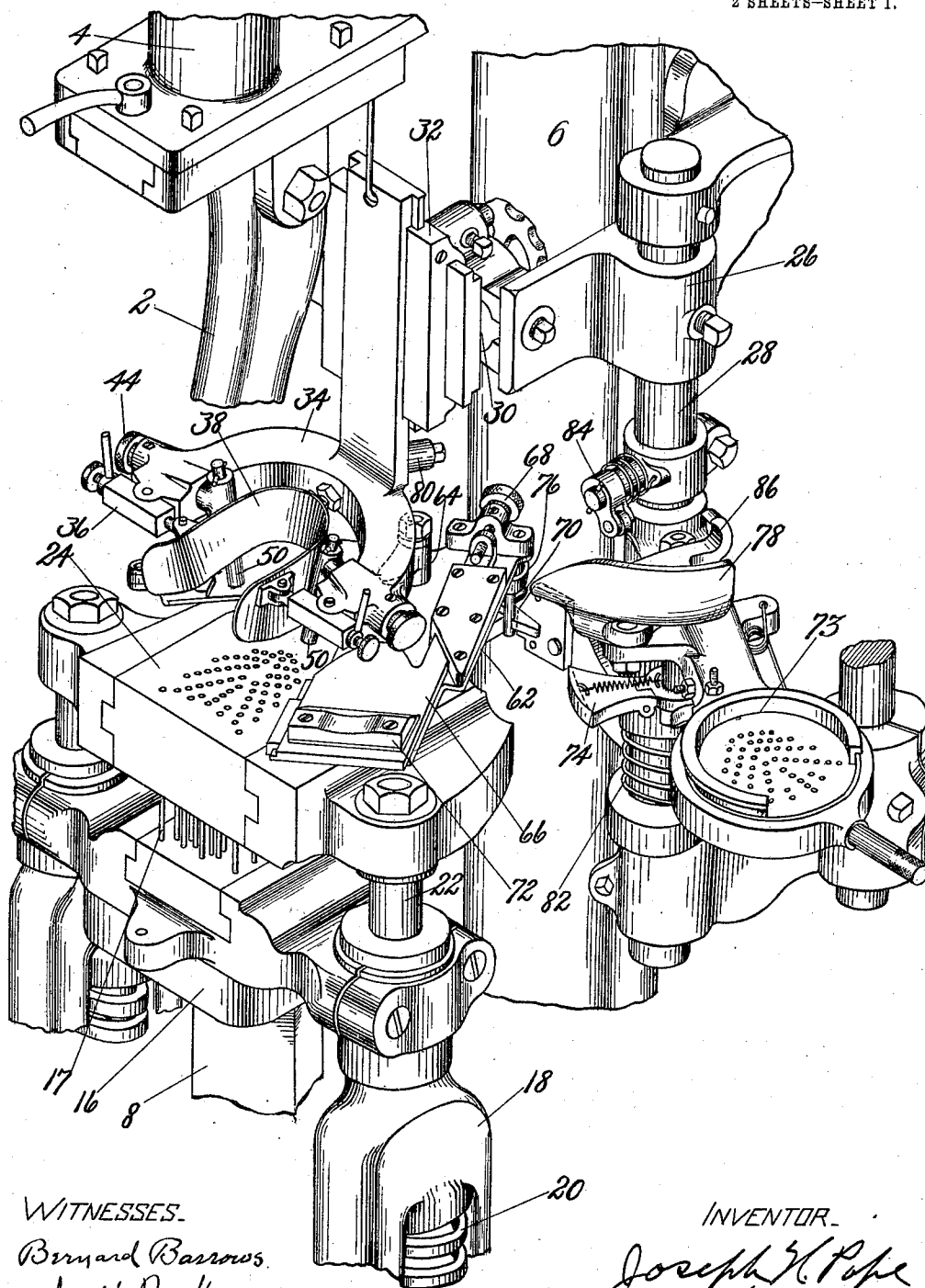


J. H. POPE.
MACHINE FOR ATTACHING HEELS.
APPLICATION FILED AUG. 9, 1906.

1,030,680.

Patented June 25, 1912.

2 SHEETS—SHEET 1.



WITNESSES.

Bernard Barrows.
John H. Ruckman

Fig. 1.

