(No Model.) 2 Sheets—Sheet 1.

E. FISHER.

MACHINE FOR ATTACHING HEELS TO BOOTS AND SHOES.

No. 250,654. Patented Dec. 13, 1881.

Fig. 1.

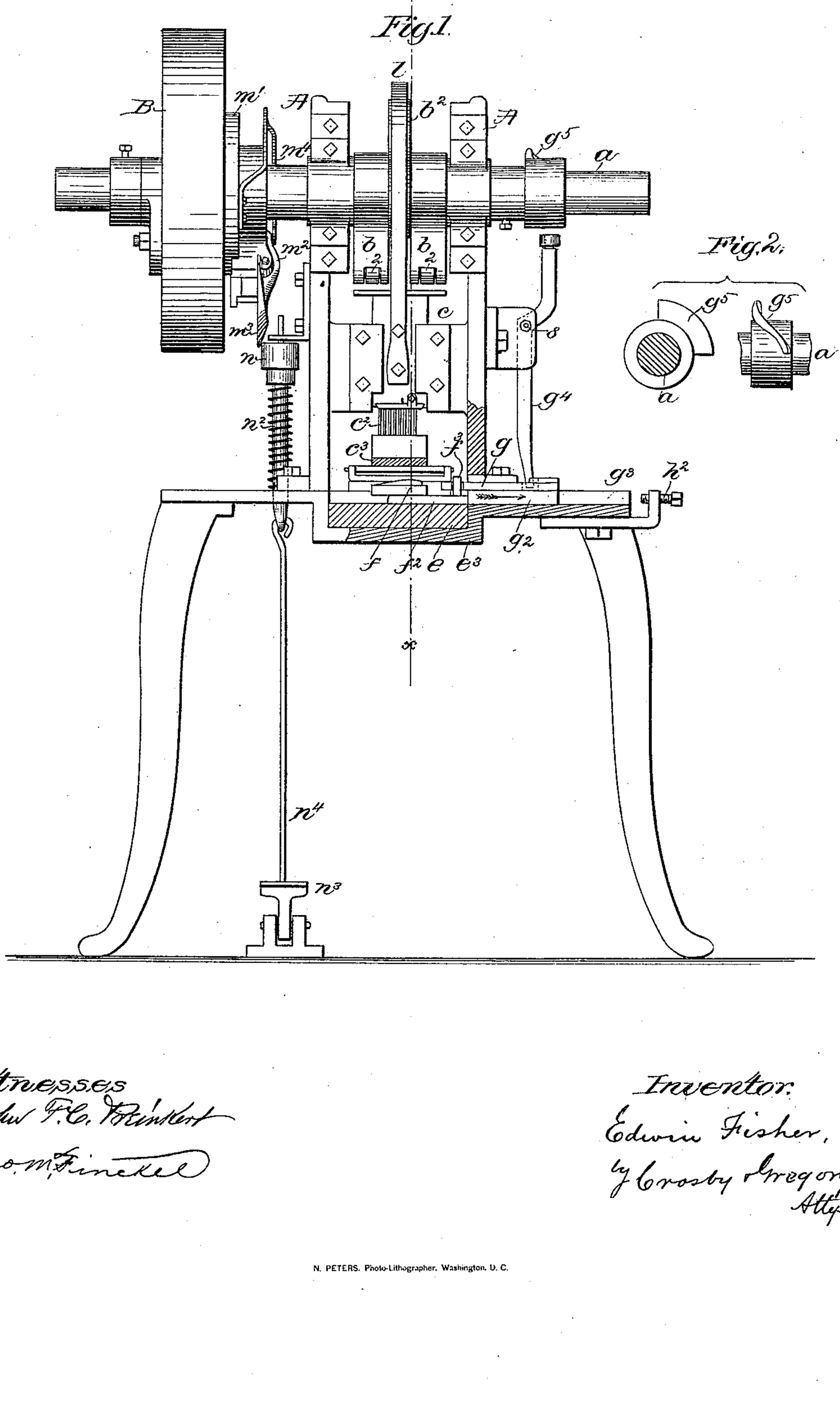

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

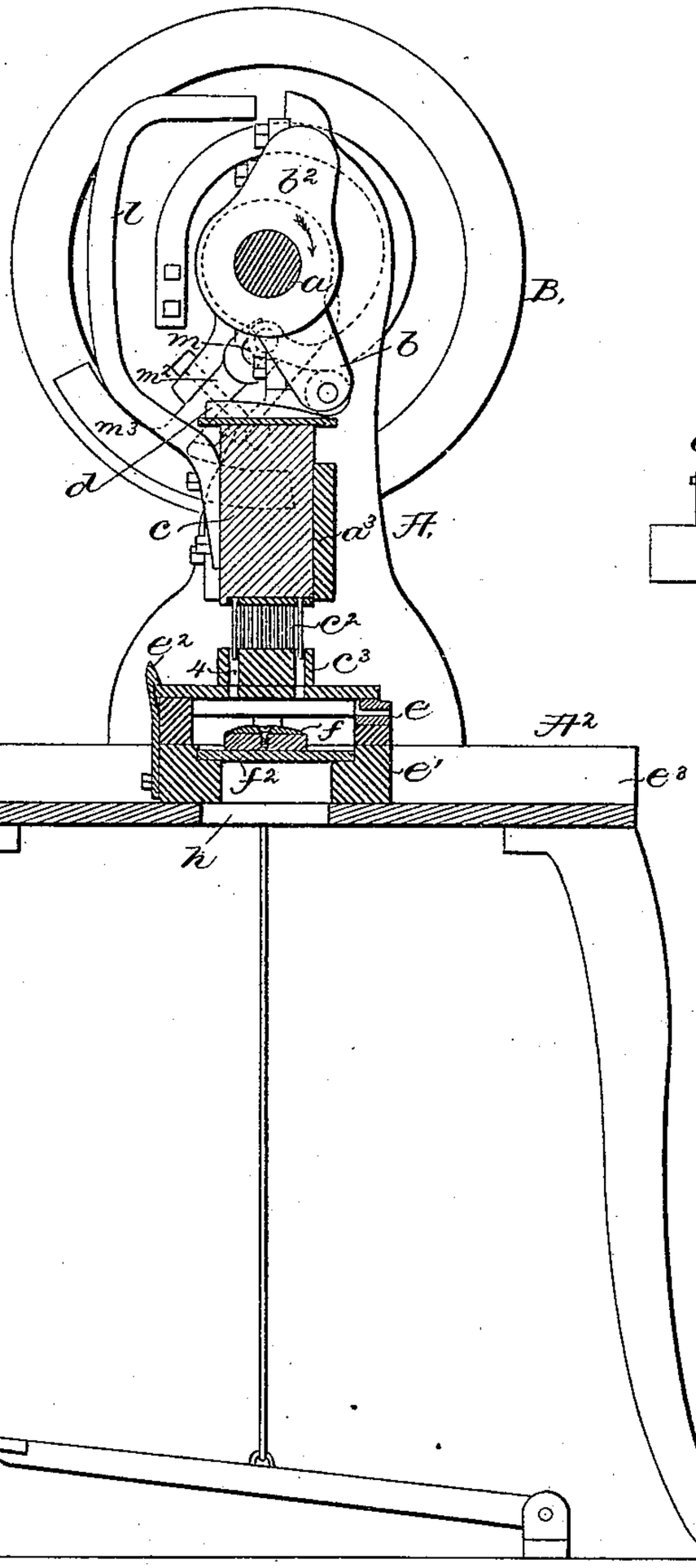


Fig. 4.

