W. R. CAMPBELL.

SHOE POLISHING MACHINE.

APPLICATION FILED JULY 22, 1910.

997,113.

Patented July 4, 1911.

3 SHEETS—SHEET 1.

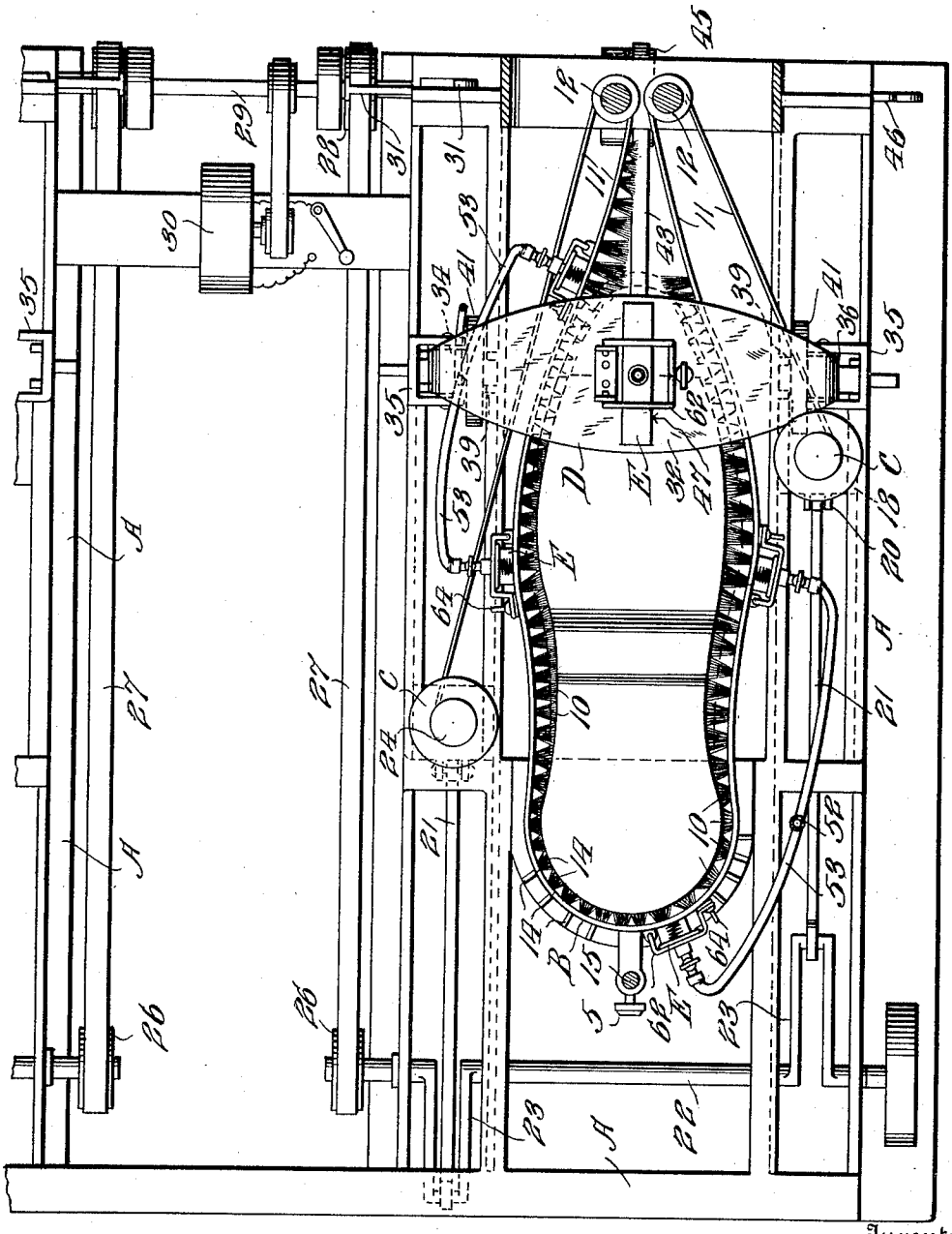

Fig. 1.

