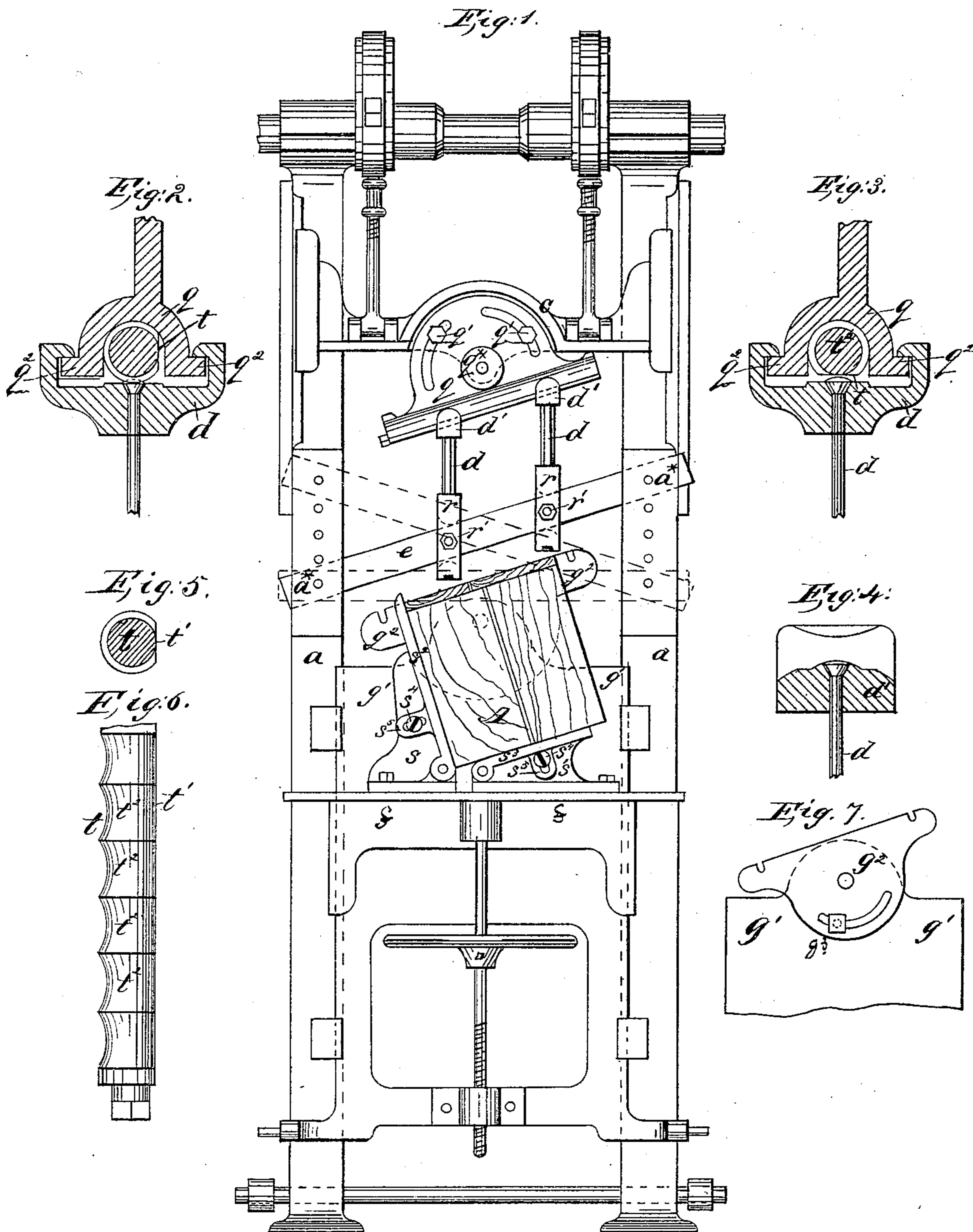


(No Model.)

F. MYERS.  
BOX NAILING MACHINE.

No. 262,305.

Patented Aug. 8, 1882.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

FREDERICK MYERS, OF NEW YORK, N. Y.

