(No Model.) 5 Sheets—Sheet 1.

J. W. SOULE.

HEEL NAILING MACHINE.

No. 368,248. Patented Aug. 16, 1887.

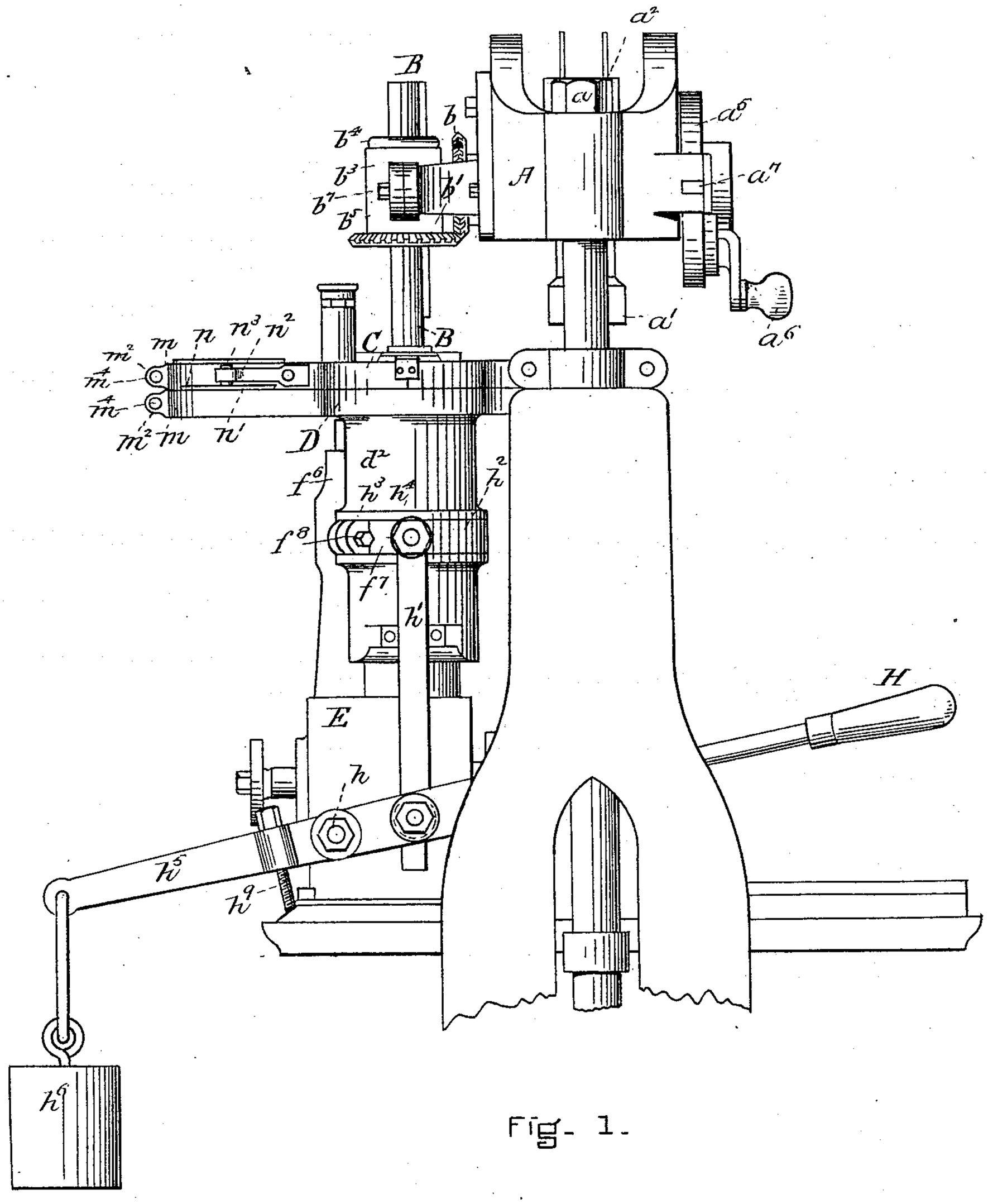

Fig. 1.

WITNESSES

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Fred. B. Dolan.

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Clarke & Raymond.

(No Model.) 5 Sheets—Sheet 2.

J. W. SOULE.

HEEL NAILING MACHINE.

No. 368,248. Patented Aug. 16, 1887.

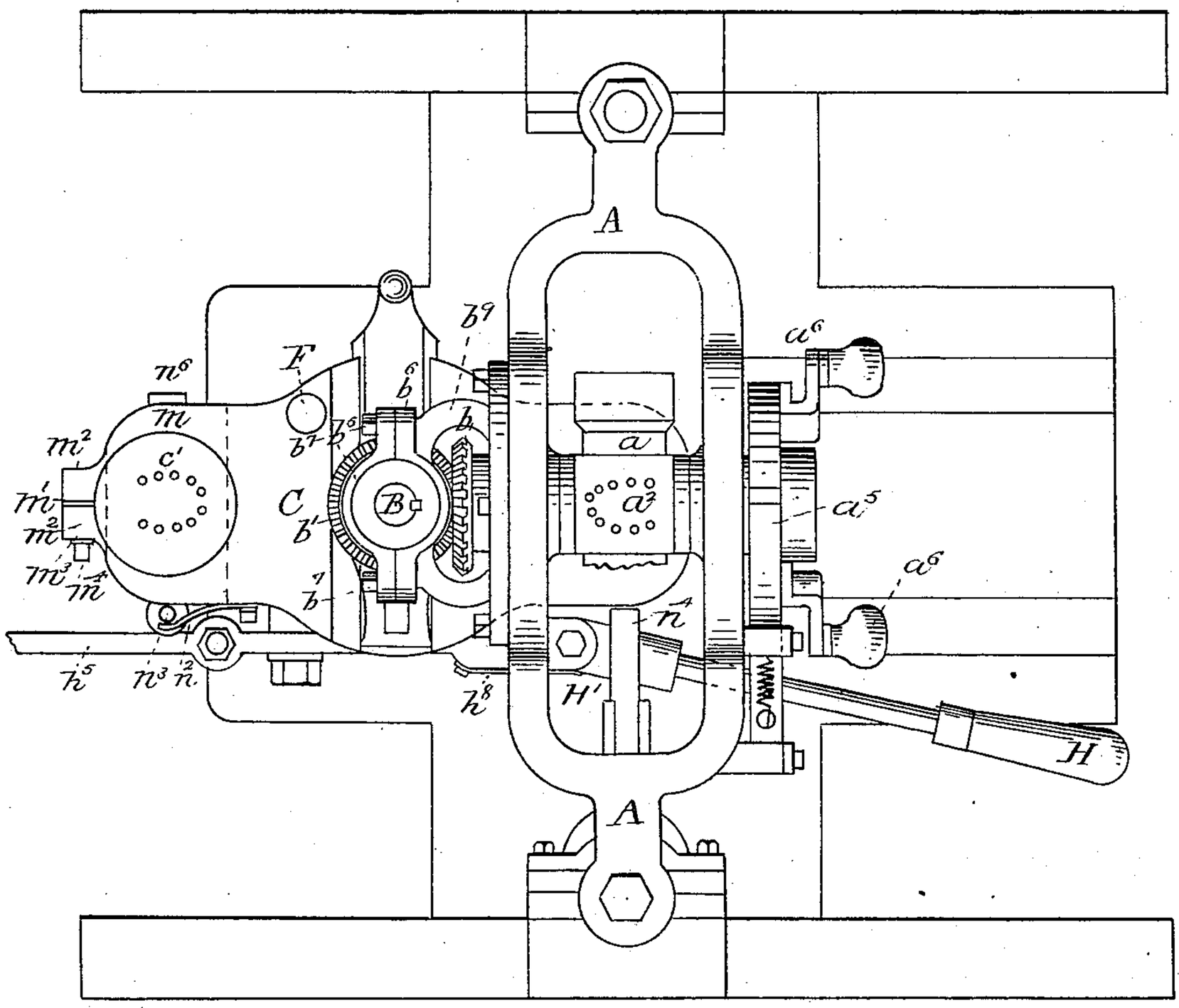

Fig. 2.

