

J. H. POPE.  
HEEL PRICKING MACHINE.  
APPLICATION FILED SEPT. 4, 1915.

1,234,384.

Patented July 24, 1917.  
3 SHEETS—SHEET 1.

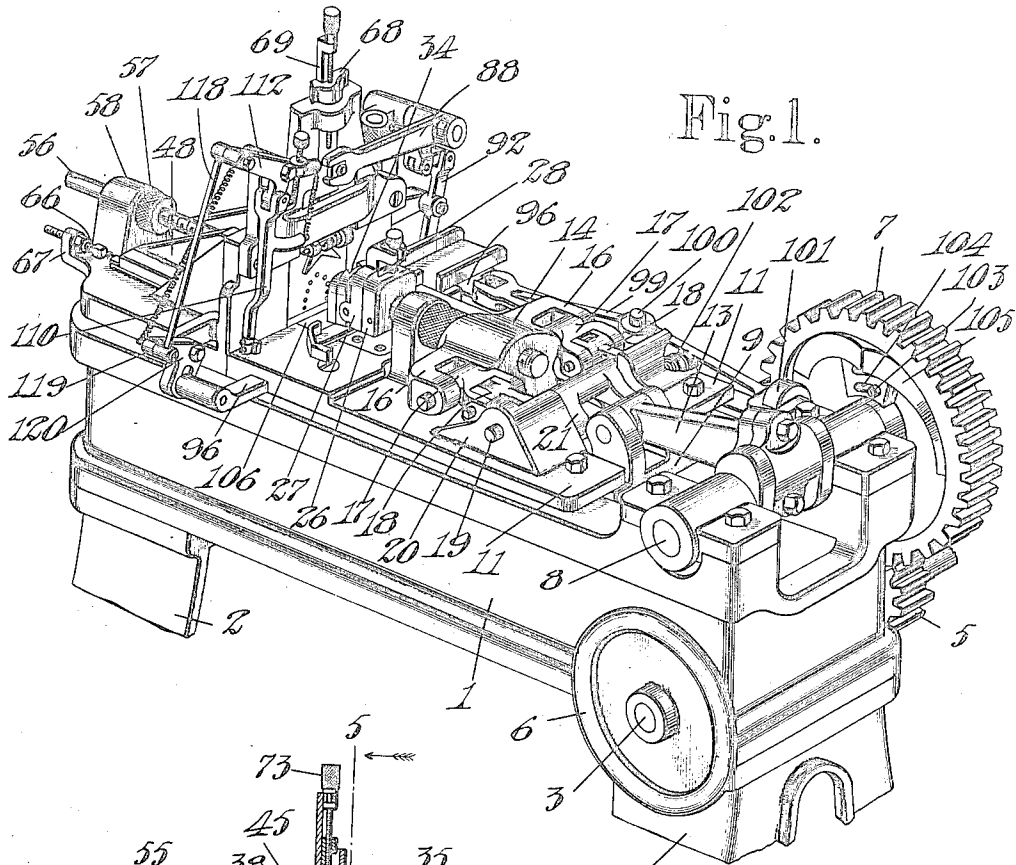


Fig. 1.

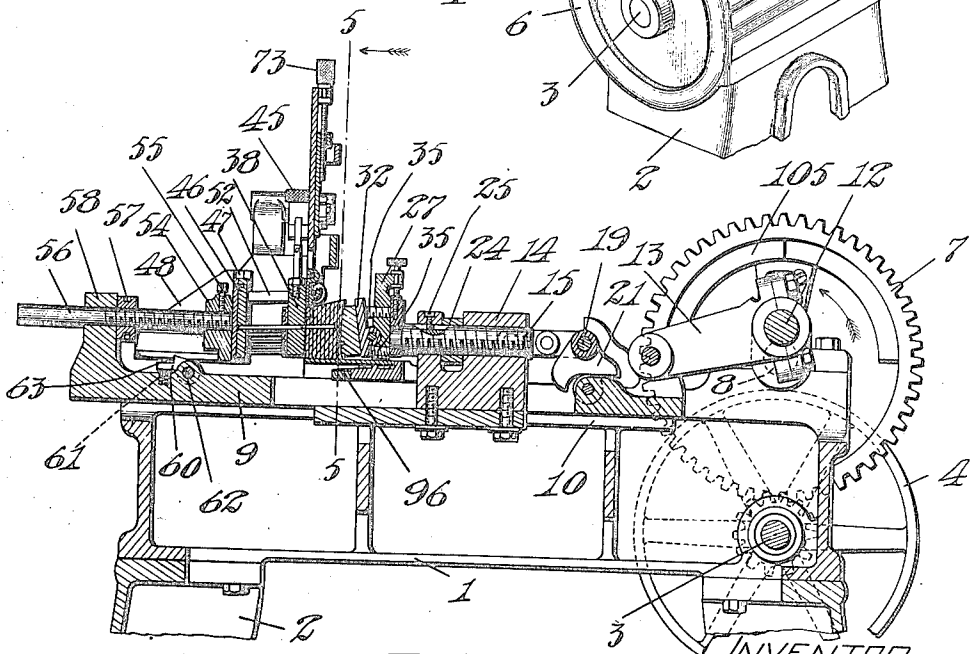


Fig. 2.