INVENTOR.

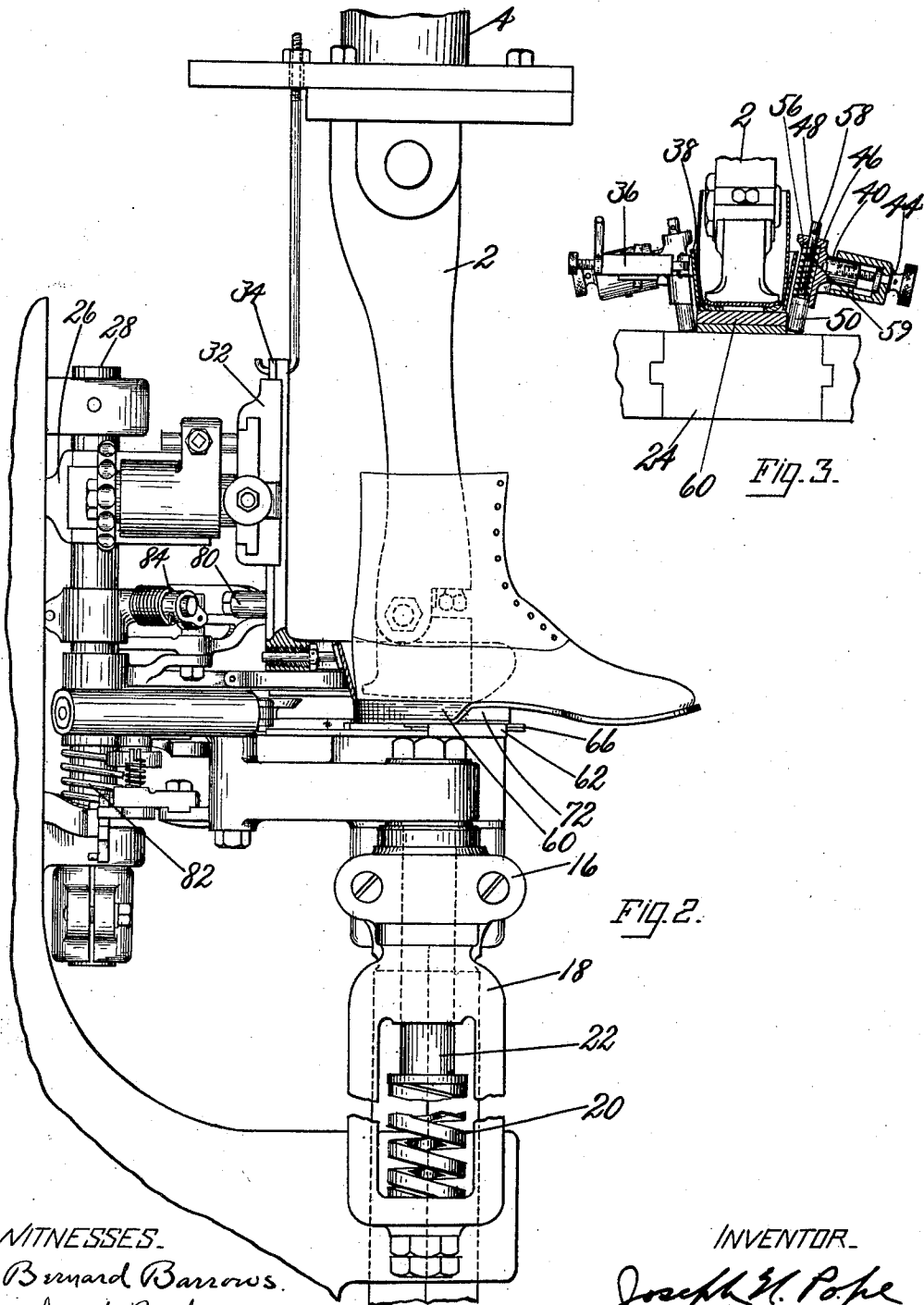
Joseph H. Pope
By his Attorney,
Nelson & Howard

J. H. POPE.
MACHINE FOR ATTACHING HEELS.
APPLICATION FILED AUG. 9, 1906.

1,030,680.

Patented June 25, 1912.

