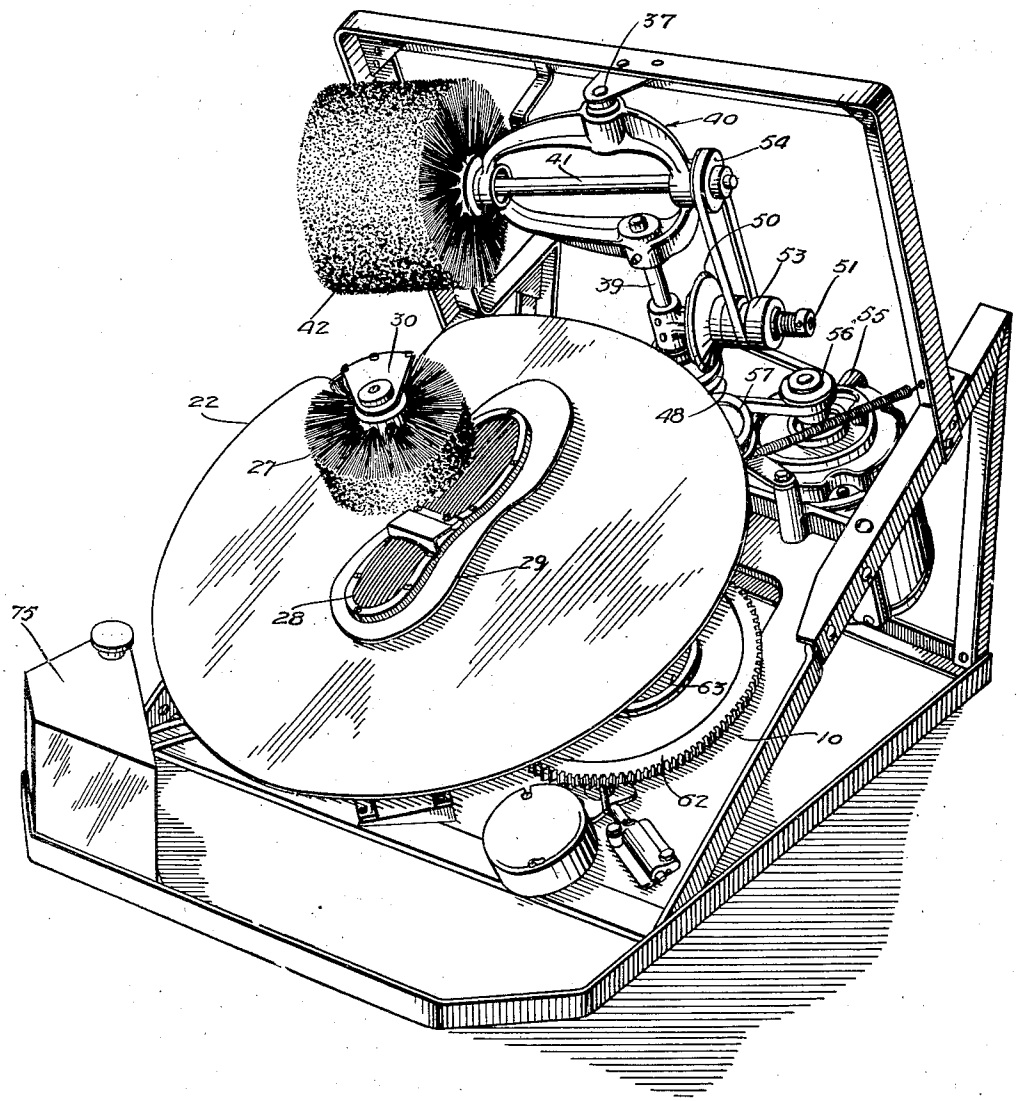
March 14, 1939. J. J. MAGNUSON 2,150,837

SHOE POLISHING MACHINE

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Fig. 1.