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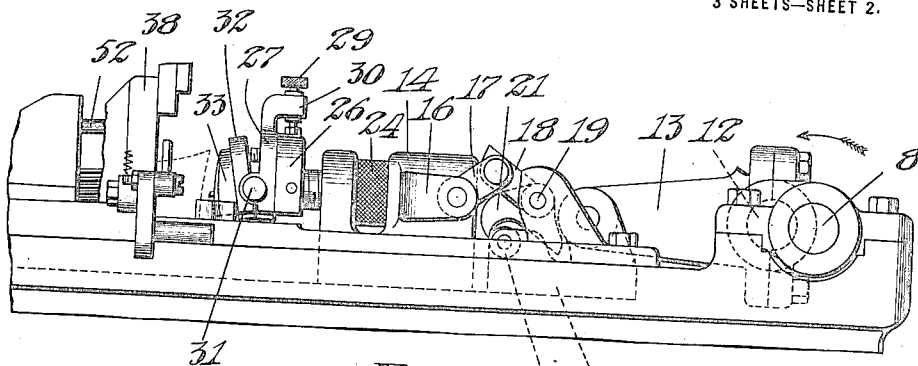


Fig. 3.

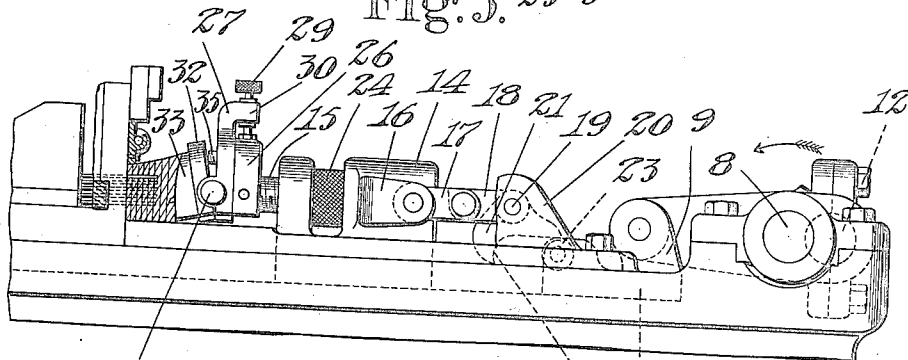


Fig. 4.

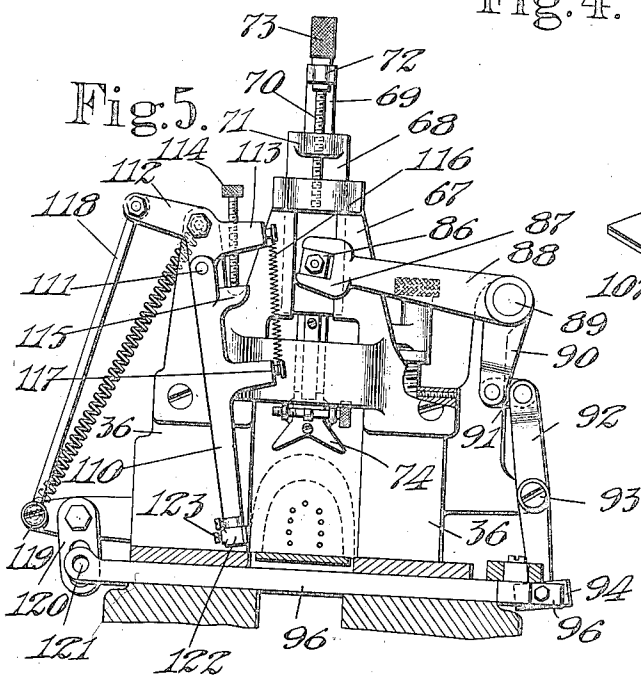


Fig. 5.

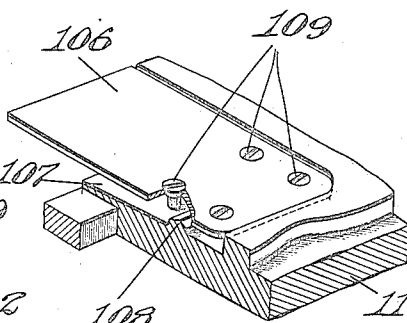


Fig. 6.

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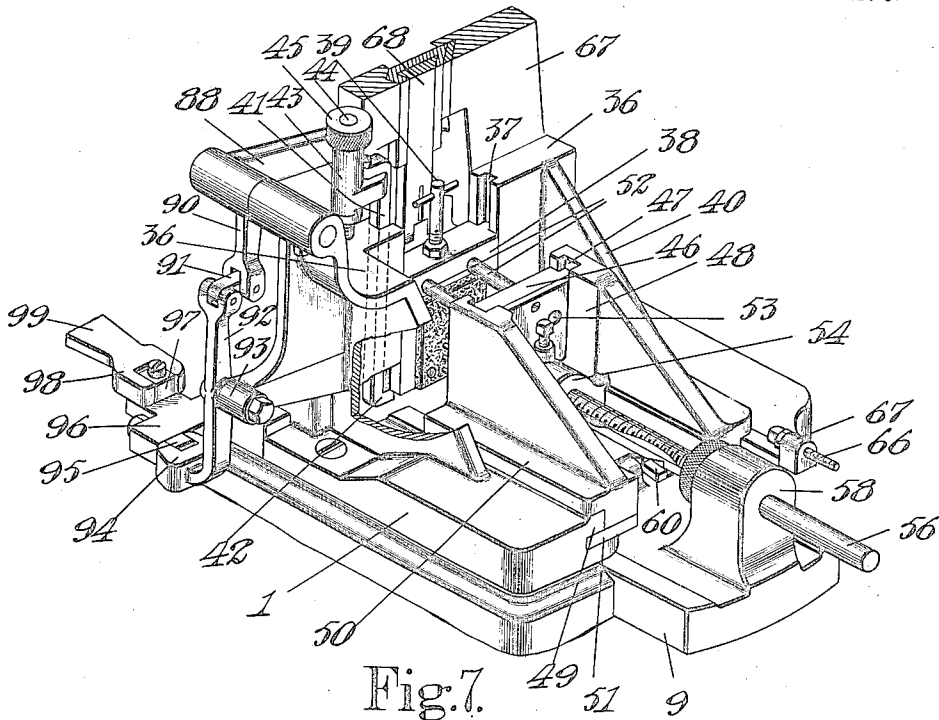


Fig. 7.

