

(No Model.)

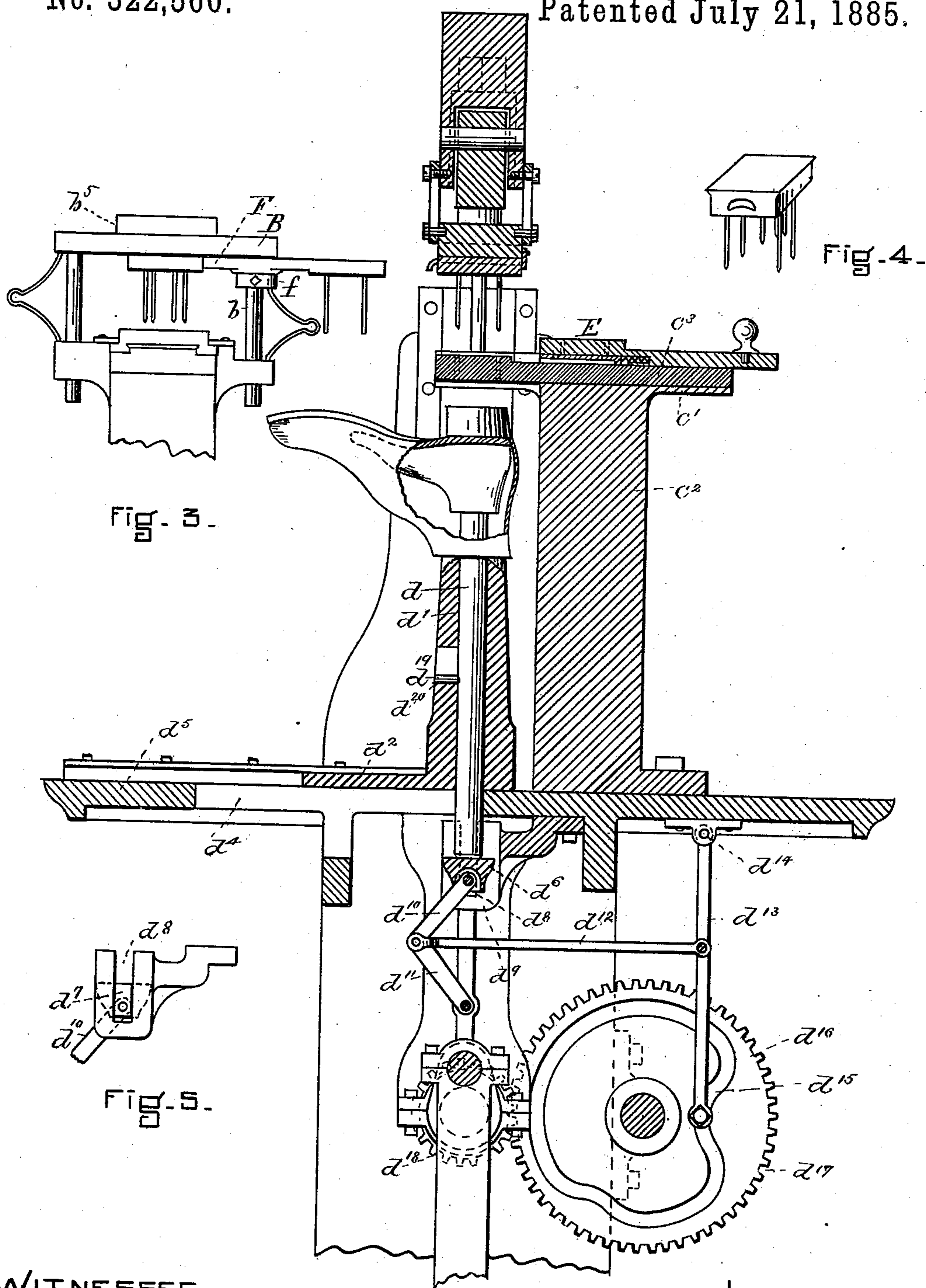
2 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

HEEL NAILING MACHINE.