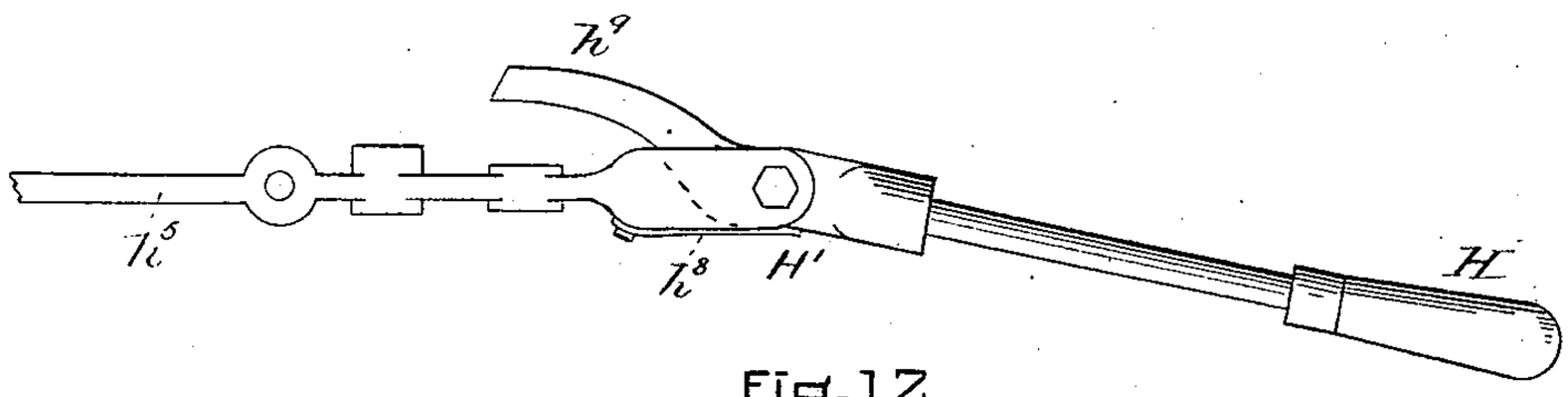

Fig. 1.

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J. W. SOULE.

HEEL NAILING MACHINE.

No. 368,248. Patented Aug. 16, 1887.

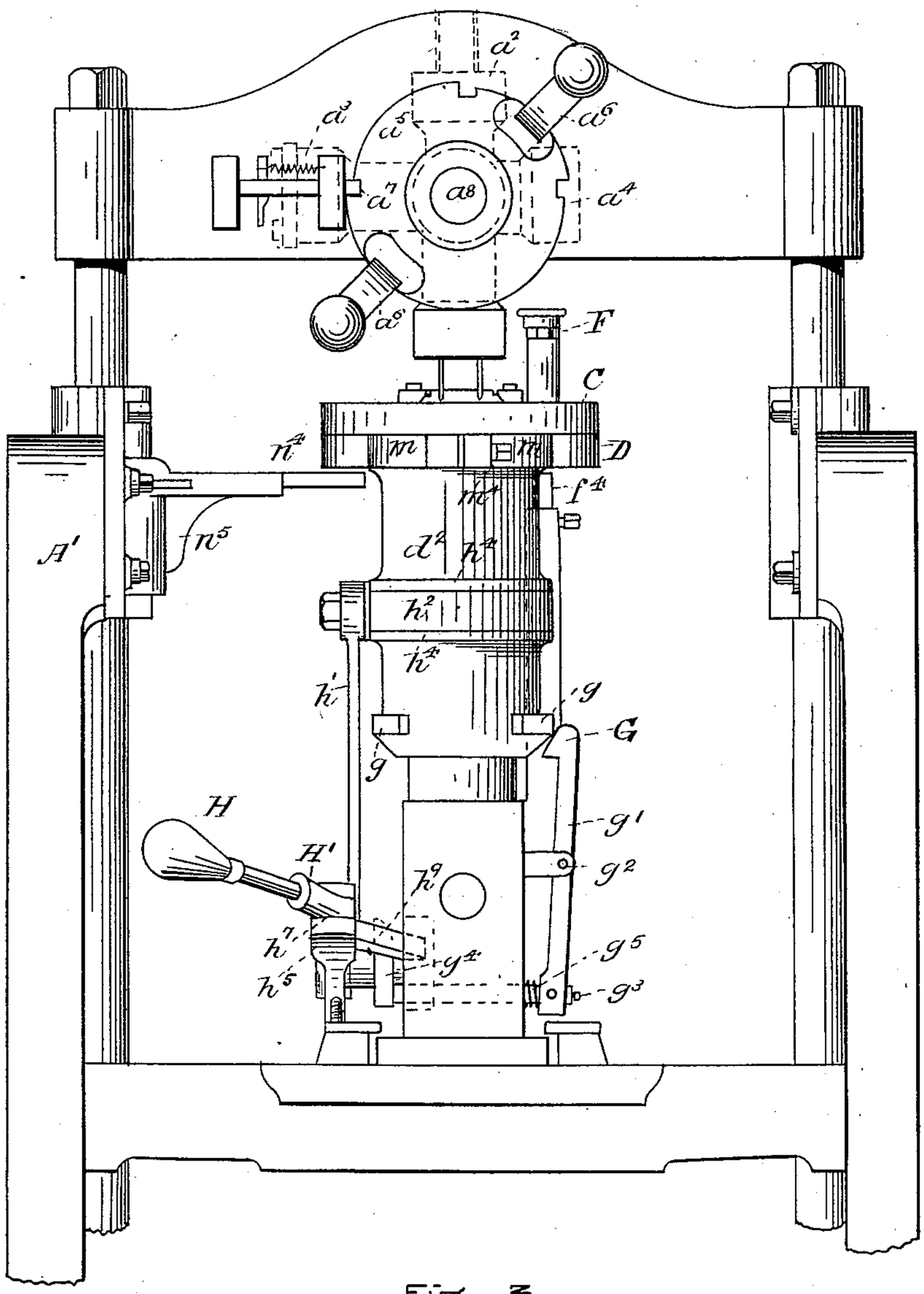

Fig - 3 -

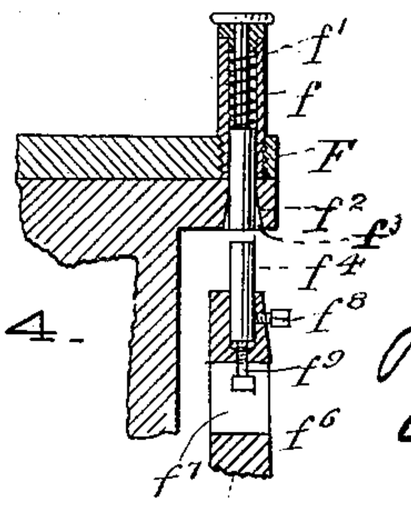

Fig 4.