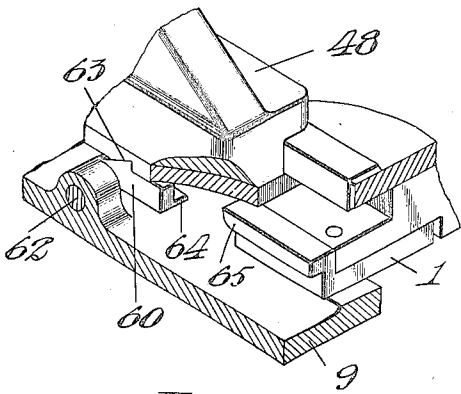


Fig. 8.

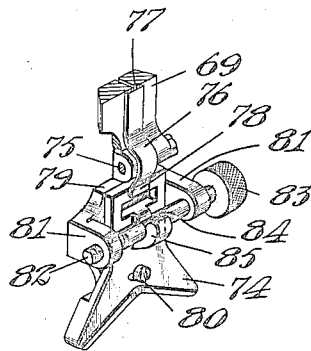


Fig. 9.

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# UNITED STATES PATENT OFFICE.

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

HEEL-PRICKING MACHINE.

1,234,384.

Specification of Letters Patent. Patented July 24, 1917.

Application filed September 4, 1915. Serial No. 49,013.

*To all whom it may concern:*

Be it known that I, JOSEPH H. POPE, a citizen of the United States, residing at Hamilton, in the county of Essex and State of Massachusetts, have invented certain Improvements in Heel-Pricking Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to heel pricking machines by which perforations are formed in heels of boots and shoes for the reception of the attaching nails.

It has been found in practice that many classes of heels may be attached to boots and shoes by driving the attaching nails directly into and through the heels without first pricking them or providing perforations for the reception of the nails. In some classes of work, however, it is desirable or even necessary to prick the heels preliminarily to the nail attaching operation, especially where the heels are formed of dense material or of unusual height. If this is not done the nails are frequently bent or deflected from their proper course while being driven, as described in the patent to Glidden, No. 1,077,929, granted November 4, 1913.

In thus preliminarily pricking the heel, the holes or perforations must be located on the tread surface of the heel with the rearmost hole or perforation at the same distance from the rear of the heel, irrespective of the size or shape of the heel itself, because in the heel attaching machine, the heel is positioned with relation to the rearmost attaching nail which should be the same distance from the rear of the heel, irrespective of the size or shape of the heel. When a heel thus positioned is being pricked by a series of awls and also when the heel is being stripped from the awls, the lifts of the heel are liable to be separated by the relative movement of the awls and lifts as the awls pass into and from the heel. Accordingly, an important feature of the present invention consists in positively positioning a heel to be pricked so that the rearmost hole or perforation made therein shall be always at a predetermined distance from the rear of the heel and holding the heel by positive pressure during the heel pricking or stripping operations.

The relation between the tread surface and heel seat of heels varies. In some cases the tread surface may remain uniform and the heel seat may vary by reason of variation in the pitch of the heel, or both may vary in extent and angular relation of their respective surfaces. The present invention, accordingly, contemplates means for adjusting the heel seat support or follower block to different inclinations and different positions lengthwise or longitudinally of the heel.

In the preferred form of the invention, as illustrated herein, the awls pass through a stationary templet and enter the tread surface of the heel at an oblique angle thereto in order that the attaching nails to be subsequently driven may be inclined to the tread surface. Another feature of the invention, therefore, consists in mounting the awls upon an awl carrier block which as it moves the awls in their oblique path inclined to the tread face of the heel, is caused to be moved in a corresponding direction.

The heel positioning device is of novel construction and is positively moved to and from its operative relation with the heel to be pricked. It may happen at times that the operator may so adjust the fork of the heel positioning device that it will be in the path of the awls in trying out the machine. This is more liable to occur when heels with small tread surfaces are to be pricked. To prevent injury to the awls or the fork in such cases, the present invention contemplates a yielding connection between the fork and its carrier, which will permit the fork to yield when struck by the awls, but it is of a character to normally maintain the fork in normal relation to its carrier.

At times it is desirable to adjust the position of the awls and templet with relation to the heel to be pricked and to remove the awls and templet for the substitution of others suitable to the character of work to be done. To this end another feature of the invention consists of an adjustable support for holding the templet and awl block or carrier and permitting ready removal thereof.

In the present invention the heel to be pricked is held by positive pressure between the stationary templet and follower block, and the awls are moved to prick the heel and are then withdrawn. In the preferred em-

bodiment of the invention in these respects, the awls are actuated from a slide having a movement greater than that required to insert and withdraw the awls, and to prevent the withdrawal movement of the awls from disengaging them from the holes in the templet, a further feature of the invention consists in means for operatively disconnecting the awl carrier from the slide when the awls have been fully withdrawn from the heel and before they can be disengaged from the holes in the templet.

Various other features of the invention will be hereinafter described and definitely set forth in the claims.

In the drawings:—

Figure 1 is a perspective view of a heel pricking machine embodying the various features of the present invention;

Fig. 2 is a longitudinal section of the machine shown by Fig. 1;

Fig. 3 is a detail side elevation showing the relative position of the positive heel pressure means and associated parts when a heel is being introduced;

Fig. 4 is a view similar to that of Fig. 3, showing the heel under positive pressure between the templet and follower, and the awls penetrating the heel;

Fig. 5 is a cross-sectional view of the machine on the line 5—5, Fig. 2, some of the parts being broken away;

Fig. 6 is a detail partly broken away, showing the yielding support for the heel;

Fig. 7 is a perspective view with some of the parts shown in section, looking from the left of Fig. 1 and with the heel pressure means omitted for clearness of illustration;

Fig. 8 is an enlarged detail showing the means for operatively connecting and disconnecting the awl carrier to and from the slide; and

Fig. 9 is an enlarged detail showing the heel fork connection with its carrier.

