(No Model.)

3 Sheets—Sheet 1.

E. O. BICKNELL.

BOOT OR SHOE POLISHING MACHINE.

No. 526,361. Patented Sept. 18, 1894.

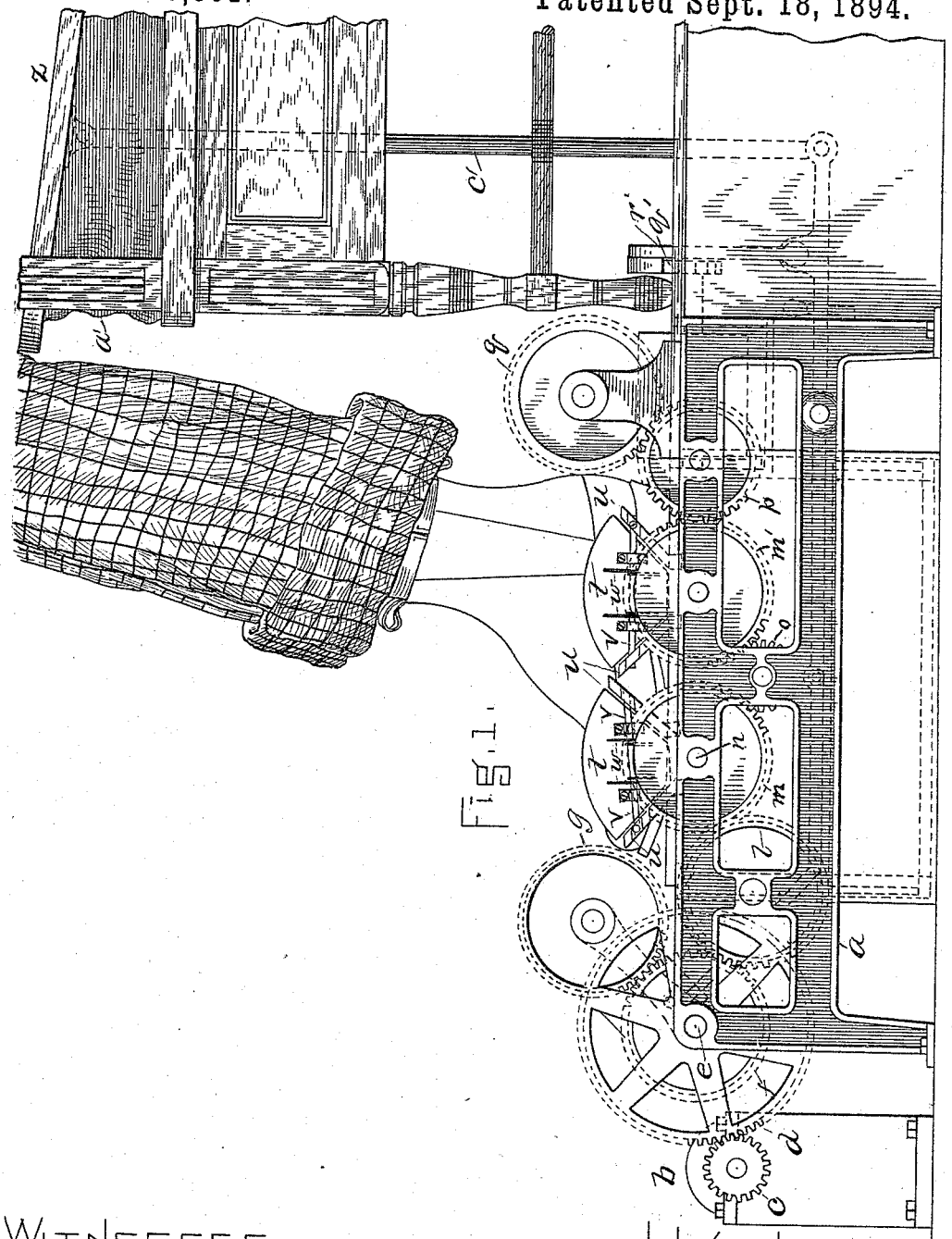

Fig. 1.

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Attys.

(No Model.)

