No. 681,837. Patented Sept. 3, 1901.

J. R. SCOTT.

SOLE BUFFING MACHINE.

(Application filed Nov. 3, 1900.)

(No Model.)

Fig. 1.

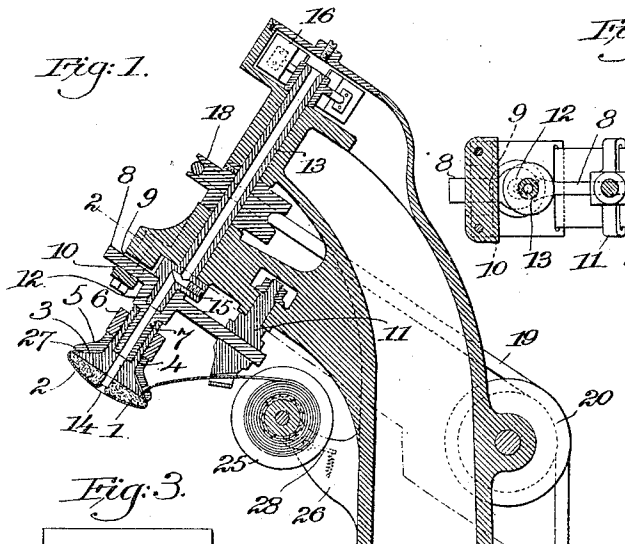


Fig. 2.

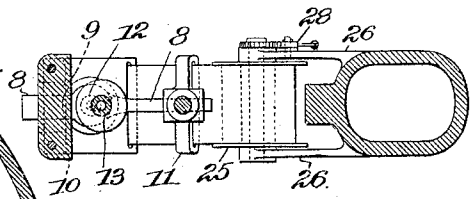


Fig. 3.

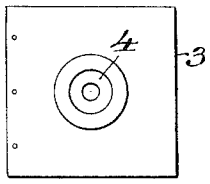


Fig. 4.

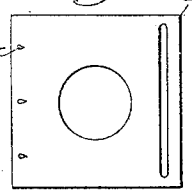
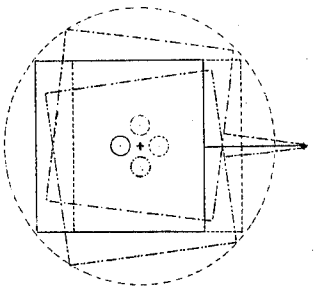
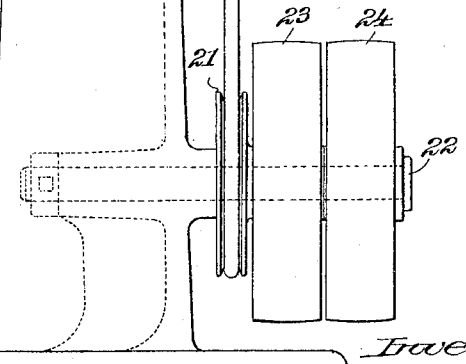


Fig. 5.





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UNITED STATES PATENT OFFICE.

JACOB R. SCOTT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY.

SOLE-BUFFING MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,837, dated September 3, 1901.

Application filed November 3, 1900. Serial No. 35,330. (No model.)

To all whom it may concern:

Be it known that I, JACOB R. SCOTT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sole-Buffing 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 machines for buffing the soles of boots and shoes.

In the manufacture of boots and shoes it is customary to clean off the bottom of the soles and heels by means of buffing-machines in order to provide a clean smooth surface suitable for receiving the stain or dressing and for being polished. A sole-buffing machine comprises a suitable buffing-pad and means for moving the pad while the sole of a shoe is in contact therewith to remove the dirt and inequalities from the bottom of the sole. In sole-buffing machines as heretofore usually constructed the pad has either been rotated or given a to-and-fro oscillating or reciprocating movement. In such movements all portions of the pad move in the same direction, and throughout the movement of the pad each portion travels in a path which extends in the same direction as and remains at the same distance from the path of every other portion—that is, the paths of different portions of the pad do not intersect. As the movement of the pad is very rapid as compared with the movement of the shoe by the operator, the pad acts to produce a series of scratches extending in the same direction on the bottom of the shoe-sole. To obliterate these scratches and produce a smooth surface they must be crossed by other scratches, to accomplish which the shoe-sole must be moved back and forth beneath the pad several times. Moreover, since the different portions of the pad travel in paths which extend in the same direction and remain at the same distance from each other, particles of dust accumulated by one portion of the pad remain in that portion, as the movement of the pad does not tend to dislodge them. The dust thus accumulated soon glazes over the abrading-surface of the pad, rendering the frequent renewal of such surface necessary.