No. 322,560.

Patented July 21, 1885.



WITNESSES.

J. M. Dolan.

Frederic B. Polan.

Fig-1.

INVENTOR

INVENTOR
A. D. Raymond & Co.

(No Model.)

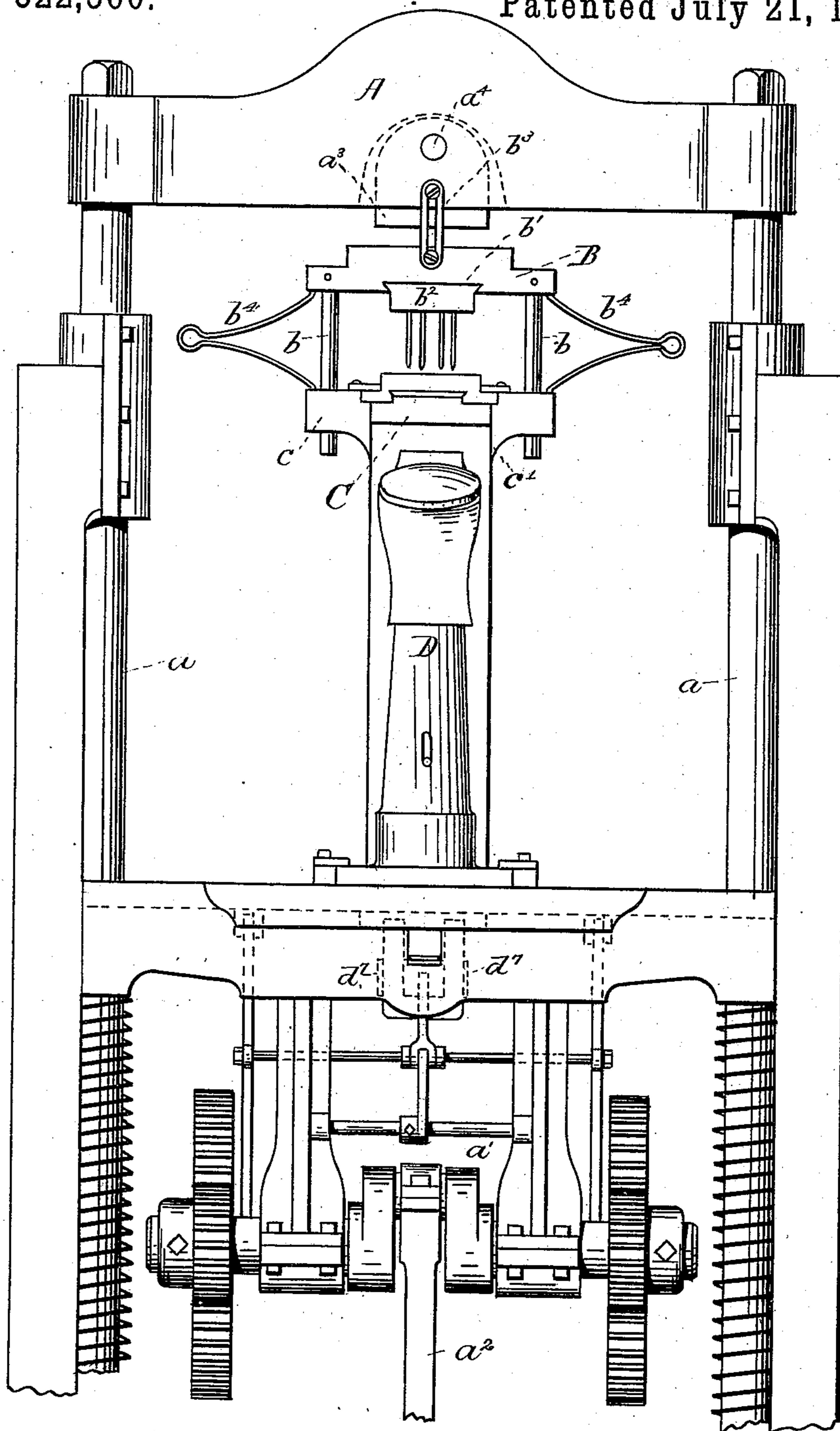
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J. M. Dolan.