3 Sheets—Sheet 2.

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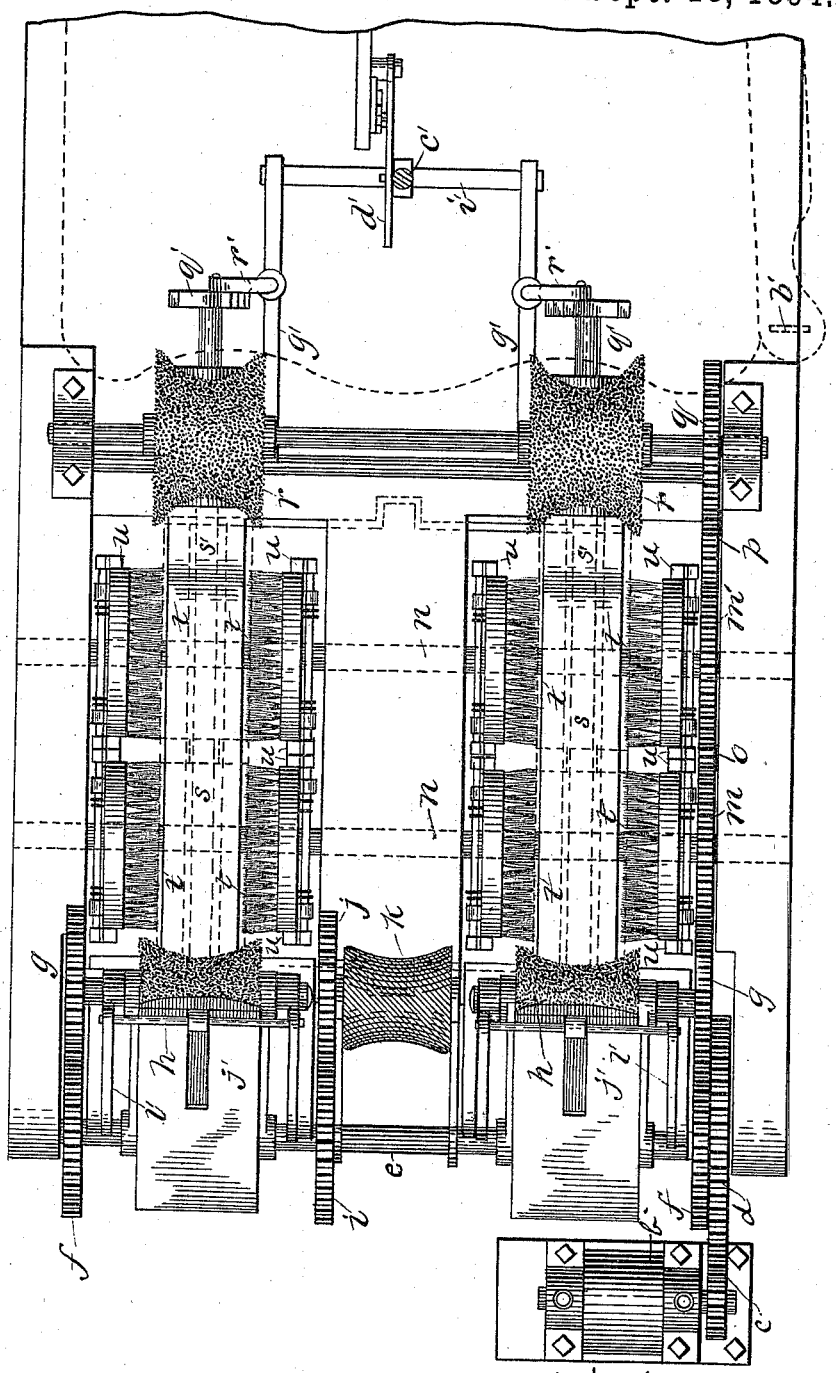
FIG. 2.