Witnesses

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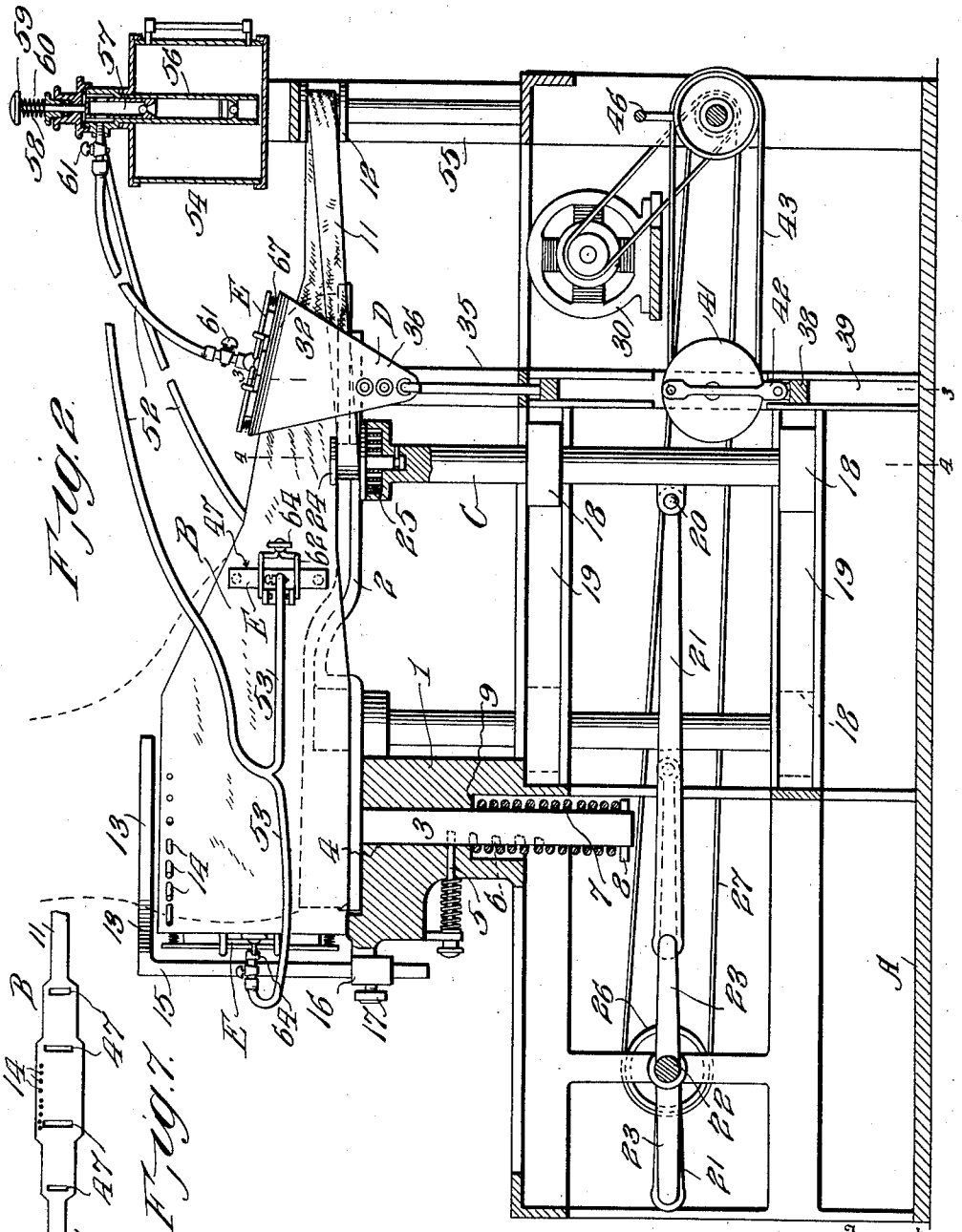

Fig. 2.

