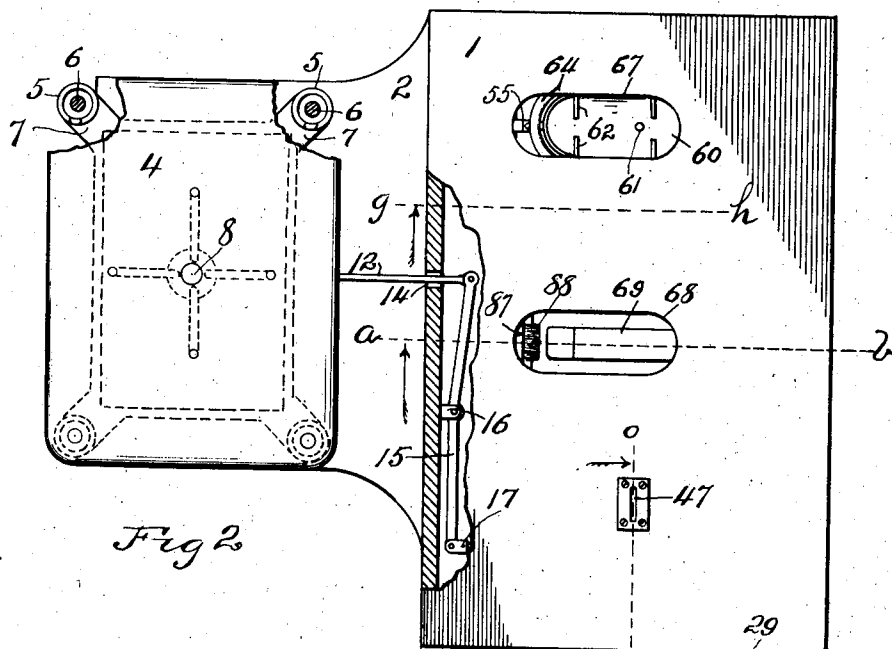
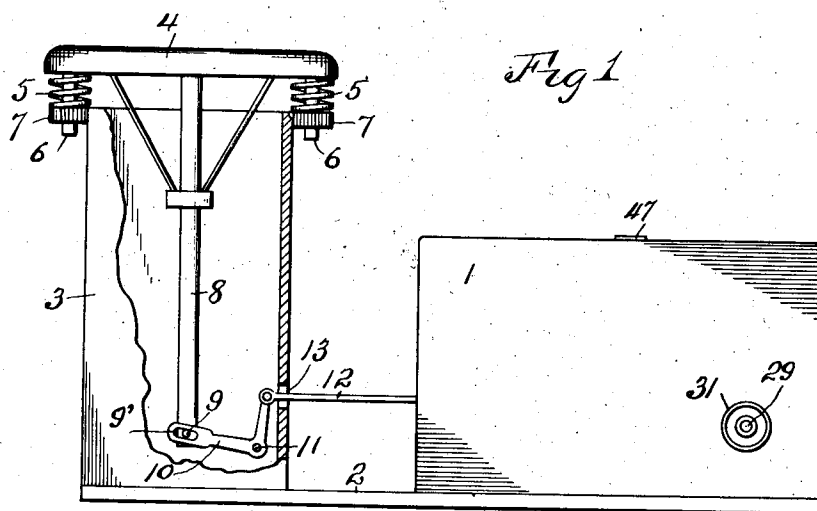


G. C. LA MOUNTAIN.
SHOE POLISHING MACHINE.
APPLICATION FILED MAY 22, 1908.

947,415.

Patented Jan. 25, 1910.

5 SHEETS—SHEET 1.



WITNESSES:

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C. B. House

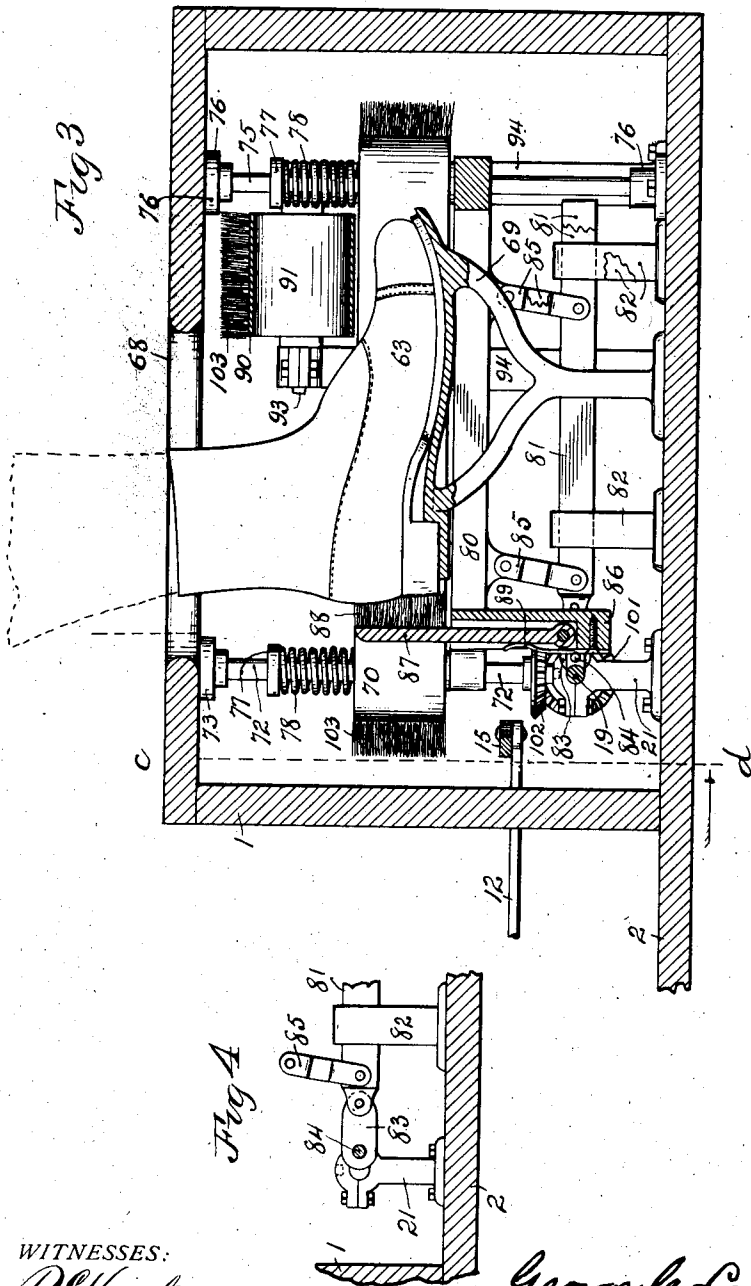
George C. La Mountain
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5 SHEETS—SHEET 2.