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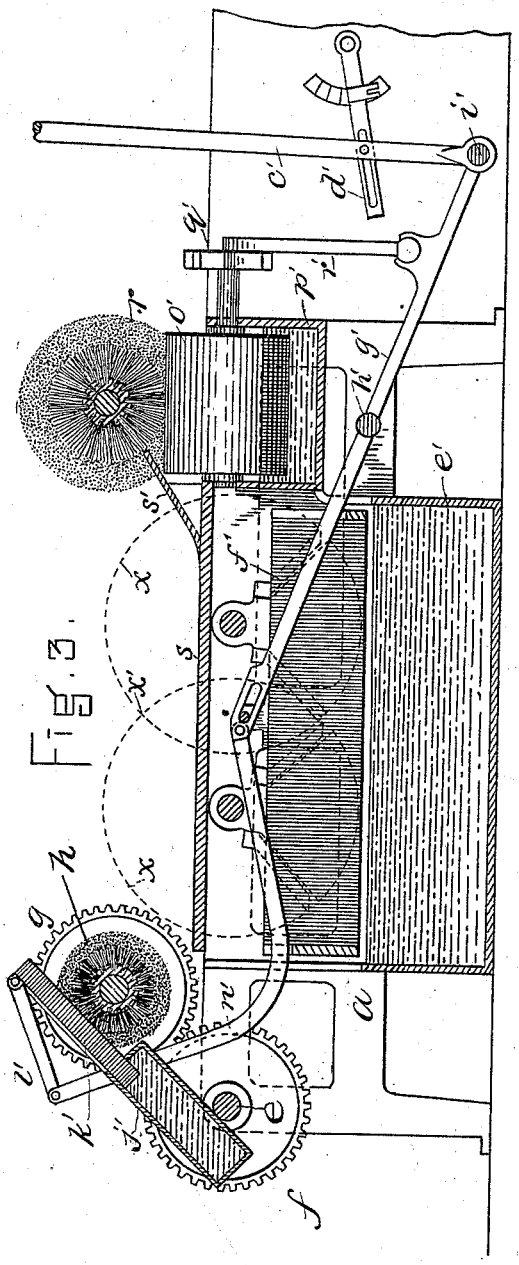

Fig. 3.

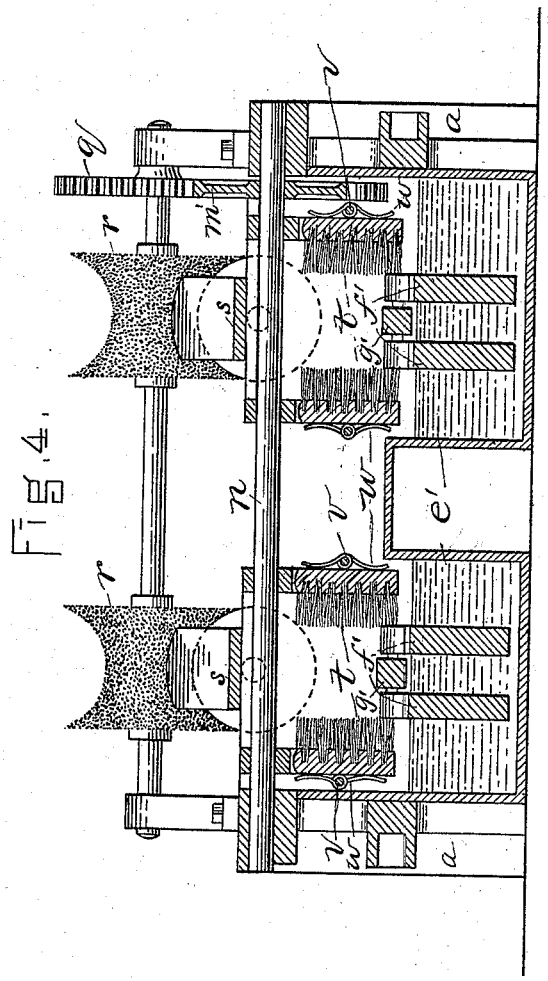

Fig. 4.

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UNITED STATES PATENT OFFICE.

EMERY O. BICKNELL, OF BOSTON, MASSACHUSETTS.

BOOT OR SHOE POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 526,361, dated September 18, 1894.

Application filed August 19, 1892. Serial No. 443,475. (No model.)

To all whom it may concern:

Be it known that I, EMERY O. BICKNELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Boot or Shoe Polishing Machines, of which the following is a specification.

My invention has relation to boot and shoe polishing machines of the kind adapted to be set in operation by the dropping of a coin into a receptacle for the release of the locking mechanism.

It is the object of my invention to provide such improvements as will greatly simplify the mechanism of automatic boot and shoe polishing contrivances, and render the same practical in a high degree.

It is also the object of my invention to so organize machines of the kind mentioned as that they may be made to operate upon a boot or shoe for as long a time and upon such parts as the necessities of particular cases may demand, or may be desired.

It is also the object of my invention to provide other improvements of greater or less importance, as will more fully appear from the description given and claims made hereinafter.

