

(No Model.)

S. D. FORD.
BOX NAILING MACHINE.

No. 572,418.

Patented Dec. 1, 1896.

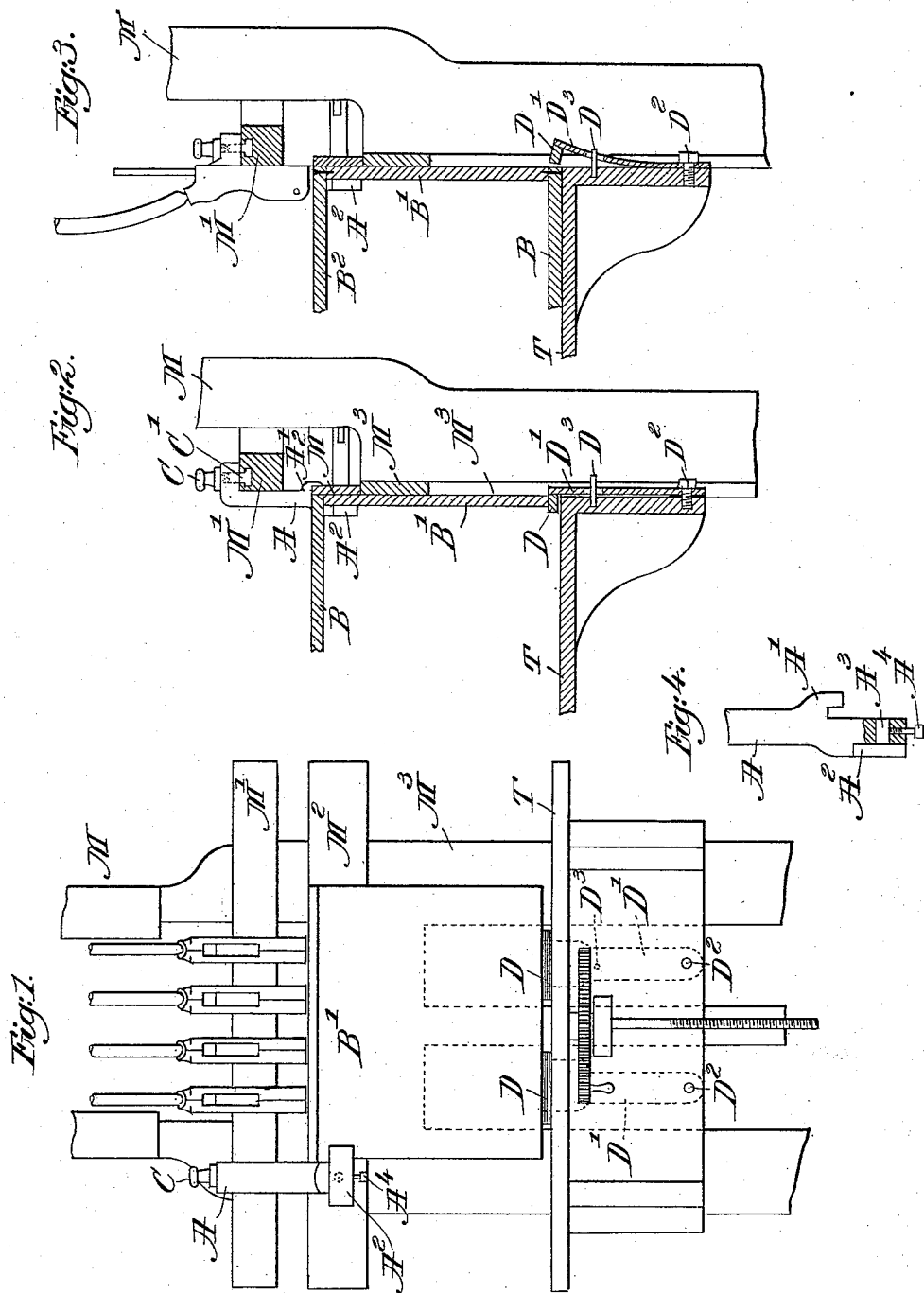


Fig. 1.