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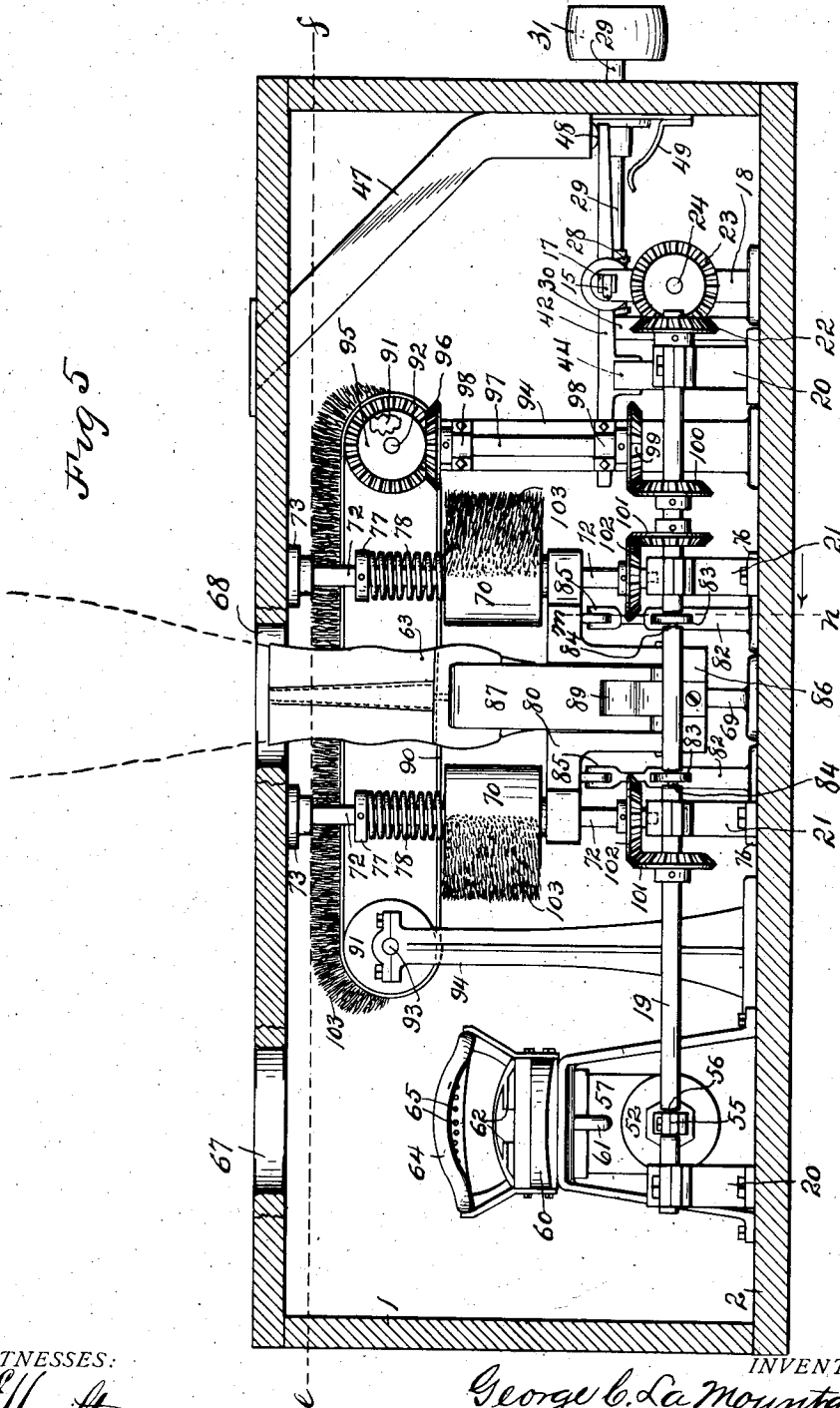
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5 SHEETS—SHEET 3.



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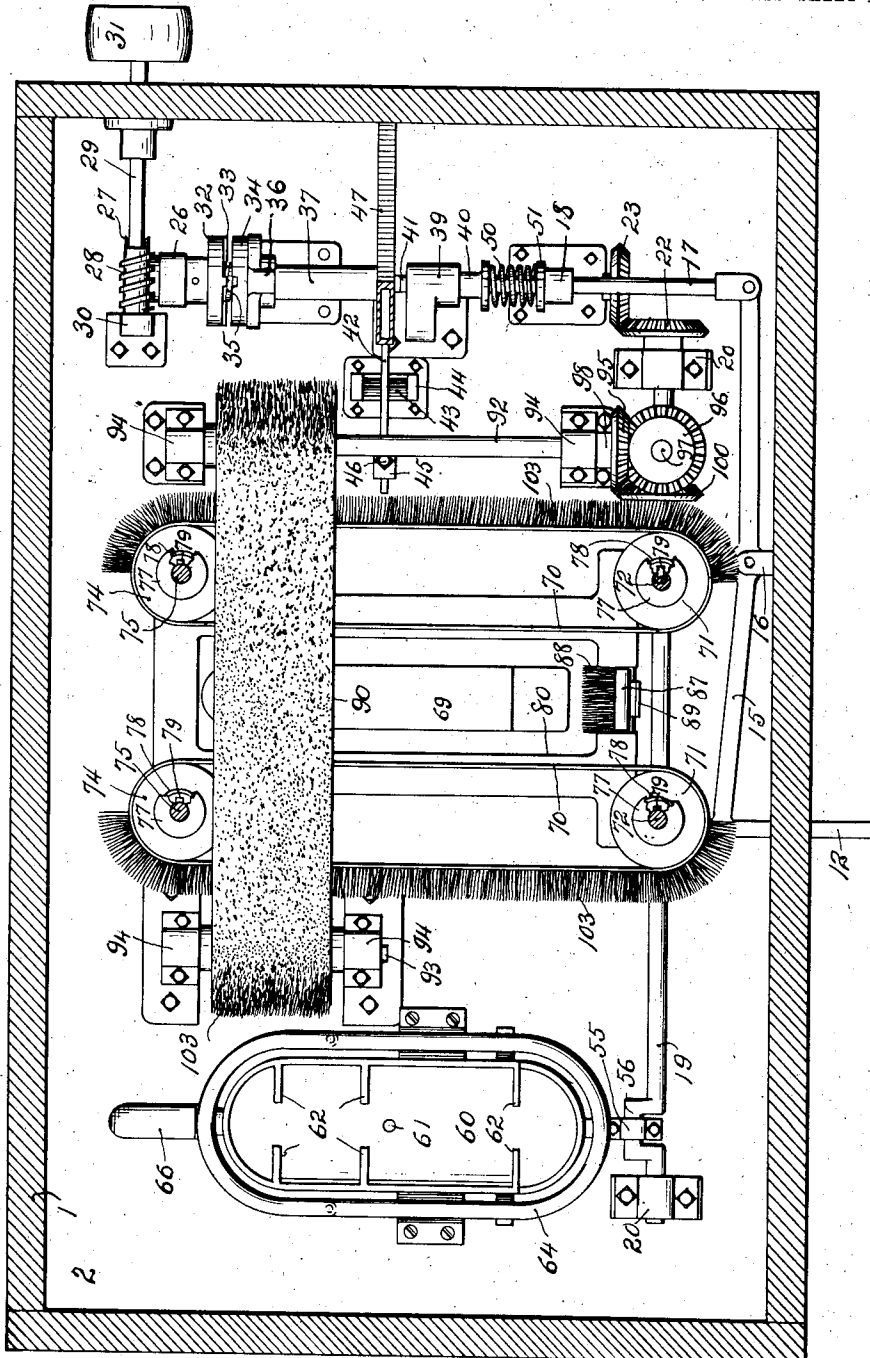
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5 SHEETS—SHEET 4.