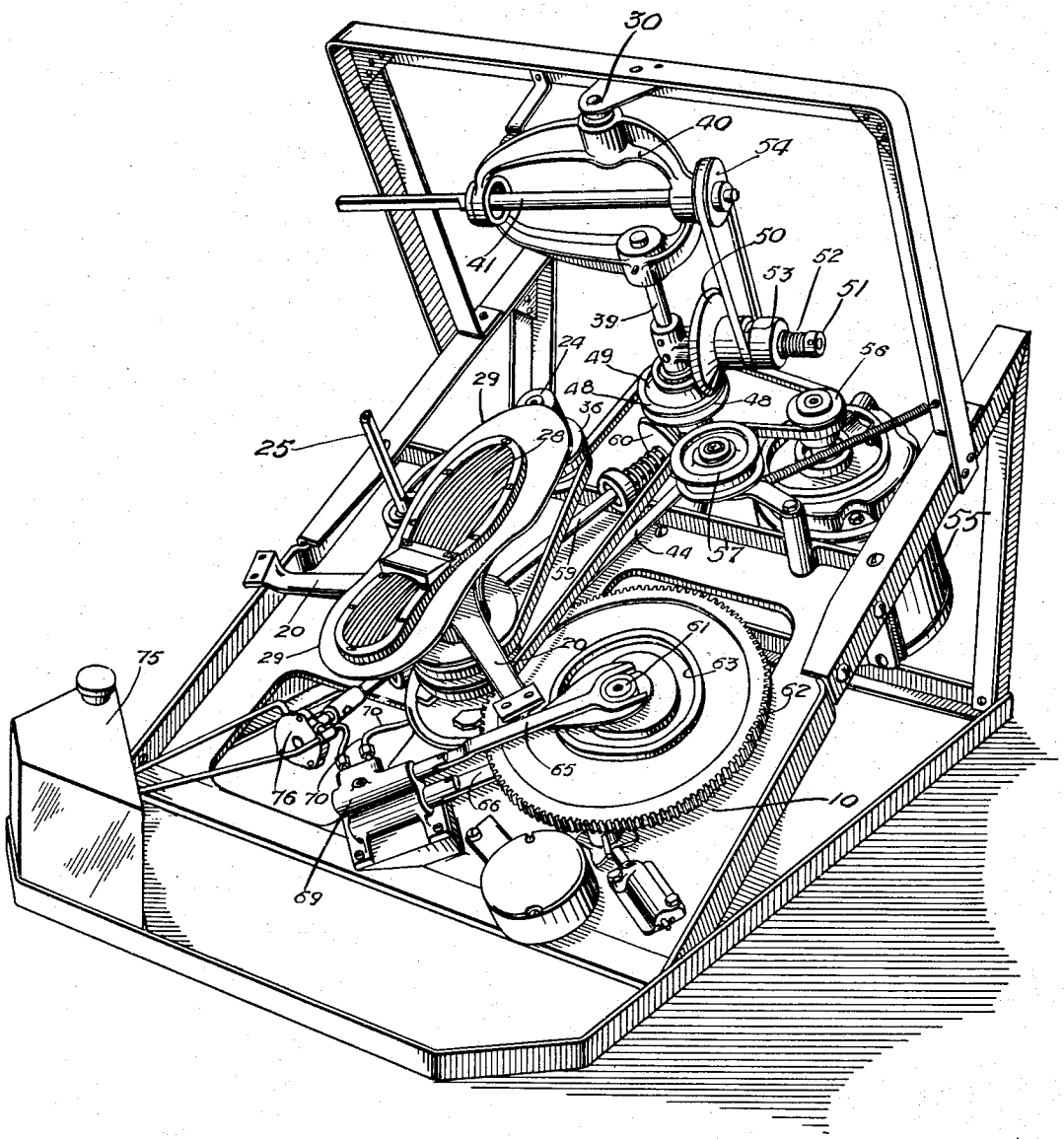
Inventor:—
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SHOE POLISHING MACHINE