Fred. B. Dolan.

Fig. 2.

INVENTOR

F. F. Raymond, 2d.

UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2d, OF NEWTON, MASSACHUSETTS.

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 322,560, dated July 21, 1885.

Application filed August 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, FREEBORN F. RAYMOND, 2d, of Newton, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Heel - Nailing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification in explaining its nature, in which—

Figure 1 represents, part in vertical section and part in elevation, a heel-nailing machine having the features of my invention. Fig. 2 represents the same in front elevation. Figs. 3, 4, and 5 are detail views, hereinafter especially referred to.

The invention comprises various features of construction, all of which will hereinafter be more fully described.

Referring to the drawings, A represents the cross-head of the machine, which is reciprocated by means of rods a , crank a' , connecting-rod a'' , and connecting mechanism not shown, but substantially as specified in the Henderson Patent, No. 259,687. I would say, however, that for the purposes of this invention it is not necessary that the cross-head be reciprocated by the crank and connecting mechanism described, as I may use any of the ordinary devices of the market or any equivalent mechanism for this purpose.

Below the cross-head there is arranged a plate or head, B, which is adapted to be reciprocated in relation to the templet C and jack D, which are below it. This movable plate or head B supports and actuates the block holding the gang or group of awls and the block holding the gang or group of drivers. It is carried and guided by the rods b , which are fastened to the plate or head B, and are vertically movable in holes in the extensions c projecting from the table c' . The rods, however, may be fastened to the extensions so as to be stationary, and the plate or head B movable thereon, if desired. I do not confine myself, however, to this method of guiding the plate or head B, but may use any other suitable means or guides for giving it a vertical movement in relation to the templet.

The plate or head B is provided with means

whereby the awl and driver holding blocks may be secured thereto; and I have represented in the drawings as one way a dovetail or other shaped recess, b' , for receiving the block b^2 for carrying the awls, or a similar block carrying the drivers, and the said block is fastened therein in any desirable manner.

In lieu of a dovetail recess on the block, any other method of fastening the blocks to the plate or head B may be employed.

The plate or head B is given a vertical movement downward upon the reciprocation of the cross-head A, the under surface of the cross-head coming in contact with the upper surface of the plate or head and moving it downward; and it is preferably moved upward upon the upward movement of the cross-head A, through the medium of the link b^3 , which connects the plate or head B with the cross-head, so that upon the upward movement of the cross head the plate B shall be drawn upward.

In lieu of the link b^3 the springs b^4 may be employed for moving the plate or head B upward after it has been thrown down by the cross-head A, or these springs may be used in conjunction with the link b^3 .

Of course I do not confine myself to the form of springs shown, but may use any equivalent form therefor.

I prefer to form upon the plate or head B the upward-extending section b^5 to furnish a surface upon which a correspondingly-shaped surface upon the cross-head shall come in contact; and I prefer that this surface upon the cross-head be arranged upon the under side of the block a^3 , which is pivoted by the pivot a^4 within a recess in the cross-head A, so that it shall have a lengthwise swinging movement upon the cross-head to permit its surface to automatically adjust itself to the surface of the projection b^5 .

The templet C I prefer to make stationary, and bolt or otherwise fasten to the table c' . The table c' is arranged at the upper end of the post c^2 , and the templet-plate c^3 is removable therefrom in order that other plates for different sizes of heels may be substituted.