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(No Model.) 5 Sheets—Sheet 4.

J. W. SOULE.

HEEL NAILING MACHINE.

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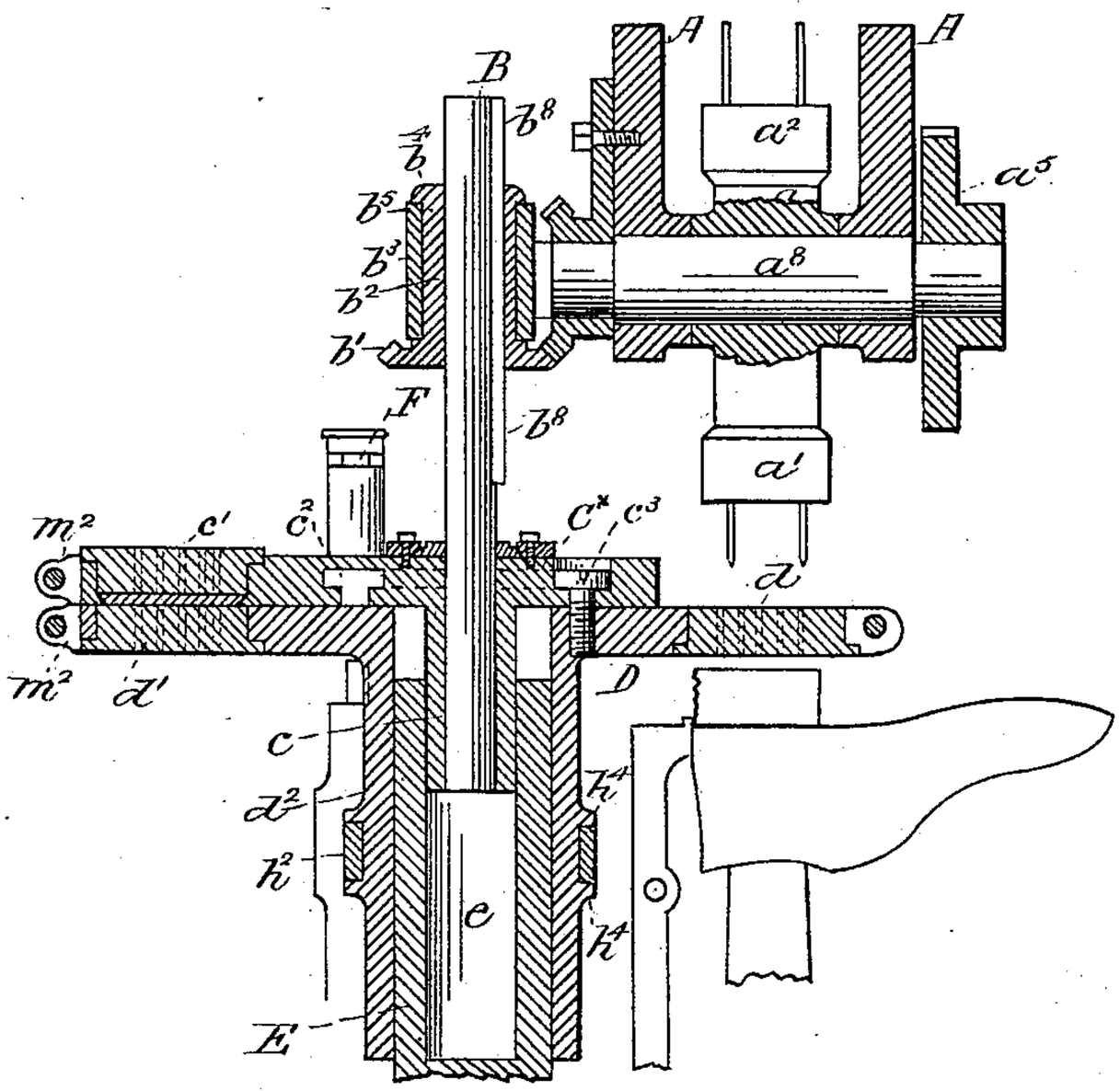

Fig. 5.

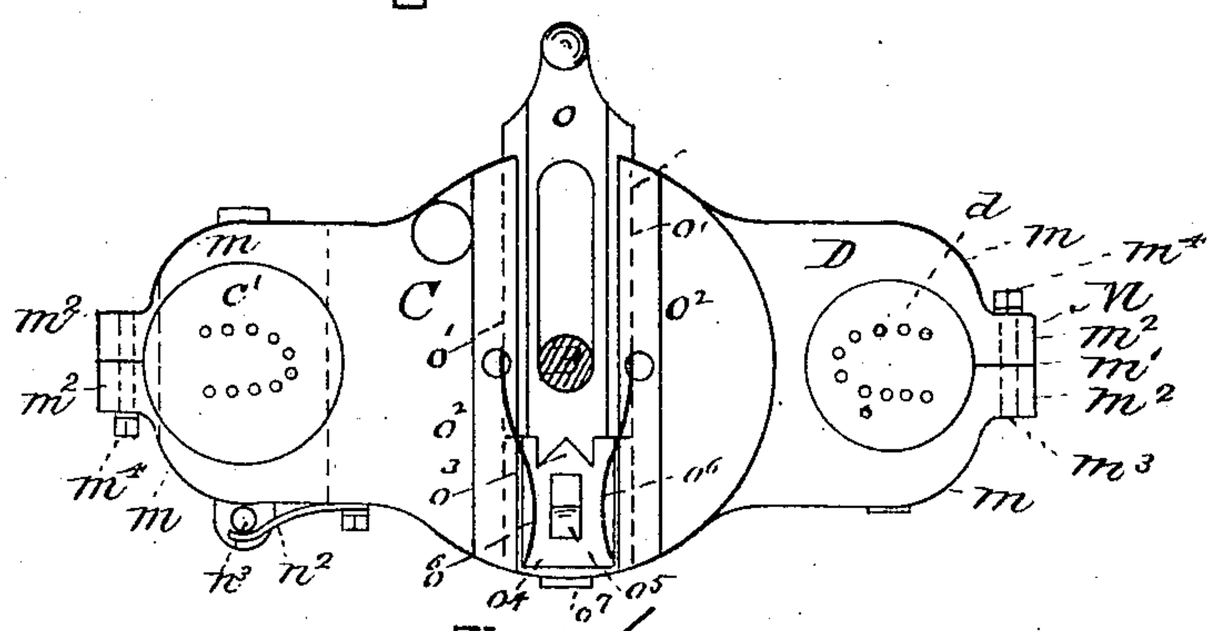

Fig. 6.