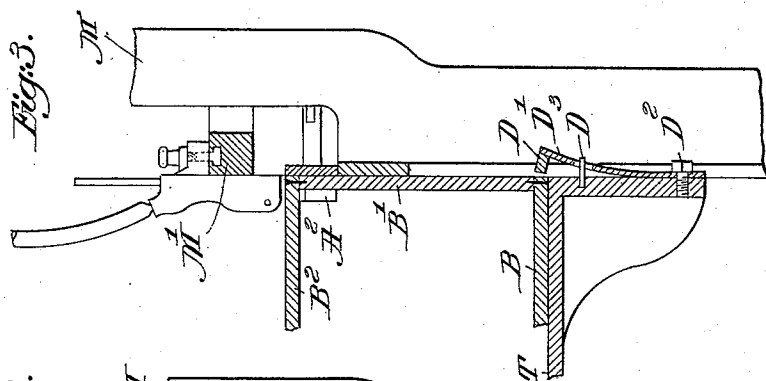
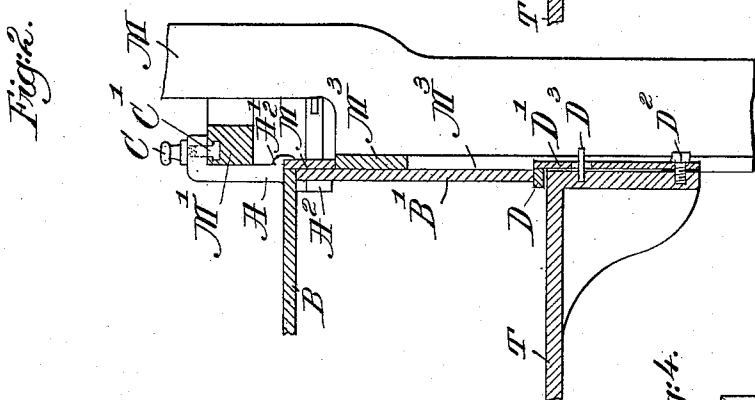
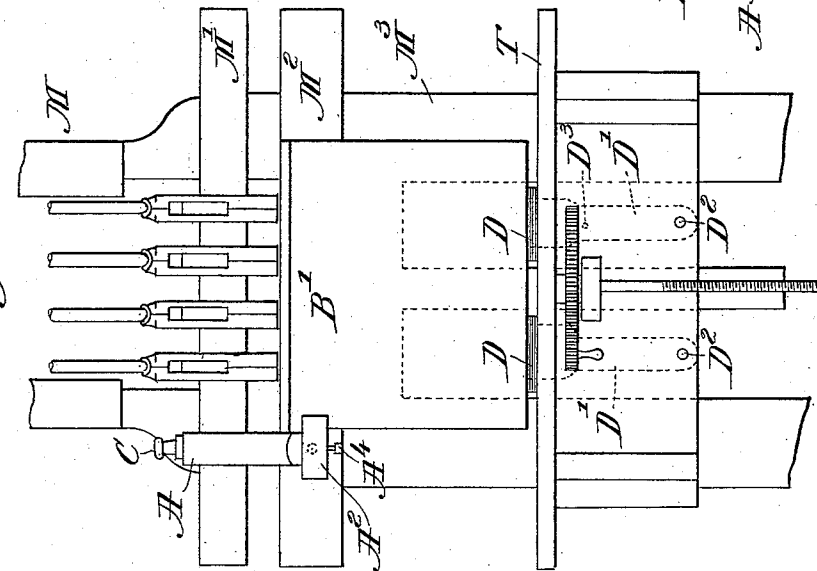
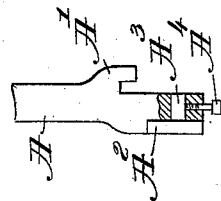


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL D. FORD, OF WHITMAN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO WALTER E. TRUFANT, OF SAME PLACE.

BOX-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,418, dated December 1, 1896.

Application filed September 30, 1895. Serial No. 564,069. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. FORD, of Whitman, county of Plymouth, State of Massachusetts, have invented an Improvement in Box-Nailing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates more particularly to the means for supporting and adjusting the sides and ends of the box beneath the nail pockets and hammers in the process of construction.

Box-nailing machines, as now made, require that the table carrying one portion of the box (the end, for instance) shall be raised so as to bring the top side piece of the box against the under side of the nail-pocket or nailing-chuck to be nailed to the end. Then when the end piece is inverted, so as to nail the side piece thereto opposite to the top side piece which has now been secured, it becomes necessary, in using the present machines, to again adjust the table by lowering it the thickness of the top side piece of the box. It is necessary to do this because the top side piece has now been turned around by the inverting of the end piece, so as to become the bottom side resting on the table, and has thereby lifted the end piece that much higher than it was before. Therefore, in order to bring the opposite side piece against the under side of the nailing-chucks for nailing to the end the table must be lowered to accommodate not only the end piece and one side, but the end piece and two sides. Thus it is necessary in the machines at present in use to adjust the table twice in the nailing of each box made. My invention entirely obviates this. Furthermore, in machines now in use it is not certain that the meeting horizontal and vertical edges will be nailed in true alinement with each other. It is a part of my invention to provide means to make true alinement, as stated, certain, and to make it certain without care and skill in the operator. These are the leading objects of my invention, but others will appear in the course of the following detailed description.