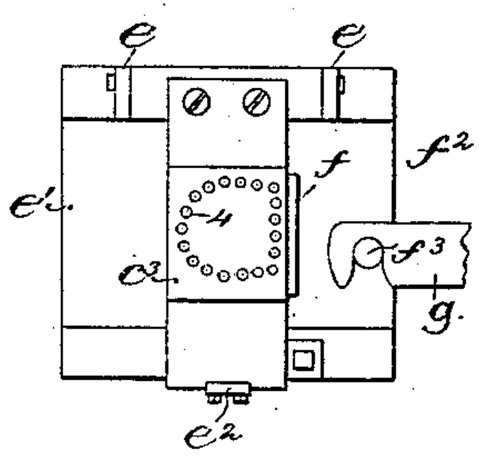
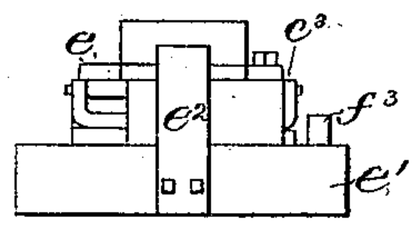


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWIN FISHER, OF WORCESTER, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE, OF CAMBRIDGE, MASSACHUSETTS.

MACHINE FOR ATTACHING HEELS TO BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 250,654, dated December 13, 1881.

Application filed August 16, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWIN FISHER, of Worcester, county of Worcester, and State of Massachusetts, have invented a new and useful Improvement in Machines for Attaching Heels to Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification.

This invention in machines for driving nails into heels, to prepare them to be applied to boots and shoes, consists in the combination, with a gang of drivers and nail-holder, of a heel-support, made horizontally movable from below the heel and nail-holder, to permit the heel, supplied with nails, to be dropped through the machine and discharged; also, in the combination, with a gang of drivers, a plunger to hold them, and a nail-holder, of independent cams or equivalents, to first force down the said plunger far enough to drive the nails into the heel, and thereafter to yet further depress the plunger and driver, thus compelling the latter to completely detach the nails and the heel from the nail-holder; also, in the combination, with a movable carriage, of a nail-holder hinged to it, the nail-holder being turned upon its hinge as each heel is applied to the carriage; also, in the combination, with the nail-holder, gang of drivers and carriage, and heel-support, of a slide provided with a hook to engage the plate which carries the heel-support and remove it laterally from below the heel and nail-holder.

Figure 1 represents, in front elevation and partial section, a heel-nailing machine embodying my invention. Fig. 2 shows in detail one of the cams at the right-hand end of the main shaft; Fig. 3, a vertical section of Fig. 1 on the dotted line *x x;* Fig. 4, a detail top view of the nail-holder, carriage upon which it is hinged, and hook and slide to draw the heel-support from below the nail-holder; and Fig. 5, a front-end view of Fig. 4.

The main shaft *a*, supported in suitable boxes or bearings in the uprights A of the bed-plate A^2, has upon it a pair of arms, *b*, having rolls 2, constituting a double cam, and also a cam, b^2.

The plunger *c*, guided in its vertical movement by the part A of the frame-work, has its upper end, at opposite sides of its center, (see Fig. 1,) shouldered and flattened to be struck by the rolls 2 during each rotation of shaft *a*, to force the plunger and its gang of drivers c^2 down sufficiently to act upon the heads of the usual nails set up in the holes in the nail-holder c^3 and drive them into the heel or heel-pile as usual, to be subsequently driven completely through the heel, after which the cam b^2 strikes the narrow inclined block *d*, located at the upper end of the spindle, and causes the spindle to descend a little farther, sufficiently to entirely remove from the nail-holder the upper end of the series of nails partially driven into the heel.

The heel-support *f* is withdrawn laterally from below the heel just as the cam b^2 commences to operate to move the plunger and gang of drivers, so that the nails at such time are not farther driven into the heel.

The nail-holder c^3, made as a metal block of a depth sufficient to keep the nails upright in the series of holes 4 therein, is hinged or pivoted between ears *e* of the carriage *e'*. A spring-catch, e^2, secures the free end of the holder in operative position on the carriage, as in Fig. 3. The holder may be turned about its pivot whenever it is desired to place a heel upon the heel-support *f*, the carriage *e* having, however, been drawn out by hand toward the front or back of the machine and from below the gang of drivers in the guideway e^3.