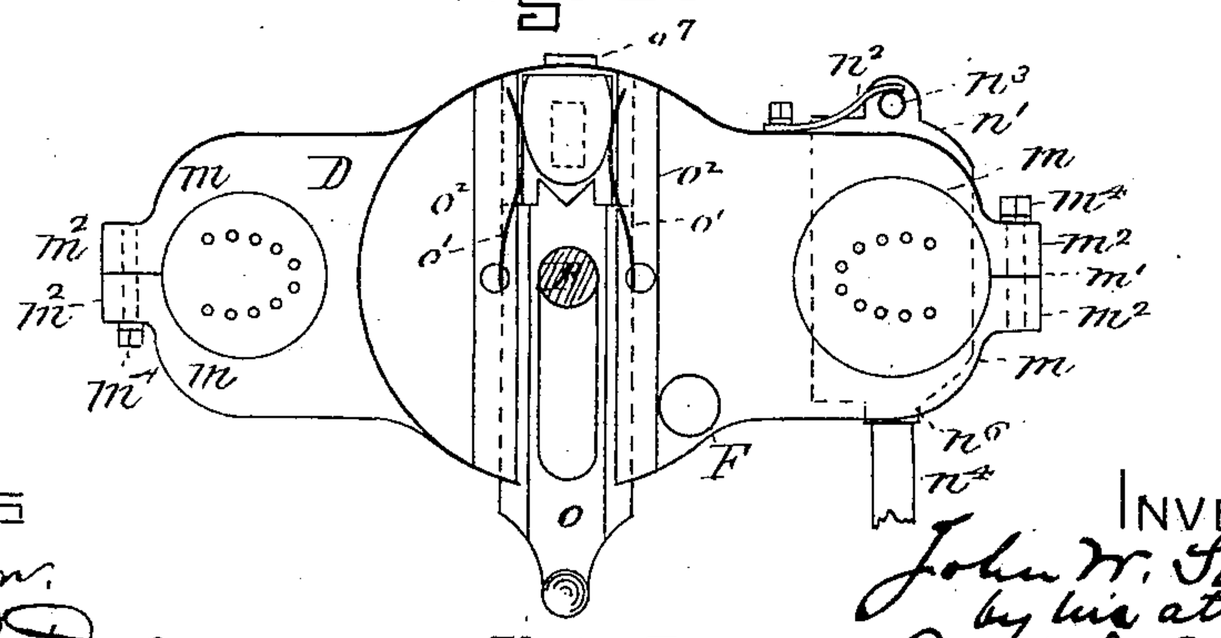

Fig. 7.

WITNESSES

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(No Model.) 5 Sheets—Sheet 5.

J. W. SOULE.

HEEL NAILING MACHINE.

No. 368,248. Patented Aug. 16, 1887.

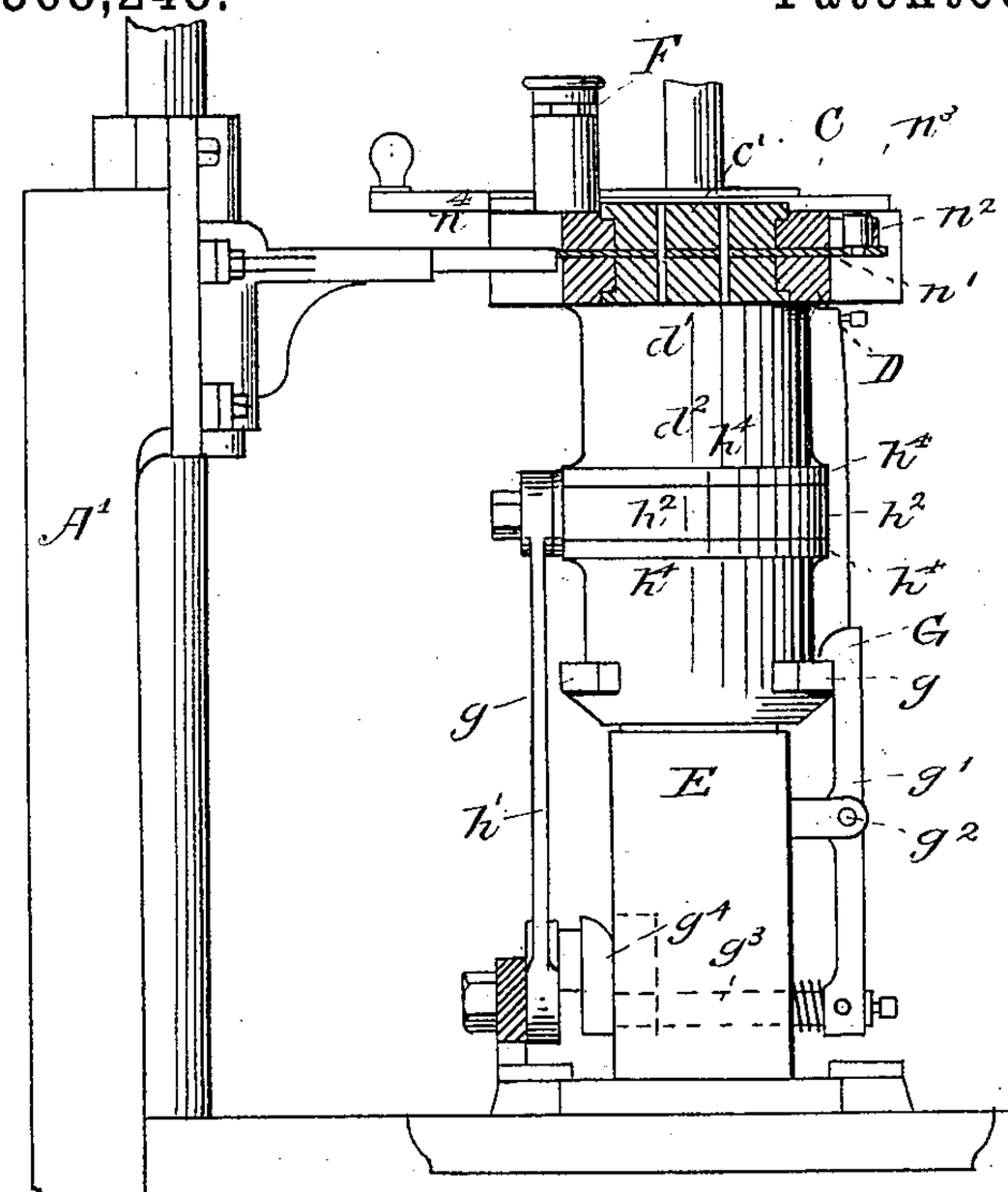

Fig. 8.

Fig. 10

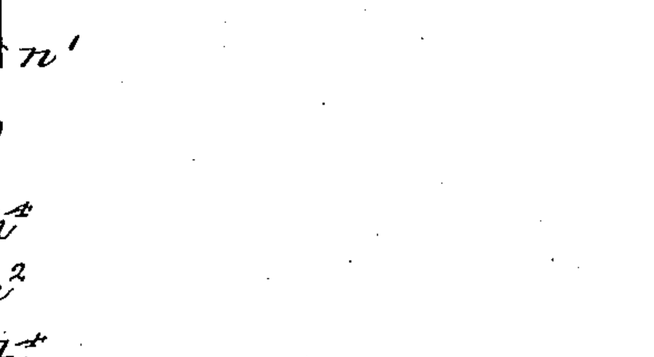

Fig. 11.