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Fig. 2



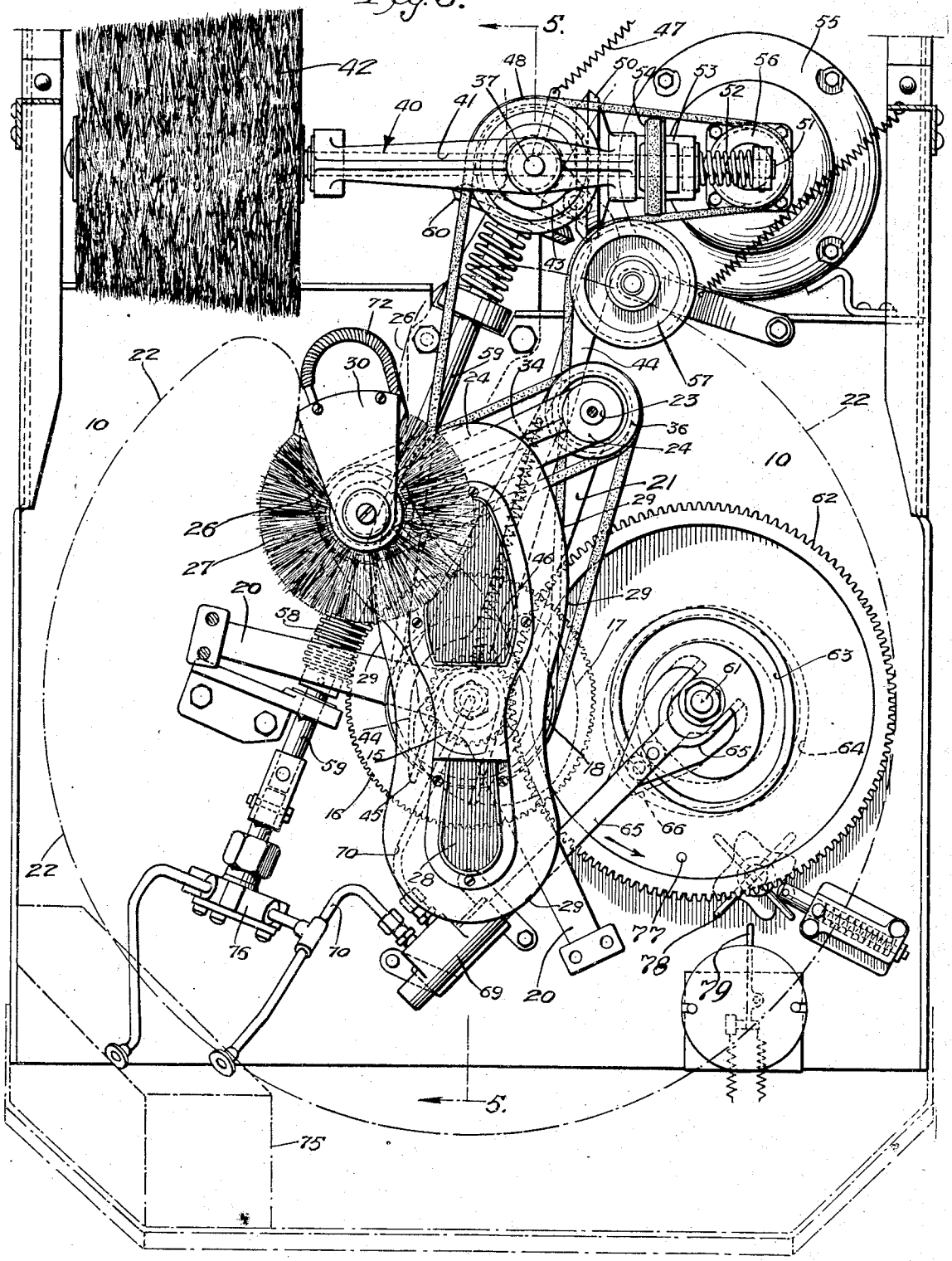
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SHOE POLISHING MACHINE

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Fig. 3.