2 SHEETS—SHEET 2.



WITNESSES.

Bernard Barrows.
John H. Ruckman.

INVENTOR.

Joseph H. Pope
By his Attorney,
Vernon L. Howard

UNITED STATES PATENT OFFICE.

JOSEPH H. POPE, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR ATTACHING HEELS.

1,030,680.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed August 9, 1906. Serial No. 329,895.

To all whom it may concern:

Be it known that I, JOSEPH H. POPE, a citizen of the United States, residing at Brockton, in the county of Plymouth and
5 Commonwealth of Massachusetts, have invented certain Improvements in Machines for Attaching Heels, of which the following description, in connection with the accompanying drawings, is a specification, like
10 reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for attaching heels, and more particularly to machines for attaching the heels of spring-heel
15 shoes.

According to a mode of manufacture of spring-heel shoes now commonly practised, the outersole is secured to the shoe at the forepart and the shank by stitches and at
20 the heel by nails. The stitches usually terminate at approximately the breast of the heel where the outersole is deflected or "sprung" to receive a heel blank or wedge adapted to give the required height to the
25 heel. The wedge is secured to the inner face of the outersole by cement or otherwise before the sewing operation, and after sewing, the heel part of the outersole with the wedge secured thereto depends loosely from the
30 shoe and is then attached to the shoe by nails commonly driven through the heel into the heel-seat.

Heretofore in nailing spring-heels it has been found difficult to leave the outersole
35 in the condition desired at the junction of the heel and shank portion. The appearance of the work has been frequently marred at this point by the presence of a crack caused by failing to bring the outersole closely in
40 contact with the breast of the wedge. Even if the outersole has been originally so molded as to fit closely against the wedge, the pressure applied to the tread face of the heel in nailing causes the breast part of the outersole to be forced away more or less from the
45 wedge. Moreover the strain upon the shank part of the outersole in nailing the heels is frequently sufficient to strain the stitches at this point and cause this part of the outersole to stand away from the parts with
50 which it should lie closely in contact.

My invention is concerned more particularly with the construction of a machine which will permit heels of the class above
55 referred to to be nailed without the occur-

rence of disadvantageous effects such as those mentioned.

The present embodiment of the invention is shown as an improvement upon the machine shown in United States Letters Patent
60 No. 1,017,778, granted Feb. 20, 1912, although features of that machine are shown somewhat modified. It will be understood, however, that as regards its more important
65 features this invention is applicable to other types of machines. The machine shown in said Letters Patent permits a group of nails to be inserted in the heel of a spring-heel shoe at one operation, the heel being held firmly
70 against the heel-seat by clamping these parts between a jack and nail block and the attaching nails being driven through the heel into the heel-seat by a group of drivers. In
75 the operation of inserting nails the nails are driven in part way by the drivers, the operation being completed by interposing a spanker plate between the heel and nail
80 block and effecting relative movement of the jack and nail block to spank the nails even with the face of the outersole.

According to the present embodiment of the invention, I provide a shaping device for supporting and molding the breast of the heel in the spanking operation, said device
85 being arranged to force the outersole closely against the breast of the wedge in such a manner that the outersole at this point is left in close contact with the wedge. If desired this device could be employed at other points
90 in the operation of attaching the heel—e. g. when the nails are first driven into the heel—but I have found that to secure the best results the breast of the heel should be acted upon at or near the end of the attaching operation.
95

The shaping device shown consists of a block upon the face of the spanker plate, said block being approximately the height
100 of the heel, and having an inclined face arranged to engage the breast of the heel, and a transversely curved upper face to engage the shank of the shoe. It is desirable that the tread face of the heel be flat and the line
105 of junction of the tread face and breast be straight and sharply defined, hence in the machine shown the nail block and the spanker plate have flat acting faces, and the inclined face of the shaping device is also flat.