Arranged to slide upon the templet-plate is the nail-holder plate E. This is like the nail-

holder plate described in the said Henderson patent, and it is adapted to be moved into and out of position, as therein described; and it is held to the templet-plate and table preferably as indicated in said patent. In lieu of this nail-feeding plate, however, any of the plates described in said Henderson patent or in patents granted me, No. 271,118, dated January 23, 1883, No. 280,399, granted July 3, 1883, No. 287,472, granted October 30, 1883, No. 290,109, granted December 11, 1883.

The heel-support or jack D is carried at the end of the rod d , and this rod has a vertical movement in the jack-post d' , which extends upward from the sliding plate d^2 . The rod d extends downward through the slot d^1 in the table d^5 , the slot being long enough to enable the jack to be slid horizontally into and out of position. Below the jack-rod d , when in operative position, is arranged a vertically-movable head, d^6 . This head has extensions d^7 , which enter slots d^8 in the bracket d^9 , which is bolted to the bed-plate of the machine. This head d^6 is given a vertical movement by means of a toggle comprising the link d^{10} , the upper end of which is pivoted to the head d^6 , the link d^{11} , the lower end of which is pivoted to a stationary part of the machine, and the upper end of which is jointed to the link d^{10} , and the link d^{12} , which connects the links d^{10} d^{11} with a lever, d^{13} , pivoted at d^{14} , and operated by means of the cam-groove d^{15} in the cam-disk d^{16} . This cam-disk is revolved by means of the gear d^{17} cut thereon, or by means of a separate gear-wheel attached thereto, and a pinion, d^{18} , attached to the crank-shaft, or some other suitable shaft.

When it is desired to prick holes, drive the nails, spank on a top lift, or spank a heel in flush-nailing, after the nails have been driven it will be desirable to give the cam-disk d^{16} one revolution for every three reciprocations of the cross head.

It will be seen that by this mechanism when the jack is moved into operative position on the table d^5 the rod d is brought into position immediately over the head d^6 , its under surface being just above the upper surface of the head, and that upon the operation of the machine the toggle is straightened, moving the jack-post and shoe and heel thereon upward against the templet-plate, thereby solidly compressing the heel-blank upon the sole of the boot or shoe. This upward movement of the heel-support should be substantially complete before the awls enter the heel-blank, or before the nails are driven, and it will therefore be necessary that the shape of the cam d^{15} be such as to effect this result. If the awls are to be driven and the nails also it will be necessary to form the cam so that the heel-support shall be moved upward to compress the heel-blank, and to hold it there during the operation of the awls and drivers; and if it is desired to apply a top lift or other support to the heel the cam will be shaped so that the

heel-support shall be let down sufficiently to permit the top lift to be inserted between the under surface of the templet and the upper surface of the heel-blank. A fall of an inch will be sufficient for this purpose. The heel-blank is then again lifted to spank on the top lift or spank the heel. In the drawings the cam is represented as adapted to provide these movements to the heel-support.

Of course I do not confine myself to the especial mechanism herein described for connecting the toggle with the cam; but where three reciprocations of the cross-head are used for securing and finishing the heel, it will be desirable to use a cam to provide the proper movement of the heel-support. Where, however, one reciprocation of the cross-head is made for driving nails only in attaching a heel-blank, then it will not be necessary to employ a cam to operate the toggle, as a crank can be used, although a cam would be desirable.

The downward movement of the rod d is limited by means of the slot d^{19} , attached to the rod which comes in contact with the under surface of the slot d^{20} , in which the pin plays.

In Fig. 3 I show the awl-holder block and the driver-holder block, each supported at the opposite ends of the arm F, the said arms being pivoted upon one of the rods b , and being fastened thereto against the plate or head B by means of a collar, f . With this arrangement, by simply revolving the arm F, the awls and drivers are successively brought into operative position. Instead of pivoting the arm F to the post b it can be pivoted to any other stud or projection extending down from the plate or head B.

