F. MAGIDSON.

SHOE POLISHING MACHINE.

APPLICATION FILED DEC. 23, 1907

919,903.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

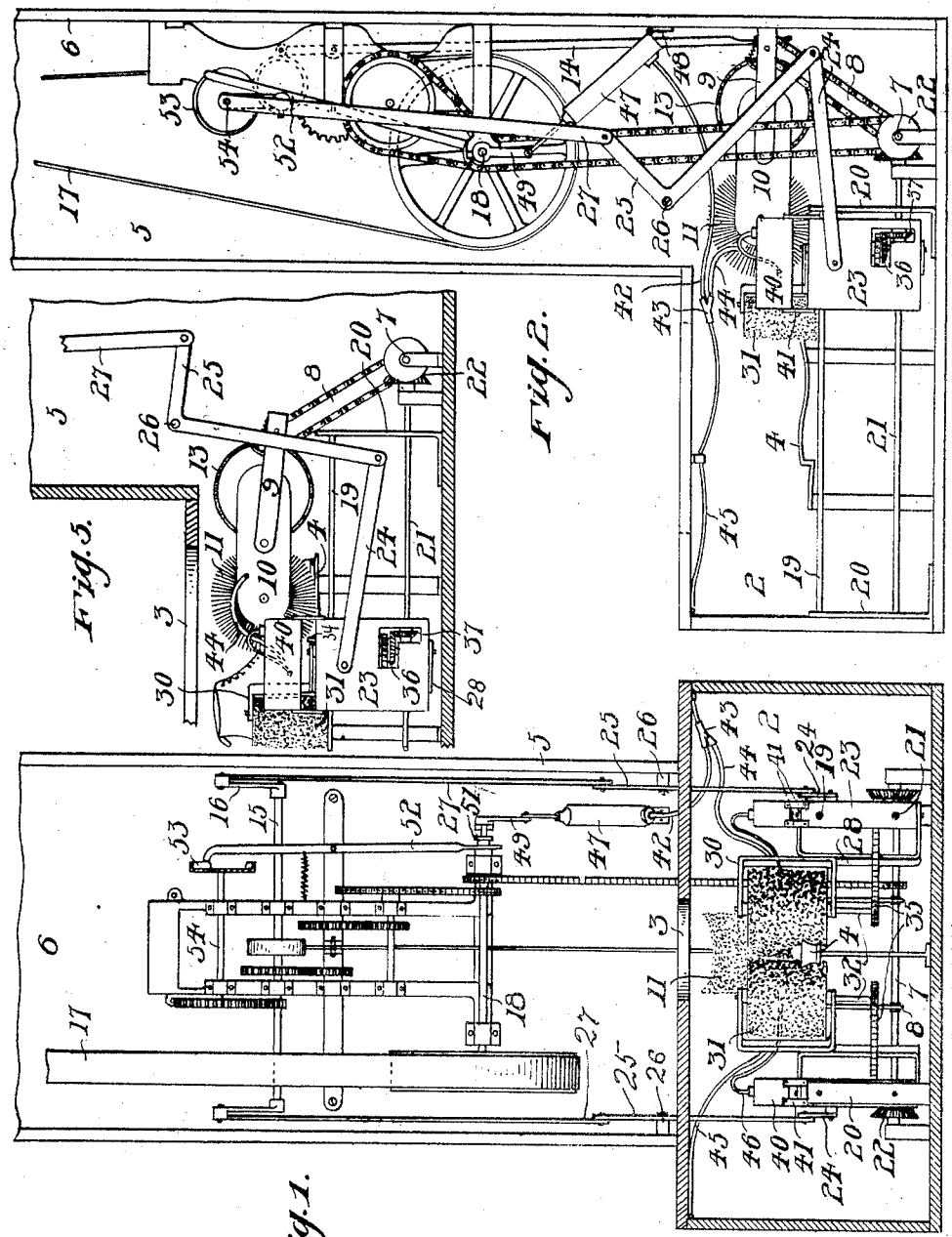


Fig. 1.

Fig. 2.

Fig. 3.