Fig 6



WITNESSES:

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INVENTOR.

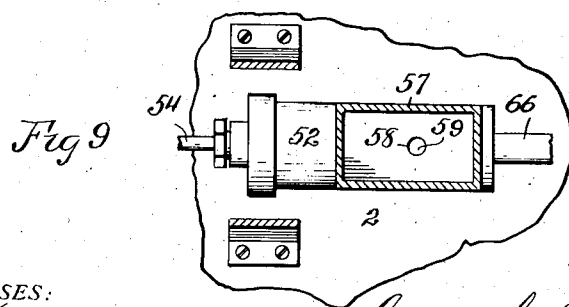
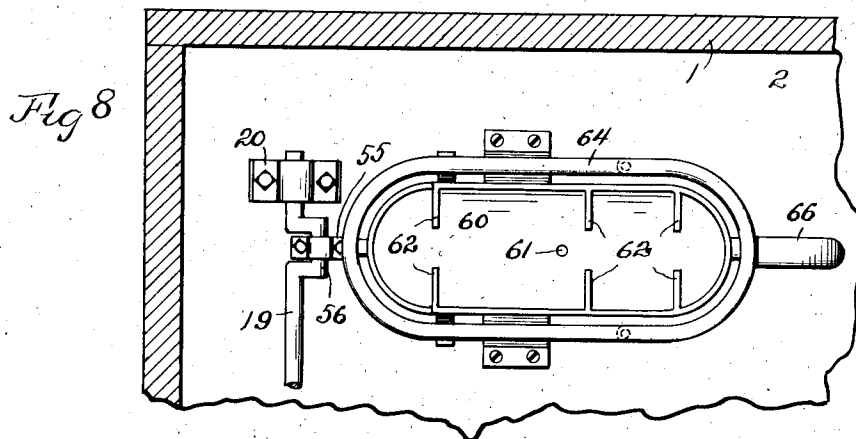
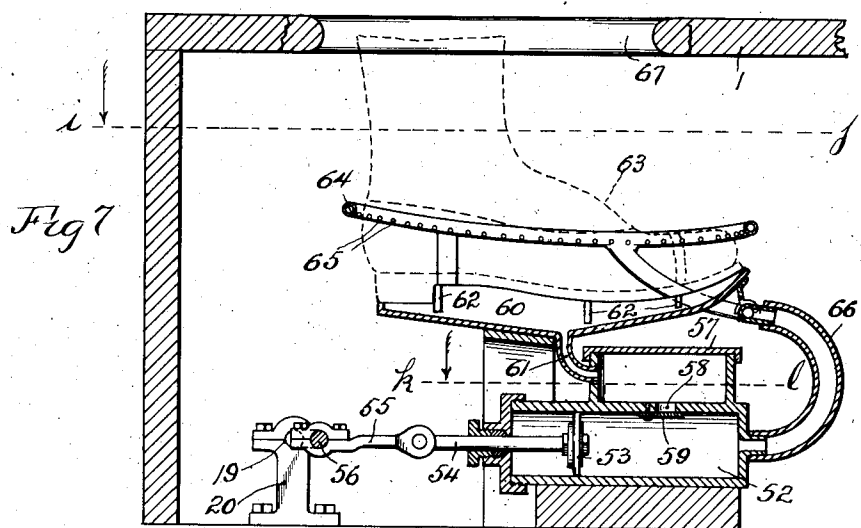
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5 SHEETS—SHEET 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE C. LA MOUNTAIN, OF DES MOINES, IOWA.

