(No Model.)

2 Sheets—Sheet 1.

C. C. SMALL.

HEEL NAILING MACHINE.

No. 584,752. Patented June 15, 1897.

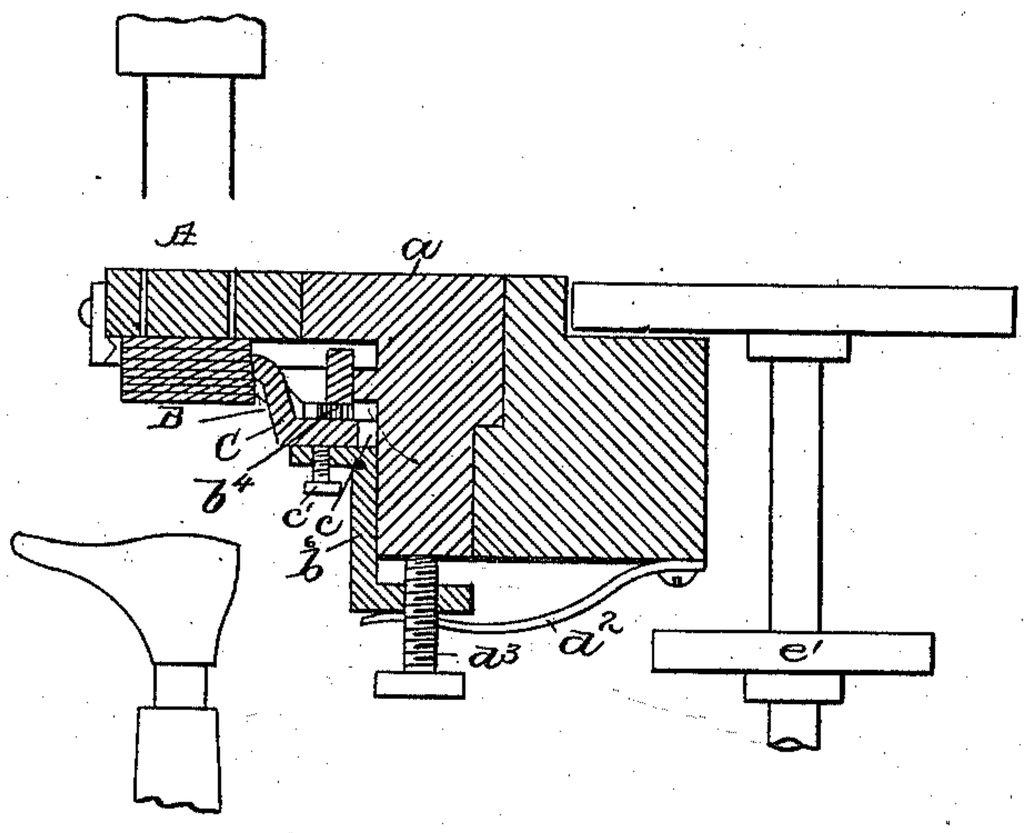

FIG. 1.

