

C. L. PARKER & W. C. COLLYER.
SOLE LEVELING MACHINE.
APPLICATION FILED DEC. 26, 1905.

939,621.

Patented Nov. 9, 1909.
2 SHEETS—SHEET 1.

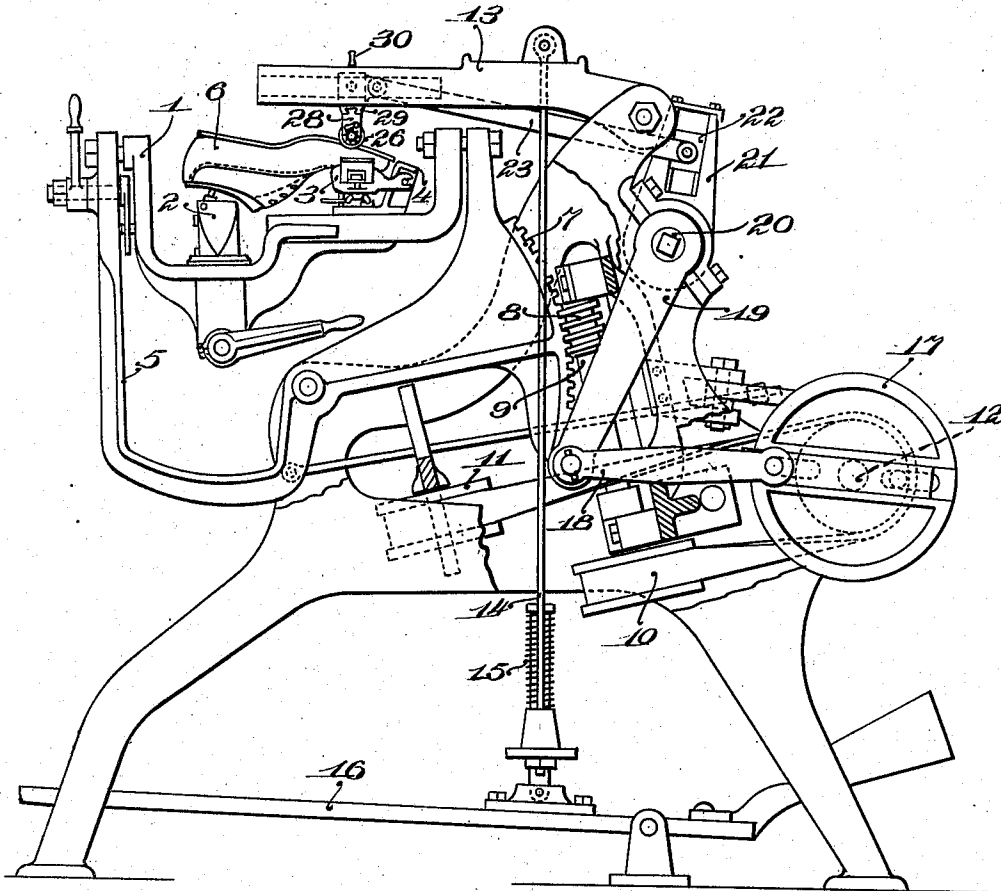


Fig. 1.

Witnesses

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C. L. PARKER & W. C. COLLYER.
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939,621.

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2 SHEETS—SHEET 2.

Fig. 2.

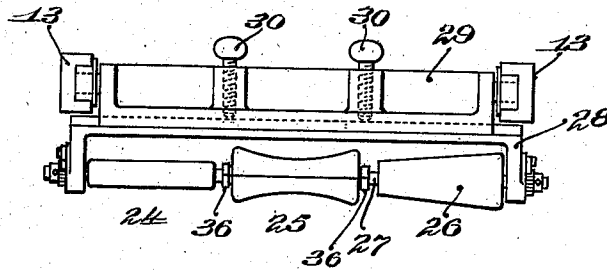


Fig. 3.

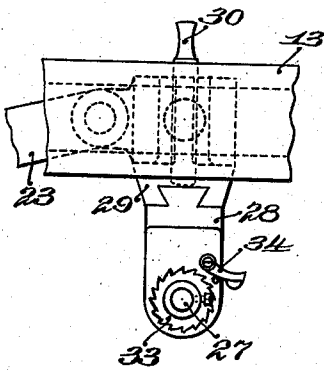


Fig. 4.