SHOE-POLISHING MACHINE.

947,415.

Specification of Letters Patent. Patented Jan. 25, 1910.

Application filed May 22, 1908. Serial No. 434,368.

To all whom it may concern:

Be it known that I, GEORGE C. LA MOUNTAIN, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

My invention relates to improvements in shoe polishing machines of the type in which the operation of the machine is controlled by coin actuated mechanism.

The object of my invention is to provide a shoe polishing machine of the character described with novel means for depositing polishing material upon and polishing shoes, both of said means being controlled in their operation by the deposition in the machine of a coin which is retained as payment for the use of the machine.

Another object of my invention is to provide a novel means for depositing liquid polish upon the shoes to be polished.

A further object of my invention is to provide novel means for efficiently and quickly polishing a shoe.

A further object of my invention is to provide a novel driving mechanism for operating the polish depositing and polishing mechanism.

The above named and other novel features of my invention are hereinafter more particularly described and claimed.

In the accompanying drawings illustrative of my invention, Figure 1 is an end elevation of the machine, a portion of the seat support being broken away. Fig. 2 is a plan view of the machine, portions being broken away. Fig. 3 is a vertical section taken on the dotted line *a-b* of Fig. 2, a shoe being shown in position on the shoe support. Fig. 4 is a vertical sectional view, enlarged, taken on the dotted line *m-n* of Fig. 5. Fig. 5 is a vertical sectional view taken on the dotted line *c-d* of Fig. 3. Fig. 6 is a horizontal sectional view taken on the dotted line *e-f* of Fig. 5. Fig. 7 is a vertical sectional view on the dotted line *g-h* of Fig. 2. Fig. 8 is a horizontal sectional view on the dotted line *i-j* of Fig. 7. Fig. 9 is a horizontal sectional view on the dotted line *k-l* of Fig. 7.

Similar characters of reference denote similar parts.

1 denotes a rectangular casing having a base 2 which supports a vertical rectangular

frame 3 which serves as a support for a horizontal vertically movable seat 4 which rests upon four coil springs 5 which encircle respectively four downwardly extending pins 6 the upper ends of which are secured to the under side of the seat 4. The pins 6 are vertically movable in holes provided therefor in four horizontal lugs 7 provided at the upper end of the frame 3. The lower ends of the springs 5 rest respectively upon the lugs 7. A vertical bar 8 has its upper end secured centrally to the under side of the seat 4; the lower end of said bar having secured to it a horizontal pin 9 which extends through a longitudinal slot 9' in one end of a bell crank lever 10 pivoted at its angle upon a horizontal rod 11 the ends of which are secured to opposite sides of the frame 3. The other arm of the lever 10 is pivoted to a rod 12 which extends horizontally through openings 13 and 14 provided respectively in the frame 3 and casing or box 1. The rod 12 is pivoted to one end of a horizontal lever 15 located in the casing 1 and pivotally supported therein on a bracket 16 secured to the inner side of the forward vertical side of the box 1. The other end of the lever 15 is pivoted to the forward end of a horizontal rod 17 reciprocatively slidable in a horizontal hole provided in a vertical standard 18, which is supported on the base 2. The rod 17 forms a part of the mechanism which controls the operation of the driving mechanism, and its function will be described hereinafter.

I will now describe the driving mechanism.