The breasts of heels, in nailing spring- 110

heel shoes on a machine of this type, will not always have the same position in the machine. This may be occasioned for example by variations in size of form of the shoes to be nailed or by variations in size of the heel wedges, which sometimes fail to be of the exact size required. To secure the best results, the breast of the outsole should be forced firmly against the breast of the wedge and if the support for the breast of the heel is not positioned correctly this effect is not secured and the quality of the work is impaired. The present invention accordingly preferably includes provision whereby the position of the support for the breast of a heel may be varied. In the machine shown the block, which forms a support for the breast of the heel, is adjustable in the direction of the length of the shoe, so that its longitudinal position may be such as to secure the best results. Since the face of the spanker plate or that part which engages the tread of the heel is flat it will be seen that the plate itself may be adjusted, and the block rigidly secured to the plate and such an arrangement is accordingly herein illustrated. It is also desirable that provision be made for accommodating heels of different heights. While a slight variation in height of heel may not necessitate change in height of the shaping device, if the height of heel is much changed it tends to produce more satisfactory results to alter the height of the shaping device to correspond to the height of heel. Accordingly in the present machine the shaping device is arranged to permit its height to be varied. According to the construction shown, the shaping device is made sectional so that its height may be varied by adding or taking away a section, but it will be understood that the result desired may be secured in other ways.

Other features of the invention will be hereinafter described and pointed out in the claims.

In the drawings, Figure 1 is a view in perspective of the more important parts of a machine embodying my invention; Fig. 2 is a view in side elevation of the portion of this machine shown in Fig. 1; Fig. 3 is a vertical sectional view showing details.

The machine illustrated comprises a jack 2 pivotally sustained by a spindle 4 held in vertically adjustable position on the frame of the machine. A spindle 8 is mounted to slide in guideways upon the machine frame and is vertically reciprocated by actuating means under the control of the operator. A head 16 carrying drivers 17 is secured to the upper end of the spindle 8. The head 16 carries, secured to its opposite ends, guides 18 and sustained in the lower ends of said guides are strong springs 20, said springs receiving through them reduced

portions of rods 22 fitted to slide in bearings in the head 16, the lower portion of the rods being extended through the guides 18, said springs acting at their upper ends upon shoulders on the rods 22. Secured to the upper ends of the rods 22 is a nail block head carrying a nail block 24 provided with holes in line with the drivers 17.

The machine, as regards its general organization thus far described, is the same as that shown in Letters Patent of the United States, No. 694,656, dated March 4, 1902.

As is well known, in the operation of this machine as the spindle 8 is lifted the driver head 16 and nail-block 24 rise in unison until the upper side of the heel meets the heel-seat of the shoe held on the jack. After the pressure of the nail-block on the heel has been exerted to the proper amount, measured by the springs 20, the nail-block is stopped. The driver head continues to rise, sliding upwardly on the rods 22 and compressing the springs 20, the upward movement of the drivers independently of the nail-block causing the drivers to act against the heads of the nails in the block to drive them from the block into the heel.

A block 26 is secured to a rod 28 rigidly carried by the frame 6. The block 26 is provided with a horizontal guideway to receive a member 30 which carries at its outer end in horizontally adjustable position a block 32. The block 32 is provided with a vertical guideway to receive the stem of a bracket 34. The bracket 34 is provided with branches extending on opposite sides of the normal position of the jack. Pivotally secured to the outer ends of the bracket 34 are members 36, to the inner ends of which a band clamp 38 is pivotally attached. The members 36 are adjustable to permit their effective length to be varied to change the width of the band clamp. It will be understood that the band clamp 38 is mounted to have a limited movement between the branches of the bracket 34, in the direction of movement of the jack 2. After a shoe is received in the band 38 further inward movement of the jack causes the members 36 to force the sides of the band toward each other and thus firmly clamp the shoe between them.

Adjacent to each end of the branches formed upon the bracket 34, slides 40 are adjustably arranged in sockets formed in said branches. Said slides 40 are independently adjustable in an approximately horizontal direction, held from rotation in said sockets and are approximately perpendicular to the path of the jack. The longitudinal position of the slides 40 is controlled and varied by thumb screws 44. The inner ends of the slides 40 are provided with guideways 46 adapted to receive rods 48.

Springs 56 within said guideways 46 are provided to maintain the rods 48 in their lowermost position, the downward movement of these rods being limited by pins 58 in said rods 48, bearings on the guideways 46. The guideways 46 are inclined inwardly, as shown in Fig. 3, so that upward movement of the rods 48 is in relatively diverging lines. The rods 48 are rotatably supported in the guideways 46 and the lower or acting portions of these rods constitute gages 50 which are circular in cross-section.