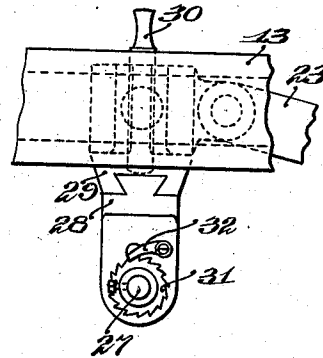


Fig. 5.

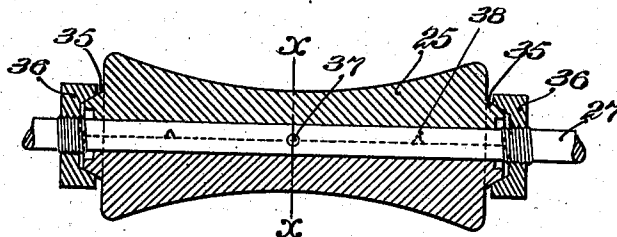
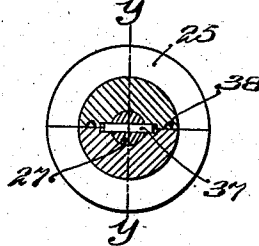


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

CHANDLER L. PARKER, OF LYNN, AND WILLIAM C. COLLYER, OF READING, MASSACHUSETTS, ASSIGNORS TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SOLE-LEVELING MACHINE.

939,621.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed December 26, 1905. Serial No. 293,176.

To all whom it may concern:

Be it known that we, CHANDLER L. PARKER and WILLIAM C. COLLYER, citizens of the United States, residing at Lynn and Reading, respectively, in the counties of Essex and Middlesex, respectively, and State of Massachusetts, have invented certain new and useful Improvements in Sole-Leveling Machines; and we 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 leveling machines, and particularly to that class of sole leveling machines which comprise a shoe supporting jack and a leveling roll mounted for relative movement to transfer the point of operation of the roll over the sole of the shoe.

An object of the present invention is to improve the construction, arrangement and mode of operation of the leveling device or devices of this class of sole leveling machines with a view to increasing the speed with which the leveling operation is performed and to securing improved results upon the sole.

With the above object in view a feature of the present invention contemplates the provision in a sole leveling machine provided with a shoe supporting jack of means for exerting a rolling and a rubbing action upon the sole of a shoe to level the same. The rolling action is the same as that which is produced by the leveling roll or rolls of vibrating roll sole leveling machines which are now commonly used, this rolling action serving to press the sole snugly against the bottom of the last and cause it to conform thereto. The rubbing action serves to smooth out the sole and polish the surface thereof in substantially the same manner as a rub stick when used by an operator in leveling turned shoes. By subjecting the sole to both a rolling and a rubbing action, the sole is quickly pressed down upon the bottom of the last and smoothed out so as to conform accurately thereto and at the same time the tread surface of the sole is

smoothed and polished in a manner which greatly facilitates the subsequent operations of buffing, staining and polishing the sole.

Broadly considered, the present invention contemplates the provision of any suitable means for exerting a rolling and a rubbing action upon the sole. It is preferred, however, to use a sole leveling roll for producing both of these actions, since a sole leveling roll gives results which are highly satisfactory, and by the use of a roll the machine can be constructed in a compact and simple manner. In order to cause the sole leveling roll to exert both a rolling and a rubbing action upon the sole, the present invention contemplates vibrating the roll while in contact with the sole and locking the roll from rotation during its vibrating movement in one direction, the roll being free to rotate on its axis during its vibrating movement in the opposite direction. The roll may be locked from rotation while moving in either direction but it is preferred to lock the roll during its movement toward the toe end of the sole as thereby the fibers of the sole may be acted upon in the same direction as they are subsequently acted upon in the operations of buffing and finally polishing the sole. Also when the machine is used upon soles provided with a channel in the tread surface, the roll is allowed to rotate while moving in a direction tending to open up the channel flap and during its rubbing movement exerts a wiping action upon the channel flap which lays it smoothly over the channel.

In the operation of sole leveling machines which comprise a sole leveling roll or rolls, difficulty is experienced in causing the roll to act properly upon different styles of shoes, and particularly upon the shank portion of the sole. An object of the present invention is to provide a machine by which this difficulty is avoided and by which the soles of different styles of shoes can be quickly and readily leveled in a satisfactory manner. With this object in view a feature of the present invention contemplates the provision, with a shoe supporting jack, of a plurality of sole leveling rolls, and means for

supporting the jack and rolls which permits a relative adjustment of the jack and rolls to bring any roll into cooperative relation with the jack. In accordance with this feature of the invention a number of sole leveling rolls of different shapes and sizes may be provided, any one of which may be brought into cooperative relation with the jack so that a roll which is of the proper size and shape to act upon the particular style of shoe being operated upon, may be used.

