To all whom it may concern:

Be it known that I, WALTER L. LIGHTSEY, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

This invention relates to certain new and useful improvements in shoe polishing machines, and has particular reference to a device of this kind which will be automatic and coin controlled.

The primary object of the invention is to provide a shoe polishing machine which embraces the desired qualities of simplicity and durability of construction and efficiency in operation.

Another object of the invention is to provide a shoe polishing machine embodying foot rests so constructed as to be quickly and easily adjusted in accordance with the size of shoes to be polished.

Another object of the invention is to provide a polishing machine for polishing shoes wherein endless polishing members are given a reciprocating motion longitudinally of the shoes as to effectively polish the latter, and wherein the reciprocating movement of the polishing devices is utilized for automatically rendering the machine inoperative at predetermined intervals.

A further object of the invention is to generally simplify and improve devices of the above kind whereby the same may meet with all of the requirements for a successful commercial use.

Other objects will appear as the nature of the invention is better understood, and the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings, and claimed.

In the drawings, wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a vertical longitudinal sectional view, of a shoe polishing machine constructed in accordance with the present invention, the line of section being to one side of the longitudinal center of the device.

Figure 2 is a horizontal sectional view, taken substantially upon the line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 2, taken on the line 3—3 of Figure 1.

Figure 4 is a transverse sectional view, taken substantially upon the line 4—4 of Figure 2, and

Figure 5 is an enlarged fragmentary view, partly in side elevation and partly in vertical section, illustrating details of the coin controlled switch mechanism.

Referring more in detail to the drawings, the present invention embodies a suitable casing 5 which is preferably of rectangular form as shown, and which embodies a top wall provided with a pair of rear openings 6 as at 6, through which the shoes may be inserted. At the rear portion of the casing beneath the openings 6 are a pair of shoe or foot rests upon which the shoes are to be placed, one foot rest being disposed beneath each opening, and each foot rest comprising a sole member 7 rigidly carried by the upper end of a standard 8 secured upon the bottom wall of the casing 5, the member 7 being provided with a downturned flange 9 at its rear end, to which are secured a pair of rearwardly extending spaced parallel rods 10, that are disposed longitudinally of the casing and in a horizontal position as shown clearly in Figures 1, 2, and 4. Slidably disposed upon each pair of rods 10, is a heel rest member 11, having a flange 12 at the rear end thereof, against which the heel may be disposed. A horizontal shaft 13 extends transversely of the casing 5 beneath the forward portions of the rods 10 of both foot rests, and this shaft is suitably rotatably mounted in bearings, which may be provided in the side walls of the casing. Fixed to the shaft 13 are a pair of upwardly extending arms 14, each of which has its upper end connected to one of the heel rest members 11, by means of a link 15 which extends rearwardly from its arm 14 and pivoted to a depending lug 16 provided on the under side of the adjacent heel rest member 11. One end of the shaft 13 projects outwardly of the casing 5 and has a hand lever 17 fixed thereon and extending upwardly therefrom, it being apparent that when the lever 17 is swung in one direction, the heel rest members are simultaneously moved toward the sole members 7 of the foot rest, whereby said foot rests are adjusted to a proper size in accordance with the size of shoe being polished. Also, by swinging the lever 17 in a reverse direction, the foot rest may be extended to a larger size by moving the heel rest members 11 away
the members 7, said heel rest members being slidably mounted upon the rods 10 for this purpose.

Associated with each foot rest is a shoe polishing device, per se, and as both of the same are similarly constructed, description of one will suffice. Each polishing device embodies a frame comprised of vertical spaced and transversely extending open rectangular frame members 18, 19 and 20, that are rigidly connected at their lower corners by means of horizontal longitudinally extending frame bars or rods 21, and whose lower horizontal transversely extending portions are provided with slide bearings 22 inwardly of the frame bars 21, through which guide rods 23 extend, one guide rod 23 being provided at each side of each foot rest and suitably rigidly supported at their ends by the front and rear walls of the casing 5.

Extending upwardly from each of the frame bars 21 and hinged thereto for lateral swinging movement are pairs of spaced arms 24 having projecting relatively short lower ends, as at 25 (see Figure 4), between which are disposed compression springs 26 by means of which the upper ends of opposed pairs of the arms 24 are normally yieldedly swung toward each other for a purpose which will presently become apparent. Journalled in the upper ends of each pair of arms 24 is a roller 27, while journalled in the lower portions of said pairs of arms 24 are rollers 28, that are disposed directly above the frame bars 21. An endless polishing element of flexible form, generally indicated at 29, passes around each pair of rollers 27 and 28, so as to position one such polishing element at each side of the rear portion of the shoe disposed upon the adjacent foot rest. It is thus apparent that the springs 26 urge these polishing elements 29 into contact with opposite sides of the shoe.