It will be observed that by supporting the awls and drivers upon a plate or head not forming a part of the cross-head A it is unnecessary that the cross-head and the parts which operate it be so nicely and expensively fitted and made as though they were fastened directly to it, because the only office of the cross-head is to provide the downward movement of the plate or head B; but it does not in any sense guide the awls and drivers in relation to the templet. It will also be seen that by supporting the awls and drivers upon a plate or head having guides brought into close connection with the templet C, or the table that supports it, but not arranged to receive any considerable degree of strain, a very cheap and accurate means of holding and centering the awls and drivers in relation to the templet is obtained. It will also be seen that this portion of the invention can be used in connection with the vertically and horizontally movable templet of the said Henderson patents, as well as with the stationary templet described herein.

It will also be observed that by attaching the post c^2 or post and the jack to a bed-plate, which can be bolted or otherwise se-

cured to the ordinary bed of a press, any press of sufficient size and power can easily be converted into a heel-attaching machine; also that by making the jack and the post c^2 and the parts which it carries removable from the remainder of the machine, the machine can then be used as a heel-blank press, a beating-out machine, sole-molding machine, or for any other equivalent purpose.

10 Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the independent head B, carrying or supporting awls or drivers, the 15 templet C, and an additional reciprocating head or block for imparting motion to the head B, all substantially as and for the purposes described.

2. The combination of the independent plate 20 or head B, carrying or supporting awls or drivers and adapted to have a reciprocating motion imparted to it, the stationary templet C, and the guides b , all substantially as and for the purposes described.

25 3. The combination of the reciprocating head A, the swinging block a^3 , the independent plate or head carrying or supporting awls or drivers, and the guides for directing the movement thereof in relation to the templet, all 30 substantially as and for the purposes described.

4. The combination of the reciprocating head A with the independent plate or head B, carrying or supporting awls or drivers, and a device, substantially as described, connecting the 35 head B with the head A, all substantially as and for the purposes described.

5. The combination of the reciprocating head A with the non-rotating independent 40 head B, adapted to have a vertical movement imparted to it, and carrying or supporting awls or drivers, all substantially as and for the purposes described.

6. The combination of the plate or head B, 45 carrying or supporting awls or drivers, the table c' , the templet C, and the guides b , either with or without the springs b^4 , all substantially as described.

7. The combination of the plate or head B, 50 carrying or supporting awls or drivers, the table c' , the templet C, the guides b , and the nail-carrier E, all substantially as and for the purposes described.

8. The combination of the cross-head, the independent plate or head B, adapted to be 55 reciprocated, as described, the pivoted arm or support F, adapted to be reciprocated thereby, and supporting a gang or group of drivers and a gang or group of awls, and the templet C, all substantially as and for the purposes set 60 forth.

9. The combination of the templet C, the support for the boot or shoe below the templet and mounted on the post d , sleeve or post 65 d' , the said post d , a toggle for lifting the same, and a reciprocating gang or group of drivers, all substantially as and for the purposes described.

10. The combination of the templet, the heel-support, the post d , sleeve or post d' , a 70 toggle, and a cam for operating the same, all substantially as described.

11. The combination, in a heel-attaching machine, of the sliding jack having the heel-support and jack-post d with the reciprocating head d^6 , adapted to be brought in contact 75 with the lower end of the jack-post to lift the same when the said post has been moved into operative position therewith, all substantially as and for the purposes described. 80

12. The combination of the templet C, independent head B, supporting awls or drivers and adapted to have a vertical movement imparted to it by a reciprocating head, the heel-support, its post d , sleeve or post d' , and a 85 positively-actuated lifting device for moving the post upward to compress the heel-blank against the templet-plate, all substantially as and for the purposes described.

13. In a suitable frame or support carrying 90 a reciprocating cross-head, in combination with the jack, the post supporting a bed or carriage carrying a templet, and the independent head supporting awls or drivers attached to said table or post by guide-rods, and in a manner 95 to be movable vertically in relation to the same, and adapted to have a vertical movement imparted to it, all substantially as described.

FREEBORN F. RAYMOND, 2D.

Witnesses:

E. A. CLARKE,
J. M. DOLAN.