The bed or frame 1 of the machine is suitably supported as upon legs 2 and sustains the working parts. A main driving shaft 3 is mounted in suitable bearings in the frame 1 and carries a belt pulley 4 and a pinion 5. A hand wheel 6 is also secured to the shaft 3 for turning the machine by hand when desired.

Operatively connected to the pinion 5 is a gear 7 secured to a crank shaft 8 suitably mounted in bearings upon the machine frame. A slide 9 is mounted on suitable guides or ways 10 extending longitudinally of the machine frame and retained thereon by the cap plates or gibs 11. Connecting the slide 9 with the crank 12 of the shaft 8 is the rod 13, the construction being such that upon rotation of the crank shaft 8 the slide 9 will be reciprocated longitudinally of the machine frame.

When a heel is being pricked by the awls and also as it is being pulled or stripped

from the awls, the lifts are liable to be separated. This condition is liable to arise in pricking any form of heel held under yielding pressure, but especially so where the heel is of unusual height or considerable pitch. To prevent the occurrence of this objectionable condition, the present invention holds the heel by positive pressure in the position to which it has been adjusted for the pricking operation. In the present instance, the heel is positioned between a stationary templet and a follower block which is positively actuated to exert the desired pressure upon the heel, such actuation of the follower block being preferably obtained through toggle connections operated from the driving shaft.

To this end there is mounted for movement longitudinally of the machine frame, the yoke 14 carrying a stem 15, to the end of which the follower is connected in a manner as will presently appear. Extending from the yoke 14 are the projections 16, preferably one at each side, to which are pivoted the members 17 of toggles, the other members 18 of which are secured to a shaft 19 extending between the stationary supports such as the lugs 20. These lugs 20 may be appropriately secured to any convenient stationary portion of the machine, but in the illustrated form of the invention they are shown as projecting upwardly from the cap plates 11.

Secured to the shaft 19 between the toggles described, is the toggle-actuating cam 21 having a cam lower surface 22 adapted to be engaged by a roller 23 mounted upon the slide 9. The surface 22 of the toggle-actuating cam is constructed and arranged to cooperate with the roller 23 on the slide so that when the roller 23 is engaged with the forward or curved end portion of the actuating cam, as indicated in Fig. 3, the said cam will be moved to break the toggle; but when the roller 23 is moved by its slide 9 toward the opposite portion of the cam 21, as indicated in Fig. 4, the toggle will be straightened.

The stem 15 is screw threaded, as indicated in Fig. 2, and is adjustable longitudinally of the yoke 14 by means of an adjusting nut 24, said stem 15 being retained from rotative movement by suitable means such as the key-way and pin 25, substantially as indicated in Fig. 2. Secured to the end portion of the stem 15 is the stem head 26, to which is adjustably connected the follower head 27. In the present instance of the invention, the follower head 27 is provided with a dove-tailed projection 28, as indicated in Fig. 1, which engages a corresponding groove in the face of the stem head 26. The follower head may be connected to the stem head for adjustment in a direction longitudinally of the heel by any suitable means, but in the present form of the in-

vention, such adjusting means is shown as an adjusting screw 29, the end of which is screw threaded to the stem head 26, as indicated in Fig. 2, and the upper or shank portion of which is connected to an overhanging arm 30 formed as part of or secured to the follower head 27, the construction being such that by rotative movement of the adjusting screw 29 the follower head may be moved upwardly or downwardly with respect to the stem head 26, or in other words, in a direction longitudinally of the heel.

Pivotaly mounted at 31 to the follower head 27 is the follower 32 having detachably connected thereto a follower block 33 for engagement with the heel seat of a heel to be pricked. It may at times be desirable to change the follower block for one of different contour, and to enable this to be readily done, the follower 32 is provided with a dove-tailed recess 34, Fig. 1, for the reception of a dove-tailed projection on the rear portion of the follower block, the construction being such that the follower block may be readily connected to and disconnected from the follower.

In order to adapt the follower block to the heel seats of heels of different pitch, the follower 32 is adjustably mounted upon its pivotal connection with the follower head so that it may be turned about such pivotal mounting into different inclinations and then securely held. As a preferred form of means for thus adjusting the inclination of the follower, there is threaded into the follower head above and below the pivot 31 of the follower, the adjusting screws 35, the ends of which bear upon the rear face of the follower 32, the construction being such that by adjustment of the screws 35, the follower may be turned to any desired inclination suited to the heel seat of the heel to be pricked and be held securely in such adjusted position.

Heels vary greatly in size and shape. In some cases the tread faces of a series of heels may remain uniform in size, while the heel seat may vary according to the pitch of the heel. Also, it may be that the perforations made in a series of heels may be varied in position and inclination. In these various conditions it is desirable that the heel seat of the heels be supported opposite the force exerted by the awls. This is effected in the present invention by the described adjustment of the follower and the follower head.

As hereinbefore noted, one feature of the present invention contemplates exerting upon the heel a positive pressure during the heel pricking and heel stripping operations, and that to this end the heel to be treated is held between a stationary templet and movable follower. It is desirable, however, that the templet as well as the awl block be remov-

ably and adjustably held in their operative relation to the other parts.

In the present instance of the invention, the machine frame 1 is provided with upwardly-projecting side plates or flanges 36 which are provided with guideways 37, Fig. 7, for the reception of the templet 38 which is adapted to slide freely in such guideways. In order to readily lift the templet from the guideways 37, a suitable handle 39 may be connected to the upper portion of the templet as indicated in Fig. 7. Since the templet is to sustain the positive pressure exerted upon the heel by the follower, the side plates 36 are preferably braced by the flanges 40, Fig. 7.

