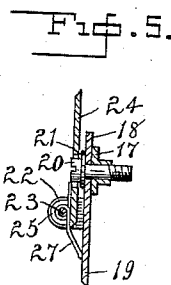
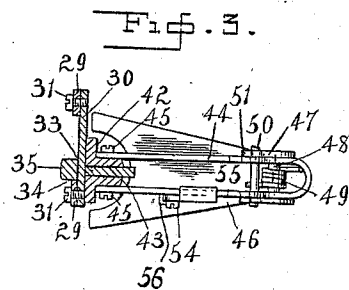
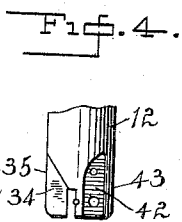
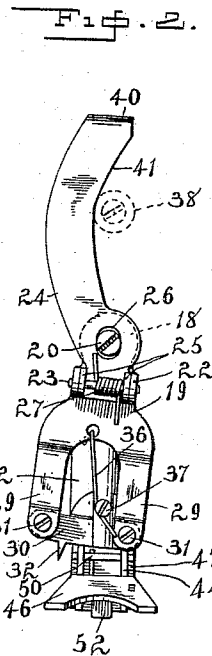
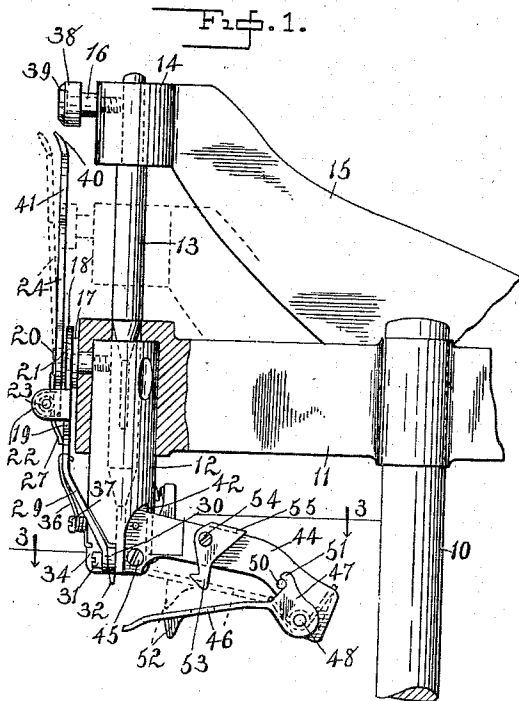


J. CROWE.
FEEDING DEVICE FOR SHOE NAILING MACHINES.
APPLICATION FILED AUG. 13, 1909.

994,981.

Patented June 13, 1911.



WITNESSES:

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FEEDING DEVICE FOR SHOE-NAILING MACHINES.

994,981.

Specification of Letters Patent. Patented June 13, 1911.

Application filed August 13, 1909. Serial No. 512,638.

To all whom it may concern:

Be it known that I, JOHN CROWE, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Feeding Devices for Shoe-Nailing Machines, of which the following is a specification.

My invention relates to shoe nailing machines and is directed especially to the nailing means the particular mechanism under consideration being adapted to feed the work relatively to the driver and having the additional function of gaging the distance of the sole margin from the nailing point.

The chief object of the improvements constituting the subject matter of this application, are:—to furnish a simple and effective device for the purpose stated; to provide means coöperating with the feeding mechanism whereby the sole will be held firmly in position upon the anvil, preventing the work from slipping or moving except when actuated by the feed point, and to produce a mechanical construction that will be durable, and that will be applicable to machines of the class under consideration that are already constructed, only minor alterations in the nailing head being required for connecting and operating the attachment.

I accomplish the desired results by employing the mechanical movements illustrated in the accompanying drawing, which forms a part of this application, the details of construction being disclosed in the following views.

Figure 1 is a side elevation of the nailing mechanism of a shoe nailing machine, only a sufficient portion of the latter being shown to illustrate the manner of actuating the feeding devices; Fig. 2 is a front elevation of the improved devices attached to the nailing sleeve; Fig. 3 is a sectional view on the line 3—3 of Fig. 1; Fig. 4 is a fragmentary view showing the lower end of the nailing sleeve, and Fig. 5 is a fragmentary sectional view, taken from Fig. 1 to show the parts carried on the shouldered pivot screw.