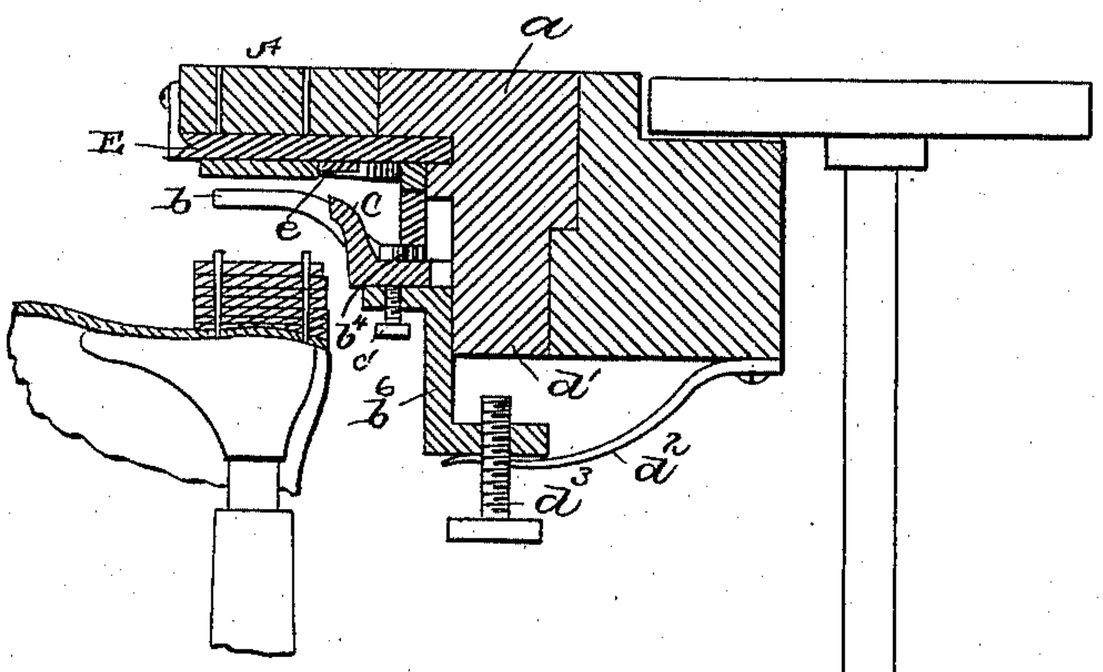

FIG. 2.

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(No Model.) 2 Sheets—Sheet 2.

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HEEL NAILING MACHINE.

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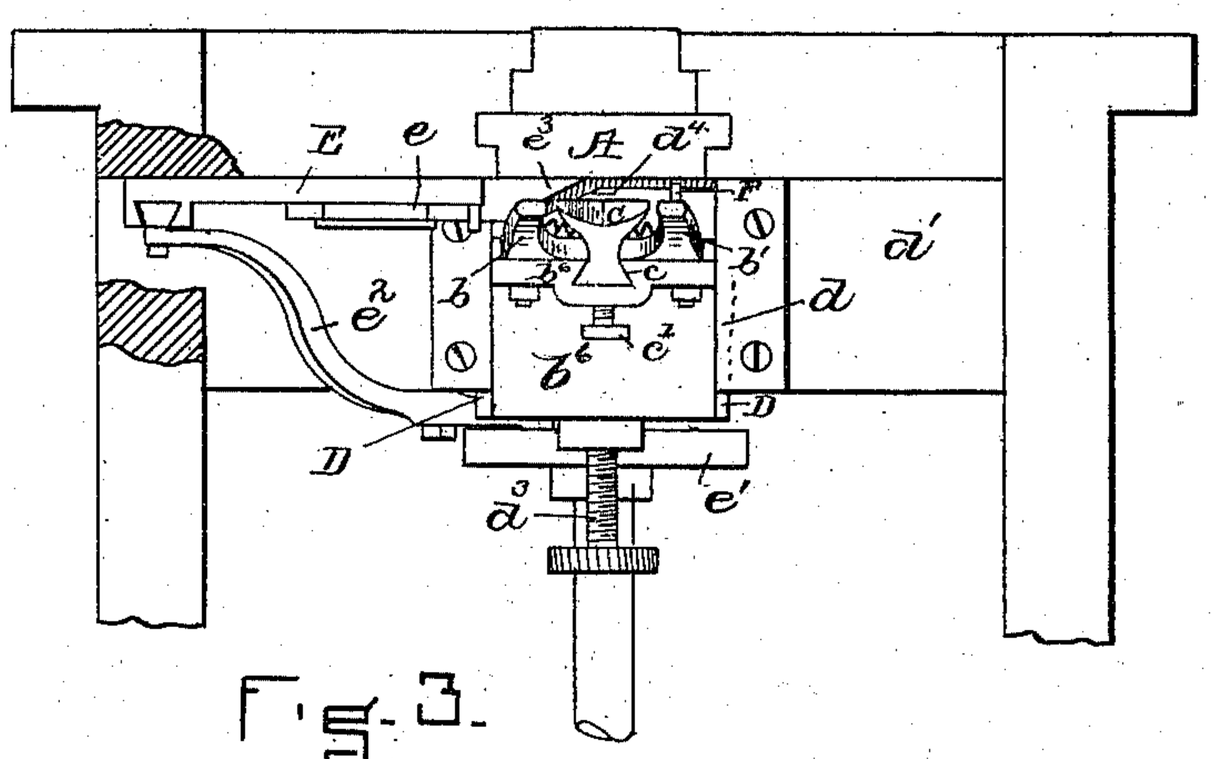