19 denotes a horizontal rotary shaft which will be termed the main driving shaft, as from it are directly driven the polishing and polish depositing mechanisms. The shaft 19 is rotatively mounted in two end and two intermediate standards or floor hangers which are supported on the base 2 within the casing or box 1. The end hangers are denoted by 20 and the intermediate hangers by 21. The shaft 19 is disposed preferably parallel with the forward side of the box 1 and has secured to it at one end a bevel gear wheel 22 which meshes with a bevel gear wheel 23 secured upon the adjacent end of a horizontal shaft 24 disposed at right angles to the shaft 19 and rotatively mounted in the standard or floor hanger 18 and in a sleeve which in turn is rotatively mounted in a vertical standard or

floor hanger 26 which is secured to the upper side of the base 2. Rigidly secured to said sleeve is a worm wheel 27 which meshes with a horizontal worm 28 secured upon a horizontal shaft 29 which at its inner end is rotatively mounted in a vertical standard or floor hanger 30 secured on the base 2 in the casing 1. The shaft 29 extends through and is rotatively mounted in one end of the box 1 and has secured to its outer end a pulley 31 by which the shaft 29 is driven. The pulley 31 may be rotated by any suitable means, not shown.

32 denotes a clutch member rigidly secured upon said sleeve and having at one end suitable teeth 33 adapted to engage similar teeth on the adjacent end of another clutch member 34 rotative with but longitudinally slidable upon the shaft 24 into and out of engagement with the clutch member 32. A coil spring 35 encircling the shaft 24 intermediate the clutch members 32 and 34 serves to normally hold the clutch members disengaged from each other.

To engage the clutch members so that the machine may be operated, I employ a right angled bar 36 slidable in a hanger 37 and engaging the clutch member 34. In alignment with the bar 36 and slidable in a hanger 39 is a horizontal tubular plunger 40 which is normally held from striking the bar 36 by a lever 42 pivoted to a hanger 44. The lever 42 is disposed below a coin chute 47, so that when a coin is deposited in the chute the lever 42 will be swung so as to release the plunger 40. If now a person sits on the seat 4, the rod 17 will be forced rearwardly thereby compressing a coil spring 50 located between the plunger 40 and a collar 51 secured on the rod 17. The spring 50 being moved rearwardly will move rearwardly the plunger 40, thereby forcing the bar 36 to a position in which the clutch member 34 will engage the clutch member 32. Rotation will now be transmitted from the pulley 31 to the shaft 19 by means of shaft 29, worm 28, wheel 27, said sleeve, clutch members 32 and 34, shaft 24, and gear wheels 22 and 23. In the meantime the coin 48, shown in Fig. 5, will fall from the lever 42, thus permitting a weight 45 carried by the lever to swing the lever between the plunger 40 and bar 36 as soon as the weight of the person is removed from the seat 4. The spring 35 will then disengage the clutch members 32 and 34, and the machine can not be again operated until another coin has been placed in the chute 47.

I will now describe the polish depositing mechanism.

Referring to Figs. 2, 3, 6, 7, 8 and 9, 52 denotes a horizontal pump cylinder in which is reciprocally mounted a piston 53, having a horizontal piston rod 54 pivoted to a link 55 which in turn is pivoted to a crank

portion 56 in the shaft 19. Upon the cylinder 52 is a receptacle for liquid polishing material. This receptacle comprises a box 57 which communicates with the cylinder 52 by a vertical opening 58 which is normally closed by a flap valve 59 secured to the inner side of the cylinder 52. Above the box 57 is a horizontal shoe support 60 in the form of a shallow pan the bottom of which is connected by a tube 61 with the box 57. The support 60 is provided with transverse projections 62 adapted to support a shoe denoted by 63. Above and concentric with the support 60 is an elliptical tubular ring 64 having on its inner side below the middle a series of perforations 65 through which polishing liquid is discharged, the perforations 65 being disposed so that when a shoe is resting upon the support 60, the liquid will be discharged on the shoe, and when the shoe is removed the liquid will be discharged into the support 60, from which it will pass by the tube 61 into the box 57. A conductor 66 has one end connected to one end of the cylinder 52, the other end, which is bifurcated, being connected to opposite sides of the perforated ring 64, which forms a spraying device for distributing the polish upon the shoe. Rotation of the shaft 19 will cause reciprocation of the piston 53 through the intermediacy of the piston rod 54 and link 55. Liquid polish will be drawn from the box 57 through the opening 58 past the valve 59 into the cylinder 52, from which it will be forced by the piston 53 through conductor 66 into the ring 64, and thence through the openings or perforations 65 upon the shoe or into the support 60, the surplus not remaining on the shoe passing back into the box 57. In the top of the casing 1 is provided an opening 67 through which the shoe may be inserted so as to rest on the support 60.