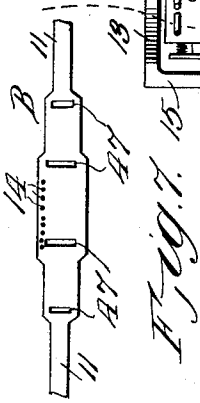

Fig. 7.

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3 SHEETS—SHEET 3.

Fig. 4.

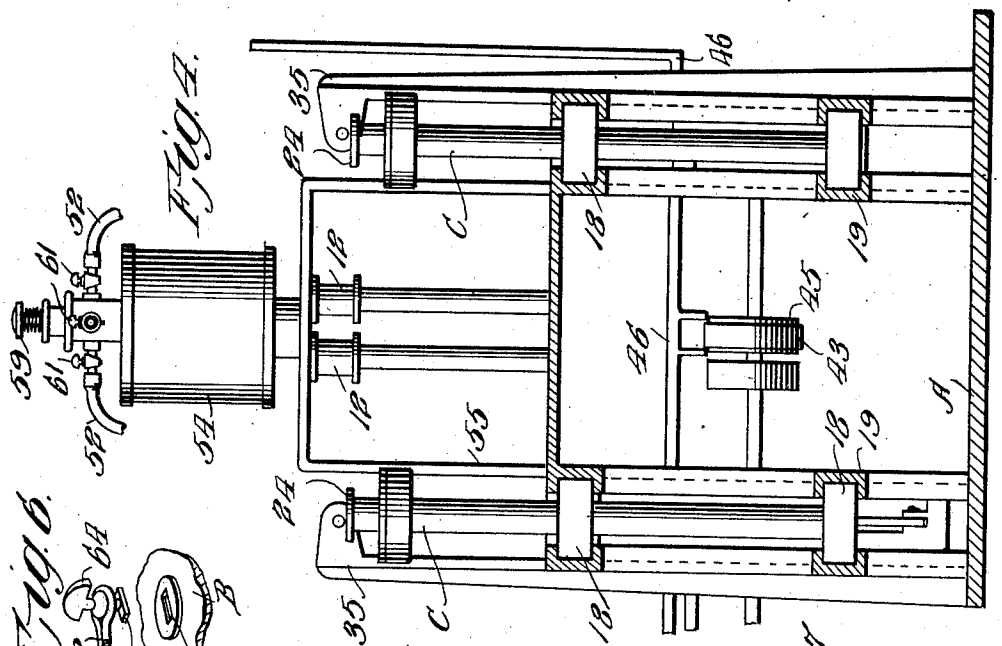


Fig. 6.

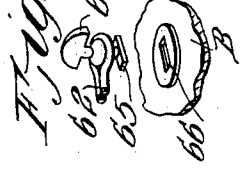


Fig. 5.

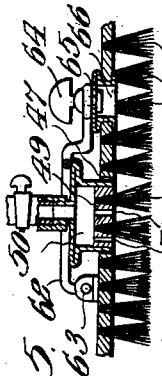
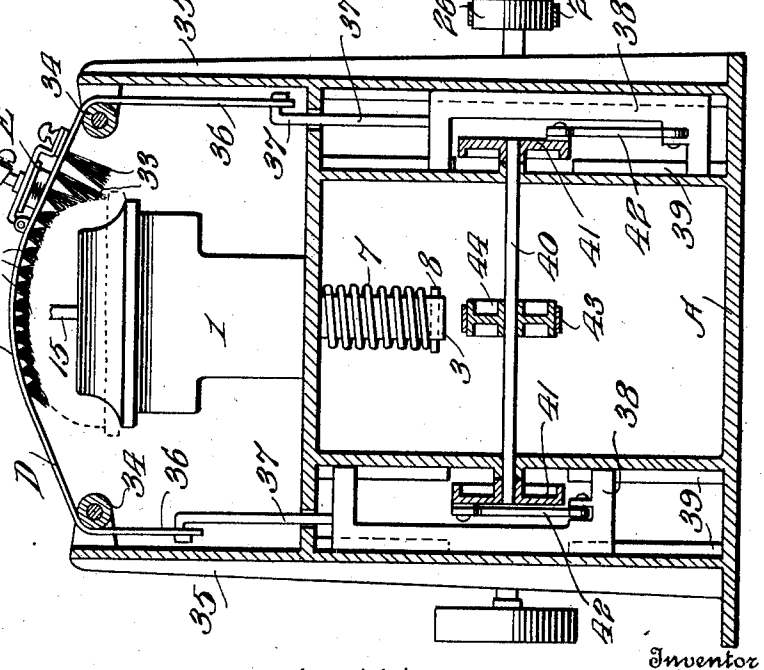