## BOX-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,305, dated August 8, 1882.

Application filed April 28, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK MYERS, of the city, county, and State of New York, have invented new and useful Improvements in Machinery for Nailing Wooden Packing Boxes or Cases, of which the following is a specification.

This invention relates to improvements in the class of nailing-machines for use in the manufacture of wooden packing cases or boxes.

The said invention is illustrated in the accompanying drawings, in which Figure 1 is a front elevation of a nailing-machine provided with means whereby the pieces of wood to form a box or case are supported in such a position that the nails, when driven therein, will be on an incline or at any desired angle with respect to the exterior of the box or case, and whereby the nail-boxes and nail drivers or plungers may be adjusted into the proper position with respect to the parts of the box or case to be nailed, as hereinafter described. Figs. 2 and 3 are transverse sections of a portion of the auxiliary cross-head of the said machine, and the devices for supporting or both supporting and retaining the nail punches or drivers thereon. Fig. 4 is a section of the upper end of the nail-punch on a plane at right angles to that of Figs. 2 and 3. Fig. 5 is a section, and Fig. 6 an exterior view, of a flattened and serrated bar hereinafter described. Fig. 7 is a detail of the back plate.

This invention, as illustrated in Fig. 1 of the drawings, relates to the combination, with a nailing-machine of the class above specified, of the devices whereby the pieces of wood to form a box or case, A, may be supported in such a position that the nails, when driven therein, will be on an incline or at any desired angle with respect to the exterior of the box or case, so as to increase the holding-power of the said nails.

The said invention also comprises apparatus whereby the nail-boxes and the nail plungers or drivers may be adjusted into the proper position with respect to the parts of the box or case to be nailed, so that, although the nails are in all cases driven vertically by the nail-drivers, they will, by reason of the inclination of the material or parts to be nailed

together, be forced into the same on an incline or angularly. By supporting such material, however, on a horizontal plane, the machine may be arranged to drive the nails vertically therein in the ordinary manner.

In carrying this part of said invention into practice I employ, in combination with the main cross-head *c* of the machine, an auxiliary cross-head, *q*, which is suitably pivoted to the said main cross-head at *q\**, and may be turned or canted thereon in either direction, as desired. The said auxiliary cross-head *q* is held in the desired position relatively to the main cross-head *c* by bolts and nuts *q'*, or by screws passing through the latter and through segmental slots formed in the said auxiliary cross-head. To the latter the nail drivers, plungers, or punches *d* are attached, as hereinafter described.

The nail-boxes *r* are attached preferably by set-screws *r'* to the bar *e*, which may be moved up and down and tilted or canted to the desired inclination within slots formed in the end frames, *a*, of the machine, so as to bring the said nail-boxes parallel to the surface of the material or parts of the box or case to be nailed. The slotted portions of the said frames are provided with a series of holes or apertures through which and a slot in each end of the said bar a set-screw or bolt, *a\**, may be passed to hold the same at the desired angle or inclination—that is to say, at the same inclination as that occupied by the aforesaid auxiliary cross-head *q*, to which the nail-drivers are connected.

To support the end piece or pieces and the side or sides of the box or case at the desired angle with respect to the table of the machine during the nailing operations, I attach to the said table the brackets or standards *ss'*, to which are pivoted supporting-plates *s<sup>2</sup> s<sup>3</sup>*, against which the end piece or the end pieces and side or sides of a box to be nailed rest. These standards or brackets may be adjusted laterally upon the said table to adapt them to the manufacture of boxes or cases of various sizes, and the supporting-plates *s<sup>2</sup> s<sup>3</sup>* may be inclined according to the angle at which it is desired that the nails should be driven. The said plates *s<sup>2</sup> s<sup>3</sup>* are preferably secured in position by means

of set-screws  $s^4$  passing through slotted ears or lugs  $s^5$  on the said plates, and entering screw threaded or tapped holes in the brackets or standards  $s$   $s'$ .

5 The back plate of this machine is formed in two parts,  $g'$   $g^2$ , the upper part,  $g^2$ , being pivoted to the lower part at  $g^3$  in such a manner that its upper surface may be brought parallel with the under surface of the nail-boxes  $r$  to  
10 insure the proper adjustment of the parts of the box to be nailed together.