In the accompanying drawings, Figure 1 is a front view showing a part of a box-nailing machine, my attachments being shown in place. Fig. 2 is a central vertical section taken on the line 2 2 of Fig. 1 and showing the table-blocks in operative position. Fig. 3 is a similar section taken on the line 3 3 of Fig. 1 and showing the table-blocks in inoperative position. Fig. 4 is a detail of the supporting-guide.

I will not describe the box-nailing machine, as my attachments can be applied equally well to any of the well-known box-nailing machines.

In the drawings, M designates the machine as a whole. M' is a cross-bar to which the nail-chucks are attached. T is an adjustable table of well-known construction in use on ordinary machines.

In the present embodiment of my invention the holding and guiding apparatus comprehends an arm A, adjustably attached to the bar M' by suitable means, as by a headed screw C' and nut C, Fig. 2, there shown as a hand-nut. The head of the nut is adapted to slide and to be clamped in the groove made in the bar M', which is prolonged for this purpose at either side of the nailing-chucks. This method of fastening the supporting-guide admits of its being adjusted to and fastened at any point on the bar M'.

The arm A extends below the nailing-chucks and is there provided with parallel vertical sides, against which the meeting ends of the lateral edges of the box portions B and B' are brought to cause them to truly aline. A guide and alining board or plate M² is provided adjacent to the lower end of arm A immediately behind the same and having its front surface flush with the face-plate M³ of the machine. This serves to retain and guide the lower end of arm A by means of an overhanging finger A' on the back of the arm. This plate M² also and primarily coöperates with arm A to aline the meeting edges of the pieces to be nailed.

At its lower end the arm A has an adjustable cross-piece A², the ends of which extend beyond the sides of the arm, as shown, so as to make a projecting lip at either side that

serves to hold the board B' (which is to form one end or side of the box) in place against the face-plate M³ and alining-board M².

In order that the cross-piece A² may snugly hold different thicknesses of board, it is made adjustable out and in. The adjustment is effected in this instance by the following-described means: A stud A³ is firmly fixed to the cross-piece and fits loosely in a hole made for it in the arm A' and is adjustably held in it by the set-screw A⁴.

Adjacent to the rear edge of the table T and connected therewith are movable supporting-blocks D D. These blocks are of the thickness of the board B, that forms one part of the box, and are, in the present instance of my invention, arranged to rest on the table. In order to render the action of these blocks automatic, each block is provided with a spring-shank, secured to the table of the machine by screw-bolts D² and guided in vertical alinement by pins D³.

The use of my improved apparatus is as follows: The operator takes the first board B' (which is to form the end, for instance, of the box) and places it against the face of the machine with its edge against the side of the arm A back of the lip A² thereof, as shown. The side of the arm forms a stop or buttress for the adjacent edge of the board, and the lip A² is adjusted to hold the board close up to the face of the machine while being nailed. This is also especially useful in case the head-board B' is warped. The lower edge of the board B' rests on top of the blocks D D, thereby being raised from the table T the thickness of the board B. This second part B of the box is now placed on top of board B' and slid up against plate M² and arm A. By this means it is brought into accurate alinement, properly flush with B' at every point, and this is done simply by shoving board B as far as possible inwardly and to one side without any skill or care on the part of the operator. When the parts are nailed together, they are turned around and the other head part is nailed in the same manner as its opposite part B'. The next operation is to turn the box over, so as to secure the part B². Accordingly the part B is placed flat upon the table and shoved forward against the face-plate M³ of the machine. In doing this the supporting-blocks D D are pushed away, as shown in Fig. 3. Thus the board B' is caused to occupy identically the same place it did before, the blocks D having before raised it to the same height that board B now does. The result is that the table needs no vertical adjustment during the nailing of a box, as is now the practice. The board B² is now nailed, and the operator may proceed to finish the box in the usual manner. When the box is removed, the supporting-blocks are automatically returned to proper position to support a corresponding board B' of another box. Thus the machine may be adjusted, by means of table T and arm A, to suit the box to be made, and

then any number of similar boxes may be nailed without any further adjustment of the machine.