Fig. 3.

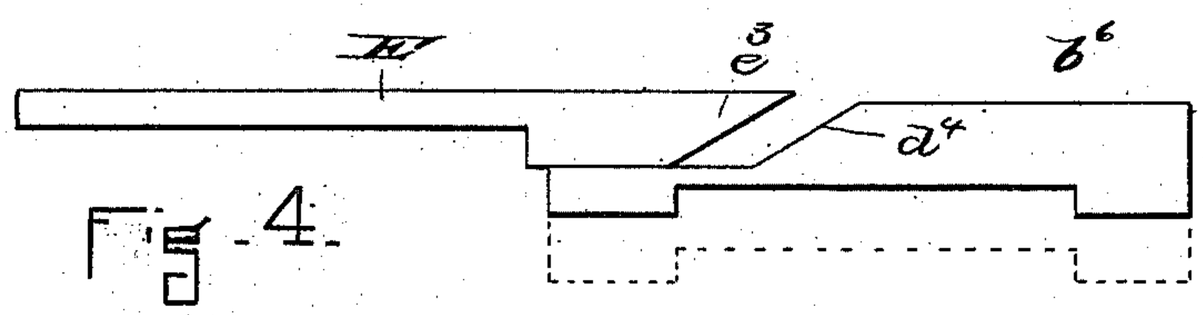

Fig. 4.

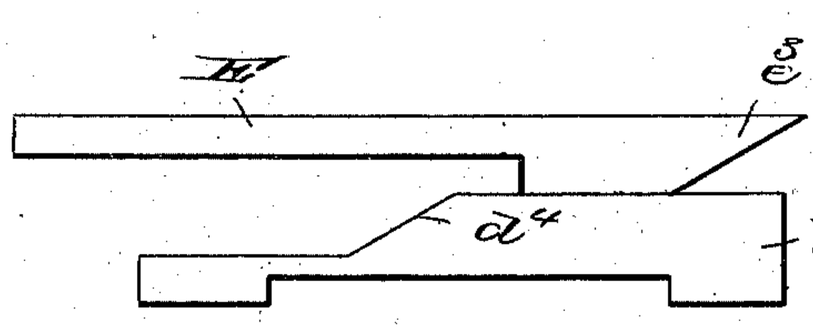

Fig. 5.