Referring to the details of the drawing, the numeral 10 indicates a post fixed to the bed (not shown) of a shoe nailing machine, 11 an arm slidable on said post and carrying a nailing head or sleeve 12, a hammer or driver 13 mounted in a sleeve 14 attached to a reciprocating arm 15 and movable

through the said nailing head 12, the driver being secured in its sleeve by a set screw 16, the operating mechanism for the devices thus designated not being shown, as it forms no part of the present invention.

Upon the front side of the nailing sleeve 12 is mounted a collar 17 having an integral flange, to form a bearing surface for the upper end 18 of a forked feed lever 19. This lever and the collar 17 are secured to the nailing head by a shouldered pivot screw 20, upon which the feed lever 19 is arranged to rock or oscillate, the head of the screw having an integral washer or flange 21 to retain said lever. The body of the lever 19 is furnished with ears 22 traversed by a pin or pintle 23, upon which is hinged the lower end of a cam lever 24, integral ears 25 being provided for that purpose. Just above said hinge the cam lever is furnished with a clearance aperture 26 to receive the head of the screw 20 and thus permit the said cam lever to assume a proper vertical position parallel with the upper end of the lever 19. A coiled spring 27 yieldingly retains the cam lever in its initial position against the washer flange 21. The arms or members 29 constituting the fork of the lever 19, are bent slightly backward so that they include the lower end of the nailing sleeve or head 12 between them, their extremities being connected by a feed bar 30, secured to said arms by screws 31. The said bar is curved to correspond with the center of oscillation, which is the screw 20, and its lower margin is provided with an integral point or spur 32. The bar 30 is arranged in a transverse slot 33 in the nailing sleeve, and the latter is cut away upon each side, as indicated at 34, to give clearance for the required swing of the feed lever, leaving the middle portion intact in the form of a ridge or flange 35, the lower end of which overlies the feed bar and forms a retainer therefor. The normal position of the feed lever is that shown in Fig. 2, the lever being thus yieldingly held by a spring 36, attached at the point 37 on the ridge 35. The said feed lever 19 is oscillated upon its center 20 by a projection fixed on the reciprocating member 15. For convenience the set screw 16 is utilized for this purpose, a suitable roller 38 being mounted thereon. The outer margin of this roller is chamfered, as indicated at 39, and the upper end of the lever 24 is bent out-

wardly to form an inclined face 40 which is adapted to be engaged by the chamfered end of the roller 38, when the arm 15 carrying the said roller descends, and this action rocks the said lever on its hinge 23, so that the roller will clear it on its downward travel. The lever 24 is curved so that when the roller has nearly reached the limit of its downward movement it will clear the lever and allow the latter to spring back to its initial position. As the roller and lever are now in the same plane, when the arm 15 ascends the roller 38 will engage the overhanging inclined margin 41 of the lever and rock the feed lever on its pivot 20, the spring 36 carrying it back to its initial position as soon as the roller clears the said incline 40, this action being repeated with every reciprocation of the arm 15.

The rear side of the nailing sleeve is cut away to form recesses 42, leaving a median rib or ridge 43, which forms a support for a yoke-shaped bracket 44, the ends of which are secured to the opposite sides of said rib 43 by screws 45. This bracket extends at a slightly downward inclination, and carries at its outer end a tension plate 46, having upturned ears 47 which embrace the outer end of the bracket and form a hinge, provided with a pin or pintle 48. A coiled spring 49, surrounding the pintle 48, urges the plate 46 to its normal position shown in Fig. 1, a stop pin 50 arranged to engage lugs 51 on the ears 47 limiting the plate movement in one direction. Upon the under side of the said plate is attached a lug or abutment 52 which forms a guide against which the shoe sole is pressed in order to gage the line of the driven nails relative to the sole margin. In Fig. 1 the plate is shown at the lowest limit of its movement, where it is held by the stop 50. Its operative position, however, is higher, as relatively indicated by dotted outlines in Fig. 1. This position varies as the sleeve 12 rises and falls, its free end usually resting with considerable pressure upon the shoe sole to prevent unnecessary movement, the required tension being produced by the spring 49.

In order to hold the tension plate 46 out of the way when placing or removing the work, I provide a gravity latch in the form of a hook 53 pivoted at 54 on the bracket 44, and having its upper end bent over the margin of the support to form a lip or stop 55 which holds the hook 53 in proper position to automatically engage the tension plate when raised to a sufficient height, a hole 56 being provided for this purpose in said plate.

