

(No Model.)

F. F. RAYMOND, 2d.
HEEL NAILING MACHINE.

No. 329,951.

Patented Nov. 10, 1885.

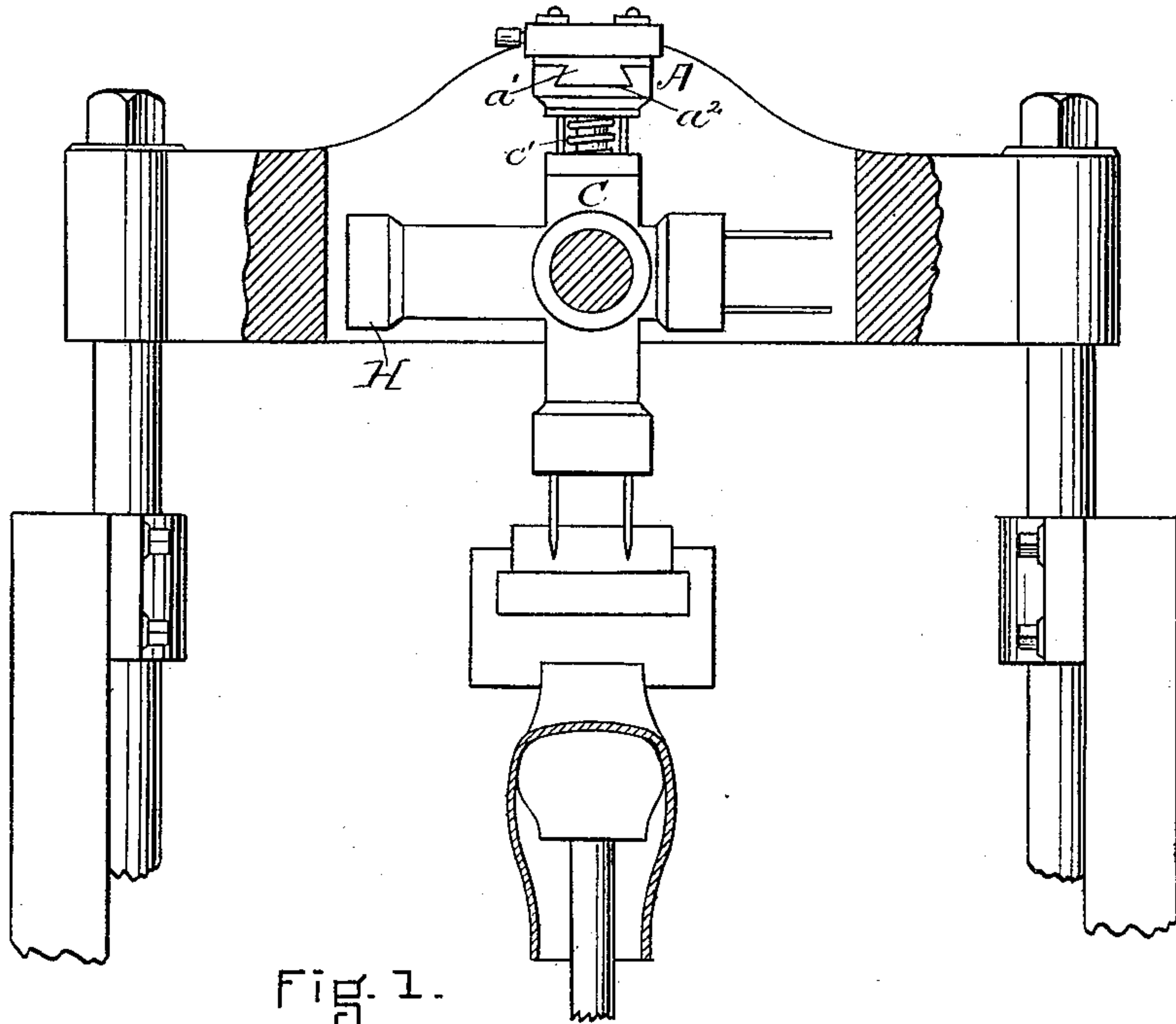


Fig. 1.