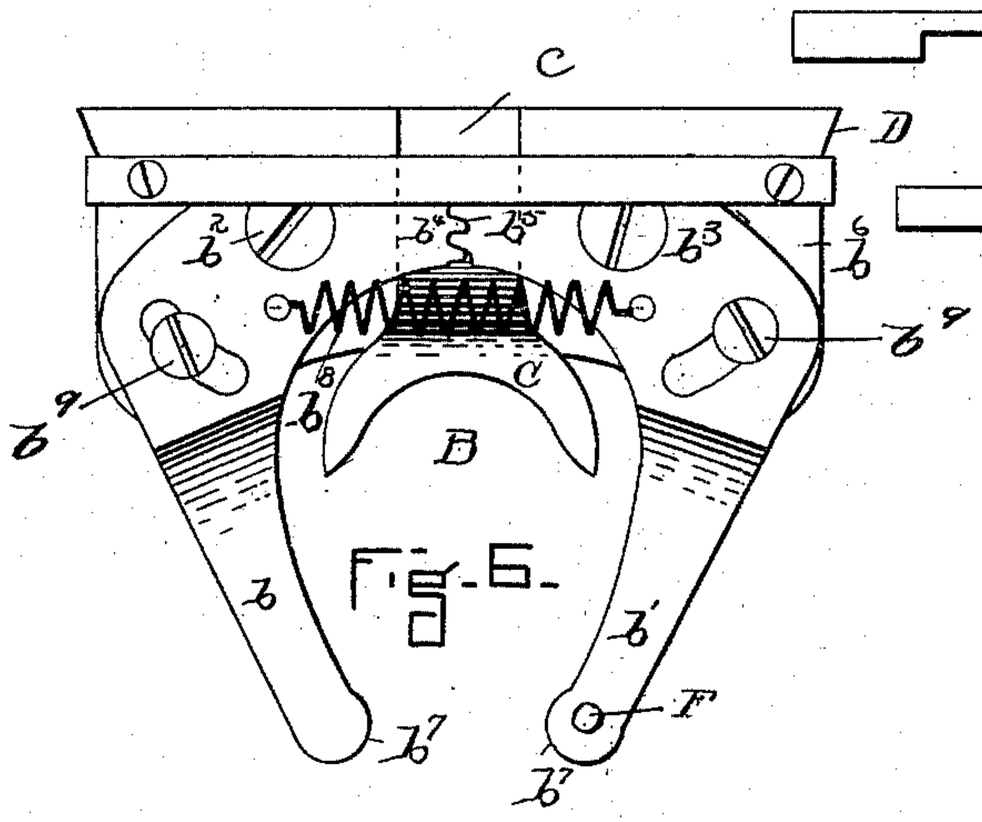

Fig. 6.

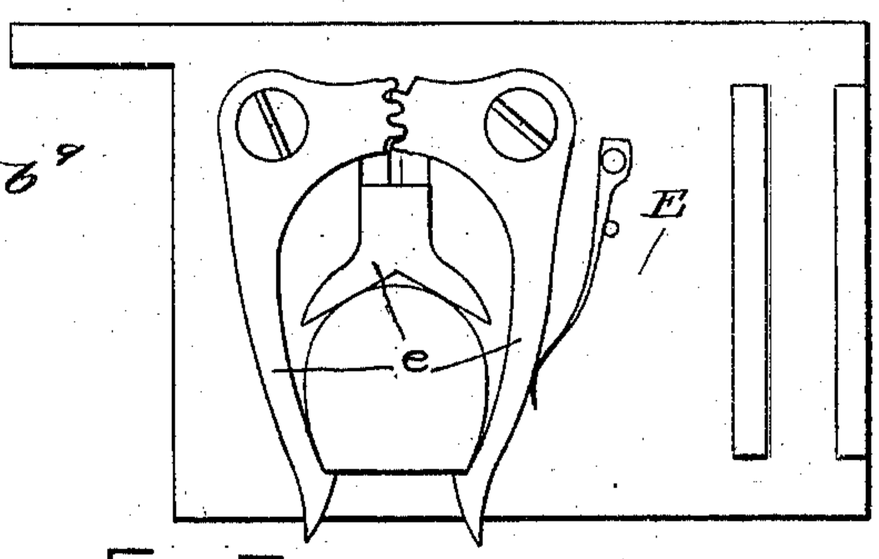

Fig. 7.

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UNITED STATES PATENT OFFICE.

CHESTER C. SMALL, OF NEWTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JAMES W. BROOKS, OF PETERSHAM, AND JOHN BROOKS, OF CAMBRIDGE, MASSACHUSETTS, TRUSTEES.

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 584,752, dated June 15, 1897.

Application filed December 17, 1889. Serial No. 334,038. (No model.)

To all whom it may concern:

Be it known that I, CHESTER C. SMALL, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, 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.

