

B. F. MAYO.
SOLE PRESSING MACHINE.
APPLICATION FILED MAR. 10, 1906.

960,980.

Patented June 7, 1910.

2 SHEETS—SHEET 1.

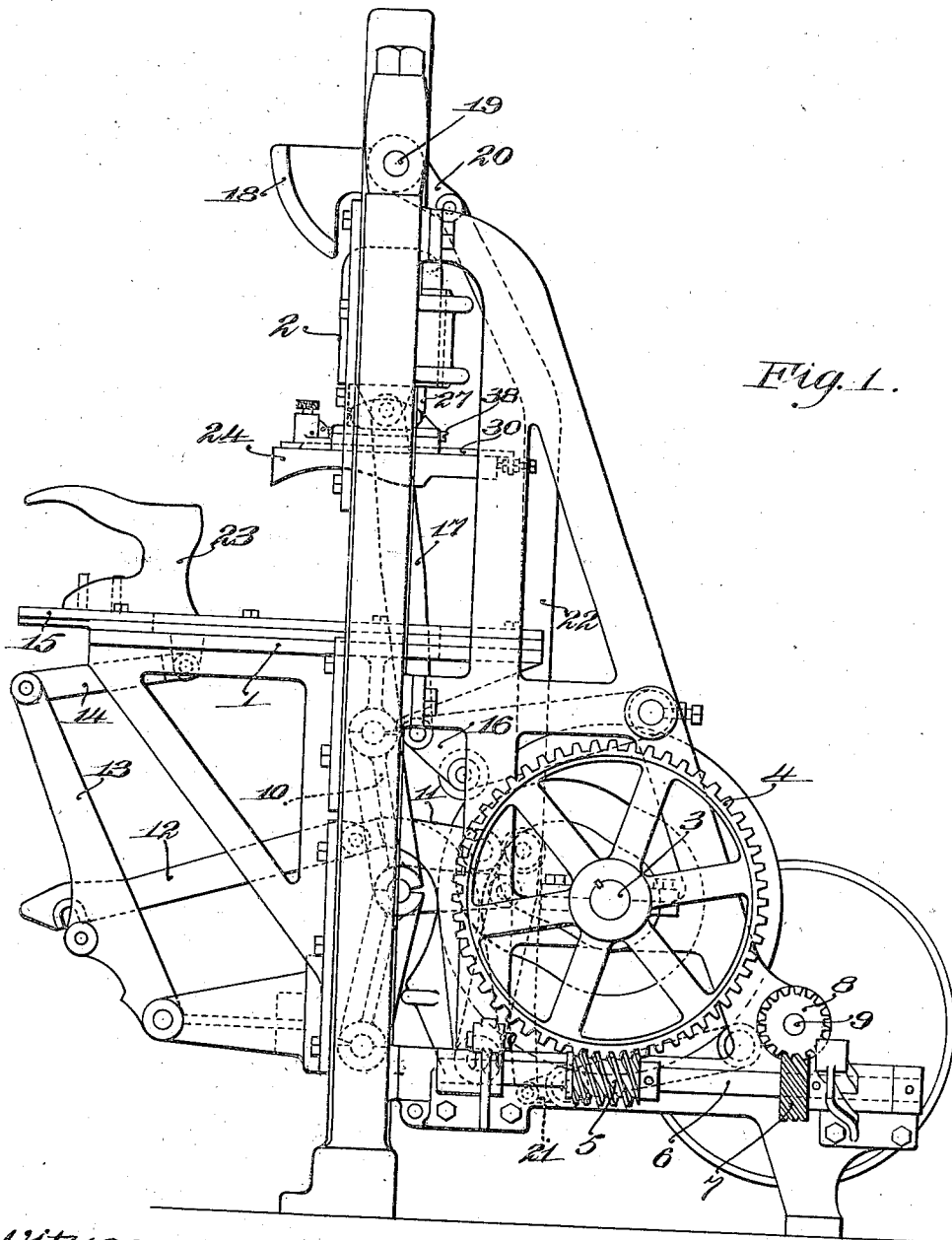


Fig. 1.