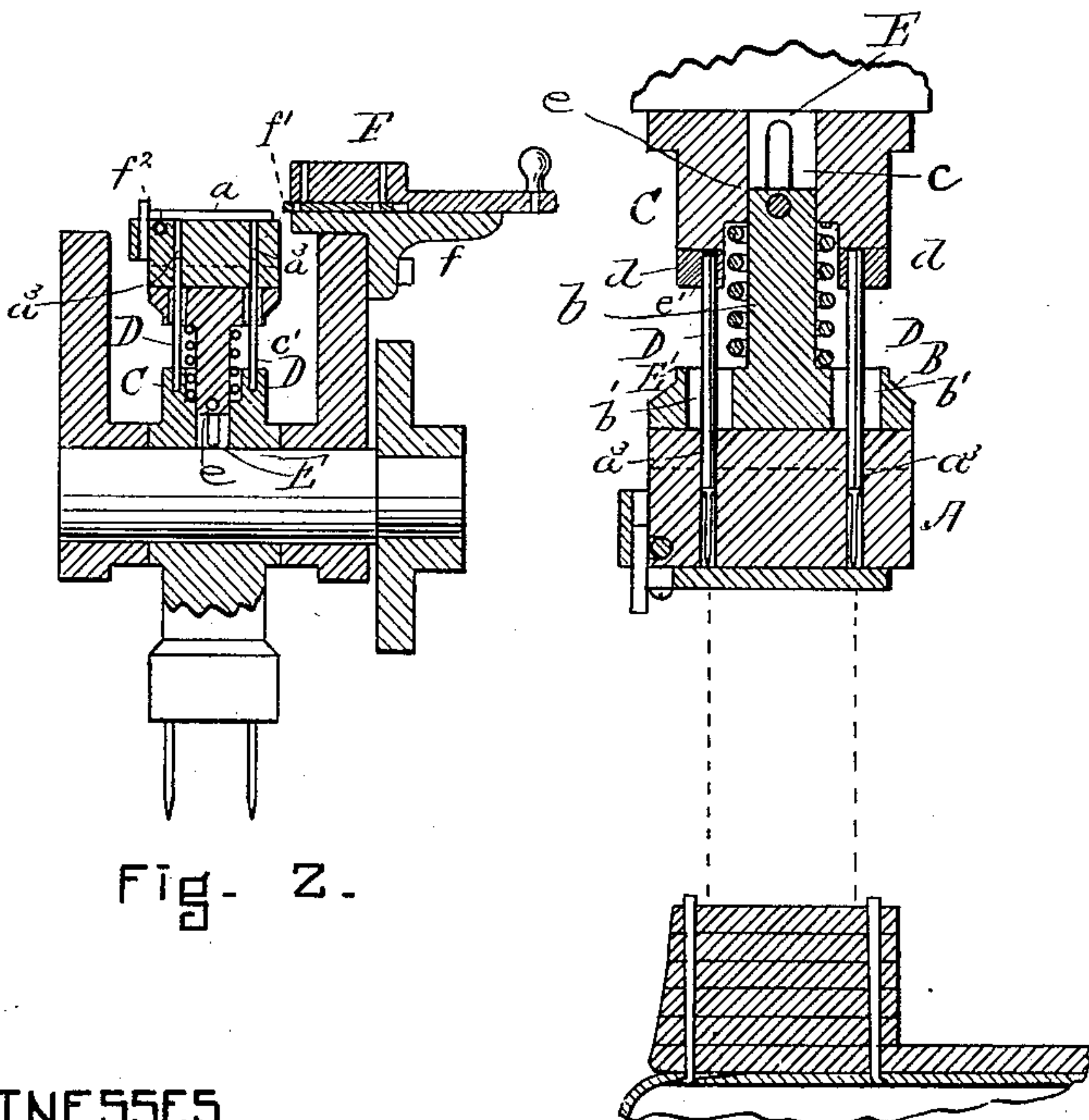


Fig. 2.