Reference is to be had to the annexed drawings and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings: Figure 1 is a side elevation of my improved boot and shoe polishing machine, complete. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal sectional view taken through the center of one of the groups of polishing devices. Fig. 4 is a transverse sectional view of the same.

In the drawings *a* designates the frame of the machine which may be of iron or any other material suited to support the various parts.

b designates an electric motor of suitable character, on the driving shaft of which there is secured a pinion *c* which meshes with and operates a gear *d* on the main shaft *e*.

f f are gears on the main shaft which engage and drive gears *g g* secured to shafts which carry the toe brushes *h h*, and *i* is a gear, also secured to the main shaft, which meshes with a like gear *j* which is secured to the shaft which carries the cloth slicking or polishing roll *k*. One of the gears *f* upon one side of the machine meshes with an idler *l* which, in turn engages a gear *m* upon one of the side-brush shafts *n*, the other side-brush shaft being driven through the medium of an idle pinion *o* engaging a gear *m'* similar to the gear *m*, the gear *m'* being fast upon the rear side-brush shaft.

p is an idle gear engaged by the gear *m'* and meshing with and driving the gear *q* fast on the shaft which carries the heel brushes *r r*.

s s are platforms or rests upon which the booted foot of the user of the device may be placed in order to secure the blacking and polishing of the boots or shoes to be acted upon.

In the construction of my machine I have contemplated the use of a carriage upon which the foot may rest while the boot or shoe thereon is undergoing the operation of polishing, which carriage may be automatically operated, or moved in accordance with the volition of the user of the machine. As the invention is herein shown, however, it is designed that the booted foot shall be moved back and forth at will on the rest *s* which may be polished or made quite smooth for that purpose.

The letters *t* designate the side brushes, that is, the brushes designed to polish the sides of the boot or shoe, there being two brushes for this purpose on each side of each foot rest *s*. Each brush *t* with its supporting frame *u* is of quadrantal or nearly quadrantal form, and each frame *u* which is of V shape is secured to one of the shafts *n*. Extending between the arms of each V-shaped frame is a rod *v* the ends of which are connected with the said frame, and mounted upon the said rods so as to turn thereon are the said brushes *t*, springs *w* connected with the said rods bearing upon the brushes on both sides of their supports, in order that the brushes may be yieldingly pressed inward toward the foot rests or supports *s* in order to accommodate the said brushes to the various curvatures or unevenesses of the boot or shoe being operated upon. Other means for yieldingly supporting the brushes for the purpose mentioned may, however, be provided, without

departing from the spirit or scope of the invention.

The dotted lines x in Fig. 3 indicate the circle described by the outer edges of the brushes t and the point lettered x' indicates the line at which the paths of movement of the two brushes on each side of each foot rest s intersect in their operation upon a boot, which line is, in practice, about two inches above the upper surface of the foot rests, and so are just sufficiently high to act upon the vamps and quarters at the sides of the boot or shoe without reaching the leather forming the instep portion of the shoe, or the elastic gore at the sides. This operation will be readily understood upon referring to Fig. 1 and supposing that the pinion o is revolving to the right, therefore causing the two brushes t, t, to move to the left simultaneously. The left hand brush moves to the left and downwardly and so away from interference with the left and downward movement of the right hand brush. The same removal of one brush from the position where it might interfere with the other occurs when both brushes are in their lowermost positions.

By making the side-brushes t in the form of a substantial quadrant they may be operated in a rotary manner, and yet with the effect of hand-polishing—that is, they may be made to act intermittingly upon a particular surface.

The toe-brushes h and heel-brushes r are hollowed at their centers, as shown, in order that they may conform to the surfaces to be acted upon.

z designates a spring seat upon which it is designed the person whose boots or shoes to be treated shall sit. The spring character of the support for the seat may be an air cushion a', so contrived and arranged as that when a coin is dropped in a slot b' (shown in dotted lines in Fig. 2) said coin may release the locking mechanism, set the motor in operation, and allow the seat z to gradually settle as the air slowly escapes from the cushion a'. As the seat is depressed it slowly lowers the rod c' connected therewith and gradually moves the lever d' of the resistance-box, thus gradually turning the power on the machine.

e' e' designate troughs containing the blacking or polish for the side brushes t, in which blacking are immersed the stones or similar devices f', hung upon the inner ends of levers g' which levers are fulcrumed at h' and are connected at their outer ends with a cross rod i', connected at its middle with the lower end of the vertical rod c', so that as the latter is depressed it will operate the levers g' to raise the stones f' and thus supply blacking or polish to the brushes t.

j' j' designate blacking troughs inclinedly arranged at the forward part of the machine, adjacent to the toe-brushes h, in which troughs, immersed in blacking or polish therein are the stones k' k' hung on the inner ends of levers l' l' connected at their outer ends with the outer ends of levers n' n' the inner ends of which are connected with the inner ends of the levers g', so that the stones k' will be moved out of their troughs to supply blacking to the toe-brushes simultaneously with the raising of the stones f' as before described.