Witnesses

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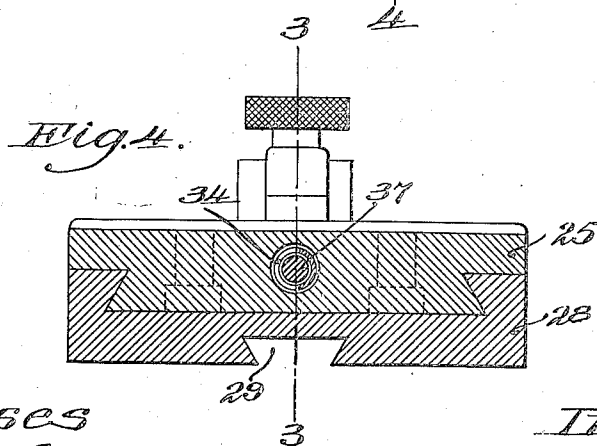
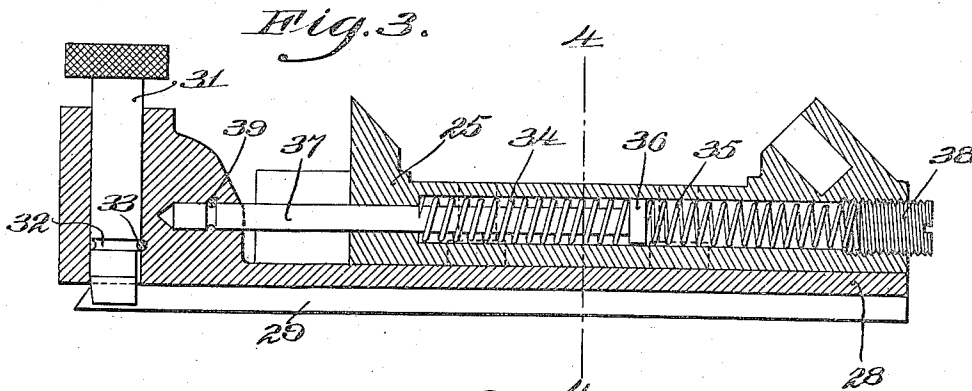
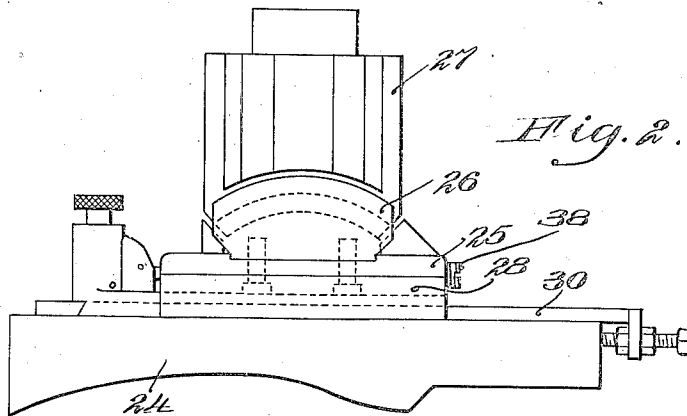
Benjamin F. Mayo
by his Attorneys
Phillips Van Coven & Fish

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SOLE-PRESSING MACHINE.

960,980.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed March 10, 1906. Serial No. 305,232.

To all whom it may concern:

Be it known that I, BENJAMIN F. MAYO, a citizen of the United States, residing at Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Pressing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to sole pressing machines and is designed primarily for use in connection with sole leveling machines although it is not limited thereto, but may be used in connection with other forms of sole pressing machines such, for instance, as sole molding machines which are adapted to act upon flat soles before they are incorporated in a shoe, the sole pressing molds of such machines being the equivalent of the shoe supporting jack and sole pressing form of the sole leveling machine hereinafter described and claimed.

In the manufacture of shoes provided with spring heels the outer sole before being applied to the shoe is molded so as to form a sharp bend or break in the sole at the junction of the shank and heel portion, which bend or break forms the breast of the heel in the completed shoe. After the sole has been molded the heel lifts are applied and then the sole is secured to the shoe. The heel is thus applied to the shoe before the sole is leveled. In order to properly level the sole it is necessary that the sole pressing form of the leveling machine act upon the heel portion as well as upon the other portions of the sole, and to this end the heel portion of the form is cut away to form a recess which receives the heel portion of the sole. To produce the best results it is necessary that the recess in the form accurately fit the heel portion of the sole, and particularly that the front wall of the recess fit accurately against the inclined portion of the sole which forms the breast of the heel as otherwise the bend in the sole produced by the sole molding machine is more or less obliterated instead of being retained and accentuated by the sole leveling operation. The position of the inclined portion of the sole which forms the breast of the heel, however, varies with relation to the other

parts of the shoe, this variation being due to various causes, such, for instance, as lack of uniformity in the sole molding operation or to a slight displacement of the sole during the sole laying operation.

In sole leveling machines as heretofore constructed the sole pressing form is held rigidly in position with relation to the shoe supporting jack during the sole leveling operation and as a consequence the heel portion of the sole is not properly acted upon when the position of the breast varies.

The object of the present invention is to overcome this difficulty in the operation of sole leveling machines, and to this end the invention contemplates so supporting the sole pressing form and the shoe supporting jack as to permit a relative longitudinal yielding movement of the jack and form when the form is brought into engagement with the sole so that the recess in the heel portion of the form is caused to register accurately with the heel portion of the sole.