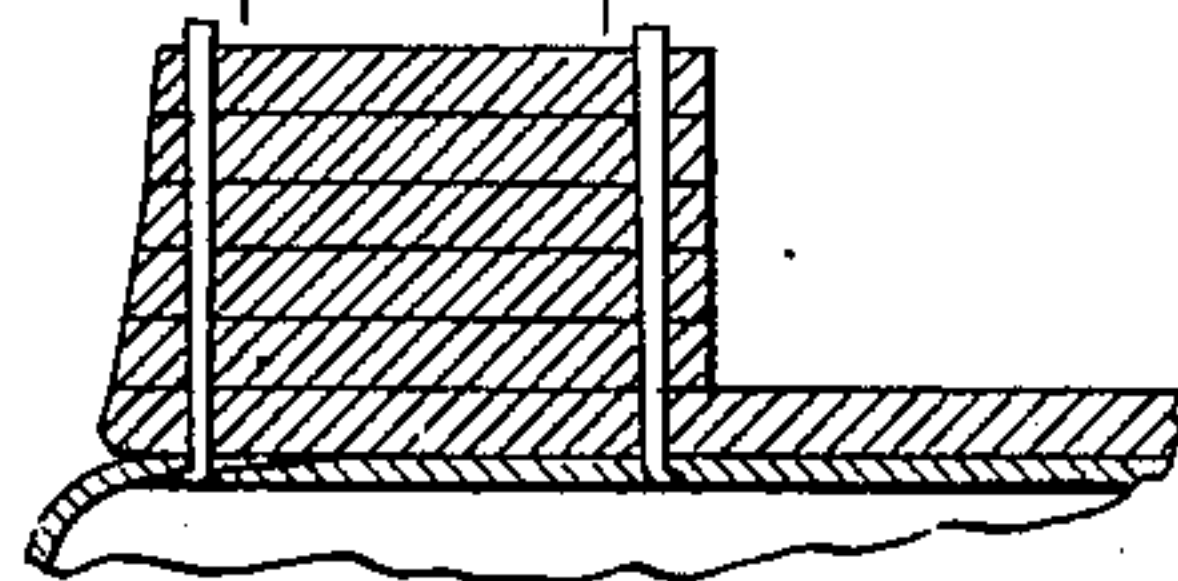


Fig. 3.

WITNESSES

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

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 329,951, dated November 10, 1885.

Application filed January 31, 1885. Serial No. 154,500. (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.

It is very common in manufacturing boots and shoes to first attach the heel-blank by a gang or group of nails simultaneously driven, and to then spank on the top lift to the heads of the attaching-nails, or to other nails which have been left projecting for the purpose of receiving it, and then by hand to drive additional nails through the top lift, either for the purpose of more securely holding it in place to the heel-blank or for purposes of wear or ornamentation, or for all these purposes. This last-named nailing has always been done by hand after the removal of the boot or shoe from the attaching-machine.

It is very desirable that means should be provided whereby either holes should be made in the heel for these additional or auxiliary nails after the heel has been attached, but while it is yet in the heel-attaching machine, or that before the removal of the boot or shoe from the machine, but after the heel has been attached, the additional nails be automatically driven; and I have herein described means for accomplishing both these objects, and they comprise the employment or use of a supplemental gang or group of awls, if it is desired simply to puncture the attached heel, or an additional gang or group of drivers, if it is desired to automatically drive the additional or auxiliary nails after the heel has been attached; and these awls or drivers are so arranged that they are brought into position for use after the operation of the heel-attaching devices, as will hereinafter be fully explained.

Referring to the drawings, Figure 1 shows in elevation and vertical section a portion of the head and jack of the National Heel-Nailing Machine with my improvement added. Fig. 2 represents a vertical cross-section of the cross and revolving heads, taken through the parts which comprise my invention. Fig. 3 is a vertical central section, enlarged, of my im-

provement at right angle to the view of Fig. 2. It also shows in vertical section a heel-blank and portion of a shoe.

I have represented the invention as applied to the well-known National Heel-Nailing Machine. In said machine the heel-blank is first placed in position upon the work, then compressed or clamped, and then pricked by the awls. The attaching-nails are then fed and driven by the drivers, and in blind-nailing the top lift applied or spanked; and these three operations are performed without removing the jack by bringing the awls, drivers, and top-lift spanker successively into operative position.

In the present application I have represented devices for forming holes for additional top-lift nails, or for driving them, as combined with the top-lift holder and spanker.