The invention is an improvement upon that described in my application for Letters Patent of the United States, filed April 19, 1887, Serial No. 235,316, patented January 19, 1892, No. 467,242, and also upon my application of even date herewith, and it relates especially to the heel-blank holder.

In the applications referred to the heel-blank holder is supported by a plate having a horizontal movement to move the heel-blank from a position out of line with the nailing devices to a position in line therewith.

In the present invention the heel-blank holder is not provided with a horizontal movement, but is located beneath the templet, and when the top-lift carrier is used to move a top lift from a position out of line with the attaching devices to a position into line therewith it is moved vertically away from the templet to permit the top-lift holder and top lift to be moved into operative position.

The invention further relates to various details which will hereinafter be specified.

Referring to the drawings, Figure 1 is a view principally in vertical section to illustrate the relation of the heel-holder to the upper table of the machine, templet, nail-driver, and jack. Fig. 2 is a view upon the same section as that shown in Fig. 1, representing the heel as attached, the heel-holder moved downward, and the top-lift-carrier plate moved into position to spank the top lift. Fig. 3 is a view principally in front elevation of the parts of the machine necessary to illustrate the invention. Figs. 4 and 5 are detail views to show the manner of depressing the heel-holder by the top-lift plate. Fig. 6 is a plan view of the heel-holder, and Fig. 7 is a plan view inverted of the top-lift-spanking plate and top-lift holder carried thereby.

A represents the templet; *a*, the table; B, the heel-blank holder. It is represented as embodied in the arms $b\,b'$, mounted upon the pivots b^2 b^3, respectively, and as united at their rear ends by segment-gears b^4 b^5, formed upon the rear end of each arm. The pivots and arms are carried by a block or slide b^6. The arms are provided with rounded front ends b^7, which are forced toward each other with a constant pressure by one or more springs b^8. The rounded ends b^7 of the arms are adapted to bear against the sides of the heel-blank. The holder further comprises a V-shaped back-stop C, which is horizontally adjustable upon the block or plate b^6 by means of a slot *c* and set-screw c' or in any other way. It is adapted to be moved into any desired position and then locked in such position. The block or plate b^6, carrying the heel-holder, is provided with a vertical dovetail D, which enters the dovetail recess *d* in the back piece d' of the table. The block is held at any desired elevation by a lifting-spring d^2, and is adjusted as to height by an adjusting-screw d^3. The block b^6 also has the wedge or inclined surface d^4, by which it is moved downward by the top-lift carrier.

E is the top-lift carrier. It has any suitable top-lift holder *e*, and it is movable from a position at one side of the attaching devices to a position in line therewith by means of a cam e' and lever e^2 or any other suitable device. It has a tapering or beveled corner projection e^3, which is adapted upon the movement of the plate to be brought into contact with the wedge or inclined surface d^4 of the block d^6, and by being moved against the block to force the block b^6 downward against the stress of the spring d^2 sufficient to permit the top-lift-carrier plate, top-lift holder, and top lift to be moved into position beneath the templet-plate and above the arms $b\,b'$ of the heel-blank holder, where they are held during the spanking or attachment of the top lift. Upon the outward movement of the top-lift carrier the slide block or plate b^6 and heel-

blank holder are moved upward to their original position. In certain instances the heel-blank-holder arms $b\,b'$ are opened automatically upon the advance of the top-lift carrier and held open during the attachment of the top lift. This is to prevent their being injured upon the upward movement of the jack or from injuring the jack by coming in contact with any part thereof or with the work upon it. This movement is given to the fingers by means of a pin F upon the finger b', near the front end thereof, which extends upward sufficiently to be in line with the top-lift-carrier plate, and the top-lift-carrier plate upon its feed movement coming in contact therewith throws the end of the finger outward and thereby opens it or carries it from the heel-blank, and also causes the other finger to be moved outward from the heel-blank in a reverse direction. The extent of closing movement of the two fingers $b\,b'$ is varied by means of slots in the block b^6, slots in the arms $b\,b'$, and headed stop-bolts b^9, which are movable in the slots in the block or plate b^6 and extend through the slots in the arms $b\,b'$.