Broadly considered, the invention contemplates the provision of means whereby either the jack or the form or both are permitted to move longitudinally when the form is brought into engagement with the sole. In sole leveling machines, however, it is desirable that the jack be held from longitudinal movement to enable the operator to work upon the sole of the shoe before and after the sole pressing operation, as may be necessary, and for this reason it is considered preferable to provide means for permitting a yielding longitudinal movement of the sole pressing form. The provision of means for permitting the form to move longitudinally also contributes to compactness and simplicity of construction and to certainty of operation. The means for permitting a relative yielding longitudinal movement of the jack and form may be constructed and arranged in any desired manner, but is preferably arranged to permit the form to move longitudinally in either direction.

In the preferred form of the invention hereinafter specifically described, a form carrier is provided which comprises a base portion, a slide mounted thereon, opposed springs interposed between the carrier and the slide arranged to permit a longitudinal movement of the slide in either direction, and means for removably securing the form

to the slide in a position to move longitudinally with the slide.

The several features of the present invention will be clearly understood from an inspection of the accompanying drawings in which—

Figure 1 is a view in side elevation of so much of a well-known form of sole leveling machine as is necessary to show the connection of the present invention therewith. Fig. 2 is a detail view in side elevation of the sole pressing form, the form carrier and the block upon which the form carrier is mounted. Fig. 3 is a central longitudinal sectional view of the form carrier taken on the line 3—3 of Fig. 4, and Fig. 4 is a cross-sectional view of the form carrier taken on the line 4—4 of Fig. 3.

For convenience of illustration the present invention has been illustrated in connection with a well-known form of sole leveling machine and only so much of said machine has been shown as is necessary to indicate the arrangement and mode of operation of its principal parts. This machine, as illustrated in Fig. 1 of the drawings, comprises a vertically reciprocating table 1 upon which the jacks are mounted and upon which the jacks are movable horizontally from a position at the front of the machine to a position in vertical alinement with their cooperating sole pressing forms, a vertically movable cross-head 2 from which the sole pressing forms are supported, mechanism for reciprocating the jacks on the table 1, mechanism for permitting the cross-head 2 to move downwardly until a sole pressing form is seated upon the sole of a shoe, mechanism for raising and lowering the table 1 to press the sole of the shoe, mechanism for locking the cross-head 2 in position during the upward movement of the table 1, and mechanism for raising the cross-head 2 after the sole pressing operation has been completed. These mechanisms are all actuated from a cam shaft 3 journaled in the rear portion of the machine frame and provided with a worm wheel 4 with which a worm 5 meshes secured upon a shaft 6 journaled in the machine frame beneath and at right angles to the shaft 3. At its rear end the shaft 6 is provided with a spiral gear 7 which meshes with a spiral gear 8 upon the main driving shaft 9. The mechanism for actuating the table 1 consists of a toggle lever 10, a cam on the shaft 3 and a link connecting the cam and the toggle lever. The inward and outward movements of the jacks on the table 1 are produced by means of a cam on the shaft 3 acting through a lever 11, and links 12 upon levers 13 pivoted at their lower ends upon brackets secured to the slide which carries the table 1 and connected at their upper ends by means of links 14 to the jack slides 15. The mechanism for raising the cross-head 2 after the sole of a shoe has

been pressed, and for permitting the cross-head to move downwardly to seat a form upon the sole of a shoe, comprises a cam on the shaft 3, a lever 16 provided with a roll bearing against the cam, and a link 17 connecting the lever 16 and the cross-head 2. The mechanism for locking the cross-head 2 during the upward movement of the table 1 in pressing a sole comprises locking cams 18 secured to a rock shaft 19 mounted in the frame of the machine above the cross-head, an arm 20 projecting rearwardly from the rock shaft 19, a lever 21, a link 22 connecting the arm 20 and the lever 21, and a cam on the shaft 3 engaging a roll on the lever 21.

The construction and mode of operation of the parts so far described are substantially the same as the corresponding parts of a sole leveling machine which has gone into extensive use and which is well known by persons familiar with sole leveling machines, and further description and illustration of the mechanism of this machine is considered unnecessary.