A is the spanker-block and the top-lift-holding arms, springs, or jaws, which, preferably, are like those described in the Henderson patents, Nos. 252,215 and 259,687, and application filed January 10, 1883, Serial No. 81,453, and need not further be described here. The spanker A has a dovetail projection, a' , which fits into the dovetail recess a'' in the block B. This block is carried or supported at the end of the rod b , which fits into a hole, c , in the arm C, forming a portion of the revolving head. A spring, c' , holds the block B away from the arm C, so that the spanker-block and block B are held outward from the head by yielding pressure, and are movable in relation to the arm C, for the purposes herein-after stated. The arm C also supports a number of awls or drivers. If it is intended that holes only be pricked through the top lift, then awls are employed. If it is desired to drive the nails at the same time the top lift is spanked, then the drivers are used, and awls only are requisite where the heel is made of very hard stock or is very solid. For all ordinary work the drivers will answer. The awls or drivers D pass through the slots or elongated holes b' in block B and holes a^3 in the spanker-block, and they are held by a block, d , which is movable upon the arm C, which may have a dovetail projection which fits into a dovetail recess thereon, by which it may be moved and be fastened in place by a screw; or it may be secured thereto in any

other manner. Whichever construction is used, it must have a slot through which the post *b* extends.

In the operation of applying a top lift to the attached heel it will be seen that upon the reciprocation of the cross-head the top-lift holder and spanker are first brought in contact with the upper surface of the heel-blank, and that they then become substantially stationary, while the arm C (the head continuing to descend) compresses the spring *c'*. This causes the awls (if awls be used) to be driven through the top lift into the heel-blank; or, if drivers are used, to drive the nails through the top lift into the heel-blank. The block B, or its post *b* preferably, should bear such relation to the arm C or the other part of the revolving head that upon substantially the completion of the downward throw of the head either the surface E should come in contact with the upper surface, *e*, of the post *b* or the under surface, *e'*, of the arm C should come in contact with the upper surface, *E'*, of the block B, so as to give a final positive pressure. When this last construction is used, of course the arm C will contain a recess or space surrounding the post *b*, in which the spring is compressed in order that the two surfaces may come together, and when they are together, if drivers are used instead of awls, then the ends of the drivers should be flush with the under surface of the spanker-block. Of course, as many holes may be formed in the blocks B and A and awls and drivers used as may be desired, and the awls and drivers may be arranged in any desired relation to each other. When a revolving head is used and drivers are employed, I prefer to load the device with attaching-nails when it is uppermost—that is, when the spanking-surface is presented upward—and the operator or boy then places upon the ends of the drivers, when in the position shown in Fig. 1, the nails which are to be driven, with their heads downward, resting on the ends of the drivers. He then places the top lift in position, its edge being held or grasped by the top-lift-holding arms, and consequently upon the revolution of the head, so as to bring the spanker-surface into operative position, the nails are held from leaving the spanker-block B by the top lift; but when the cross-head is reciprocated to spank on the top lift the top lift is first brought into position upon the heel-blank, and while held in this position the continued movement of the cross-head causes the device to be driven in and the nails to be driven.

In lieu of holding the nails in place by a top lift, magnets may be arranged, as described in my pending application, so as to project upon the line with the holes *a*³, forming portions of the walls thereof, and thus hold the nails in place; or any other suitable device may be used for holding the nails in position in the holes; but for all ordinary purposes the top lift will answer.

For loading the spanker-block or block B

with nails I have arranged a sliding nail holder and carrier block, F, adapted to be moved into position upon the support *f* over the spanker-block when it is in its highest position with its spanking-surface uppermost. This nail holder and carrier has a sliding bottom, *f'*, which is automatically moved by a pin, *f*², or in any other desirable way, when the holes are in line with the holes in the spanker-block, so that the nails may be automatically fed to the top-lift block. It will not be necessary, perhaps, to use such a plate when only two or three nails are to be driven; but if a larger number are to be driven it will be very desirable to feed them in this way. The sliding block, instead of being carried by the support attached to the cross-head, may be held by a stationary support.

It will be observed that by the operation of this improvement the heel-blank is first attached, the attaching-nails then driven, the spanker then applied to the heel-blank, and additional nails, either for purposes of ornamentation, or for the purpose of securing the top lift in place, or to increase the wearing-surface of the heel, are then driven automatically through the top lift, preferably nearly simultaneously with its location in place, although it may be immediately following, and that, in lieu of driving these additional top-lift nails, holes therefor only may be formed, the nails to be afterward inserted by hand. I prefer, however, the construction which drives the nails as a simultaneous operation with the placing of the top lift.