The various 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 a sole leveling machine embodying the same in their preferred form; Fig. 2 is a detail view in front elevation of the sole leveling rolls and of the mechanism by which they are supported in the machine; Fig. 3 is a view in end elevation of the parts illustrated in Fig. 2 looking toward the left; Fig. 4 is a view in end elevation of the parts illustrated in Fig. 2 looking toward the right; Fig. 5 is a cross sectional view of one of the leveling rolls taken on the line $x-x$ of Fig. 6; and Fig. 6 is a longitudinal sectional view of the roll taken on the line $y-y$ Fig. 5.

For convenience of illustration the several features of the present invention have been shown in the accompanying drawings as applied to a well-known form of vibrating roll sole leveling machine, which machine is disclosed in the patents to Gilmore No. 266,283, dated October 24, 1882, and No. 344,650 dated June 29, 1886.

Referring to the drawings, 1 indicates the shoe supporting jack which is provided with a heel support 2, a toe support 3 and a roll receiver 4. This jack is pivotally mounted in a frame 5 so as to be capable of a lateral swinging movement to bring the sole of the shoe indicated at 6 into the desired position with relation to the leveling roll which is being used. The frame 5 is pivoted upon the main frame of the machine and is provided with a segmental rack 7 with which a worm 8 meshes, and by means of which the frame 5 is oscillated to cause the sole of the shoe to pass back and forth beneath the leveling roll.

The worm 8 is secured to a shaft 9 which is rotated alternately in opposite directions by means of a belt 10 passing over a pulley on the lower end of the shaft, over an idler pulley 11, and over pulleys upon the main driving shaft 12. The leveling rolls are supported in a frame 13 pivotally mounted at its rear end upon the frame of the machine so as to be capable of a vertical swinging movement to keep the leveling roll which

is being used in contact with the sole of the shoe. The frame 13 is connected by means of rods 14 and springs 15 to a foot treadle 16 by means of which the leveling roll may be forced against the sole of the shoe with the desired pressure. The leveling rolls are supported in the frame 13 by means of a reciprocating slide hereinafter referred to, to which a rapid vibrating movement is imparted from the shaft 12 by means of a crank disk 17, a link 18 connecting the crank disk to the lower end of an arm 19 secured upon a rock shaft 20, slotted arms 21 secured to the rock shaft, blocks 22 adjustably mounted in the slotted arms, and links 23 connecting the blocks to the reciprocating slide.

The mechanism so far described, and all other parts not hereinafter specifically referred to, are constructed and arranged to operate in the same manner as the corresponding mechanism and parts of the machine disclosed in the patent to Gilmore No. 344,650, to which patent reference may be had for a full disclosure thereof.

In the specific embodiment of the present invention illustrated in the drawings, three leveling rolls are provided indicated at 24, 25 and 26, and these leveling rolls are all secured to a shaft 27 so as to rotate therewith. The shaft 27 is journaled at its ends in downwardly extending portions of a carrier 28 which is mounted in the reciprocating slide 29 so as to be capable of adjustment laterally with relation to the shoe supporting jack, the object of this adjustment being to enable any one of the three leveling rolls to be brought into cooperative relation with the jack. The carrier 28 is provided with a dove-tail projection (see particularly Figs. 3 and 4) which is received in a correspondingly shaped slot in the lower surface of the slide 29, and the carrier is held in any position to which it is adjusted by means of locking screws 30 having a screw-threaded engagement with the slide and arranged to bear against the upper surface of the carrier 28.

To cause the leveling roll which is in cooperative relation with the jack to exert alternately a rubbing and a rolling action upon the sole of the shoe, a ratchet wheel 31 is secured to one end of the shaft 27, as best shown in Fig. 4, and a pawl 32 is pivotally mounted upon the frame 28 and arranged to engage the teeth of the ratchet wheel. The shaft 27 is thus allowed to rotate freely on its axis during the vibrating movement of the leveling roll in one direction and is held from rotation during the movement of the leveling roll in the opposite direction, and the roll is caused to alternately roll and rub the sole. As illustrated in the drawings, the ratchet wheel 31 and the pawl 32

are so arranged that while the roll is moving toward the heel end of the sole it is allowed to rotate on its axis, and while the roll is moving toward the toe end of the sole it is held from rotation so that the rubbing action is exerted in a direction extending from the heel end of the sole toward the toe end of the sole. The advantages secured by so actuating the roll have been hereinbefore stated.