Witnesses:

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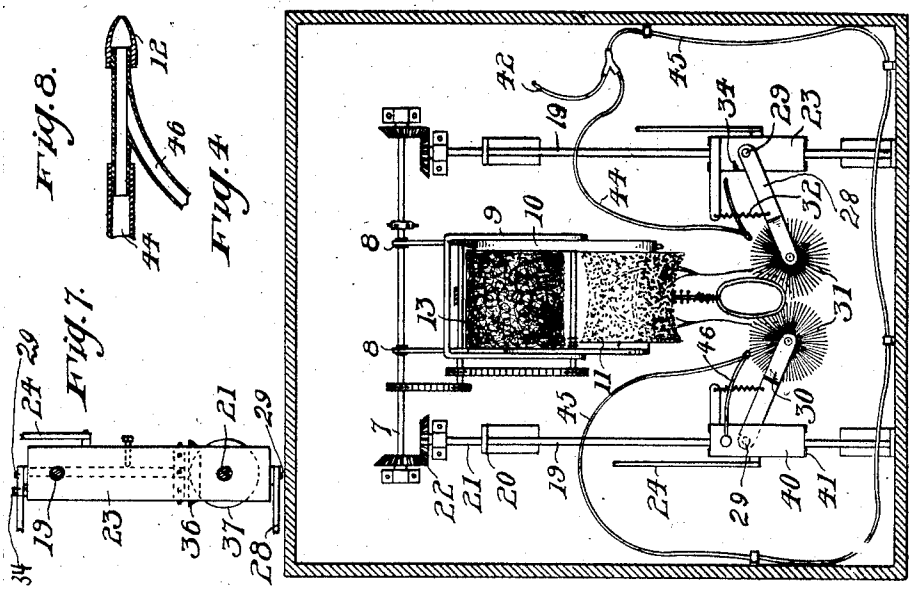


Fig. 3.

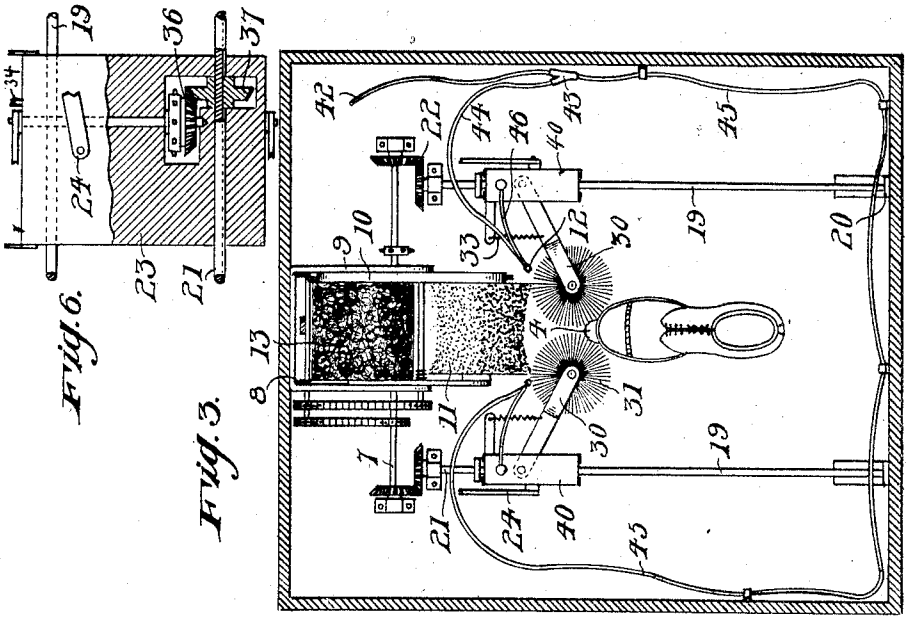


Fig. 4.

Fig. 6.

Fig. 7.

Fig. 8.

Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK MAGIDSON, OF IRWIN, PENNSYLVANIA, ASSIGNOR TO WESTMORELAND AUTOMATIC MACHINE COMPANY, OF IRWIN, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SHOE-POLISHING MACHINE.

No. 919,903. Specification of Letters Patent. Patented April 27, 1909.

Application filed December 23, 1907. Serial No. 407,686.

To all whom it may concern:

Be it known that I, FRANK MAGIDSON, a resident of Irwin, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

This invention relates to that type of shoe polishing machines wherein rotating brushes are reciprocated longitudinally of the shoe for cleaning and polishing the opposite sides thereof, and one object is to provide improved reciprocating mountings for the brushes, together with improved means for rotating them.

A further object is to improve the arrangement of liquid polish containers and sprayers by causing them to move with the brush carriers, whereby one sprayer for each side of the shoe is sufficient.

A further advantage is that the polish, induced by a discharging air current, has only a comparatively short distance to flow from the container to the discharging point; also the movement of the carrier keeps the liquid polish shaken up so that it cannot settle or deteriorate.

In the accompanying drawings, Figure 1 is a vertical sectional view of the front portion of the machine, with the front of the upright casing removed. Fig. 2 is an elevation of the mechanism within the casing. Fig. 3 is a top plan view of the brush mechanism in normal position as when at rest, and Fig. 4 is a similar view showing the brushes advanced over the shoe. Fig. 5 is a side elevation of the brush mechanism showing the brushes in action. Figs. 6 and 7 are detail views of the side brush carrier. Fig. 8 is a detail view of the sprayer.