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SHOE POLISHING MACHINE

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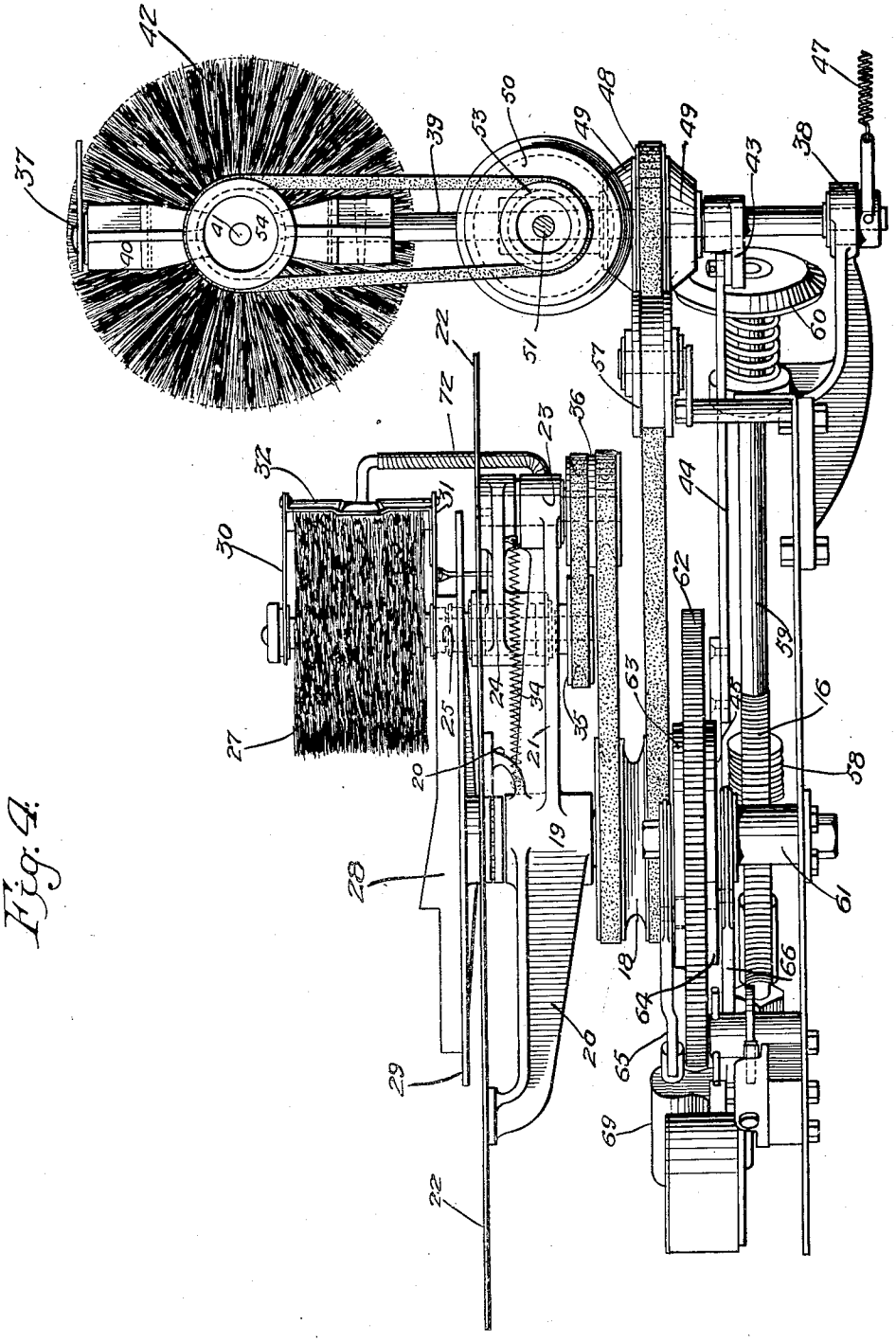


Fig. 4.