It is not necessary, in practicing this invention, to leave the heads of the attaching nails projecting for the reception of the top lift, as enough top-lift nails may be used to fasten the top lift to the heel-blank without the aid of the heel-blank-attaching nails.

I have shown the revolving head as provided with an additional spanker, H, which is adapted to be brought into position and reciprocated after the top lift has been attached and the top-lift nails driven.

For the insertion of large nails or slugs it is desirable, for certain classes of work, to prick or form holes in the heel-blank before they are driven, and for this purpose the heel-blank may be perforated without perforating the top lift, and this is accomplished by providing the awl-holder block with additional awls for forming the holes in the heel-blank for the reception of these larger nails or slugs, which are afterward driven through the top lift, and which is either unperforated, or which may have been previously perforated for their reception.

Heretofore it has been common in heel-attaching machines either to drive a single gang or group of nails from the inside of the shoe, as described in the patent to Saloshinsky, No. 27,008, dated January 31, 1860; or one gang from the inside of the boot or shoe and the other from without the same, as described and shown in patents to Jenkins, No. 31,690, dated

March 12, 1861, and to Ellis, No. 41,038, dated September 22, 1863; or from without the shoe, as described in patent to Ellis and Glidden, No. 32,067, dated October 7, 1862, re-
 5 issued May 20, 1873, under No. 5,413, and many other patents; but I have no knowledge of any machine organized to drive two gangs or groups of fastenings successively into a heel from without the boot or shoe, whereby the
 10 heel is first attached and a secondary or supplemental group of fastenings then driven into the attached heel through the top lift or otherwise, although I am aware that heels have been attached by heel-attaching machines or-
 15 ganized to drive a single gang or group of fastenings from without the boot or shoe, and that the supplemental or auxiliary group of fastenings have been driven singly by hand.

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

1. In a heel nailing or attaching machine, the combination, with the devices for driving the heel-attaching nails, of a spanker-block
 25 having holes *a*, and auxiliary awls or drivers vertically movable therein, all substantially as and for the purposes described.

2. In a heel nailing or attaching machine, in combination with devices for driving the
 30 heel-attaching nails, a top-lift holder, and a spanker-block having the holes *a*, and auxiliary awls or drivers adapted to be reciprocated in said holes after the attaching-nails have been driven, all substantially as and for
 35 the purposes described.

3. In a heel-attaching machine, the combination of devices for driving the heel-attaching nails, a top-lift holder, and spanker-block
 40 A, having holes *a*, and vertically movable in relation to its support C against yielding pressure, and supplemental or auxiliary awls or drivers D, adapted to be operated after the attaching nails have been driven, all substan-
 tially as and for the purposes described.

4. The combination of a top-lift holder, a
 45 spanker-block having the holes *a*, the block B, post *b*, spring *c'*, arm C, and the awls or drivers D, all substantially as and for the purposes described.

5. In a heel-attaching machine, in combi-
 50 nation with a templet and driving devices for driving heel-attaching nails, the spanker-block A, having the holes *a*, and means, substan-
 tially as described, for moving it horizontally upon the block B, with the supplemental or
 55 auxiliary awls or drivers D, also movable horizontally, all substantially as and for the purposes described.

6. In a heel-attaching machine, the combi-
 60 nation of devices for driving the heel-attaching nails with the spanker A, having the holes *a*, and movable, as described, to an inverted position, with a device for feeding nails thereto while in an inverted position, all sub-
 65 stantially as and for the purposes described.

7. The combination, in a heel-attaching machine, of devices for driving the heel-attaching nails, a top-lift holder containing supplemental
 or auxiliary devices for driving an additional
 70 or auxiliary group or gang of nails into the attached heel, and the jack or work-support, all substantially as described.

8. In a heel-nailing machine, the combina-
 tion of a templet and nail-driving devices for
 driving the heel-attaching nails, additional or
 75 supplemental nail-driving devices for driving supplemental or additional nails into the heel, adapted to be operated after the operation of
 the first-named devices, and a reciprocating
 spanker, H, adapted to be brought into oper-
 80 ation after the driving of the supplemental nails, all substantially as and for the purposes described.

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Witnesses:

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