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM R. CAMPBELL, OF CHARLESTON, SOUTH CAROLINA.

SHOE-POLISHING MACHINE.

997,113. Specification of Letters Patent. Patented July 4, 1911.

Application filed July 22, 1910. Serial No. 573,303.

To all whom it may concern:

Be it known that I, WILLIAM R. CAMPBELL, a citizen of the United States, residing at Charleston, in the county of Charleston and State of South Carolina, have invented new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

This invention relates to a shoe polishing machine and has for one of its objects to provide improved polishing brushes and means for operating the same so that the shoes can be effectively polished.

Another object of the invention is the provision of a doubled polishing brush that operates on the shoe to polish the sides as well as the ends, in connection with novel means for moving the brush back and forth longitudinally to perform the polishing of the shoe.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a plan view of one half of the machine with portions in section. Fig. 2 is a vertical section taken longitudinally through the machine. Figs. 3 and 4 are transverse sections on lines 3—3 and 4—4, Fig. 2. Fig. 5 is a detail sectional view of one of the brushes at the dauber thereof. Fig. 6 is a perspective view of the catch for holding the dauber in operative position. Fig. 7 is a diagrammatic view of the main brush drawn on a reduced scale.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the base of the machine, which is large enough to support two units or polishing devices, one for each shoe. In Fig. 1, one polishing device or unit is shown and adapted for the right shoe, but it is to be understood that another unit is employed for the left shoe. The base A is a suitable framework for supporting the operating parts of the machine. On the top of the frame is a post 1 that supports a shoe rest 2, the latter having a vertical stem 3 that extends through a passage 4 in the post 1, and the rest can be held in any vertical position of adjustment by a spring-pressed pin 5 that enters one of a number of openings 6 in the stem 3 of the rest 2. On the lower end of the stem 3 is a spring 7 that has its lower end bearing on an abutment 8 fastened to the stem while the upper end of the spring bears against an abutment 9 in the post 1 so that the spring tends to hold the rest 2 in its lowermost position, but by withdrawing the locking pin 5 and lifting on the rest 2, the same can be adjusted to any desired position.

Arranged in coöperative relation with the shoe rest 2 is a polishing brush or element B which is in the form of a flexible band of any suitable material that has bristles 10 on its inner face. This brush is doubled so that it will extend along both sides of the shoe supported by the rest 2 and also pass behind the heel, and the front ends of the brush bear on the toe of the shoe at the sides thereof. This brush is adapted to have a longitudinal movement backwardly along one side of the shoe and at the same time forwardly along the opposite side during one stroke, and vice versa during the next stroke, and in this way the greater portion of the shoe will be polished. The forward ends of the polishing element or brush B terminate in tape-like members 11 that extend forwardly and almost meet at a point in front of the shoe rest so that the brush will snugly hug the toe of the shoe, and at this point each member 11 passes around a guide pulley 12 supported on the frame A, and from the pulleys the said members extend backwardly to connect with actuating devices C that reciprocate in opposite directions along opposite sides of the shoe rest. The middle portion of the brush B where it passes behind the heel of the shoe rides on the post 1 just behind the shoe rest and in this manner the brush is supported. The brush is prevented from riding up on the shoe while polishing the same by means of a stop 13 which straddles the shoe above the heel, and on the belt are outwardly-extending fingers 14 which engage under the stop and thus prevent the brush from riding upwardly. This stop is provided with a stem 15 that is adjustably fastened in a socket 16 by a set screw 17, the said socket being formed on the post 1.