The object of my invention is to provide a sole-buffing machine which shall be free from the objections above noted; and with this object in view my invention consists in a sole-buffing machine provided with a buffing-pad of improved means for actuating the pad to cause different portions thereof to travel in intersecting paths. By so moving the pad the scratches produced by one portion of the pad are immediately crossed by those produced by another portion and a smooth surface produced without repeatedly moving the sole back and forth beneath the pad. The efficiency of the machine is thus increased. Furthermore, by so moving the pad the particles of dust collected by any one portion of the pad will be worked away from such portion and rolled in different directions, thereby preventing the abrading-surface from becoming glazed over and prolonging the life of such surface.

For removing the dust from the surfaces of the pad and sole and for cooling such surfaces my invention also contemplates providing the working face of the pad with an aperture and providing a suitable suction device for removing the dust through said aperture. In my pending application, Serial No. 35,329, of even date, I have disclosed a buffing-pad provided with an aperture in its working face and a suction device for removing the dust from the surfaces of the pad and sole through said aperture and have claimed the same broadly therein. I do not therefore desire to broadly claim this arrangement herein, but only as applied to a buffing-pad having the movements above described.

Other features of my invention will be pointed out in the following description and defined in the claims.

A preferred form of my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a buffing-machine embodying the same, the lower part of the machine-frame being shown in elevation. Fig. 2 is a sectional plan view on the line 2 2, Fig. 1. Fig. 3 is a top plan view of the block to which the buffing-

pad is secured. Fig. 4 is a bottom plan view of the clamp for the abrasive covering of the pad, and Fig. 5 is a diagrammatic view illustrating the movement of the pad.

Referring to the drawings, in which like characters of reference indicate like parts, 1 designates the pad, of felt or other suitable material, and 2 the abrasive covering therefor, of sandpaper or emery-cloth. As shown, the pad 1 is rectangular and is secured to the lower rectangular face of a block 3, provided with an upwardly-extending cylindrical portion 4. The covering 2 is stretched over the face of the pad and bent inwardly over the beveled lower edges of the block 3 and clamped in position by means of a clamp 5. The clamp 5 is provided with a cylindrical portion surrounding the cylindrical portion of the block 3 and with downwardly-extending walls the lower edges of which bear against the inturned edges of the covering 2 and clamp them against the lower beveled edges of the block. The clamp is operated by a nut 6, having a screw-threaded engagement with the cylindrical portion of the block 3, bearing against the upper end of the clamp. The block 3 is secured to a stud 7, projecting downwardly from a carrier plate or slide 8, the forward end of which is mounted in a guiding-slot 9, formed in the machine-frame, the arrangement being such that the slide is free to move longitudinally and laterally in the slot. The lower portion of the slot is formed by a plate 10, secured to the frame by means of suitable bolts. The rear end of the slide 8 is mounted so as to be free to reciprocate longitudinally in a block 11, pivotally mounted on the frame of the machine. The slide 8 is thus free to reciprocate longitudinally and oscillate laterally, and for so moving the slide an opening is formed in the slide in line with the projecting stud 7, in which is fitted a crank-pin 12 of a shaft 13, journaled in the upper portion of the machine-frame. By this construction as the shaft 13 is rotated the slide 8 and the buffing-pad carried thereby will be given longitudinally-reciprocating and laterally-oscillating movements by means of the crank-pin 12.

The movements imparted to the pad will be clearly understood from an inspection of Fig. 5, in which the pad is shown in four of the positions which it assumes during a single rotation of the shaft 13. From an inspection of this figure it will be seen that different portions of the pad travel in intersecting paths, and that consequently the scratches produced on the sole by one portion of the pad will be immediately crossed by the scratches produced by another portion. By so moving the pad a smooth clean surface is rapidly produced. Moreover, this movement of the pad tends to dislodge the particles of dust which accumulate under any one portion of the pad and to roll the particles in different directions, thereby preventing the accumulated dust from glazing over the abrasive surface of the pad.