The heel-support *f* forms part of a plate, f^2, to slide transversely out and in the carriage *e'* in ways therein. (See Fig. 3.) This plate f^2 has a pin, f^3, which, after the holder and carriage, supplied with nails and a heel, are pushed into position under the gang of drivers, enters a notch, 6, in a hook, *g*, attached to the slide g^2, fitted in ways g^3 of the frame-work A^2. (See Fig. 1, where the frame-work is represented in section to exhibit the said slide, plate f^2, and support *f*.) This hook and pin serve to stop the carriage, so that the holes 4 of the nail-holder register correctly with the drivers. Just as the gang of drivers is to be driven down by the cam b^2, a cam, b^5, on shaft *a* strikes the lever g^4, pivoted at 8 and connected with the slide g^2, and moves said slide in the direction of the arrow, Fig. 1, causing the hook,

then in engagement with the pin 3, to withdraw the plate f^2 and heel-support from below the heel, so that the heel can fall through the opening h into a suitable box as the projecting upper end of the nails in the heel are forced from the holes 4 in the nail-holder. The heel having been discharged, the slide is moved inward, returning the plate f^2 to the carriage, and the latter is then drawn out, as described, to receive another heel. The adjustable stop h^2 arrests the outward movement of the slide g^2. The plunger is lifted by cam b^2, acting on the curved extension or upright l, secured thereto.

In this machine I may employ two carriages, e', two operators, one at the front and the other at the back of the machine, attending each his own carriage, one operator, by a suitable treadle under his control, causing the gang of awls to drive nails into a heel while the other is removing the carriage under his control to supply it with a heel.

The shaft a has upon it a continuously-rotating loose pulley, B, provided at its inner side with a suitable stud to be engaged by a sliding pin, m, the inner end of which is shown in Fig. 3, whenever the shaft a is to be rotated. The shaft a is stopped automatically after each rotation. This pin, common to my application No. 40,011, and extended through the disk m', fast on the shaft a, is engaged and moved by the lever m^2, having the broad arc-like end m^3, to disengage the pin from the said stud when the machine is to be stopped, a spring, m^4, pressing the said pin and the lever with it, as the latter passes the lever-holder n, in the opposite direction, to enable the pin m to be engaged by the said stud on the pulley B when the machine is to be operated.

The lever-holder n is shown as a cylinder or roll at the top of a rod surrounded, as in Fig. 1, by a spiral spring, n^2, which normally keeps the holder elevated, so as to be struck by the end of the lever m^2 as the shaft a rotates. The movement of the lever m^2 by the holder n causes the former to withdraw the pin m from contact with the stud of the pulley B and lets the pulley run loosely on shaft a; but as soon as the holder n is drawn down by the treadle n^3 and rod n^4 the lever m^2 is released and the spring m^4 forces the pin into the path of movement of the stud on the rotating pulley B, as described, and starts shaft a.

I claim—

1. The sliding carriage e', and the nail-holder e^3, provided with the series of holes 4, combined with a latch or catch to retain the holder firmly in horizontal position on the said carriage, substantially as described.

2. In a heel-nailing machine, a nail-holder, a heel-support made horizontally movable from below the heel and holder, and a plunger provided with a gang of drivers, combined with cams to first operate the plunger far enough to enable the drivers to drive the nails into the heel for the required distance, and then further operate it, the heel-support being withdrawn from below the heel, to push all the nails from the nail-holder and discharge the heel from the machine, substantially as described.

3. In a heel-nailing machine, the plunger c, provided with the gang of drivers, the nail-holder and its carriage, and the movable plate and heel-support therein, combined with the slide and hook to engage a pin or projection on the movable plate, and with means to move the said slide, movable plate, and heel-support, substantially as described.

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

EDWIN FISHER.

Witnesses:
G. W. GREGORY,
L. F. CONNOR.