The actuating devices C are in the form of vertically-extending members that are pro-

vided with blocks 18 that move back and forth in horizontal guides 19 formed on the frame A, and each device C is hingedly connected at 20 with the forward end of a pitman 21. The rear ends of the pitmen are connected with a horizontally-disposed crank shaft 22 journaled on the frame A and having oppositely-disposed crank arms 23 to which the pitmen are connected, and by this arrangement one device C moves forwardly while the other moves rearwardly to effect a reciprocatory movement of the brush B alternately in opposite directions. The upper end of each device C is provided with a roller 24 to which the adjacent end of the flexible element 11 of the brush is connected, and this roller is provided with a coiled spring 25 so arranged that it tends to wind the element 11 on the roller 24 and thereby maintain the brush B under proper tension, and by means of these spring wound rollers, the brush can accommodate itself to shoes of different sizes. The crank shaft 22 is provided with a pulley 26 over which passes a driving belt 27, the front end of the belt being engaged around a pulley 28 mounted on a secondary shaft 29. This shaft 29 is driven by an electric or other motor 30 which can be belted or otherwise operatively connected with the shaft 29. The belt 27 can be shifted on and off the pulley 28 by a shifting device 31 suitably mounted on the frame and so arranged that the person using the machine can throw the belt into or out of operation at will.

In order to polish the toe portion of the shoe, which is not polished by the front end of the brush B, a transveresly-extending brush D is employed, the same consisting of a flexible body or back 32 having bristles 33 in its bottom face. The ends of this brush D are guided over pulleys 34 and extend vertically along opposite sides of the shoe rest, the said pulleys 34 being mounted on standards 35 formed on the frame A. The vertical extremities 36 of the brush D are connected by hooks 37 with vertical reciprocatory slides or actuators 38 movable in vertical guideways 39 formed on the frame A. Extending horizontally from one guideway to the other is a rotary shaft 40 that has crank disks 41 on its ends that are connected with the adjacent slides 38 by pitmen 42, the crank disks being so arranged that one slide 38 will move upwardly while the other is moving downwardly so that by the coaction of the slides, the transversely-moving brush B will reciprocate. The shaft 40 is driven by a belt 43 that passes around a pulley 44 on the shaft 40, said belt extending forwardly through the frame and passing around a fixed pulley 45 on the shaft 29. The belt 43 can be shifted on and off the fixed pulley 45 by a belt-shifting device 46 so arranged that it can be operated by the user of the machine. The brush D is thrown into operation after the polishing has been completed by the brush B and hence separate levers are used for controlling the operation of the brushes.

The blacking, in liquid form, is applied to the shoe by means of daubers E, of which there are four on the brush B and one on the brush D. Each dauber is in the form of a small brush of rectangular shape which is disposed in an opening 47 of the main brush to which it is applied so that the bristles 48, Fig. 5, can be brought into engagement with the shoe. The body or back 49 of the daubing brush is provided with a chamber 50 that is supplied with liquid blacking for moistening the bristles, the blacking passing through the bristles through apertures 51. In Fig. 7, the four openings 47 for the daubers are clearly shown and these openings are spaced apart so that the shoe will be supplied with blacking at every point as the brush B moves back and forth. The chamber 50 of each dauber is supplied from a common source by flexible tubes 52 which permit the brush to reciprocate freely. The tubes 52 for the daubers of the brush B are formed with branches 53 so that the daubers can be connected in pairs with a common conduit. The blacking is suppled from a reservoir 54 mounted on a post 55 at the front of the machine, and in this reservoir is a pump barrel 56 that contains a plunger 57 that delivers a measured charge of blacking to the daubers. The plunger is provided with a stem 58 that terminates in a push button or knob 59 which is backed by a spring 60, and it is merely necessary to press downwardly on the knob in order to admit blacking to the plunger, and upon releasing the knob, the plunger will rise and deliver blacking to the daubers that are in service. Since the daubers on the brush B are in use when the dauber on the brush D is not in use, the conduits 52 are provided with valves 61 for controlling the flow of the liquid. Each dauber is adapted to be thrown out of use when the main brush by which it is carried is polishing. For this purpose, the dauber is mounted on a frame or holder 62, Fig. 5, that is fulcrumed at 63 on the main brush, and this holder is held in operative position by a key or turn button 64 that has a bar-like end 65 that is adapted to engage in a socket 66 fastened to the main brush. By turning the button or key so that the catch or bar end thereof can be released from the socket 66, the dauber will be moved to inoperative position or forced outwardly by springs 67 disposed at the ends of the dauber and operating between the same and main brush. When the dauber is thrown outwardly, its bristles will be removed from contact with the shoe so that liquid will not

