





# UNITED STATES PATENT OFFICE.

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## BOX-NAILING DEVICE.

SPECIFICATION forming part of Letters Patent No. 661,957, dated November 20, 1900.

Application filed April 16, 1900. Serial No. 13,064. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC E. DAVIS, a citizen of the United States, residing at Coralitos, county of Santa Cruz, and State of California, have invented certain new and useful Improvements in Box-Nailing Devices; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved box-making device whereby the sides and ends of a box are adjusted and held in position for nailing together and also for nailing on the bottom of the box.

My improvement consists of a base-frame, on which is mounted a hinged form provided with vertical gages to support the ends of the boxes, springs to hold the ends against these gages, and springs to press the sides of the box against the ends, so the various parts are held in a true rectangular position for nailing the assembled box, the holding-form being mounted on the frame by compound hinges, so that after the bottom is nailed on the form and the box held thereby can be turned to the right or left ninety degrees, so the corners can be nailed, the box resting on adjustable base-bars that will resist the shock of nailing. It also consists in means to adjust the various parts so boxes of different sizes can be held by the same devices.

The object of my invention is to facilitate the operation of nailing wooden packing-boxes and cause them to be made true and without the care of assembling and holding the pieces while the boxes are being nailed together.

To these ends I provide devices as shown in the drawings herewith, forming a part of this specification.

Figure I is a plan view of one of my improved devices with the sides and ends of a box shown in section therein. Fig. II is an end view of the same device, indicating different positions of the adjustable form on which the box-holding devices are mounted.

In making packing-boxes for fruit or merchandise cutting the pieces and nailing them together are both processes that can be systematically and rapidly carried on; but the assembling and adjustment and holding of

the pieces are inconvenient and consume an uncertain amount of time and also lead to imperfect work on the corners when the pieces have to be held as well as nailed by hand.

By my improved device this hand adjustment and holding are avoided, as will now be explained by reference to the drawings and the manner of operating.

Referring to the drawings, 1 1 are the base-rails, and 2 2 the permanent cross-rails, of the main frame.

3, 4, and 5 are movable cross-rails, and 6 a form hinged to the cross-rails 2 2 by compound hinges 7, so as to be turned to the right or left, as indicated in Fig. II, where this form 6 and a box thereon are shown in section on the line *a a* in Fig. I.

The hinges 7 are compound or double-folding, the short ends 9 and 10 being attached to the rail 2 and to the form 6, respectively, as shown in Fig. II, where the dotted lines at A indicate the left position of the form 6 and box thereon when the side 12 is to be nailed. At the right this form 6 and the box are shown in the act of being turned to the right, so as to nail the side 13.

14 is a fixed gage or abutment attached permanently to the form 6 at a right angle thereto, against which the end 15 of the box is held by a spring 16, as shown in Fig. I.

17 is a gage similar in character to 14, but movable on the form 6 by means of the slots 18 and a screw 19. The end 20 of the box is held against this gage 17 by a spring 22, corresponding to the one 16, but fastened beneath the gage 17, as indicated at 23 in Fig. I.

The vertically-adjustable bars 3 and 5 form a nailing support, on which the ends of the box rest when turned to the right or left. These bars require vertical adjustment to suit the width of the boxes being made, as shown in Fig. II, and are held by the screws 26. (Shown in the plan.)

The movable rail 4 is to sustain the bar 3 and is adjustable longitudinally on the main rails 1 to suit the length of the boxes and is held by the bars 11 and 16 and set-screws 33 and 34, as shown in Fig. I.

The sides 12 and 13 of the box are held in contact with ends 15 and 20 by means of the springs 29 and 30, embedded in the top of the form 6 and held by set-screws 31 32, so as to



be set outward or inward for boxes of various widths, as will be understood.

The manner of operating is as follows: The movable gage 17 is set for the length of boxes to be made, the springs 29 and 30 are adjusted to the width of the box, and the bars 3 and 5 are set so the ends of the box will bear on these when the sides 12 and 13 are being nailed on. The ends of the box 15 and 20 are then placed behind the springs 16 and 22. Then the sides of the box 12 and 13 are inserted, as shown in Fig. I, and the bottom 35 of the box is nailed on. Then the form 6 and the box are turned right and left, as indicated in Fig. II, and the sides 12 and 13 are nailed, completing the box except the cover, which is applied when the box is filled or packed. In this manner it will be seen that the box parts can be assembled and arranged ready for nailing by an unskilled person on the form 6 while a second box is being nailed on another form and that the work can proceed rapidly and accurately.

Having thus explained the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a box-nailing device, a base-frame having fixed and movable cross-rails, a hinged form 6 attached to the end rails of the main frame by means of compound hinges so the form 6 can be turned to the right or left, in the manner substantially as specified.

2. In a box-nailing device, a main frame, a hinged-form board attached thereto by compound hinges in the manner described, and in combination therewith the vertically-adjustable rails 3 and 5 with means to hold the same at various heights corresponding to the widths

of the boxes being nailed together, substantially as specified.

3. In a box-nailing device, a permanent supporting-frame, a hinged form attached thereto provided with the fixed and movable gages 14 and 17 and springs 16 and 22 to hold the box ends against the gages, combined and operating substantially as specified.

4. In a box-nailing device, the hinged form 6 provided with fixed and movable vertical gages to support the ends of the box, springs to hold these ends against the gages and side springs 29 and 30 to press the sides of the box against the end pieces, substantially as specified.

5. In a box-nailing device, the hinged form 6 adapted to turn to the right and left, springs to hold the sides and ends of a box thereon, and the vertically-adjustable bars 3 and 5 on which the ends of the box rest when in position to be nailed, combined and operating substantially as specified.

6. In a box-nailing device, the hinged form 6 provided with the fixed and movable end gages 14 and 17 to hold the ends of the box, the springs 29 and 30 to hold the sides of the box, these latter-named springs embedded in the form 6, lapped in the center, and adjustably held by the screws 31 and 32, combined and operating in the manner substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ISAAC E. DAVIS.

Witnesses:

ALFRED A. ENQUIST,  
ELMER WICKES.