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SHOE POLISHING MACHINE

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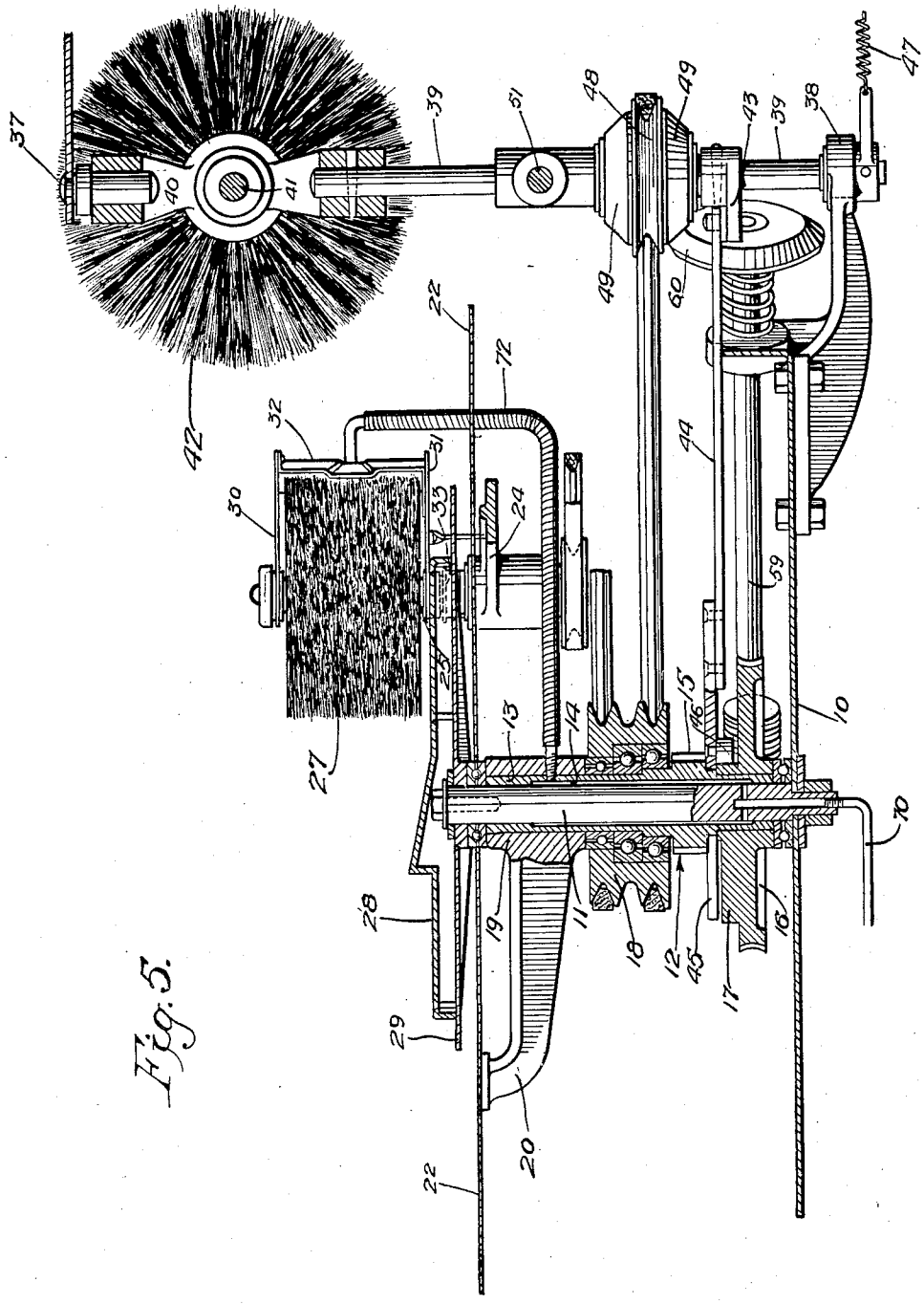


Fig. 5.

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SHOE POLISHING MACHINE

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Fig. 6.

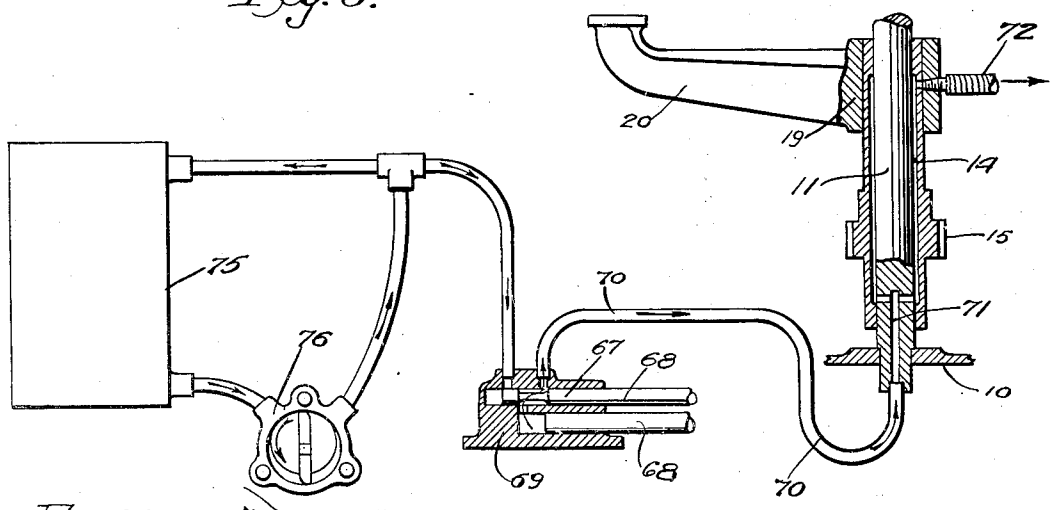


Fig. 7.