Extending through a suitable opening in one of the side plates 36 is a templet support which, in the present instance of the invention, comprises an arm 41, the lower end 42 of which is turned toward the templet and is adapted to engage the lower end portion thereof, as indicated in Fig. 7. In order that the arm 41 may be adjustably mounted upon its supporting side arm 36, it is provided at its upper portion with a sleeve 43, through which passes an adjusting screw 44 having the thumb head 45, the lower end of this adjusting screw resting loosely upon the top surface of its side supporting flange 36, substantially as indicated in Fig. 7. From the construction described, it will be apparent that the templet 38, while fixedly held in the side flanges 36 to withstand the positive pressure exerted upon the heel during the pricking and stripping operations, is, nevertheless, readily adjustable in a direction longitudinally of the heel and likewise readily removable from operative position.

The templet 38 is provided with a series of holes for the guidance of the awls which are themselves carried by an awl block 46 adapted to be received in suitable guideways 47 of an awl block carrier 48 mounted for movement longitudinally of the machine, substantially as indicated in Fig. 7. The awl block carrier 48 may be connected to the machine frame for such longitudinal movement by the guideways 49 on which rest the flanges 50 of the awl block carrier. The awl block carrier is prevented from rising from its guideways by suitable means such as the plate 51 secured to the under portion of the awl block carrier and engaging a suitable groove in the frame 1 of the machine.

Secured to the templet 38 are the guide pins 52, Figs. 2 and 7. These guide pins extend toward the awl block 46 which is provided with perforations 53, Fig. 7, to receive such guide pins. The guide pins 52 are parallel with the awls, the construction being such that as the awls are moved to prick the heel, as will presently appear, the

awl block will be moved in a path parallel with the awls; and by changing the inclination of the awls and guide pins 52, the perforations made in the heel may be varied, as desired.

The awl block carrier 48 is provided with a boss 54 to which is secured by suitable means such as the set screw 55, the threaded rod 56 on which is adjustably mounted the nut 57. The rod 56 passes loosely through the end portion 58 of the slide 9, the construction being such that by proper adjustment of the nut 57, the awl block carrier and awls will be moved in their pricking stroke by the slide as the latter moves to the right, Fig. 2; and since heels vary in height, the desired length of pricking stroke may be imparted to the awls by proper adjustment of the nut 57.

The machine of the present invention is adapted for pricking heels, the heights of which may vary between wide limits, but it is desirable that in the retracting movement of the awls they shall not be withdrawn from engagement with the guide openings in the templet, and in this respect the present invention provides means for operatively connecting and disconnecting the awl block carrier with its actuating means or slide so that, regardless of the height of the heel, the awls on their retracting stroke will not be withdrawn from the guide openings in the templet.

Mounted upon the slide 9 are the pawls 60, preferably one at each side of the slide below the awl block carrier. These pawls 60 are normally under the influence of springs 61 tending to turn the pawls upwardly about their pivotal axis 62 to engage the ends of the pawls in notches 63 formed in the bottom portions of the awl block carrier 48, the construction being such that upon movement of the slide 9 to the left, Fig. 2, the pawls 60 will engage the notches 63 in the awl block carrier and cause said carrier to move to the left and withdraw the awls from the heel, or "strip the heel," as it is termed.

In order that the machine may be adapted to prick the heels of maximum height as well as those of minimum height, it is essential that the slide 9 which gives the awls their pricking movement shall be moved an amount required by the maximum height of heel, regardless of whether the awls are for the time being pricking a low or high wheel. When pricking a low heel, however, if the retracting movement of the awls continued to be the same as when pricking a high heel, the awls would be liable to be withdrawn from their guide holes in the templet. To overcome this objectionable condition, the present invention contemplates operatively disconnecting the slide from the awl block carrier when said car-

rier has withdrawn the awls from the heel and before the awls have been withdrawn from the guide holes in the templet. Any suitable means may be provided to this end, but in the present instance of the invention the pawls 60 are provided with a flanged portion 64, Fig. 8, adapted to be engaged by a projection 65 secured to or formed on the machine frame 1 when said pawls have carried the awl block carrier a sufficient distance to withdraw the awls from the heel, but before said awls are withdrawn from the templet. From the construction described it will be apparent that when shallow or low heels are being pricked, the nut 57 will be adjusted on the rod 56 toward the awl block, and consequently the awls will not be forced into the heel until the slide 9 has moved a greater distance than it would have moved had the nut 57 been adjusted farther from the awl block. And conversely, on the reverse movement of the slide the pawls 60 will pick up the awl block carrier and start the withdrawal movement of the awls at a later period than if a higher heel were being pricked. In order to prevent the awls being withdrawn from the awl block under any conditions of use, as by friction of the slide 9 acting upon the rod 56, an adjusting stop 66 is preferably provided to be engaged by the awl block carrier 48 when said awl block carrier has been moved a distance sufficient to withdraw the awls from the heel and before said awls are withdrawn from the templet. This adjusting stop 66 is best shown in Fig. 1, wherein it is indicated as a screw threaded into an arm 67 projecting upwardly from the bed of the machine.