The operation of the device is as follows:—The member 15 being in its highest position and the tension plate 46 held inoperative by the latch 53, the shoe to be nailed is placed in the usual manner upon the an-

vil (not shown). The plate 46 is then released by retracting the latch 53 and rests firmly upon the shoe sole which is pressed firmly against the gage lug 52. The nailing machine is now set in operation and as the arm 11 descends it carries the nailing sleeve and attachments with it, the spur 32 piercing the sole to a sufficient depth to move the shoe at the required time and the desired distance, regardless of any resistance that may be offered. This feeding action is transmitted by means of the escapement cam levers 24 and 19. While the operating arm 15 is at its upper, or normal position, the roller 38 lies in a position directly above the upper end of the cam lever 24. As the roller, in its downward movement, strikes the beveled face of the said cam lever 24, it swings the latter out of its path until it has passed below the inclined or cam portion 41, when the spring 27 will carry the lever back to its vertical position shown in full lines in Fig. 1. As the arm 15 completes its downward stroke, sufficient pressure is given to the point 32 to force it into the shoe sole, and when the said arm 15 returns to its upper position, the roller 38 comes in contact with the cam portion 41, forcing it to one side, and moving the forked arms 29, carrying the feed bar, in the opposite direction, the point having penetrated the shoe sole at this stage of the operation, as previously stated, as a consequence the shoe is moved the desired distance to receive the next nail. As soon as the movement of spacing the shoe is completed, the feed mechanism is lifted free of the shoe sole, through the action of the arm 11, and the feed lever and attached point 32 will be returned to the initial position by the action of the spring 36. It will be understood that the shoe is fed to the nailing position on the upward stroke of the arm 15, the nail being driven into the hole previously made by the spur on the downward stroke, thus avoiding any confusion of the movements. It will also be noted that the entire driving and sole feeding mechanism is lifted clear of the sole at the completion of the upward stroke of the arm 15, with the exception of the gage lever 46, which has its free end resting upon the sole, during the operative movements, with sufficient pressure to maintain the shoe firmly in position and prevent any slipping, as above mentioned.

Having thus described my invention, what I claim as new, is:—

1. In a shoe nailing machine, the combination with a nailing sleeve and nail driving means coöperating therewith, of a feed lever pivoted on said nailing sleeve, a spur on said lever adapted to engage the shoe sole, a cam lever hinged on said feed lever, a projection on said driving means adapted to engage said cam lever, a tension member

supported on said nailing sleeve, and a gage on said tension member for determining the position of the nails relative to the shoe margin.

5 2. In a shoe nailing machine, the combination with a nailing sleeve and nail driving means coöperating therewith, of a shoe feed lever pivoted on said nailing sleeve, a spur on said lever adapted to engage the shoe sole, a cam lever hinged on said feed lever, a projection on said driving means adapted to engage said cam lever, a bracket attached to the nailing sleeve, a tension plate hinged on said bracket, and means on said plate for gaging the position of the nails relative to the sole margin.

3. In a shoe nailing machine, the combination with a nailing sleeve and nail driving means coöperating therewith, of a shoe feed lever pivoted on said sleeve, a spur on said lever adapted to engage the shoe sole, a projection on said nail driving means, a cam lever hinged on said feed lever and arranged in the path of said projection, and tensioning means adapted to exert pressure upon the work.

4. In a shoe nailing machine, the combination with a nailing sleeve and nail driving means comprising a hammer and an operat-

ing arm for the hammer, of shoe feeding mechanism adapted to intermittently engage the shoe sole, said means comprising a rocking lever carrying a spur, means on said arm for operating the feeding mechanism in one direction, a spring for operating the feeding mechanism in the other direction, tensioning means for exerting pressure upon the shoe sole, said tensioning means adapted to gage the position of the nails relative to the margin of the sole.

5. In a shoe nailing machine, the combination with a nailing sleeve, and nail driving means comprising a hammer and an operating arm for the hammer, of shoe feeding mechanism, means on said arm for operating the feeding mechanism, a movable tension plate adapted to exert continuous pressure upon the shoe sole, means on said plate for gaging the position of the nails relative to the margin of the sole, and means for locking said tension plate in an inoperative position.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN CROWE.

Witnesses:

SUSAN LAWRENCE,
KAY G. PORTER.