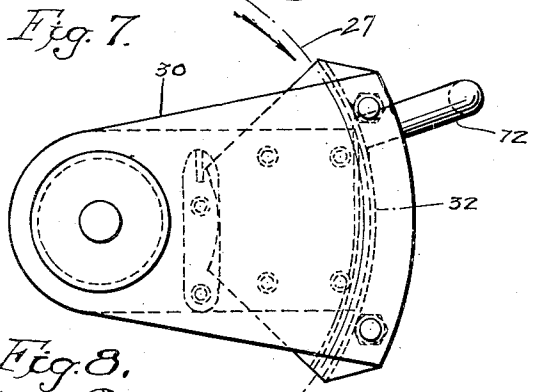


Fig. 8.

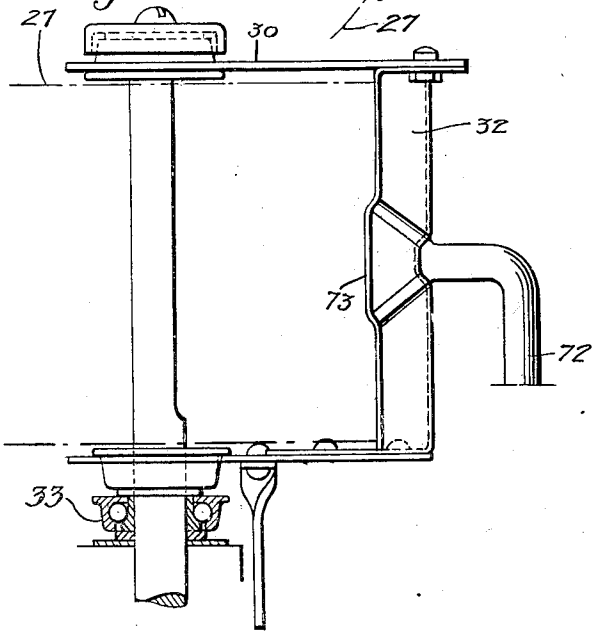
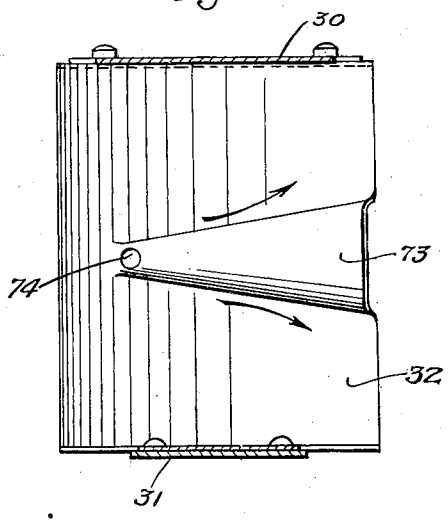


Fig. 9.



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Patented Mar. 14, 1939 2,150,837

UNITED STATES PATENT OFFICE

2,150,837

SHOE POLISHING MACHINE

John J. Magnuson, Waynesboro, Pa., assignor to The Magnus Automatic Machine Company, Incorporated, Waynesboro, Pa., a corporation of Delaware

Application May 27, 1936, Serial No. 82,100

6 Claims. (Cl. 15—31)

This invention relates to shoe polishing machines, and mort particularly to automatic machines of this character.

An important object of the invention is the provision in apparatus of this type of a construction which may be cheaply and durably fashioned and in which lubrication of many of the operating parts is effected through the polishing medium.

A further object of the invention is the provision of a novel and efficient distributing means for distributing the polish upon the applying brush.

A further object of the invention is the provision of a construction in which separation of the constituents of the polish is impossible.

Another object of the invention is the provision of a construction whereby both polishing and polish-applying brushes may be operated from a single motor which likewise operates the several pumps necessary to the apparatus, and further operates to cause one of the brushes to oscillate across the toe of the foot and the second brush to move about the foot.