From the construction thus far described, it will be noted that if a heel be placed as indicated by dotted lines in Fig. 3 between the templet and the follower block, and the crank shaft 8 of the machine be then turned, the slide 9 will be moved to the right, and the roll 23 acting upon the toggle cam 21 will cause said toggle to be straightened, and the heel clamped with a positive pressure between the templet and the follower block, substantially as indicated in Fig. 2, before the awls penetrate the heel. Upon further rotative movement of the crank shaft, the slide 9 will be moved still farther to the right, Fig. 4, and will pick up and move the awl block carrier 48 and cause the awls to penetrate the heel. Since the awls are inclined, the awl block 46 will be raised by the guide rods 52 which are parallel with the awls, as the awls pass through the heel. Upon further rotation of the crank shaft after the heel has been pricked, the slide 9 will be moved to the left, and operative connection between the slide and the awl block carrier will be effected as through the pawls 60, to withdraw the awls from the heel, and

after they have been thus withdrawn, such operative connection between the slide and awl block carrier will be interrupted. During all this time, that is, during the awl pricking and withdrawing movement, the heel has been subjected to a positive pressure between the templet and the follower block; but as soon as the awls have been withdrawn from the work, the roll 23 on the slide engages the appropriate cam surface on the toggle-actuating cam and breaks the toggle, thus returning the parts to the position indicated, as in Fig. 3.

In order that the heel may be properly positioned in the machine for attaching the heels to shoes, wherein the heels are positioned with respect to the rearmost attaching nail, which is placed at the same distance at the rear of the heel regardless of the size or shape of the heel, the present invention contemplates means for positively positioning the heel blank to be pricked, so that the rearmost hole or perforation formed in the heel will be in proper position to receive the rearmost nail in the heel attaching position.

As one means to this end, the side plates or flanges 36 hereinbefore described, have rising therefrom the arms 67, Figs. 5 and 7, said arms being suitably provided with guideways for the reception of the heel positioning slide 68, Fig. 5. Adjustably mounted in the heel positioning slide 68, is the fork carrier 69. The adjustable connection between the fork carrier 69 and the slide 68 may be effected in various ways, but in the present instance of the invention it is formed by an adjusting screw 70 suitably threaded into a projection 71 on the slide 68 and relatively mounted in a lug 72 mounted on the fork carrier 69, substantially as indicated in Fig. 5, the construction being such that by hand manipulation of the hand piece 73 secured to the adjusting screw 70, the fork carrier 69 may be moved longitudinally to different positions relative to the slide 68.

Mounted at the lower end of the fork carrier 69 is the fork for engaging the rear or curved surface of the heel adjacent the face of the templet. In the present instance of the invention the fork 74 is connected to its carrier 69 in a yielding manner to permit the fork to yield away from the face of the templet, should it be struck by the awls. As one means to this end the fork 74 is mounted upon the fork carrier 69 pivotally, as by the pivot stud 75, Fig. 9, and said fork 74 is normally held in operative position in prolongation of the carrier 69 by means of a spring 76, one portion of which is secured to the slide 69 at 77, and the other end portion of which, as at 78, bears upon a portion of the fork 74, the construction being such that the fork 74 may be moved about its pivotal connection 75 with the carrier 69

when struck by the awls as they pass through the templet without causing breakage either of the awls or the fork, and upon retraction of the awls, the construction is such that the spring 76 will return the fork to its normal operative position.

It is desirable at times to adjust the position of the fork 74 laterally of the carrier 69, and to this end the fork 74 is preferably mounted upon a plate 79 which is itself pivotally connected by the pivot stud 75 to the carrier 69. The fork 74 may be connected to the plate 79 by means of a screw 80, which, when loosened, will permit the fork to be moved laterally of the plate 79. Any convenient means may be employed to thus laterally move the fork 74, but in the present form of the invention as indicated in Fig. 9, the plate 79 is provided with the lugs 81 into which is threaded the adjusting screw 82 having the hand-piece 83, whereby it may be turned and moved longitudinally. The central portion of the adjusting screw 82 is recessed as at 84, and such recess is engaged by a lug 85 extending from the fork 74, the construction being such that upon longitudinal movement of the adjusting screw 82, the fork 74 will be appropriately moved laterally.

In order to impart to the heel fork 74 its positioning movement and to insure that the heel shall be pricked in proper relation to the rear edge thereof, the slide 68 is provided with a swivel block 86, Fig. 5, which is engaged by the forked end 87 of a bell crank lever 88 pivotally mounted at 89. The other arm 90 of said bell crank is connected by a link 91 to a lever 92 pivoted at 93 upon a bracket extending from one of the said plates or flanges 36. The lower end portion of the lever 92 is provided with a fork 94 which engages a lug 95 connected to a slide 96 which is itself provided with a swivel block 97 engaging the bifurcated end portion 98 of an actuating arm 99. The arm 99 is pivoted upon the machine frame at 100 and at its end near the crank shaft 8 is provided with a roll 101 which is normally held pressed toward the gear 7 by means of a spring 102 acting upon the arm 99 as indicated in Fig. 1. Adjustably secured to the gear 7 as by means of the set screw 103, and slots 104, is the cam 105 for acting upon the roll 101 as the gear 7 rotates, thereby imparting to the slide 96 and the connected fork carrier 69, its positive movement into engaging relation with the heel placed between the templet and the follower block.

Since the heel positioning block 74 is given positive movement to position the rear or curved portion of the heel with respect to the awls, that the rear hole made by the awl may be the same distance from the rear of the heel, regardless of the size of the heel, it is desirable to support the breast of the



heel yieldingly, so that the positively-moving fork may, when the heel is oversize, depress the said heel to bring the rear edge into proper relation with the rear awl.

5 As one form of means to this end, the cap plate 11 of the machine as indicated in Fig. 1, may be recessed as indicated in Fig. 6 to receive a yielding plate 106, said plate 106 being located as indicated in Figs. 1 and 2,  
10 below a heel positioned between the templet and follower block. The yielding plate 106 may be variously formed to yieldingly support the heel, but in the preferred form of the invention, as indicated in Fig. 6, the  
15 cap plate 11 is provided with the recessed portion 107 for the reception of the plate 106 and a ridge or rest 108 on which the bottom portion of the plate 106 may be supported. The plate 106 is preferably connected to the  
20 cap plate 11 by means of the screws 109, the construction being such that by proper adjustment of the screws 109, the position and the yielding character of the plate itself may be varied to suit the conditions of use.