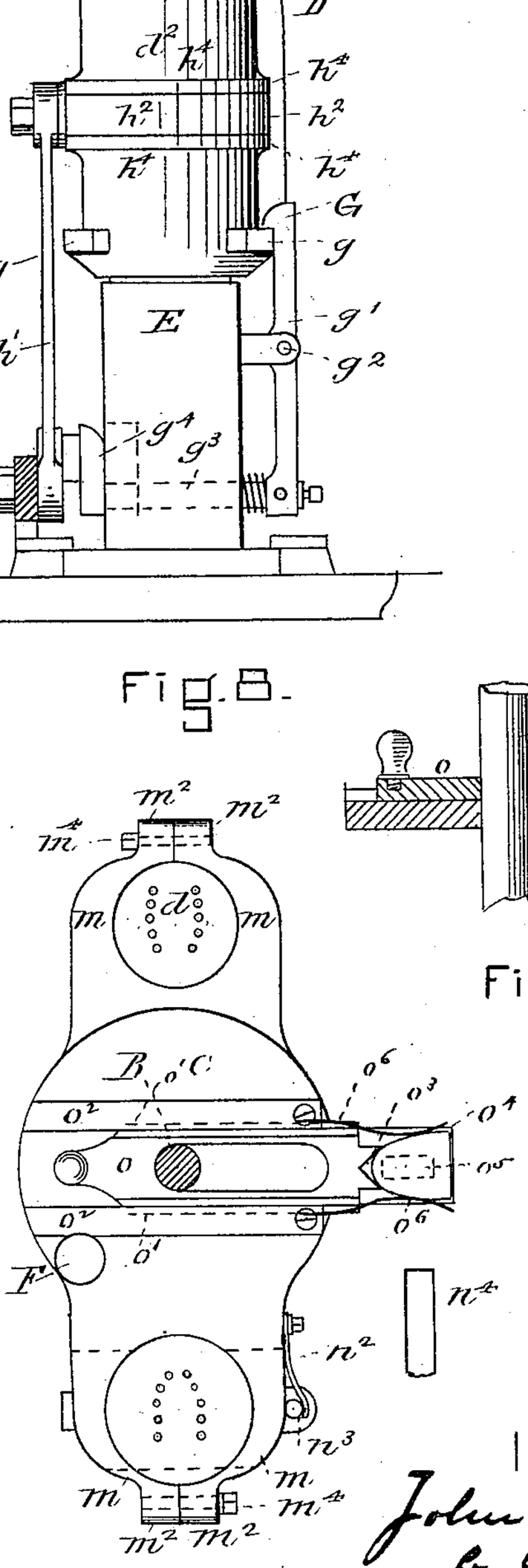

Fig. 9.

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UNITED STATES PATENT OFFICE.

JOHN W. SOULE, OF EVERETT, MASSACHUSETTS, ASSIGNOR TO THE NATIONAL HEELING MACHINE COMPANY, OF PORTLAND, MAINE.

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 368,248, dated August 16, 1887.

Application filed December 22, 1884. Serial No. 150,908. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SOULE, of Everett, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a certain 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 in side elevation a portion of a "National heel-nailing machine," so-called, with my improvement attached. Fig. 2 is a plan view thereof. Fig. 3 is a front elevation. Fig. 4 is a detail view representing a modification, hereinafter described. Fig. 5 is a vertical central section. Figs. 6 and 7 are plan views of the templet and nail-holder plates. Fig. 8 is a view, part in elevation and part in section, illustrating certain details of construction. Fig. 9 is a plan view of the templet and nail-holder plates when in an inoperative position. Figs. 10 and 11 represent detail views of the top-lift-feeding mechanism. Fig. 12 is a plan view of the lever, hereinafter referred to.

The invention is an improvement upon the invention described in Letters Patent Nos. 252,215 and 259,687, dated, respectively, January 10, 1882, and June 20, 1882, granted Henry A. Henderson, assignor, and Letters Patent Nos. 280,399 and 287,472, dated, respectively, July 3 and October 30, 1883, granted F. F. Raymond, 2d. In said Henderson patents there are described and claimed heel-nailing mechanism having groups or gangs of awls and groups or gangs of drivers and a top-lift holder and spanker adapted to be brought or moved successively into the same operative position and reciprocated, a yielding or vertically-movable templet, and a nail-holder for feeding nails thereto; and in the said Raymond patents there are shown and described awls, drivers, a top-lift holder and spanker automatically brought into operative position and reciprocated, a templet, and a nail-holder also automatically moved into and out of position. In the invention herein described the awls, drivers, and spanker, or any two of them, are moved into and out of operative position in the way described in said Henderson Patent No. 259,687; but the templets and nail-holders are moved automatically into and out of operative position upon the movement of the awls, drivers, and spanker, but before their reciprocation.

The form of National machine to which I prefer to apply my attachment is that having the revolving head, although I do not intend to confine myself to its use in connection with a revolving head, because it can be used equally well upon a machine having a sliding head for supporting the awls, drivers, and spanker, or any two of them.

Referring to the drawings, A represents the cross-head of a National machine.

a represents a revolving head, which in the drawings is shown with four arms, one, a', for supporting the awls, another, a^2, for supporting the drivers, the third, a^3, for supporting the spanker and the top-lift holder, and the fourth being a dummy.

The head is revolved by means of the dial a^5 and arms a^6, and is locked to the cross-head by the bolt a^7. Upon the rear end of the revolving-head shaft a^8, which secures the head to the cross-head, is the bevel-gear *b*. This bevel-gear meshes with a bevel-gear, b', on the shaft B, and it has a long bearing-hub, b^2, (see Fig. 5,) which extends through the box b^3, and is supported therein by the shoulder b^4. This box b^3 is made in two parts, b^5 b^6. The inner part, b^6, is fastened by the arms b^9 to the cross-head A. The outer part or cup, b^5, is bolted by bolts b^7 to the inner part, b^6. The gear b' and its hub are adapted to slide upon the shaft B, which extends upward from the sleeve *c* of the nail-holder plate C, and the long spline b^8 upon the shaft insures its revolution upon the turning of the bevel-gear. This construction or an equivalent construction is necessary when the revolving head is connected with the templet and nail-holder plates, because the revolving head has a reciprocating movement in relation to the nail-holder and templet plates.

The nail-holder plate C and the templet-plate D are revolved by the shaft B upon the

revolution of the revolving head *a*, and when awls, drivers, and a spanker are used it is desirable that the plates be given substantially these movements: First, the templet must be moved into position over the jack and under the gang of awls, and, second, after the reciprocation of the awls the nail-holder must be moved into position over the templet to feed the nails thereto. After the reciprocation of the drivers the templet and nail-holder must be moved from over the heel to permit the reciprocation of the spanker. In order to obtain these movements in an easy and economical way, I have provided what might be called a "double-ender" templet-plate—that is, a templet-plate adapted to carry two templets, *d d'*, which preferably are arranged at opposite ends of the plate.

