 to hold the head in the desired position during the nailing-up operation.

In using my device the crate ends are slipped onto the inner faces of the heads and between the same and the spring-arms, the 110 levers 17 being released, so that the heads are held in the inclined positions against the base ends by the springs. When the crate ends are slipped into place, the ledges project into the center openings of the crate-end frames, 115 and thus center the crate ends and hold the same against lateral movement, and the spring-arms press outwardly against the panels of the crate ends, and thereby hold said crate ends to and on said heads. The heads 120 are then swung to proper position parallel with the base ends by the levers 17, which hold said heads in this position with the crate ends parallel and properly spaced to receive the bottom and sides. The crate-bottom is 125 usually first applied, the frame being in the position shown in Fig. 1, with the latch 11 in the middle notch 10 of the disk. The bottom is slipped down between the upper ends of the heads which gage the bottom with respect to 130

the crate ends and cause the bottom to properly fit the crate ends without projecting beyond the side faces thereof. The bottom is then nailed to the crate ends, the ledges 14^a forming platens or supports during the nailing operation. After the bottom has been secured the latch 11 is released and the form is given a quarter-turn and the latch 11 dropped into one of the end notches 10. A side is then applied to the crate ends and nailed thereto. The projecting ends of the heads guide the side into proper position on the crate ends and the ledges 15 act as supports or platens for the crate ends during the operation of nailing on the side. The form is then given a half-turn to bring the crate ends into position to receive the opposite side, which is then applied and nailed the same as the first-mentioned side. The form can then be turned to the original position with the crate-bottom uppermost, the levers 17 are swung out, thereby releasing the end heads, so that they can be swung outwardly to release the crate-end frames from the ledges 14^a, and thereupon the crate can be slipped from the form. The beveled or tapered form of the ledges 15 facilitates the application of the crate ends to the heads and the removal of the completed crate therefrom.

By employing my device the crate sides and bottom can be easily and quickly applied and nailed to the crate ends with their end edges flush or even with the outer faces of the crate ends, even though the nailing-up operation is carried on by an inexperienced person; and, furthermore, by the use of my invention crates can be rapidly and accurately assembled and nailed up in the field or orchard without the necessity of employing expert help, resulting in a saving in time and expense and in the production of accurately-formed crates.

While I have disclosed a construction particularly adapted for use in assembling and nailing up panel-end crates, yet I do not wish to limit my invention to employment in connection with panel-end crates, and it is evident that various variations and modifications might be resorted to in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction shown.

What I claim is—

1. A device for use in assembling and nailing up crates comprising a form-frame, crate-end heads carried thereby and provided with ledges to receive the crate ends, and means to removably hold the crate ends to said heads and on said ledges.

2. In combination, a support, a form-frame provided with movable crate-end-receiving heads, spring devices carried by said frame to engage and clamp the crate ends to said heads and tending to move said heads outwardly

from operative positions before said heads are secured together, and movable means for pressing said heads inwardly to operative positions and whereby said heads can be released for outward movement from operative positions to permit removal of the crate.

3. In combination, a form-frame, crate-end-receiving heads hinged thereto to swing toward and from each other, spring devices to clamp the crate ends to the inner faces of said heads, and movable means for swinging said heads toward each other to clamp the crate-bottom and sides between the same, and whereby said heads can be released and swung outwardly to permit removal of the crate, substantially as described.

4. In combination, a form-frame, crate-end-receiving heads mounted thereon and movable toward and from each other to receive the crate ends, sides and bottom and to release and permit removal of the crate, outwardly-yielding spring devices carried by the frame independently of and arranged at the inner faces of said heads to clamp the crate ends against the same, and movable means for pressing said heads toward each other and for removably holding the same in operative position, and whereby said heads can be released to permit outward movement thereof for releasing the crate therefrom, substantially as described.

5. In combination, a form-frame having lateral ends, crate-end-receiving heads arranged adjacent to the inner faces of said ends, respectively, and movable toward and from the same, spring-arms secured to said frame and arranged at and pressing toward the inner faces of said heads, respectively, and adapted to engage the inner faces of the crate ends and clamp the same to the inner faces of said heads, respectively, and swinging levers carried by said frame ends to engage said heads and hold the same to operative position, and whereby said heads can be released to permit outward movement thereof to release and permit removal of the crate.

6. In combination, a support, a rotary form-frame comprising a longitudinal base having lateral ends provided with trunnions turning in said support, the support and frame having a latch and series of spaced notches, whereby said frame can be rotated a partial revolution and locked by the latch entering a notch for the purposes described, movable crate-end-receiving heads mounted on said base between said ends thereof, means to detachably clamp the crate ends to said heads, and means for moving the heads to and holding the same in operative position, substantially as described.

7. In combination, a folding support comprising pairs of pivotally-joined end legs, each pair of legs forming a journal box or bearing when the legs are spread in operative position, a rotary form-frame having trun-

nions removably located in said journal-boxes, crate-end-receiving heads carried by said frame, and means for controlling said heads.

5 8. In combination, a form-frame, movable crate-end-receiving heads mounted on and carried by said frame and at their inner faces provided with crate-end-receiving shoulders or abutments, and means controlling the
10 movement of said heads.

9. In combination, a form-frame, spaced crate-end-receiving heads carried thereby and each at its inner face provided with a crate-end-receiving shoulder or abutment
15 comprising a horizontal and vertical portion depending from the ends thereof to fit three sides of the crate ends.

10. In combination, a form-frame, spaced movable crate-end-receiving heads, means
20 controlling the movement thereof, each head at its inner face having a crate-end-receiving

ledge comprising a horizontal portion and depending downwardly and inwardly beveled portions, and spring devices to detachably clamp the crate ends to said heads and
25 on said ledges.

11. A device for use in assembling and nailing up boxes and crates comprising a form-frame having ends, crate-end-receiving heads pivotally joined to said frame, spring-arms
30 arranged to act on the inner sides of said heads and adapted to detachably hold the crate ends thereto, and levers to limit the movements of said heads toward said ends, substantially as described.
35

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

JOHN SHELLENBERGER.

Witnesses:

GEO. L. BROWN,
C. S. SPARKS.