25 It is the purpose of the present invention that the heels to be pricked be successively fed into the machine without danger of injury to the operator's hand; and to this end, a suitable feeding means is provided  
30 for carrying a heel from one side of the machine to a position between the templet and follower block.

In the present form of the invention, said means comprises an arm 110, Figs. 1 and 5,  
35 pivotally connected at 111 to a lever 112. The lever 112 has an arm 113 through which passes an adjusting screw 114, the lower end of which abuts against a lug 115 carried by the arm 110, and a spring 116 connected to  
40 the lug 113 and to the arm 110 as at 117 normally maintains the lug 115 against the lower end of the screw 114, the construction being such that the arm 110 may be normally moved by the lever 112, but should it  
45 meet an obstruction, said arm 110 may yield without causing breakage of parts.

The lever 112 is connected to a link 118, the lower end of which is connected at 119 to one arm of a bell crank lever 120, said  
50 bell crank lever 120 being adjustably connected at 121 to the slide 96, the construction being such that upon reciprocating movement of the slide 96 through the arm 99, as hereinbefore described, proper oscillatory  
55 movement will be imparted to the feed arm 110 to carry a heel from the side of the machine to a position between the templet and the follower block.

Contours of the heels between the tread  
60 and the heel seat surfaces vary. That is, some of the heels have their side surfaces more inclined than others, and the present invention contemplates the provision of means for engaging an extended side surface  
65 of the heel, regardless of its inclination. As

one form of means to this end, the lower portion of the feed arm 110 is provided with a heel-engaging piece 122, the heel-engaging surface of which may be adjusted about an axis extending longitudinally of the arm 110,  
70 as by means of the set screws 123, the construction being such that by adjusting the heel engaging piece 122 about an axis extending longitudinally of the arm 110, its  
75 heel engaging surface may be caused to be parallel with the surface of the heel which it is to engage and thereby insure proper movement of the heel toward the position between the templet and follower block.

What is claimed is:—

80 1. In a heel pricking machine, the combination of a gang of awls, heel positioning means for engaging the rear portion of the heel, means for actuating the heel positioning means to positively position the heel  
85 with the rear portion thereof the same distance from the rearmost awl of the gang irrespective of the size of the heel, means for applying a positive pressure to the heel in the direction of the height, and means for  
90 relatively moving the gang of awls and heel while the latter is held under positive compression to prick the heel and strip it from the awls.

95 2. In a heel pricking machine, the combination of a gang of awls, heel positioning means for engaging the rear portion of the heel, means for actuating the heel positioning means to positively position the heel  
100 with the rear portion thereof the same distance from the rearmost awl of the gang irrespective of the size of the heel, a stationary templet, a follower between which and the stationary templet the heel is positioned, means for positively moving the fol-  
105 lower toward the templet to apply positive pressure to the heel in the direction of its height, and means for moving the gang of awls to prick the heel and strip it from the awls while the heel is held under positive  
110 pressure.

115 3. In a heel pricking machine, the combination of a gang of awls, a yielding support adapted to receive the breast portion of a heel, means for adjusting the support  
120 in a direction longitudinally of the heel, heel positioning means for engaging the rear portion of a heel sustained on said support, means for actuating said heel positioning means to positively position the heel with  
125 the rear portion thereof the same distance from the rearmost awl of the gang irrespective of the size of the heel, means for applying a positive pressure to the heel, and means for relatively moving the gang of awls and heel while the latter is held under positive pressure to prick the heel and strip it from the awls.

130 4. In a heel pricking machine, the combination of a gang of awls, heel pressing

members, comprising a templet and follower constructed and arranged to positively press the heel between them, a movable fork to engage the rear portion of the heel, means for moving said fork to positively position the heel with the rear portion of the heel in a predetermined relation to the rearmost awl of the gang irrespective of the size of the heel, and means for relatively moving the awls and heel while the latter is held under positive pressure to prick the heel and strip it from the awls.

5. In a heel pricking machine, the combination of a templet having parallel faces and provided with awl guiding holes extending therethrough at an inclination to said faces, a gang of awls inclined to the faces of said templet and engaging said holes, a follower block angularly adjustable to conform to heels having various angles between the seat and tread surfaces, and means for adjusting said block in a direction longitudinally of the heel.

6. In a heel pricking machine, the combination of a gang of awls, a templet, means for pressing a heel against said templet for the action of the awls, comprising a stem having a head, a follower head adjustably mounted on the stem head and carrying a follower, means for angularly adjusting the follower with relation to the follower head, and means for moving the follower toward and from the templet.

7. In a heel pricking machine, the combination of a gang of awls, a templet and follower constructed and arranged to hold a heel under pressure while being pricked by and stripped from the awls, heel positioning means comprising a heel engaging fork and fork carrier, means for moving the fork carrier to engage the fork with the rear portion of the heel, and connections between the fork and fork carrier permitting the fork to yield in the direction of the height of the heel.

8. In a heel pricking machine, the combination of a gang of awls, a templet and follower constructed and arranged to hold a heel under pressure while being pricked by and stripped from the awls, a fork for engaging the rear portion of a heel and positioning it between the templet and follower, a fork carrier, means for moving the carrier toward and from the heel, and spring means normally acting to hold the fork in operative relation to the carrier and adapted to yield to permit the fork to move away from the face of the templet.

9. In a machine of the class described, heel locating means comprising, in combination, a heel breast engaging member, and a forked rear gage to contact with the rear portion of the heel, said member and gage being relatively movable longitudinally of the heel and the rear gage being adjustable

transversely of the heel and yieldable in the direction of the height of the heel.