The polishing mechanism will now be described.

68 denotes an opening in the top of the casing 1 through which the shoe, after polish has been deposited on it as already described, may be thrust so as to rest upon a shoe support 69 which is secured upon the base 2 below the opening 68. At opposite sides of the support 69 are two similar horizontal endless brush belts 70 mounted respectively at their forward ends upon two pulleys 71 which are rotative with but vertically slidable upon two vertical shafts 72 respectively. The lower ends of the shafts 72 are rotatively mounted in the upper ends of the intermediate hangers 21, the upper ends of the shafts being rotatively mounted in bearings 73 secured to the under side of the top of the casing 1. The rear ends of the belt brushes 70 are mounted respectively upon two pulleys 74 rotative with but slidably mounted respectively upon two vertical shafts 75 the

upper and lower ends of which are rotatively mounted in bearings 76 secured respectively to the base 2 and to the under side of the top of the casing 1. Four collars 77 are secured upon the shafts 72 and 75 above the pulleys 71 and 74 respectively. Four coil springs 78 respectively encircle the shafts 72 and 75 and have their upper ends bearing against the collars 77. The lower ends of the springs 78 mounted on the forward shafts 72 bear upon and normally force downwardly the pulleys 71. The rear springs denoted also by 78 bear at their lower ends upon the pulleys 74 and normally tend to force said pulleys downwardly. The pulleys 71 and 74 are secured from rotation on the shafts carrying them by keys 79, which permit vertical movement on the shafts of said pulleys. The pulleys 71 and 74 rest upon the upper side of a horizontal table 80 vertically reciprocatively mounted upon the shafts 72 and 75. The following described mechanism is provided to vertically reciprocate the table 80. Below the table 80 are disposed two parallel horizontal plates 81 which are disposed at right angles to the shaft 19 and are reciprocatively slidable in openings provided therefor in vertical posts 82 secured upon the base 2. Two links are pivoted respectively at their rear ends to the plates 81, said links, denoted by 83, being pivoted respectively at their forward ends to two crank portions 84 of the shaft 19. Four links 85 are pivoted at their upper ends to the lower side of the table 80, the lower ends of the two forward links being pivoted respectively to the two plates 81 the lower ends of the rear links 85 being also pivoted respectively to the plates 81.

The forward end of the table 80 is provided with a downwardly extending portion 86 to which is pivoted the lower end of the heel brush comprising a plate 87 disposed vertically intermediate the belt brushes 70, the rear side of said plate having secured thereto horizontal rearwardly extending bristles 88 adapted to rub vertically against the heel of a shoe mounted on the support 69, when the table 80 is vertically reciprocated. A flat spring 89 has one end secured to the portion 86, the upper end of the spring bearing against the forward side of the plate 87 so as to force the bristles 88 against the shoe.

When the shaft 19 is rotated, the table 80 will be reciprocated through the intermediacy of the links 85, plates 81 and links 83. The reciprocation of the table will cause reciprocation vertically of the heel brush, and said table in connection with the springs 78 will cause vertical reciprocation of the pulleys 71 and 74 and belts 70.

A toe brush comprising a horizontal endless belt brush 90 is disposed transversely above the support 69 and belt brushes 70,

said belt brush being mounted upon two pulleys 91 secured respectively upon two horizontal shafts 92 and 93. The shaft 92 has its ends rotatively mounted in two vertical standards or floor hangers 94, the shaft 93 being similarly mounted in two similar floor hangers also designated by the numerals 94. Secured to and rotative with the shaft 92 is a bevel gear wheel 95 which meshes with a bevel gear wheel 96 secured to the upper end of a vertical shaft 97 rotatively mounted in bearings 98 secured to one of the forward posts or hangers 94. Secured to the lower end of the shaft 97 is a bevel gear wheel 99 which meshes with a bevel gear wheel 100 secured to and rotative with the shaft 19. Two bevel gear wheels 102 are secured respectively to the lower ends of the shafts 72 and mesh respectively with two bevel gear wheels 101 secured to and rotative with the driving shaft 19. When the shaft 19 is rotated the belt brushes 70 will be driven through the intermediacy of the gear wheels 101 and 102, shafts 72, keys 79 and pulleys 71. At the same time the belt brush 90 will be driven through the intermediacy of the bevel gear wheels 99 and 100, shaft 97, bevel gear wheels 95 and 96, shaft 92 and pulley 91 mounted on said shaft.