Of course where a top-lift-carrier plate is not used it is not necessary to provide the fingers with a vertical movement above it. It is desirable to provide them with a vertical adjustment in relation to the templet to vary the point at which they take hold of the heel, low heels being taken close to the upper lifts, high heels being many of them better held midway between the seat and top.

It is desirable that the arms $b\,b'$ be made quite thick and rounded or curved upon their inner edges.

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

1. In a heeling-machine in combination with the templet and nailing devices, a heel-blank holder comprising the spring-actuated arms b, b', pivoted at their rear ends as described, having their outer ends extended sufficiently to grasp a heel-blank by its sides, movable toward each other with constant, yielding pressure to close or move the same toward each other and the adjustable back-stop C, substantially as described.

2. In a heel-nailing machine, in combination with the templet and nailing devices, a heel-blank holder comprising the spring-actuated arms b, b', pivoted as described, connected together at their rear ends by segment-gears, one or more springs for closing the same, the arms having the rounded ends and sides and the adjustable back-stop C, substantially as described.

3. In a heel-blank holder the combination of the spring-actuated arms b, b', pivoted as described and geared together and a back-stop C, adjustable by means of a slot and set-screw, substantially as described.

4. In a heel-blank holder the combination of the spring-actuated arms $b\,b'$ pivoted as described, geared together and having the curved slots therein, the support for said arms, the adjustable stop-bolts b^9, and the adjustable back-stop C, substantially as described.

5. The combination in a heel-nailing machine of the templet, its supporting-table, and the heel-blank holder with spring-actuated arms and its carrying block or plate vertically adjustable on said table to vary the position of the heel-blank holder in relation to the templet, substantially as described.

6. The combination, in a heel-nailing machine of the templet, the heel-blank holder with spring-actuated arm and vertically movable in relation to the templet, and a top-lift carrier having a longitudinal movement between said templet and heel-blank holder, substantially as described.

7. The combination of the templet, a heel-blank holder its supporting block or plate, and its actuating-spring d^2, substantially as described.

8. In a heel-nailing machine the combination of the templet, a heel-blank holder, with adjustable arms its supporting block or plate, and the adjusting-screw d^3, substantially as described.

9. In a heel-nailing machine the combination of the templet, a heel-blank holder, with adjustable arms its supporting block or plate, its actuating-spring d^2, and adjusting-screw d^3, substantially as described.

10. The combination in a heel-nailing machine, of the templet, a heel-blank holder with adjustable arms below the templet at all times, and a top-lift-carrier plate and top-lift holder supported thereby, adapted to be moved from one side of the machine between the templet and heel-blank holder, as and for the purposes described.

11. The combination of the templet, the heel-blank holder with adjustable arms, and mechanism substantially as described for automatically moving the heel-blank holder downward or away from the templet to permit the movement of the top-lift-carrying plate and top lift into position beneath the templet, substantially as described.

12. The combination of the templet, the heel-blank holder with adjustable arms, the top-lift-spanking plate, and a device for opening the holder and holding it open during the spanking of the top lift, substantially as described.

13. The combination of the templet, the heel-blank holders $b\,b'$, geared together, the pin F on the arm b', the movable top-lift-carrier plate, a section of which comes in contact with said pin as the top lift is being moved into position for attachment and causes the said heel-blank-holder arms to be opened, substantially as described.

14. The combination of a templet, a last or jack and means for giving to said last or jack

two movements in relation thereto one to compress and hold the heel-blank while it is being attached, and the other to spank a top lift, with a heel-holder located between the two, adapted to hold the heel-blank during the compressing and attaching operation and means whereby the said holder is automatically opened to permit of the free movement of the heel-blank in relation thereto and during the subsequent attachment of the top lift, substantially as described.

CHESTER C. SMALL.

In presence of—
F. F. RAYMOND, 2d,
J. T. BALL,
A. P. PORTER.