Each roller 28 is fixed upon the rear end portion of the longitudinal shaft 30 that is suitably journalled in the casing and that projects forwardly to a point adjacent the front wall of the casing as shown clearly in Figure 2. Secured upon the intermediate portions of the shafts 30 are further rollers 31 disposed between the frame members 18 and 20, it being noted that the rollers 28 are disposed between the frame members 18 and 19. Journalled in the upper corner portion of and extending between the frame members 19 and 20 directly above the rollers 31 and extending longitudinally of the casing are further rollers 32, and another endless polishing element 33 passes around each pair of rollers 31 and 32, as shown clearly in Figure 4, the intermediate lower portion of which polishing element 33 is directed upwardly for permitting the insertion of the forward portion of the shoe thereunder, as clearly illustrated in Figures 1 and 4, this upwardly directed portion of the polishing element 33 being directly above the sole rest member 7 of the adjacent foot rest. The pairs of shafts 30 of each polishing device are operatively geared together by means of a belt 34, passing around aligned pulleys 35 on said shafts directly in front of the endless polishing elements 33, and said shafts 30 are provided with cam drums 36, the peripheral cam grooves of which are engaged by rollers 37 suitably journalled upon depending pins fixed on a transverse bar 38, that is rigidly supported above the drums 36 of all of the shafts 30 as shown clearly in Figures 1 and 2. The inner shafts 30 of each polishing device have pulleys 39 slidably keyed thereto so that said shafts may move longitudinally through the pulleys 39 when the polishing devices are reciprocated, movement of the pulleys 39 being prevented in any desired manner, such as by means of a bracket 40 fixed to the front wall of the casing 5 and having members disposed at opposite sides of the pulleys 39 as shown in Figure 1. Mounted upon the bottom of the casing 5 beneath the pulleys 39, is an electric motor 41 having a pulley 42 upon the armature shaft thereof, a belt 43 being passed around the pulley 42 and the pulleys 39 of the adjacent shafts 30 of the shoe polishing devices, so that when the motor 41 is started, the belt 43 and pulleys 39 and 42 will provide means for rotatably driving the inner shaft of each polishing device.

In the operation of the device, as thus far described, the shoes are placed within the casing upon the foot rest so that the rear portion of each shoe is disposed between a pair of the polishing elements 29, and the forward portion of said shoe is disposed beneath the upwardly directed lower portion of a polishing element 33. The motor 41 is then started so as to drive the inner shaft 30 of both polishing devices, the rotation of the inner shaft of one polishing device being imparted to the other shaft thereof, through the medium of the pulleys 34 and 35. Through the rotation of the shaft 30, the polishing elements are caused to travel because the same pass around the rollers 28 and 31 that are fixed upon said shaft 30. When this takes place, the polishing devices are bodily reciprocated longitudinally of the shoe by engagement of the rollers 37 in the cam grooves of the drums 36 that are fixed upon said shaft 30. The forward edge of the shaft 30 slides through the pulleys 39 as the polishing devices are reciprocated, and in this manner effective polishing of the shoes is attained, it being understood that the polishing elements 29 are maintained in intimate contact with the opposite sides of the rear portion of the shoes by means of the springs 26. Journalled above the bar 38
is a relatively short transverse shaft 44 having a peripheral lug 45 formed upon a disc 46 that is secured thereon. A ratchet wheel 47 is also secured upon the shaft 44 in position to be engaged by a pawl 48 that is fixed to and projects forwardly from the frame member 20 of one of the polishing devices. Another pawl 49 is fixed to this frame member 20 and has a hooked free end which is normally disposed in a plane above the adjacent hooked end of another pawl 50 that projects rearwardly from and is pivoted to a slide 51 for vertical swinging movement, said slide 51 being mounted upon a suitable bracket 52 carried by the front wall of the casing 5 as shown in Figure 1, and being normally held in forward position by means of a tension spring 53.

Hinged to the top wall of the casing 5 is a bell crank member 54, the forwardly projecting upper horizontal arm of which forms a switch plate 55 adapted to swing into and out of position between a pair of fixed electrical contacts provided, as at 56, (see Figure 5), similar to common types of knife blade switches now in use. The contacts 56 are suitably rigidly supported from the front wall of the casing 5 and are each adapted to be connected to one terminal of the motor 41 in a manner well known to electricians, whereby when the blade 55 swings between said contacts 56, the latter will be bridged for closing the motor circuit which is normally open when the blade 55 is disengaged from the contact 56 as illustrated in Figure 5. The other arm of the bell crank member 54 depends in a vertical position, as shown in Figure 1, in the path of an upwardly extending lug 57 provided upon the forward end of the slide 51. The casing 5 is provided at its upper forward portion with a compartment 58, the top wall of which is provided with a coin receiving slide 59 that is operatively engaged with one arm of a bell crank lever 60, the other arm of which is pivoted to a vertical link 61, which has its lower end provided with a pin 62 extending transversely of and beneath the upper arm of the bell crank member 54. The slide 59 may be normally spring pressed outwardly as at 53 in position to receive a coin as shown in Figure 5.