It may be desirable at times in the use of the machine, for example, when nailing shoes other than spring-heel shoes, to dispense with the use of the gages 50 and hence I have provided means to permit the rods 48 to be sustained in an elevated position in which the gages 50 lie within the guideways 46. A convenient arrangement consists in the provision of perforations 59 in the rods 48, located so that they will be above the upper end of the guideways 46, in the inoperative position of the gages 50. By inserting pins through these perforations the gages 50 are suspended in their ineffective position.

It will be understood that prior to the presentation of a shoe to the machine, the heel formed by the wedge 60 and the heel part of the outersole depends loosely from the shoe, the forepart of the outersole having been permanently secured to the shoe. Such a shoe having been placed upon the jack, or, in the event that the shoe is to be heeled upon a last, the last which carries the shoe having been placed upon a last support sustained by the jack, the shoe is swung into operative relation to the nail block. In this movement the shoe is embraced at the counter by the clamp 38, which, as is well known, serves to position and hold the shoe upon the jack. As will appear from Fig. 3, the clamp 38 engages the sides of the shoe closely adjacent to the outersole and accurately centers the shoe with relation to the jack. In the inward movement of the shoe the heel loosely hanging from the shoe engages the gages 50, these gages having been adjusted to fit the particular width of heel being nailed. The gages being symmetrically located with reference to the jack, it will be seen that if the heel on the shoe to be nailed happens to be displaced laterally it will be deflected into proper alinement with the heel-seat of the shoe by the action of the gages 50.

A carrier 62 is pivoted at 64 upon a stud on the nail block head, and is horizontally movable upon said head. The carrier 62 is provided with a spanker plate 66 longitudinally adjustable in guideways upon said carrier. The spanker plate may be adjusted upon said carrier by a thumb screw 68. The carrier 62 is actuated in the ma-

chine shown in the same manner as the toplift and heel carrier shown in said Patent No. 694,656, means being provided tending to move said carrier into operative position in which the spanker plate is in line with the heel of the shoe, and a latch 70 being arranged to hold said carrier in inoperative position, said latch being automatically released at the proper point in the cycle of operations, as disclosed in said patent.

A nail loader 73 is pivoted upon the rod 28 to swing in over the nail block 24 and deliver nails thereto. An actuator 74 upon the loader arm engages an abutment 76 upon the carrier 62 in the inward movement of the loader arm and moves the carrier into inoperative position. In the inward movement of the loader arm it moves beneath the bracket 34, said bracket being elevated in said movement by a cam 78 upon the loader arm, engaging a roller 80 upon said bracket. The loader arm is vertically movable upon the rod 28, being sustained by a spring 82, and depressed at the end of its inward movement by a pivoted deflector 84 engaging an abutment 86 upon the loader arm. The mechanism for controlling the path of the loader arm is that shown in U. S. Letters Patent No. 876,626, granted January 14, 1908, this mechanism facilitating the supply of short nails to the nail block 24, and allowing the loader arm to be moved over the carrier 62 without striking any of the parts mounted on said carrier.

Arranged transversely of the upper or acting face of the spanker plate 66 is a block 72, removably secured to said plate. The block 72 is shown as formed of two sections so that its height may be varied by the omission of the lower section. The block 72 should be approximately the height of the heel to be nailed. The rear face of this block is inclined at approximately the angle of the breast of the heel, and the upper face of the block is concaved to fit approximately the shank of the shoe and is approximately horizontal in the direction of the length of the shoe. As will appear from Fig. 1 the rear face of the block 72 and the acting face of the spanker plate 66 are flat and meet at an angle.

In the operation of the machine shown the nail block having been supplied with nails, the spanker plate being in the position shown in Fig. 1 and the heel-seat and heel of the shoe being held in alinement as above described, the machine is started, the drivers and nail block rising to compress the heel upon its seat and then drive the nails. The gages 50 perform substantially the same function in positioning the heel as is possessed by the gages shown in said United States Letters Patent No. 1,017,778, above mentioned, and their action therefore, need not be described in detail. At the

close of the acting movement of the drivers, the nails are left with their ends exposed for a short distance, for example $\frac{1}{8}$ of an inch. In the downward movement of the nail block the latch 70 is tripped as described in said Patent No. 694,656, and the spanker plate is allowed to move into its operative position below the heel of the shoe. In the second upward movement of the nail block the spanker plate is forced against the heel of the shoe, and completes the driving of the nails, leaving them with their outer ends flush with the face of the heel. In this movement of the spanker plate the breast of the heel is engaged by the block 72, and the outersole forced into close contact with the wedge 60.