10. In a machine of the character described, heel locating means comprising, in combination, a forked rear gage for contacting with the rear portion of the heel, and a heel breast engaging plate, a shoulder on which said plate rests, and means for clamping the plate in position at each side of said shoulder.

11. In a machine of the character described, heel locating means, comprising, in combination, a forked rear gage for contacting with the rear portion of the heel, and a yielding heel breast engaging member for supporting the heel for the action of the forked rear gage, means for adjusting the heel breast engaging member angularly relatively to the forked rear gage, and means for moving the forked rear gage positively toward said member.

12. In a heel pricking machine, the combination of an awl block carrying a gang of awls, a templet having holes or perforations for the passage of said awls, a follower for holding a heel against the templet during the action of the awls, means for supporting the templet against the pressure of the follower, and a supporting stop upon which the templet may rest, said stop permitting ready removal of the templet when the pressure of the follower is released.

13. In a machine of the class described, the combination of a templet and awl block carrying a gang of awls, fixed guides for the templet, movable guides for the awl block, sliding connections between the templet and awl block, and an adjustable templet support extending beneath the templet and permitting ready removal of the templet and awl block from their guides.

14. In a heel pricking machine, the combination of a stationary templet, a follower, means including a slide for subjecting a heel to pressure between the templet and follower, a gang of awls, and means for operatively connecting the gang of awls with the slide for giving to the awls pricking movements of variable amounts as required by the height of the heels to be pricked.

15. In a heel pricking machine, the combination of a gang of awls, a stationary templet and a follower for holding a heel under pressure while it is being pricked by the awls, means for moving the awls to prick the heel, and means for operatively disconnecting the awls from their moving means as they are withdrawn from the heel and before they are withdrawn from the stationary templet.

16. In a machine of the character described, heel pricking means, comprising, in combination, a stationary templet and a follower for holding a heel under pressure while being pricked, a gang of awls, awl

actuating means for giving to the awls pricking movements of variable amounts as required by the heels to be pricked, and means for operatively disconnecting the  
5 awls from their actuating means on the withdrawal stroke of the awls before they have been withdrawn from the templet.

17. In a heel pricking machine, the combination of a gang of awls, a slide for actuating the awls, means for operatively connecting and disconnecting the awls and slide, a stationary templet having holes or perforations for guiding the awls, a follower, and means actuated by the slide for  
10 causing the follower and templet to exert pressure on a heel between them while it is being pricked and stripped from the awls.

18. In a heel pricking machine, the combination of a gang of awls, a slide having a uniform stroke for actuating the awls, means  
20 for varying the pricking movement of the awls imparted by the slide, a stationary templet through which the awls are moved in their heel pricking stroke, a follower, toggle  
25 means actuated from the slide to subject a heel between the templet and follower to pressure, and means for disengaging the awls from the slide during the retracting movement of the awls before they are with-  
30 drawn from the templet.

19. In a machine of the character described, heel pricking means, comprising, in combination, a gang of awls, a slide having a uniform stroke, means for causing the  
35 slide to impart to the awls pricking movements of variable amounts as required by the height of heels to be pricked, and means for operatively connecting the slide and awls during a part of the retracting stroke of the  
40 slide to withdraw the awls from the heel and then permit the withdrawing movement of the awls to cease before the slide has reached the limit of its back stroke.

20. In a heel pricking machine, the combination of a slide having a uniform stroke, a stationary templet, a follower, toggle  
45 means actuated by movement of the slide for exerting pressure on a heel between the templet and follower, a gang of awls, means  
50 actuated by the slide to give the awls their pricking movement, and means operated by the slide for imparting withdrawal movement to the awls proportional to the height of heel pricked.

21. In a heel pricking machine, the combination of a gang of awls, a templet and follower for holding a heel between them while it is being pricked by and stripped  
55 from the awls, a slide for relatively moving the heel and awls, a toggle for relatively moving the templet and follower to clamp the heel, and a toggle actuating cam operated by movement of the slide.

22. In a heel pricking machine, the combination of a templet and follower for holding a heel between them, an awl block carrying a gang of awls, a slide for actuating the awl block to cause the awls to prick the heel and be withdrawn therefrom, and engaging and disengaging means between the awl  
65 block and slide for varying the pricking and withdrawing stroke of the awls.

23. In a heel pricking machine, the combination of a gang of awls, a templet and follower for clamping a heel between them,  
75 heel feeding means and heel positioning means, a transverse slide, actuating means for reciprocating the transverse slide, and connections between the slide and said feeding and positioning means respectively for  
80 operating the latter.

24. In a heel pricking machine, the combination of a templet, a follower, means for effecting relative movement of the templet and follower to subject a heel to pressure  
85 between them, a gang of awls, and means for giving to the awls pricking movements of variable amounts as required by the height of the heels to be pricked.

25. In a heel pricking machine, the combination of a templet, a follower, means for effecting relative movement of the templet and follower to subject a heel to pressure  
90 between them, means for varying the limit of approaching movement of said members  
95 to provide for heels of different heights, a gang of awls, and means for giving to the awls pricking movements of variable amounts as required by the height of the heels to be pricked.

26. In a heel pricking machine, the combination of a templet, a follower, means for effecting relative movement of the templet and follower to subject a heel to pressure  
105 between them, means for varying the limit of movement of the movable member to provide for heels of different heights, a gang of awls, and means for giving to the awls pricking movements of variable amounts as required by the height of the heels to be  
110 pricked.

27. In a heel pricking machine, the combination of a stationary templet, a follower movable toward the templet to subject a heel to pressure between them, means for  
115 varying the limit of movement of the follower toward the templet to provide for heels of different heights, a gang of awls, means for imparting pricking movement to the awls, and means for varying the amount  
12 of such pricking movement to correspond to that of the follower in its various adjustments.

In testimony whereof I have signed my name to this specification.

JOSEPH H. POPE.