When a coin is placed as at C within the coin receiving slot of the slide 59, the latter is forced inwardly against the action of the spring 63 so as to swing the bell crank lever 60 and cause an upward pull upon the link 61. The pin 62 engages the upper arm of the bell crank member 54 so as to swing said arm upwardly to engage the knife blade 55 between the contacts 56, whereupon the operation of the motor 41 is started. Upon the reciprocation of the polishing devices, the pawl 48 will engage a tooth of the ratchet wheel 47 upon each forward movement of the pawl so that when the polishing devices move rearwardly, said ratchet wheel is turned the distance of one tooth each time. The ratchet wheel 47 is thus rotated until the lug 45 engages the pawl 50 so as to swing the latter upwardly in the path of the pawl 49 which, upon rearward movement of the polishing devices will cause the slide 51 to move rearwardly for engaging the lug 57 with the depending arm of the bell crank element 54, whereby the latter is tilted to swing the blade 55 downwardly and from between the contacts 56, so as to automatically stop the operation of the motor 41. The device is then set for a repetition of this operation, which will require the insertion of another coin for permitting the circuit of the motor to be again established.

From the foregoing description, it is believed that the construction and operation, as well as the advantages of the invention will be readily understood and appreciated by those skilled in the art.

Minor changes may be made without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. In a polishing machine of the class described, a casing having a pair of foot rests mounted therein and provided with top openings through which shoes may be inserted for positioning upon said foot rest, a polishing device associated with each foot rest and embodying endless travelling polishing elements disposed at opposite sides of the rear portion of each foot rest, said polishing devices each also including an endless polishing element disposed to travel transversely of the forward portion of the shoe disposed upon the adjacent foot rest, means for imparting travelling movement to the polishing elements including rollers about which said polishing elements pass, and common shafts upon which said rollers are stationed, and means to automatically cause longitudinal reciprocating movement of the polishing devices relative to the foot rest.

2. In a polishing machine of the character described, a casing having a top wall provided with openings in the rear end thereof through which shoes may be introduced, a pair of foot rests fixed within the casing in position to receive the shoes thereon when inserted through said openings, means for polishing said shoes said foot rests each embodying a standard fixed upon the bottom of the casing and having a rigid sole rest member upon the upper end thereof, rearwardly projecting longitudinal rods rigid with the rear ends of said sole members of the foot rests, and heel rest members slid able longitudinally upon said rods for movement toward and away from the sole member.
3. In a polishing machine of the character described, a casing having a top wall provided with openings in the rear end thereof through which shoes may be introduced, a pair of foot rests fixed within the casing in position to receive the shoes thereon when inserted through said openings, means for polishing said shoes said foot rests each embodying a standard fixed upon the bottom of the casing and having a rigid sole rest member upon the upper end thereof, rearwardly projecting longitudinal rods rigid with the rear ends of said sole members of the foot rests, heel rest members slidable longitudinally upon said rods for movement toward and away from the sole member, a shaft journalled in the casing transversely between the sole members and the heel rest, and operatively connected to said heel rest whereby rocking movement of the shaft will cause sliding movement of the heel rest toward and away from said sole members, and means adapted for manual operation externally of the casing for rocking said shaft.

4. In a shoe polishing machine of the character described, a foot rest, endless vertically disposed polishing elements mounted at opposite sides of the rear portion of the foot rest for lateral swinging movement toward and away from each other, yieldable means normally swinging said polishing elements toward each other for engagement with opposite sides of the rear portion of a shoe, means for imparting travelling movement to said endless polishing elements, another endless polishing element disposed at the forward portion of the shoe rest and including an upwardly bulged horizontally extending portion adapted to pass over the upper portion of the forward part of the foot rest, and a shoe supported thereon, and means whereby the rotation of the first named polishing element is imparted to said last named polishing element.

5. In a shoe polishing machine of the character described, a foot rest, endless vertically disposed polishing elements mounted at opposite sides of the rear portion of the foot rest for lateral swinging movement toward and away from each other, and yieldable means normally swinging said polishing elements toward each other for engagement with opposite sides of the rear portion of a shoe, and means for imparting travelling movement to said endless polishing elements, another endless polishing element disposed at the forward portion of the shoe rest and including an upwardly bulging horizontally extending portion adapted to pass over the upper portion of the forward part of the shoe rest and a shoe supported thereon, and means whereby rotation of the first named polishing element is imparted to said last named polishing element.

In testimony whereof I affix my signature.

WALTER L. LIGHTSEY.