These and other objects I attain by the construction shown in the accompanying drawings wherein, for the purpose of illustration, I have shown a preferred embodiment of my invention and wherein:

Fig. 1 is a perspective view of apparatus constructed in accordance with my invention;

Fig. 2 is a view similar to that of Fig. 1 with the brushes and rotary plate removed;

Fig. 3 is a plan of the apparatus with the rotary plate removed;

Fig. 4 is a side elevation of the apparatus;

Fig. 5 is a section on line 5—5 of Fig. 3;

Fig. 6 is a diagrammatic view illustrating the pump connections;

Fig. 7 is a plan view of the distributor for the applying brush;

Fig. 8 is a side elevation thereof; and

Fig. 9 is a sectional view therethrough.

Referring now more particularly to the drawings, the numeral 10 indicates a suitable support in which a stationary spindle 11 extends vertically to rotatably mount organization 12 comprising the main control elements of the machine. This organization includes a central bushing 13 having bearing engagement at its ends with the spindle and having the central portion spaced from the spindle to provide an annular cavity 14. Near its lower end the bushing has a gear 15 formed thereon, and below this gear a worm gear 16 is secured to the bushing, such worm gear having upon its upper surface a cam 17 the purpose of which will hereinafter appear.

Above the gear 15 a double pulley structure 18 is journalled and above the pulley 18 a hub 19 is secured to the bushing, such hub having a pair of arms 20 and 21. The arm 20 has secured thereto a disc 22 which axially rotatably engages the spindle 11. The arm 21 has pivotally connected thereto at 23 a brush support 24 in the form of an arm having at its free end a brush spindle 25. The upper end of this brush spindle, which projects through a substantially radial slot 26 in disc 22, mounts a brush 27. A foot support 28 is secured to the upper end of spindle 11 and has a projecting cam rim 29 formed thereon. Supported from the brush spindle 25 by upper and lower plates 30 and 31 is an arcuate segmental shield 32. This shield, through the lower plate 31, supports a roller 33 which is adapted to engage against the cam rim of the foot support. A spring 34 connecting the brush support 24 and the hub 19 constantly urges the brush toward the foot rest, such movement being limited by the cam rim of the foot rest while the rotation of the brush tends to swing the segmental shield in the direction of rotation maintaining the roller 33 of the shield in engagement with the cam rim. The lower end of the brush spindle mounts a pulley 35 while the lower end of pivot 23 mounts a double pulley 36 one element of the double pulley being belt-connected with pulley 35 while the other element thereof is belt-connected to the upper element of the double pulley organization 18.

Mounted in upper and lower bearings 37 and 38 is a second vertical spindle 39, this spindle having at its upper end a horizontal yoke 40 providing bearings for a horizontal brush spindle 41 mounting brush 42. Projecting from the lower end of the spindle is an arm 43 the end of which has pivotally connected thereto one end of a thrust bar 44 the opposite end of which is in the form of a yoke 45 straddling the organization 12 between gears 15 and 16. This yoke has a roller 46 engaging the cam 17 and this roller is maintained in engagement with the cam through medium of a spring 47 operatively connected to spindle 39 and tending to rotate the same in a direction such that the contact is maintained.

Rotatably mounted upon spindle 39 is a pulley 48 at opposite faces of which friction cones 49 are disposed. The upper friction cone is engaged by a friction cone 50 mounted on a spindle 51 projecting horizontally from the spindle 39 and bearing a spring 52 for maintaining engagement

between such friction cones. The hub of friction cone 50 comprises a pulley 53 belt-connected to a pulley 54 mounted upon spindle 41. The numeral 55 designates a motor the armature shaft of which mounts a pulley 56 arranged in the common plane of the lower pulley of the double pulley 18, and the pulley 48, and a belt is trained around these pulleys and maintained in tensioned engagement therewith through a spring-pressed idler 57.

Worm gear 16 is engaged by a worm 58 on a shaft 59 which shaft has a spring-pressed friction cone 60 engaging the lower friction cone 49 so that upon operation of the motor the organization 12 is rotated as a whole and brushes 27 and 42 are driven at a relatively high speed. Mounted upon a stationary spindle 61 is a gear 62 meshing with gear 15, gear 62 being relatively large, say for example five times as large as gear 15. The upper and lower surfaces of this gear have cam tracks 63 and 64 receiving rollers upon yokes 65 and 66. These yokes operate respectively the control valve 67 and pistons 68 of a measuring pump 69 the exhaust of which is connected through a conduit 70 and a port 71 formed in the lower end of the stationary spindle 11 with the cavity 14. The upper end of cavity 14 is connected to the shield through a conduit 72 and the shield on its brush confronting face has an annularly-extending rib 73 which increases in width in the direction of rotation of the brush and the conduit 72 discharges at the smaller end 74 of the rib.