Referring to the drawings, 2 designates the frontwardly projected base portion of the casing having the foot-inserting opening 3 in the top thereof above the stationary foot-rest 4, and 5 is the upright portion of the casing, 6 being the rear wall thereof.

The front or toe brush mechanism is substantially the same as that shown and described in Patent 868,351, the same consisting of the horizontal base-shaft 7 upon which uprights 8 oscillate forwardly and backwardly toward and from foot-rest 4, and carrying at their upper ends frame 9 pivoted to rise and fall thereon. Mounted in this frame is the reversible brush-carrier 10, having journaled in one end the bristle brush 11 for cleaning the shoe and spreading the polish thereon emitted through sprayers 12, while in the opposite end of frame 10 is the polishing buffer 13. The rotation and reversing of these brushes is accomplished in the manner shown and described in said Patent 868,351, and the oscillation thereof toward and from the shoe is effected by means of lever 14, also as fully described in said patent. The train of gearing secured to the rear wall 6 of upright casing 5 is also substantially the same as in that patent, excepting that one shaft 15 thereof is extended and provided with a crank 16 at each end. The mechanism is driven by a belt 17 extending from an elevated motor, not shown, to lowermost shaft 18 of the train.

Coming now to the mechanisms to which this application is directed, I arrange at each side of the shoe support a horizontal guide bar 19, held in fixed position by uprights 20. Journaled in each of these uprights beneath and parallel with bar 19 is shaft 21, geared at 22 to base-shaft 7. Bar 19 and shaft 21 form a guideway for the reciprocating carrier 23, the latter having horizontal passages through which the bar and shaft extend. Each carrier is connected by a link 24 with the lower arm of a bell-crank lever 25, fulcrumed at 26 to upright casing 5, with its upper arm connected by link or pitman 27 to one of cranks 16 on shaft 15. By this means carrier 23 is reciprocated from end to end of its guideway.

At the inner side of each carrier 23 is a brush support which consists of an outwardly disposed yoke-shaped part 28 having its arms embracing the carrier and adapted to oscillate thereon on vertical pivots 29. The other part of the carrier consists of the inwardly disposed yoke-shaped portion 30, the arms of which extend above and below the vertical side brush 31 and form bearings for the vertical axial shaft 32 thereof. A spring 33 holds the support in inwardly turned position and against lug 34, and opposes outward swinging of the supports, so that the side brushes are normally held in close relation to each other.

For rotating each side brush, shaft 32 thereof carries a sprocket wheel which is connected by chain 35 with the combined sprocket and beveled gear wheel 36, rotatable on a vertical axis in carrier 23. Gear

36 meshes with the beveled gear 37, the latter being splined to and movable on shaft 21. Hence, the carrier may reciprocate without interfering with the gearing and the driving of the side brush. As the pivot points 29 of support 28 are in line with the axis of gear wheel 36, the tensioned brush support may oscillate to conform the brush to the contour of the shoe without interfering with the rotation of the brush, the concentric relation between the brush axis and its driving gear not being disturbed.

The normal position of the front and side brushes is as shown in Figs. 2 and 3, the side brushes being at the front end of the foot-rest 4 and in close proximity to the front brush 11. Upon starting the machine, carriers 23 are moved along the sides of the shoe with the side brushes working into the irregularities thereof and around the heel portion, the brushes meeting at the rear of the heel so that the back of the shoe is fully treated. As the side brushes thus move from their normal position, the front brush carrier advances, carrying brush 11 or 13 up over the front end or toe portion of the shoe, as shown in Figs. 4 and 5, so that all portions to be cleaned and polished are effectively reached. The spring tension which opposes outward movement of the pivoted side brush supports causes those brushes to bear closely against the shoe and fully reach all portions of the irregular side surfaces thereof, and particularly the hollow of the instep, the cleaning and polishing action being just as vigorous and thorough at this point as at any other. It is further characteristic of the improvement that the side brushes are in constant action all the while the machine is operating, there being no such intermittent or alternate action as is necessary when only the side brushes or the front brush can operate at one time. Under the present arrangement, the front and side brushes operate simultaneously and without interfering one with the other, the side brushes moving toward and operating on the sides and rear portion of the shoe as the front brush advances over the top surface thereof, and while the front brush is receding the side brushes move forwardly along the sides of the shoe from the heel to the toe.