It is sometimes desirable to prevent the rotation of the leveling roll while the roll is moving in both directions to cause the roll to rub the sole without exerting any rolling action thereon. To this end in the construction illustrated in the drawings a ratchet wheel 33 is provided upon the other end of the shaft 27 and a pawl 34 is pivoted to the frame 28 and arranged so that it may be swung into engagement with the ratchet wheel. Normally the pawl 34 is swung out of engagement with the ratchet wheel 33 as indicated in Fig. 3, so that the leveling roll is free to rotate during its vibrating movement in one direction. When, however, the pawl is swung into engagement with the ratchet wheel, the rotation of the roll during its movement in one direction is prevented, and if the pawl 32 is in engagement with the ratchet 31 the rotation of the roll is prevented during the vibrating movement of the roll in both directions. By swinging the pawl into engagement with the ratchet 33 and swinging pawl 32 out of engagement with the ratchet 31, the leveling roll may be caused to exert a rubbing action on the sole during its vibrating movement toward the heel end of the sole if desired.

As illustrated in Fig. 2, three leveling rolls are provided, the roll 24 being of comparatively small diameter and cylindrical in shape, the roll 25 being concave longitudinally, and the roll 26 being conical. It is preferred to use these three shapes of rolls, as by their use a great many different styles of shoes can be leveled in a satisfactory manner, the roll 25 being used on ordinary styles, the roll 24 being used on shoes having high arches, and the roll 26 being used on shoes having excessive swing.

It is often necessary or desirable to substitute a roll of a different size or shape for one of the leveling rolls, to suit the particular style of work being operated upon. As illustrated in Figs. 5 and 6, the roll 25 is constructed so that an interchange of rolls may be made easily and quickly. As illustrated, the roll 25 is divided longitudinally into two sections, so that the sections are removable from the machine in directions extending radially of the roll. The two sections are provided at their ends with projections 35 which are engaged by clamping nuts 36 threaded upon the shaft 27, and by means of which the

sections of the roll are secured together and to the shaft. To securely lock the roll to the shaft 27, a pin 37 is provided, extending through the shaft and projecting into recesses formed in the sections of the roll. The two sections of the roll are also provided with corresponding recesses and projections indicated at 38, which assist in preventing the two sections of the roll from moving longitudinally with relation to each other.

The nature and scope of the present invention having been indicated, and a machine embodying the various features thereof in their preferred form having been specifically described, what is claimed is:—

1. A sole leveling machine, having, in combination, a shoe supporting jack and means acting automatically to exert a rolling and a separate rubbing action upon the sole of a shoe supported upon the jack to level the sole.

2. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling roll, and means for actuating the roll to exert upon the sole of a shoe supported upon the jack an alternate rolling and rubbing action to level the sole.

3. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling roll, means for vibrating the roll while in contact with the sole of a shoe supported upon the jack, and means for locking the roll from rotation during its vibrating movement in one direction.

4. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling roll, means for vibrating the roll while in contact with the sole of a shoe supported upon the jack, said roll being free to rotate on its axis during its vibrating movement toward the heel end of the sole and means for locking the roll from rotation during its vibrating movement toward the toe end of the sole.

5. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling roll, means for vibrating the roll while in contact with the sole of a shoe supported upon the jack, and means for locking the roll from rotation during its vibrating movement in either direction while permitting the roll to rotate on its axis during its vibrating movement in the opposite direction.

6. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling roll, means for vibrating the roll while in contact with the sole of a shoe supported upon the jack, and means for locking the roll from rotation during its vibrating movement in both directions arranged to be thrown out of operation to permit rotation of the roll.

7. A sole leveling machine, having, in

combination, a shoe supporting jack, a plurality of sole leveling rolls and means for supporting the jack and rolls permitting a relative lateral adjustment of the jack and
5 rolls to bring each roll into coöperative relation with the jack.

8. A sole leveling machine, having, in combination, a shoe supporting jack, a plurality of sole leveling rolls, and a carrier
10 for the rolls laterally movable with rela-

tion to the jack to bring each roll into operative relation with the jack.

In testimony whereof we affix our signatures, in presence of two witnesses.

CHANDLER L. PARKER.
WILLIAM C. COLLYER.

Witnesses:

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FARNUM F. DORSEY.