Since the bristles of the brush will naturally engage more firmly with the shield at the rib 73, this rib acts as a spreading means for a polishing medium delivered through the contact causing this medium to be distributed substantially uniformly over the surface of brush 27. This polishing medium, since it is stored in its passage in the cavity 14 likewise serves to lubricate the bearing engagements between the spindle 11 and bushing 13. Measuring pump 69 is supplied from a container 75 through medium of a rotary pump 76 secured to the end of shaft 59. Pump 76 is obviously of greater capacity than the pump 69 which only operates once for each five revolutions of the organization 12 while pump 76 is driven at the motor speed. The exhaust of pump 76 is connected both to the intake of pump 69 and to the upper end of container 75 and acts as an agitator keeping the contents of container 75 thoroughly mixed.

Gear 62 carries a pin 77 for coaction with a snap-action switch actuator 78 which cooperates with switch 79. The switch construction 78, 79 forms no part of this invention and is simply a coin-controlled mechanism for providing the double cycle operation necessary in this type of machine.

In operation, rotation of the organization 12 carries with it brush 27 which is passed about the foot a predetermined number of times, which may be regulated through regulation of the respective tooth counts of gears 15 and 62 since the switch members 78 and 79 permit one complete revolution of gear 62 to complete a shoe shining cycle. The cam 17 causes oscillation of brush 42 which will pass to and fro over the toe of the shoe, this cam insuring proper timing of the brush oscillation so that there can be no contact for interference between the two brushes. Preferably, the measuring pump 69 is set to operate during the second revolution of brush 27 so that the first revolution is a dusting revolution, the second revolution a polish-applying revolution, and the third, fourth and fifth revolutions are utilized for polishing.

It will be noted that the structure is extremely simple for this type of machine, eliminating to a great extent the expensive gearing ordinarily employed. Furthermore, through use of the polish as a lubricant, many difficulties arising from the lubricating problem are eliminated. The use of the circulation pump insures proper mixture of the materials at all times which is in itself an important item, for the reason that liquid polishing mediums of the type employed in such machines have a distinct tendency to stratify.

Since the construction is obviously capable of considerable modification without in any manner departing from the spirit of the invention, I do not wish to be understood as limiting myself thereto except as hereinafter claimed.

I claim:

1. In a shoe polishing machine, a polish-applying brush, a container, a measuring pump discharging to the brush and a second pump having its intake connected to the container, said second pump having a greater capacity than said measuring pump and discharging to the intake of the measuring pump and to the upper end of the container.

2. In a shoe polishing machine, a polish-applying brush rotating in a given direction, an arcuate shield contacting the periphery of the brush, an annularly-extending rib on the brush-confronting face of said shield and of increasing width in the direction of rotation of the brush, and means delivering polish to the rib surface at the smaller end of the rib.

3. In a shoe polishing machine, a polish-applying brush rotating in a given direction, an arcuate shield contacting the periphery of the brush and having a V-shaped rib thereon and extending in the general direction of the periphery of the brush, the narrow end of said rib being in advance as regards the direction of rotation of the brush and said shield having an opening to permit delivery of polish to the narrow end of the rib.

4. In a shoe polishing machine, a polish-applying brush, a polish container, a periodically operated force pump discharging to the brush, and a continuously operated circulation pump having its intake connected to the container and its outlet connected to the intake of said force pump and to the upper end of the container.

5. In a shoe polishing machine, a stationary spindle, a mechanical assembly including a polishing brush support rotatably mounted on the spindle and combining therewith to define an annular cavity about said spindle, said spindle and support having bearings interposed at or near their extremities and said bearings defining the end limits of said cavity, a brush eccentrically mounted on said support, and means to supply polish to the brush through said cavity.

6. In a shoe polishing machine, a stationary spindle, a mechanical assembly including a polishing brush support rotatably mounted on the spindle and combining therewith to define an annular cavity about said spindle, the spindle and support having bearings interposed at or near their extremities and said bearings defining the end limits of said cavity, a brush eccentrically mounted on said support, a delivery conduit connecting said cavity and said brush, and a force pump supplying polish to the brush through said cavity.

JOHN J. MAGNUSON.