In the present adaptation, the liquid polish cans or containers 40 move with carriers 23, being secured thereto by straps 41. Air tube 42 leads from the pump directly to the sprayers, the tube branching at 43 with one branch 44 leading to the sprayer at that side of the machine, while the other branch 45 extends around the casing to the sprayer at the opposite side. Each of the sprayers consists of a fluid tube 46 leading from a can 40 and provided with a nozzle-like end directed toward the shoe, with air tube 44 (or 45) entering tube 46 at the rear of the nozzle and, when the air is on, inducing a flow of polish and spraying the same on the shoe. As the sprayers move with carriers 23 from one end to the other of the shoe all portions of the latter are fully sprayed. While I prefer to employ only one sprayer at each side of the shoe I do not confine myself thereto.

The pump 47 is preferably hinged at 48 to wall 6, with its rod connected to crank 49 loose on shaft 18, a clutch 51 engaging and disengaging the crank with the shaft. The clutch and the lever 52 for throwing it, also the lever-operating cam 53 on the uppermost shaft 54 of the train of gearing, are arranged substantially as in Patent 868,351, the lever-operating face of cam 53 being so arranged and timed as to operate the pump (and the sprayers) the requisite length of time, say while carriers 23 are moving from the toe to the heel of the shoe. It is further characteristic of the present arrangement that its sprayers are at the rear of the side brushes, and hence apply the polish after the shoe has been cleaned.

I claim:—

1. In a shoe polishing machine, the combination of a foot rest, horizontal rotatable shafts at opposite sides of the rest, carriers, means for reciprocating the carriers longitudinally of the shafts, brushes rotatably supported by the carriers, and gearing slidable on the shafts and operatively connecting the same and the brushes for rotating the latter.

2. In a shoe polishing machine, the combination of a foot rest, horizontal rotatable shafts at opposite sides of the rest, carriers, means for reciprocating the carriers, supports pivoted to oscillate horizontally on the carriers, springs opposing oscillation of the supports, brushes mounted in the supports on vertical axes, and gearing movable with the carriers and operatively connecting the shafts and brushes for rotating the latter as the carriers reciprocate.

3. In a shoe polishing machine, the combination of a foot rest, horizontal rotatable shafts at opposite sides of the rest, carriers, means for reciprocating the carriers longitudinally of the shafts, gear wheels journaled in the carriers, said gear wheels being slidable on and rotatable with the shafts, brushes sustained by the carriers on vertical axes, and brush rotating means actuated by said gear wheels.

4. In a shoe polishing machine, the combination of a foot rest, horizontal rotatable shafts at opposite sides of the rest, carriers, means for reciprocating the carriers longitudinally of the shafts, a pair of gear wheels journaled in each of the carriers, one wheel being rotatable on a vertical axis and the other wheel on a horizontal axis with the last named wheel slidable on and rotated by one of said shafts as the carrier reciprocates, supports extending inwardly from the car-

riers and pivoted to oscillate horizontally thereon with springs for opposing such oscillation, the supports oscillating concentrically with the gear wheels having vertical axes, and gearing connecting the brushes with the last mentioned gear wheels.

5. In a shoe polishing machine, the combination of a foot rest, horizontal rotatable shafts at opposite sides of the rest, a guide bar paralleling each shaft, a carrier slidable on each of the bars and the corresponding shaft, horizontally oscillating supports extending inwardly from the carriers, rotatable brushes mounted in the supports on vertical axes, and brush rotating gearing mounted in each of the carriers and operatively connected to the shaft on which the carrier moves, whereby the brush is rotated as the carrier, reciprocates.

6. In a shoe polishing machine, the combination of a foot rest, horizontal guideways at opposite sides of the rest including horizontal rotatable shafts, carriers and means for reciprocating the carriers longitudinally of the guideways, supports extending inwardly from the carriers, each support consisting of a yoke-shaped part having its arms disposed outwardly and pivoted to the carrier and another yoke-shaped part having its arms disposed inwardly, brushes journaled between the inwardly disposed arms, springs for opposing oscillation of the supports on the carriers, and gearing operatively connecting the shafts and brushes for rotating the latter as the carriers reciprocate.

7. In a shoe polishing machine, the combination of a foot rest, brushes, movable brush-supporting means for moving the brushes relatively to a shoe being polished, liquid polish containers carried by the movable brush-supporting means, discharge tubes for the containers, and flexible air tubes movable with the containers for causing polish to flow therefrom.

8. In a shoe polishing machine, the combination of a foot rest, guide ways, brush supports and means for moving the supports on the guide-ways, brushes on the supports, liquid polish containers secured to the supports, polish discharging tubes for the containers, and flexible air tubes movable with the containers for inducing a flow of polish through the discharge tubes.

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

FRANK MAGIDSON.

Witnesses:
J. M. NESBIT,
JNO. J. FITZGERALD.