It will be seen that with the present machine not only is the tread face of the heel flattened but the breast portion also is molded or shaped in the spanking operation. As will appear from Fig. 2 the outersole, in order to fit closely against the wedge 60, and the shank part of the shoe, requires to be sharply deflected both at the line of junction between the tread and the breast of the heel and that between the breast of the heel and the shank part of the sole. The shaping device 72 coöperates with the flat face of the spanker plate to press the outersole firmly against the heel and the shank part of the shoe, and to shape or mold the outersole to the required contour. Not only is a crack between wedge and outersole prevented, but the breast of the heel is also made attractive in appearance, the lines of junction between the shank, the breast and the tread being sharply defined, and the breast and the tread of the heel being made flat and smooth.

It will be understood that the invention is not limited to the precise arrangement of parts shown. While the shaping device 72 is illustrated as extending for some distance toward the toe of the shoe, satisfactory results may be secured where it extends merely beyond the line of junction between the breast of the heel and the shank of the sole.

It is desirable that the shaping device 72 be of the proper height, for if too high the junction of breast and tread may not be acted upon and if too low the junction of breast and shank may not receive treatment. The provision for adjustment in height of said device is therefore an advantageous feature. As will be obvious the arrangement may be such if desired that a finer adjustment may be secured than is possible in the use of the construction shown.

A provision for varying the position of the shaping device 72 to accommodate different conditions is particularly desirable. This feature not only permits different sizes of shoes to be treated by the machine with-

out substitution of parts, but as above stated is also advantageous in permitting said device to be adjusted from time to time to secure the best results.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a machine of the class described, the combination with means for sustaining a shoe, and a pressure device, said sustaining means and pressure device being relatively movable to press upon the shoe a heel carried by the shoe, of a support carried by said device for engaging the breast of the heel, said support being arranged for adjustment longitudinally of the shoe.

2. In a machine of the class described, the combination with means for supporting a shoe and a pressure device, said supporting means and pressure device being relatively movable to press upon the shoe a heel carried by the shoe, and said device having a flat face to engage the tread of the heel, of a shaping device carried by said pressure device for engaging the breast of the heel, said shaping device being arranged for adjustment longitudinally of the shoe.

3. A machine for attaching the heels of spring heel shoes, having in combination, mechanism for attaching a heel to a shoe and means for simultaneously shaping the inclined breast of the heel arranged for adjustment to accommodate heels of different sizes.

4. In a machine of the class described, the combination of nail drivers for driving nails for a portion of their length into a heel, and means for simultaneously spanking the nails farther into the heel, until they are flush with the face of the heel, and molding another portion of said heel.

5. A machine for nailing spring-heel shoes having in combination, mechanism for driving nails for a portion of their length into a heel, and means for spanking the nails even with the face of the outersole and for simultaneously pressing the outersole into close relation to the wedge of the heel.

6. A machine for nailing spring-heel shoes, having in combination a shoe support and a pressure device arranged for relative movement to press upon a shoe a heel loosely carried by the shoe, a shaping device carried by said pressure device for engaging and molding the breast of the heel, and means permitting the position of said shaping device with relation to the breast of the heel to be varied.

7. A machine for operating upon spring-heel shoes, having in combination means for sustaining the shoe, a pressure device for pressing the heel of the shoe upon its seat, and a shaping device carried by the pressure device for molding the breast of the heel and the shank part of the sole, said shaping

device being arranged for adjustment in height to accommodate heels of different heights.

5 8. In a machine for attaching heels, a shoe support and a spanker plate arranged for adjustment longitudinally of the shoe carried by said support provided with a flat face to engage the tread of a heel and having a raised portion formed with an in-

clined face to engage the breast of said 10 heel.

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

JOSEPH H. POPE.

Witnesses:

BERNARD BARROWS,
H. DORSEY SPENCER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."