The nail-holder plate C differs from the templet-plate in that it carries or supports but one nail-holder, *c'*. The templet-plate D has the downwardly-extending sleeve d^2, which surrounds the post E, and has not only a revolving movement, but also a vertical movement thereon, as hereinafter described. The nail-holder plate C has the downwardly-extending sleeve *c*, that fits into the hole *e* in the post E, and the shaft B extends through a hole in the nail-holder plate C through the sleeve, so as to provide a bearing of reasonable length. The nail-holder plate C is keyed or rigidly fastened to the shaft B, and it also has formed therein in its under surface the T-shaped recess c^2, which receives the T-headed bolt or stud c^3, which fastens the plate C to the plate D, so as to prevent a vertical movement of the plate C in relation to the plate D, but not so as to prevent the free revolution of the plate D, the T-shaped recess c^2 being circular in shape.

It will be seen from the description already given that the revolution of the revolving head causes the revolution of the plate C. To also revolve the templet or pressure plate D it is necessary to connect or lock the two plates together at a given position, and that position is immediately after the nail-holder plate is moved to feed its nails to the templet preparatory to their being driven, and the plates continue locked until the lock is disengaged to permit the independent movement of the nail-holder plate. This locking mechanism is shown in Figs. 3 and 4, and it comprises the bolt F, supported in the sleeve *f*, carried by the upper plate, C, and pressed downward by the spring *f'*. This bolt locks at the intervals I have named the two plates by entering one of the two holes, f^2, in the pressure or templet plate D, and this hole preferably is made flaring at its lower end, f^3. When the templet-plate is moved into operative position, it and the nail-holder plate occupy the position shown in Figs. 5 and 6, and before the descent of the awls the nail-holder plate and templet are locked together by the bolt F. Upon the descent of the awls, however, the plates D and C are moved downward upon the downward movement of the cross-head by the contact of the downwardly-moving awl-holder block with the templet or pressure plate, and this vertical movement of the plates causes the unlatching and locking stud f^4 (see Fig. 4) to push the bolt F upward in the sleeve *f*, so that it is disengaged from the plate D, and the stud f^4 takes its place and prevents the plate D from being revolved.

The stud f^4 is supported by an upwardly-extending bracket or post, f^6, fastened to the base of the post E, (shown at the left of the sleeve d^2 in Fig. 1,) and the upper end of this post f^6 is shown in section in Fig. 4. It has the cross recess or hole f^7 and a hole for the reception of the vertical stud or pin f^4. This stud is fastened in place by the locking-screw f^8, and it is vertically adjustable in the post f^6 by the screw f^9, the head of which projects into the recess f^7. As this locking stud or post is stationary, it follows that upon the downward movement of the templet or pressure plate D and the nail-holder plate C in relation thereto, if the hole f^2 is in line therewith, the locking-bolt F will come in contact with and be supported by the post or stud f^4, which will take its place in said hole, so that the plate D is held locked in a stationary position while the bolt F has been, by the movement of the plates C D, caused to unlatch the two plates, so that the upper plate, C, can be revolved; or, in other words, the stud or post f^4 unlatches the device, locking the plates C D together, and at the same time locks the plate D.

The catch *g*, (see Fig. 3,) when the plates are depressed, shuts upon the projection or latch G and holds the plates depressed after the awls have been driven and before the drivers are reciprocated. The templet-plate D being thus locked in place, the next partial revolution of the revolving head to remove the awls and bring the drivers into operative position causes only the revolution of the nail-holder plate C, which is moved from the position shown in Figs. 5 and 6 to the position shown in Figs. 7 and 8, when the bolt F enters another bolt-hole, f^5, in the templet or pressure plate D, which is the equivalent of the bolt-hole f^2, but which is oppositely arranged in said plate in relation thereto, so that upon making a half of a revolution the bolt F will enter the hole f^2, and at the end of the next half-revolution will enter the bolt-hole f^5. This additional bolt-hole f^5 is shown in Figs. 6 and 7 in dotted lines. The two plates are therefore again locked together, and after the reciprocation of the drivers and the release of the catch *g* the two plates are automatically moved upward by mechanism hereinafter described, and this releases the lower plate, D, from the latch f^4 and permits the partial revolution of the head to bring the spanker into operative position to move both plates C D together, and they are thus moved a quarter of a revolution, or to the position shown in

Fig. 9. The spanker is then reciprocated, and upon the partial revolution of the cross-head to bring the awls again into operative position the two plates, still being locked together, are moved together from the position shown in Fig. 9 to that represented in Fig. 6, which brings the bolt F over the unlatching pin f^4 again.

To move the plates downward by hand, and also to unlatch the catch g, I use a lever, H, which is pivoted (see Fig. 1) at h to the post E, and which is connected with the sleeve d^2 of the plate D by means of the link h' and the collar h^2, which extends about the sleeve in the recess h^3, formed therein by the ribs h^4, so that the sleeve can turn therein. As the sleeve turns, it is of course necessary to provide it with two latches G, and they are well shown in Fig. 3.

To raise the plates automatically I have extended the arm of the lever backward, as represented at h^5, and suspended therefrom the weight h^6, which is sufficiently heavy to lift the plates automatically through the link h' when the catch g is thrown off. The catch g is formed on the end of the lever g'. This lever is pivoted at g^2 to the post, and is moved by a lateral or sidewise movement of the lever H, the upper end, H', of which is hinged to the lower portion at h^7, and which has an arm, h^9, which engages the arm g^4, which extends upward from the rod g^3, as represented in Fig. 3, and forms a connection between the lever H and the lever g'. This arm g^4 is so placed that upon the lateral movement of the lever H to the right the catch g is disengaged. A spring, g^5, which surrounds the rod g^3, throws out the lower end of the lever g', when the lever H is not engaged with the projection g^4. An adjustable stop, h^{10}, limits the extent of the upward movement of the lever H. The templet $d\ d'$ and the nail-holder c are made circular in form, with a shoulder to fit recesses of corresponding shape in the two plates, and they are secured in place by means of a clamp, M. This clamp is the same on each plate, and is formed by making the front portions, m, which surround the opening for the reception of the plates, somewhat narrow, so that there shall be sufficient spring to the metal to allow, when separated by being slit apart upon the line m', a sufficient movement to clamp the templet or nail-holder rigidly in place. These two sections or jaws m have each the projection m^2, in which is formed a screw-hole, m^3, and a bolt, m^4, draws the two parts firmly together and clamps them upon the templet or nail-holder disk, as the case may be.

The nail-holder plate has arranged across its bottom at its outer end a dovetail recess, n, (see Fig. 1,) in which is fitted a sliding plate, n', perforated to correspond with the perforations or holes in the nail-holder. This plate is moved by the spring n^2, secured to the edge of the nail-holder plate, and the pin n^3, projecting upward from the plate n', and against which the spring is brought in contact to close the holes in the nail-holder, and the plate is moved to open the holes when the nail-holder is brought over the templet to unload the nails by means of the arm n^4, (see Fig. 3,) which projects outward from the bracket n^5, bolted to the side frame, A', of the machine. The end n^6 comes in contact with the end of the arm n^4 while the nail-holder is being moved into position over the templet, and is held thereby while the nail-holder is advanced, so that when the nail-holder comes to rest its holes and the holes in the sliding plate are in line with the holes in the templet. When the templet is moved into position over the jack, it is somewhat higher than this arm n^4, because it has not been moved down by the lever H or by the driving of the awls. This position is well shown in Fig. 3. Upon the downward movement of the templet, however, its position in relation to the arm n^4 is changed to that represented in Fig. 8, so that the end of the arm n^4 comes in line with the sliding plate n' of the nail-holder. After the nails have been driven the templet is unlatched and allowed to move upward, when it resumes the position shown in Fig. 3, and when revolved it passes over the arm n^4.