In order to connect the heads of the nail punches, plungers, or drivers to the auxiliary cross-head  $q$ , I proceed as follows—that is to  
15 say: I form the lower portion of the said cross-head somewhat arch-shaped, and insert therein a round rod or bar,  $t$ , which is cut away upon one side, so as to provide a flat face thereon, as shown at  $t'$ . This rod is provided lengthwise  
20 with a series of indentations or grooves,  $t^2$ , which, when the said rod is turned for the purpose hereinafter described, fit over the upper end of the nail-drivers  $d$ , which project slightly above the upper surface of the heads  $d'$  of the  
25 said drivers, as shown in Figs. 2, 3, and 4.

The operation of these devices is as follows—that is to say: When it is desired to adjust the auxiliary cross-head  $q$  to any desired angle the rod  $t$  is turned so that its indentations  $t^2$  pass out of line with the rounded upper ends of the nail-drivers  $d$ , and so that the  
30 flattened portion  $t'$  of the said rod is opposite the same. It follows therefore that the heads of the drivers are free to move endwise upon projections  $q^2$  on the lower arch-shaped portion of the cross-head  $q$ , and to adapt themselves to any movements given to the nail-boxes  $r$ . When, however, the said nail-boxes  
35 and the bar  $e$ , carrying the same, are adjusted to the desired position, and the punches properly placed with respect to the same, the aforesaid flattened rod  $t$  is turned, and one of its grooves or indentations engages with the rounded end of each nail-driver  $d$ , and thus  
40 prevents any distortion or misplacement of the same, which might occur by reason of the inclination of the auxiliary cross-head, whereon the heads  $d'$  of the nail-drivers are arranged to slide, providing the said heads were left  
45 loose thereon.

If it is desired that the nails should be driven vertically within the box or case with this arrangement of devices, the auxiliary cross-head  $q$  and the nail-box-carrying bar  $e$  are adjusted  
50 into a horizontal position, and the supporting-plates are removed from the table, so that the

material or parts will rest upon the horizontal surface of the same when placed in position to be nailed. The machine will then operate to drive the nails vertically within the wood in  
60 the ordinary manner. As it is not necessary that the nail-drivers  $d$  should then be fixed upon the auxiliary cross-head, but should preferably be free to slide thereon, I turn the aforesaid flattened bar  $t$  so that its flat sur-  
65 face is above the rounded end of the nail-drivers, as shown in Fig. 3, thus enabling the heads  $d'$  of the same to be freely slid lengthwise upon the said cross-head. In this case the said heads  
70 are preferably made of reduced depth, so that the upper or pressure-receiving surface of the same will be directly in contact with the under surface of the arch-shaped portion of the auxiliary cross-head.

What I claim, and desire to secure by Letters Patent, is—

1. In a nailing-machine, the combination, with the nail-driving mechanism, of devices, substantially as described, for supporting the  
80 boxes at an angle, whereby the nails which are driven vertically by the nail-drivers will be driven obliquely into the wood, substantially as described.

2. The combination, with the table  $f$  of a nailing-machine, of the adjustable supporting-  
85 plates  $s^2$   $s^3$ , substantially as above set forth, and for the purpose specified.

3. The combination, with the said supporting-plates  $s^2$  and  $s^3$ , of the adjustable auxiliary cross-head  $q$ , pivoted to the main cross-head  
90 and adapted to support the nail-drivers, and the adjustable bar  $e$  for supporting the nail-boxes, substantially as above set forth, and for the purposes specified.

4. The combination, with the auxiliary cross-head and the nail drivers or plungers, of the  
95 rod or bar  $t$ , having the recesses or grooves and provided with a flat face, substantially as above set forth, and for the purposes specified.

5. The combination, with the cross-head  $c$   
100 of a nailing-machine, of the adjustable auxiliary cross-head  $q$  and the adjustable bar  $e$  for the support of the nail-boxes, substantially as described.

In witness whereof I have hereunto signed  
105 my name in the presence of two subscribing witnesses.

FREDERICK MYERS.

Witnesses:

P. DEVIN,  
LEWIS SANDERSON.