As a means for removing the dust from the surface of the sole and pad and thereby keeping the abrasive surface of the pad clean and for still further preventing the glazing over of such surface by the accumulated dust, and for cooling the surfaces of the pad and sole to thereby allow the pad to be actuated at a high rate of speed without danger of blackening the sole by the heat developed, the pad and its abrasive covering are provided with an aperture 14, through which air is drawn by a suitable suction device. The shaft 13, the crank-pin 12, and the projecting stud 7 are hollow to form a passage-way which communicates with the aperture 14 in the pad by means of a passage-way formed in the block 3, the passage-ways formed by the hollow shaft 13 and crank-pin 12 being connected by a passage-way bored in the crank-disk which carries the crank-pin 12 and closed by a screw 15. The suction device for causing a draft of air up through the aperture 14 and passage-way formed by the stud 7, crank-pin 12, and shaft 13 consists of a fan 16, secured to the upper end of the shaft 13 and located in a chamber in the upper portion of the machine-frame. This chamber communicates with the hollow upper portion of the machine-frame, from the lower part of which hollow portion a discharge-pipe 17 leads. For rotating the shaft 13 a pulley 18 is secured to the shaft, said pulley being counterbalanced on one side to compensate for the weight of the block 3 and associated parts, and over said pulley passes a belt 19, said belt also passing over idle pulleys 20, journaled in the upper portion of the machine-frame, and a driving-pulley 21, secured to a driving-shaft 22, journaled in the lower portion of the machine-frame and provided with suitable fast and loose pulleys 23 and 24.

The abrasive covering for the pad 1 is preferably a part of a continuous strip in roll form supported on a spool journaled in suitable bearings in the machine-frame. The spool for the roll is shown at 25 and is journaled in brackets 26, projecting forwardly from the upper portion of the machine-frame. From the spool the strip of abrasive material passes through a slotted yoke depending from the bearing 11 for the slide 8 and then passes through a slot in the clamp 5. By this construction as the abrasive covering of the pad becomes worn out the clamp 5 can be raised and a fresh supply of abrasive material drawn from the spool 25. The abrasive surface of the pad can thus be renewed without loss of time and also a considerable saving of the abrasive material is effected, since only a sufficient quantity of material need be drawn from the spool to replace the worn-out surface. The forward end of the clamp 5 is provided with pins 27, which serve as a convenient means for temporarily holding the for-

ward end of the strip of abrasive material in position while the clamp 5 is raised. These pins also add to the security with which the forward edge of the strip is held when the clamp is lowered. By passing the strip of abrasive material through a slot in the clamp 5 I am enabled to clamp the material at both the front and rear edges of the pad and hold it as securely as if it were supplied in separate pieces instead of from a continuous strip. Sufficient slack material is left between the pad and the spool to allow the pad to move without pulling the material from the roll. To take up any undue amount of slack and to prevent the strip from being pulled from the roll by the action of the pad, a spring-pressed pawl 28, pivoted to one of the brackets 26, is arranged to engage a ratchet-wheel on the end of the spool.

It is to be understood that the machine above described embodies my invention in its preferred form only and that in embodying the broad features of my invention the buffing-pad may be of any suitable shape and changes may be made in the means employed for actuating the pad to cause different portions thereof to travel in intersecting paths. Also the suction device or apparatus may be of any convenient or desirable form.

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

1. A sole-buffing machine, having, in combination, a buffing-pad, a carrier to which the pad is secured, a bearing for one end of the carrier arranged to allow the carrier to move longitudinally and laterally therein, a bearing for the other end of the carrier arranged to allow the carrier to move longitudinally therein, a shaft, means for rotating the shaft, and connections between the shaft and carrier for imparting to the carrier longitudinally-reciprocating and laterally-oscillating movements, substantially as described.

2. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, means for imparting to the pad longitudinally-reciprocating and laterally-oscillating movements, and a suction device acting to remove dust from the surfaces of the sole and pad through said aperture, substantially as described.

3. A sole-buffing machine, having, in combination, a buffing-pad, a carrier to which the pad is secured, a bearing for one end of the carrier arranged to allow the carrier to move longitudinally and laterally therein, a bearing for the other end of the carrier arranged to allow the carrier to move longitudinally therein, a shaft, a crank-pin thereon fitting an opening in the carrier and means for rotating the shaft, substantially as described.

4. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, means for actuating the pad to cause different portions thereof to travel in intersecting paths and a suction device acting to remove dust from the surfaces of the sole and pad through said aperture, substantially as described.

5. A sole-buffing machine, having, in combination, a buffing-pad provided with an aperture in its working face, a carrier to which the pad is secured, a bearing for one end of the carrier arranged to allow the carrier to move longitudinally and laterally therein, a bearing for the other end of the carrier arranged to allow the carrier to move longitudinally therein, a hollow shaft, a hollow crank-pin thereon fitting an opening in the carrier, the passage-ways formed by the hollow crank-pin and shaft communicating with each other and with said aperture, means for rotating the shaft and a suction device acting to remove the dust from the surfaces of the sole and pad through said aperture, hollow crank-pin and shaft, substantially as described.

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

JACOB R. SCOTT.

Witnesses:

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