The supporting-guide is made so that it can be used either at the left side or at the right side of the machine; or two may be used. It is not essential that arm A should be secured to depend from bar M', as it is obvious that it could be arranged to slide on guide M² on the face-plate and in various other places and forms. Nor is my invention limited to any particular form or proportion of parts shown, as it is obvious that many changes may be made within the spirit and scope of my invention.

What I claim is—

1. In a box-nailing machine, a supporting-guide for the end or side of the box to be nailed, the same comprising an arm having a vertical portion, horizontally adjustable against the edge of said end or side of the box, and provided with a lip extending laterally therefrom so as to grasp the inner surface of said end or side and hold the same in proper alinement for nailing, substantially as described.

2. In a box-nailing machine, a supporting-guide for the end or side of the box to be nailed, the same comprising an arm having a vertical portion, horizontally adjustable against the edge of said end or side of the box, and provided with a lip adjustable thereon for different thicknesses of said box portion, and extending laterally therefrom so as to grasp the inner surface of said end or side and hold the same in proper alinement for nailing, substantially as described.

3. In a box-nailing machine, a supporting-guide for the end or side of the box to be nailed, the same comprising an arm having a vertical portion extending from and below the nailing-chucks of the machine, said arm being horizontally adjustable against the edge of said end or side of the box, and provided with a lip extending laterally therefrom so as to grasp the inner surface of said end or side and hold the same in proper alinement for nailing, substantially as described.

4. In a box-nailing machine, a supporting-guide for the end or side of the box to be nailed, the same comprising an arm having a vertical portion extending from and below the nailing-chucks of the machine, said arm being horizontally adjustable against the edge of said end or side of the box, and provided with a lip extending laterally therefrom so as to grasp the inner surface of said end or side and hold the same in proper alinement for nailing, and an alining-plate secured to the machine parallel with and immediately behind and below the nailing-chucks thereof, whereby said plate and arm cooperate to properly aline the side and end meeting edges of the two box portions to be nailed together, substantially as described.

5. In a box-nailing machine, the combination with the frame thereof, nailing-chucks

secured thereon, and the table adjustable relatively to said nailing-chucks, of one or more supporting-blocks automatically movable along and above said table, said blocks having their upper surfaces normally in alignment with said nailing-chucks above said table a distance corresponding to the thickness of the top board to be nailed, said construction permitting the nailing of said top board without further adjustment of said table, substantially as described.

6. In a box-nailing machine, the combination with the frame thereof, nailing-chucks secured thereon, and the table adjustable relatively to said nailing-chucks, of one or more supporting-blocks secured to said table to move thereon to and from said frame, said blocks having their upper surfaces normally in alignment with said nailing-chucks above said table a distance corresponding to the thickness of the top board to be nailed, substantially as described.

7. In a box-nailing machine, the combination with the frame thereof, nailing-chucks secured thereon, and the table adjustable relatively to said nailing-chucks, of one or more supporting-blocks secured to the rear side of said table by means of a spring to move on said table to and from said frame, said blocks having their upper surfaces normally in alignment with said nailing-chucks above said table a distance corresponding to the thickness of the top board to be nailed, substantially as described.

8. In a box-nailing machine, the combination of a table, and blocks adapted to act as supports for holding the box while being nailed, said blocks resting upon the upper sur-

face of the table and being each attached to a flat spring passing down back of the table, having its lower end secured to the said table, whereby said blocks are adapted to be pushed from the surface of the table and out of the way of the box, substantially as and for the purpose set forth.

9. In a machine of the class described, the combination with the frame, work-table, and nailing devices, of one or more laterally-movable supports arranged with their tops at a level above said table, and springs to move said supports in one direction, said supports being freely movable out of the way in an opposite direction against the action of said springs, whereby the supports, or the table normally beneath the same, may be used as a work-support at will, substantially as described.

10. In a machine of the class described, the combination with the frame, work-table, and nailing devices, of one or more laterally-movable work-supports permanently connected to said table and arranged with their tops at a level above said table, said supports being freely movable laterally out of the way when not required, whereby the supports, or the table normally beneath the same, may be used as a work-support at will, substantially as described.

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

SAMUEL D. FORD.

Witnesses:

FREDERICK L. EMERY,
AUGUSTA E. DEAN.