I do not confine myself in this invention to the specific movements of the plates herein described, nor to the specific devices specified for operating them. Neither do I confine the invention to the movements of the templet and nail-holder herein specified, the principal object of the invention being to provide the nail-holder and templet with movements determined by the movement which brings the awls, drivers, and spanker, or any two of them, into operative position, so that the act of bringing them into position before their reciprocation shall bring its corresponding part, whether templet or nail-holder, or both, also into operative position, and which, when a reciprocating spanker is used, shall also move them out of operative position to permit of the movement of the spanker.

It is obvious that if the nail-holder plate is not provided with the bolt or latching device by which it is locked to the templet or pressure plate the templet or pressure plate will not be revolved by the devices herein specified, and I desire it to be understood that the machine can be so operated without departing from the spirit of my invention. Of course, when this form of construction is employed, the templet or pressure plate will be secured to its supporting-post by a fast feather, which shall prevent it from being revolved. It will, however, have a vertical movement, and will be in all respects like the templet or pressure plate herein specified, with the exception that it is not revolved.

In operation the boot or shoe to be nailed is placed upon the jack and moved into position. The awls are brought into operative position, and their movement to this position

causes the templet also to be brought into operative position. The heel-blank is then placed, the awls reciprocated, and the templet moved down upon the heel and locked in that position by the catch *g*. The awls are then moved out of operative position and the drivers into operative position, and that act causes the nail-holder to be moved from an inoperative to an operative position, and the nails to be discharged automatically into the templet. The drivers are then reciprocated and the nails driven. The latch G is then released and the templet and nail-holder automatically moved upward, and if a reciprocating spanker is used both templet and nail-holder are moved out of operative position upon the movement of the spanker into operative position. The movement of the spanker out of operative position and the awls into operative position brings the templet into operative position again.

It will be observed that by making the movement of the templet and nail-holder dependent upon the movement of the awls and drivers, or awls, driver, and spanker, the parts necessary to be brought into or out of operative position are simultaneously actuated, and that it is impossible to move the awls or drivers or spanker into or out of operative position without moving into or out of operative position the plates which are designed to be employed or not to be employed therewith, and that consequently there is no liability of breakages because of the difference in operation of the various parts.

It will also be observed that this construction changes the condition of the operation of running the machine from that of the "National Machine," so called, in that the movement of the plates is taken from the boy or attendant and brought entirely within the control of the operator, thus relieving the boy from the responsibility of moving the plates and giving him more time to feed nails and top lifts, while at the same time the operator's work is not increased in the National machine, because he moves the plates at the same time and with the same motion before employed in moving the awls, driver, and spanker into and out of place.

It is of course obvious that the templet and nail-holder, or either of them, may be operated by the operator from the front of the machine without turning or moving the awls or drivers—that is, when only the awls are used, as in a pricking-machine, or drivers only, as in certain kinds of nailing-machines, the awls or drivers would not be movable upon the cross head or shaft a^8, but would be stationary, while full control of the plates, or either of them, would be given the operator.

It will be observed that in every stationary position of the plates, with either the awls, drivers, or top-lift spanker in operative position, they are locked by the bolt a^7 and the dial a^5, and that when the templet is moved down it is also continually locked by the bolt f^4.

The lever H H′ may be provided with a spring, h^8, to throw the upper end, H′, back automatically to a straight position after it has been moved to disengage the catch *g*. For feeding top lifts to the top-lift holder when in an inverted position, I have arranged upon the upper plate, C, a plate, *o*, which slides in guides *o*′, formed by the guide-plates o^2, which are fastened to the said plate C. The end o^3 of this plate is V-shaped, as shown, or rounded out, and there is attached to its under surface a thin plate, o^4, which preferably has the spring-plate o^5 formed therein, and which is operated as hereinafter specified. I may also use for properly locating a top lift on the plate o^4 the spring-arms o^6.

In operation the top lift is placed upon the plate o^4, with its rear end against the portion o^3, and the plate *o* moved forward under the top-lift holder, and thereby causing the top lift to enter between the spring-arms of the top-lift holder, which retain it on the backward movement of the feeder. As the top lifts vary in thickness, I have found it desirable to add to the plate the spring-plate o^5, which, by means of the projection o^7, is caused upon its inward movement to lift the top lift upward against the spanker-block or upper surface of the holder as it is being pushed into position.

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

1. In a heel-nailing machine, the combination of a templet, a gang or group of awls, a gang or group of drivers, a shaft, and operating mechanism connecting the cross-head and templet, whereby upon the movement by the operator of the awls into operative position or the drivers out of operative position the templet is moved automatically into and out of position while the cross-head is at rest, all substantially as and for the purposes described.

2. In a heel-nailing machine, the combination of a templet-plate, D, having a templet, a gang of awls, a gang of drivers, and a spanker adapted to be brought successively into operative position, a shaft, and operating mechanism connecting the cross-head and templet, whereby upon the movement by the operator of the awls, drivers, and spanker into operative position the templet is automatically moved into and out of operative position, and while the cross-head is at rest, all substantially as and for the purposes described.

3. In a heel-nailing machine, the combination of a nail-holder, *c*′, a gang of awls, and a gang of drivers adapted to be brought successively into the same operative position, a shaft and operating mechanism connecting the cross-head and nail-holder, whereby upon the movement of the awls out of position and the drivers into position, and while the cross-head

is at rest, the nail-holder is brought automatically into operative position, substantially as described.

4. The combination of the nail-holder c', a gang of drivers, and a top-lift spanker adapted to be brought into the same operative position, a shaft, and operating mechanism connecting the cross-head and nail-holder, whereby upon the movement of the drivers into and out of position, and while the cross-head is at rest, the nail-holder is also moved automatically into and out of position, all substantially as and for the purposes described.

5. The combination of the nail-holder, a gang of drivers, and a spanker adapted to be moved successively into the same operative position, a shaft, and operating mechanism connecting the cross-head and nail-holder, whereby upon the movements of the drivers into and out of operative position, while the cross-head is at rest, the nail-holder is moved automatically into and out of operative position, all substantially as and for the purposes described.

6. The combination of a movable templet, a handle or other device within the reach of the operator, a shaft, and operating mechanism connecting the handle with the templet, whereby the templet is moved into and out of position by the operator, all substantially as and for the purposes described.

7. The combination of the nail-holder, the handle or handles a^6, a shaft, and operating mechanism connecting the handle with the nail-holder, whereby upon the movement of the handle or handles the nail-holder is moved into or out of operative position by the operator, all substantially as and for the purposes described.

8. The combination, in a heel-nailing machine, of a gang or group of drivers, a nail-holder, the handle or handles a^6, a shaft, and operating mechanism connecting the handle or handles and the nail-holder, whereby the nail-holder is moved into and out of operative position with the drivers by the operator, all substantially as and for the purposes described.

9. The combination of the templets d d', a gang or group of awls, and a gang or group of drivers, a shaft, and operating mechanism connecting the cross-head and the templets, whereby the templets are successively brought into and out of operative position and used, all substantially as and for the purposes described.