O' O' designate cylindrical stones arranged below the heel-brushes r and designed to supply blacking or polish thereto from the troughs p' p' in which they rest with their upper surfaces in contact with said brushes r. On the outer ends of the shafts of the stones o' o' are ratchet wheels q' q' which are adapted to be operated upon by pawls connected with the upper ends of the vertical rods r' r', the lower ends of which are pivotally connected with the levers g', so that when the outer ends of said levers are depressed, a substantially one-half turn may be imparted to the stones o'.

The operation of my machine may be briefly described as follows: The person whose shoes are to be polished may sit down upon the seat z, placing his feet upon the rests s, and dropping a coin into the slot b' which will effect a release of the locking mechanism and allow the said seat to be slowly depressed, gradually starting the machine, and in like manner raising the blacking stones to supply blacking or polish to the brushes, the stones being coated with blacking or polish of suitable consistency which is wiped or licked off by the brushes, and by the latter applied to the boots and shoes. The person upon the seat may now move his feet to and fro, according to will, and as the brushes t revolve they will first clean and supply blacking to the boot, and, after the stones have become freed from the blacking liquid polish the same. Then, thrusting the toe under the toe-brush, the forward end and top or instep of the boot may be blacked and polished in like manner. The heel of each boot or shoe may next be drawn back up the incline s', (see Fig. 3,) into contact with the brush r' and in this way the rear of the heel may be likewise blacked and polished. The boot may finally be placed on the rest t' and the forward part thrust under the cloth polishing or slicking roll and burnished.

It will be understood that while I have shown means whereby the boots or shoes on both feet may be polished at the same time, I may employ a single boot polishing means, and I may also dispense with the slicking or burnishing roll without departing from the nature or spirit of the invention.

While I have shown and described a construction adapted to be set in operation by the use of a coin, the coin-controlling means are not herein represented or claimed, it being my purpose to make the same the subject of a separate application.

Having described the nature of my invention and explained a way of constructing and using the same, though without attempting to set forth all the forms in which it may be

made or all of its modes of employment, I declare that what I claim is—

1. The machine for polishing boots and shoes comprising in its construction an electric motor, movable blacking and polishing brushes operated by the said motor, a lever for turning on the electric current, a gradually yielding seat connection between the latter and the seat lever for gradually starting the machine in operation and movable blacking carriers connected with said lever for conveying blacking from the source of supply to the brushes, for the purpose set forth.

2. A machine for polishing boots and shoes comprising in its construction moving polishing brushes, polishing or blacking receptacles, movable stones in said receptacles adapted to be raised to supply polishing substance to the brushes, and a yielding seat and connections between the same and the said stones, whereby when the seat is depressed the stones may be raised, as set forth.

3. A machine for polishing boots and shoes, comprising in its construction a foot rest or support, and rotary brushes mounted to revolve at the sides of the support, each brush consisting of a flat segmental support projecting from one side of the shaft and provided with brushing material on the inner sides thereof, substantially as described.

4. A machine for polishing boots and shoes comprising in its construction a foot rest or support, a plurality of rotary brushes and frames mounted to revolve upon both sides of the support, each brush consisting of a flat segmental support projecting from one side of the shaft and provided with brushing material on the inner side thereof, each support being hingedly and yieldingly supported in the rotary frame, substantially as described.

5. A machine for polishing boots and shoes comprising in its construction a smooth foot rest, the movable side toe and heel brushes, and the inclined heel support s', as set forth.

6. A machine for polishing boots and shoes comprising in its construction movable brushes for effecting the polishing, mechanism for moving the brushes, and a yielding seat connected with said mechanism, the construction and arrangement being such that the depression of the seat will set in operation the said mechanism, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of August, A. D. 1892.

EMERY O. BICKNELL.

Witnesses:

ARTHUR W. CROSSLEY,

WALTER S. MCLEOD.