In applying the present invention to the machine illustrated in Fig. 1, means have been provided for permitting a relative longitudinal yielding movement between a shoe supporting jack 23 and its cooperating sole pressing form 24. In the embodiment of the invention illustrated in the drawings the jack 23 is mounted upon its slide 15 in the usual manner, and means are provided for yieldingly holding the form 24 in position to cooperate with the jack while permitting it to move longitudinally in either direction when brought into engagement with the sole. The manner in which the sole pressing form 24 is mounted will be apparent from an inspection of Figs. 2, 3 and 4. Referring to these figures, 25 indicates a plate which forms a portion of the base of a form carrier, the remaining portion of the base consisting of a block 26 to which the plate 25 is secured, and which is mounted upon a block 27 so as to be capable of a slight rocking movement, this construction being that which has heretofore been employed in this class of machines. Upon the plate 25 of the form carrier is mounted a slide 28, which slide forms the lower portion of the form carrier, as best illustrated in Figs. 3 and 4. In the lower face of the slide 28 a dove-tailed groove 29 is provided which receives the strap 30 adjustably secured to the upper surface of the sole pressing form. At its forward end the slide 28 is provided with a vertical locking pin 31 which is adapted to engage a hole in the strap 30 and thus lock the sole pressing form to the slide. The locking pin 31 is provided with a groove 32 with which a cross-pin 33 engages to hold the pin in its lowest position. Below the groove the locking pin is provided with a flattened portion

on one side, so that by rotating the pin the flat portion may be brought beneath the cross-pin 33 and the locking pin may be raised to unlock the form and permit the form to be removed from the carrier. By means of the dove-tailed groove 29 and the locking pin 31, the sole pressing form is secured to the form carrier in a position which causes it to move longitudinally when the slide 28 is moved. The slide 28 is yieldingly held in position on the plate 25 by coiled springs 34 and 35, which springs are located in a recess in the plate 25 and act in opposite directions upon the head 36 of a rod 37 projecting from the front end of the slide 28 into the recess for the springs. The spring 34 is interposed between the head 36 of the rod and the shoulder at the forward end of the recess for the springs, and the spring 35 is interposed between the head 36 of the rod and a screw-threaded plug 38 at the rear end of the recess. The rod 37 is secured to the slide 28 by means of a cross-pin 39 engaging a groove in the rod.

Except for the action of the springs 34 and 35, the slide 28 is free to move longitudinally on the plate 25, and thus the springs act to hold the slide yieldingly in position while permitting it to move longitudinally when the sole pressing form is brought into engagement with the sole of a shoe. This longitudinal movement of the slide 28 is sufficient to permit the recess at the heel end of the sole pressing form to register accurately with the heel portion of the sole so that the heel portion of the sole is properly leveled, and the bend or break in the sole produced by the sole molding machine is retained and accentuated.

The nature and scope of the present invention having been indicated and the preferred embodiment of the invention having been specifically described, what is claimed is:—

1. A sole pressing machine, having, in combination, a shoe supporting jack, a sole pressing form, means for actuating the jack and form to press the sole of a shoe supported upon the jack, and means for supporting the jack and form constructed to permit a relative longitudinal yielding movement of the jack and form while pressing a sole.

2. A sole pressing machine, having, in combination, a shoe supporting jack, a sole pressing form, means for actuating the jack and form to press the sole of a shoe supported upon the jack, and yielding means for supporting the form arranged to permit

the form to move longitudinally when brought into engagement with the sole.

3. A sole pressing machine, having, in combination, a shoe supporting jack, a sole pressing form, means for actuating the jack and form to press the sole of a shoe supported upon the jack and yielding means for holding the form in position to cooperate with the jack, arranged to permit a longitudinal movement of the form in either direction when brought into engagement with the sole.

4. A sole pressing machine, having, in combination, a shoe supporting jack, a sole pressing form, means for actuating the jack and form to press the sole of a shoe supported upon the jack, a form carrier comprising a base and a form carrying slide mounted thereon, yielding means for holding the slide in position on the base arranged to permit the slide to move when the form is brought into engagement with the sole and means for removably securing the form to the slide in a position to move longitudinally with the slide.

5. A sole pressing machine, having, in combination, a shoe supporting jack, a sole pressing form, means for actuating the jack and form to press the sole of a shoe supported upon the jack, a form carrier comprising a base and a form supporting slide mounted thereon, springs interposed between the slide and the base arranged to hold the slide yieldingly in position while permitting it to move in either direction when the form is brought into engagement with the sole, and means for removably securing the form to the slide in a position to move longitudinally with the slide.

6. A form carrier for sole pressing machines, having, in combination, a base, and yielding means for holding a form in position thereon arranged to permit the form to move longitudinally when brought into engagement with a sole.

7. A form carrier for sole pressing machines, having, in combination, a base, a form carrying slide mounted thereon, opposed springs arranged to hold the slide in position while permitting it to move in either direction when the form is brought into engagement with a sole and means for removably securing the form to the slide.

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

BENJAMIN F. MAYO.

Witnesses:

FRED O. FISH,
FARNUM F. DORSEY.