10. The combination of the templet-plate D, the nail-holder plate C, and automatic latching devices, a gang or group of awls, a gang or group of drivers, a shaft, and operating mechanism connecting the cross-head and templet-plate, whereby the nail-holder plate is locked to the templet-plate and moved therewith at stated intervals, all substantially as and for the purposes described.

11. The combination of the templet-plate D, the nail-holder plate C, and automatic latching devices, a gang or group of awls, a gang or group of drivers, a top-lift holder, a shaft, and operating mechanism connecting the cross-head and templet and nail-holder plates, whereby the nail-holder plate is locked to the templet-plate and moved therewith at stated intervals, all substantially as and for the purposes described.

12. The combination of the templet-plate D, nail-holder plate C, automatic latching mechanism, a gang or group of drivers and means for reciprocating them, the handle or handles a^6, a shaft, and operating mechanism connecting the cross-head with the templet-plate, whereby upon the movement of the handles the templet and nail-holder plates are moved into and out of operative position, all substantially as and for the purposes described.

13. The combination of the nail-holder c', the handle or handles a^6, a shaft, and operating mechanism connecting the handle or handles and the nail-holder, and an automatic locking device for locking the plate in operative position, all substantially as and for the purposes described.

14. The combination of the templet, the handle or handles a^6, a shaft, and operating mechanism connecting the handle or handles and the templet, and automatic locking mechanism for locking the templet in operative position, all substantially as and for the purposes described.

15. The combination of the templet-plate D, the nail-holder plate C, and automatic locking and unlocking devices, all substantially as and for the purposes described.

16. The combination of the revolving templet D, having a vertical movement, and the bolt f^4, whereby upon the downward movement the templet is locked in position, all substantially as and for the purposes described.

17. The combination of the nail-holder plate C with a gang or group of awls and a gang or group of drivers, a shaft, and operating mechanism connecting the cross-head with the nail-holder and vertically movable upon the shaft, whereby a movement of the drivers into operative position causes the movement of the nail-holder and permits the reciprocation of the cross-head and without disengagement of the connecting mechanism, all substantially as and for the purposes described.

18. The combination of the bevel-gear b', carried by the cross-head A, and revolved substantially as described, with the shaft B, upon which said gear b' is vertically movable and to which it is splined, and which shaft operates the nail-holder plate C and templet-plate D, or either of them, all substantially as and for the purposes described.

19. The combination of the revolving head a, its shaft a^8, bevel-gear b', carried by the cross-head A, shaft B, and nail-holder plate C, all substantially as and for the purposes described.

20. The combination of the shaft B, adapted to be revolved, as specified, with the nail-holder plate C, having the sleeve *c*, and the post E, all substantially as and for the purposes described.

21. The combination of the post E, having the cylindrical hole *e*, with the nail-holder plate C, having the circular projection $c^{\times}$, which fits said hole *e*, all substantially as and for the purposes described.

22. In a heel-nailing machine, the combination of the templet or pressure plate D, having the sleeve d^2, fitting the round post E, with said post, all substantially as and for the purposes described.

23. The combination of the round post E, the templet-plate D, sleeve d^2, the collar h^2, the lever H, and link h', all substantially as and for the purposes described.

24. The combination of the templet D, having the sleeve d^2, the link h', lever H, and weight h^6, all substantially as and for the purposes described.

25. In a heel-attaching machine, the combination of the templet-depressing lever H and the stop h^9, all substantially as and for the purposes described.

26. The combination of the templet D, sleeve d^2, catch *g* upon the sleeve, latch G, and lever H, having its handle extended forward so that it may be operated from the front of the machine, all substantially as and for the purposes described.

27. The combination of the templet D, the latch G, the lever H, having vertical and horizontal movements whereby the templet is moved vertically or the latch G disengaged, all substantially as and for the purposes described.

28. The combination of the catch *g*, latch G, and lever H, all substantially as and for the purposes described.

29. The combination of the templet-plate and sleeve d^2, adapted to be revolved upon the post E, its latch G, and catch *g*, all substantially as and for the purposes described.

30. The combination of the templet or nail-holder plate with a removable templet or nail-holder and clamping mechanism for locking the templet or nail-holder, substantially as described.

31. The combination of a templet or nail-holder plate having two clamping-jaws, and means for moving one or both of them laterally in relation to each other, all substantially as and for the purposes described.

32. A nail-holder plate having a recess, *n*, cut across the same, and a sliding plate, n', adapted to be moved transversely to cover or uncover the holes in the nail-holder, all substantially as and for the purposes described.

33. The combination of a nail-holder plate having a sliding perforated plate, n', and a removable nail-holder, all substantially as and for the purposes described.

34. The combination of the nail-holder sliding plate n', the spring n^2, and the arm n^4, all substantially as and for the purposes described.

35. The combination of the plate C, the circular recess c^2, with the plate D and the connecting T-headed bolt or downhold c^3, all substantially as and for the purposes described.

36. The templet or nail-holder having a lateral projecting flange, as and for the purposes described.

37. The combination of a templet or nail-holder plate having a shoulder, recess, or hole, in combination with a removable templet or nail-holder having a flange which closes upon or against the said shoulder, all substantially as and for the purposes described.

38. The combination of the top-lift holder with the sliding plate *o* and the supporting-plate o^4, all substantially as and for the purposes described.

39. The combination of the top-lift holder with the sliding plate *o* and supporting-plate o^4, provided with the movable portion o^5, all substantially as and for the purposes described.

40. The combination of a sliding feeder, the spring-arms o^6, and the top-lift holder, all substantially as and for the purposes described.

41. The combination of the revolving plate C, the top-lift holder and the top-lift feeding device carried by said revolving plate, all substantially as and for the purposes described.

42. In a heel nailing or attaching machine, the combination of the post or support f^6, the locking post or stud f^4, and the screws f^7 f^8, for adjusting the vertical position thereof in relation to the post, all substantially as and for the purposes described.

43. In a heel-nailing machine, a top-lift carrying or feeding device comprising the horizontally-movable plate, and means for holding a top lift thereon, comprising yielding edge-bearing devices or arms adapted to rest or bear against the sides of the top lift, and a shoulder or abutment against which the heel end of the lift is held while it is being fed, all substantially as described.

44. The combination, in a heel-nailing machine, of a heel-support, a reciprocating top-lift spanker, and a horizontally-movable top-lift feeder arranged to feed the top lifts to the spanker between it and the heel-support, all substantially as and for the purposes described.

45. The combination, in a heel-nailing machine, of a heel-support, a templet, the nail-driving devices, a spanker, and a top-lift feeder adapted to feed the top lift to the spanker after the driving devices have been operated and after the spanker has been brought into position over the heel-support, all substantially as described.

46. The combination, in a heel-nailing machine, of a support for the boot or shoe, a spanker having a gage for determining the position of the top lift thereon, a sliding top-lift feeder or carrier, devices for locating the top lift centrally on said feeder or carrier and for

holding the top lift thereon while it is being presented to a top-lift spanker and its gage, comprising the side-bearing arms and a back-bearing piece or block, all substantially as described.

47. The combination, in a heel-nailing machine, of a support for the boot or shoe, a top-lift spanker having a gage for determining the position of the top lift, the top-lift feeder adapted to feed the top lift to the spanker while it is in position over the heel-support, and arms for holding the top lift centrally by its edge to the spanker while the spanker is being reciprocated, all substantially as described.

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Witnesses:
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