be applied while the polishing of the shoe proceeds.

In operating the device, the user places his foot on the shoe rest with the toe portion extending under the brush D and the heel disposed in the doubled brush B. The motor will now be started and the lever for the belt shifter 31 thrown to cause the belt 27 to rotate. The brush B will move back and forth on the shoe and clean the same. The movement of the brush is now arrested and the daubers E are set in operative position. After this is done, the pump plunger 57 is depressed so that a charge of blacking will be delivered to the daubers of the brush B after the valves 61 for such daubers have been opened. The power is again turned on to reciprocate the belt and as the result the shoe will be supplied with blacking. The brush is now stopped and the daubers released so that the polishing can be proceeded with by again operating the brush. When the polishing is finished with the brush B, the brush D is brought into use by first delivering a charge of blacking to the dauber thereof and turning on the power through the belt 43. The brush D will move back and forth transversely of the toe portion of the shoe and apply blacking thereto, and after this is done, the brush is stopped so that the dauber can be unlocked and moved to inoperative position. The polishing is now proceeded with by turning on the power again through the belt 43. The foot rest 2 is so constructed that the foot can be moved back and forth while the brush D is operating for the purpose of polishing the entire toe portion of the shoe.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

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

1. A shoe polishing machine comprising a horizontally-disposed flexible brush shaped to double around a shoe from the rear, a pair of devices movable simultaneously in opposite directions in the direction of the length of the shoe and connected with the ends of the brush for reciprocating the brush longitudinally, and a shoe rest disposed in coöperative relation with the brush.

2. A shoe polishing machine comprising a shoe rest, a doubled polishing brush disposed above the rest, means for longitudinally reciprocating the brush, a stop for preventing upward movement of the brush on the shoe supported on the rest, and means projecting outwardly from the back of the brush to engage with and move back and forth along the said stop.

3. A shoe polishing machine comprising a shoe rest, a flexible polishing brush arranged to engage both sides and the heel of the shoe on the rest, means for moving the brush back and forth, said rest serving to prevent the heel portion of the brush from moving downwardly, and a device arranged to prevent the heel-engaging portion of the brush from creeping up the side of on the shoe.

4. A shoe polishing device comprising a doubled brush for engaging the sides and heel of a shoe, flexible members connected with the ends of the brush, and oppositely-acting actuators connected with the members for reciprocating the brush alternately in opposite directions.

5. A shoe polishing device comprising a doubled brush for engaging the sides and heel of a shoe, flexible members connected with the ends of the brush, oppositely-acting actuators connected with the members for reciprocating the brush alternately in opposite directions, and spring-tensioned winding devices mounted on the actuators and to which the said flexible members are connected.

6. A shoe polishing machine comprising a doubled brush for engaging both sides and heel of a shoe to be polished, a shoe rest disposed under the brush, flexible elements connected with the front ends of the brush, guides over which the elements pass, and reciprocatory actuators mounted at opposite sides of the shoe rest and connected with the said elements for reciprocating the brush.

7. A shoe polishing machine comprising a reciprocatory brush, a shoe rest disposed to form a guide for the brush, a fixed guide disposed above the rest, members projecting from the brush to engage the said fixed guide, and means for reciprocating the brush.

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

WILLIAM R. CAMPBELL.

Witnesses:

Jos. A. Purcell,

Angus Bennett, Jr.