Each belt brush 70 and 90 comprises preferably an endless belt having on its outer side for a portion only of its length outwardly extending bristles denoted by 103. The belts are so disposed relatively to each other, and the driving mechanism is so arranged that the bristles on the brushes 70 will move simultaneously in the same direction against the sides of the shoe which is on the support 69. By this arrangement the bristles on said brushes will not have a tendency to shift or twist the shoe on the support. The bristles on the brush 90 are so disposed relatively to the brushes 70 that they will have contact with the shoe only when the belts 70 are in the lower position, the brushes 70 being thereby prevented from interfering with the operation of the brush 90. A further object of reciprocating the brushes 70 vertically is to enable them to more thoroughly polish the shoe. By having the bristles 103 on the belts 70 only a portion the length of said brushes, access of air to the polish on the shoe is obtained between each stroke or contact of the brushes with the shoe, thus simulating the action of the ordinary hand brush.

In the operation of the invention, the coin is first deposited in the chute 47, thus, as already described putting into operation the lever 42. The person desiring to have his or her shoes polished then sits upon the seat 4 thereby throwing the driving mechanism into operative action, as described hereinbefore. The person then inserts one shoe into the opening 67 and upon the support 60,

The spraying device will then deposit a coat of polish upon the shoe, after which the shoe is withdrawn and placed upon the support 69 through the opening 68. The brushes will
 5 then polish the sides, heel and toe of the shoe, as already described, after which the shoe is removed from the casing and the same operation is repeated upon the other shoe. When both shoes have been polished,
 10 the person gets off the seat 4 upon which the operative action of the mechanism will cease, the pulley, 31, shaft 29, sleeve 25, worm wheel 27, worm 28, and clutch member 32 continuing rotation until such time as
 15 the person having charge of the machine shall desire to stop their movement.

My invention may be modified in many ways, within the scope of the appended claims without departing from its spirit.

20 Having thus described my invention, what I claim and desire to secure by Letters Patent, is:—

1. The combination with a shoe support, of two horizontal endless belt brushes disposed at opposite sides of said support,
 25 means for driving said belt brushes, and means for vertically reciprocating said brushes.

2. The combination with a shoe support,
 30 of two endless belt brushes disposed horizontally at opposite sides of said support, means for driving said belt brushes in directions such that sides adjacent to each other will travel in the same direction, and means
 35 for vertically reciprocating said brushes.

3. The combination with a shoe support, of two horizontal endless belt brushes disposed at opposite sides thereof, a horizontal
 40 endless belt brush extending transversely across said support, means for driving said brushes, and means for vertically reciprocating said two brushes.

4. The combination with a shoe support, of two horizontal endless belt brushes disposed at opposite sides thereof, a horizontal
 45 endless belt brush extending transversely

across said support, a heel brush intermediate said two horizontal brushes, means for driving said endless belt brushes, and means for vertically reciprocating said two endless
 50 belt brushes and said heel brush.

5. The combination with a shoe support, of two horizontal belt brushes disposed at opposite sides of said support, a horizontal
 55 belt brush disposed transversely across said support and across said two belt brushes, each belt brush comprising an endless belt having on its outer side for a portion only of its length outwardly extending bristles adapted to strike a shoe mounted on said
 60 support when the belts are driven, means for vertically reciprocating said two belt brushes, and means for driving said belt brushes.

6. The combination with a shoe support,
 65 of two horizontal endless belt brushes disposed at opposite sides of said support, a horizontal belt brush disposed transversely across said support and across said two belt brushes, each belt brush comprising an end-
 70 less belt having on its outer side for a portion only of its length outwardly extending bristles adapted to strike a shoe mounted on said support when the belt is driven, means
 75 intermediate said two belt brushes for polishing the heel of a shoe mounted on said support, means for vertically reciprocating said two belt brushes, and means for driving said three endless belt brushes, said driving
 80 and reciprocating means providing that when the bristles of the transverse brush are in position to strike a shoe mounted on said support the two brushes will be disposed in the lower position.

In testimony whereof I have signed my
 85 name to this specification in presence of two subscribing witnesses.

GEORGE C. LA MOUNTAIN.

Witnesses:

Mrs. HENRY NELSON,
 HORACE HULSE.