

F. L. GREER.
SHOE POLISHING MACHINE.

APPLICATION FILED JAN. 11, 1906. RENEWED APR. 29, 1908.

907,786.

Patented Dec. 29, 1908.

3 SHEETS—SHEET 1.

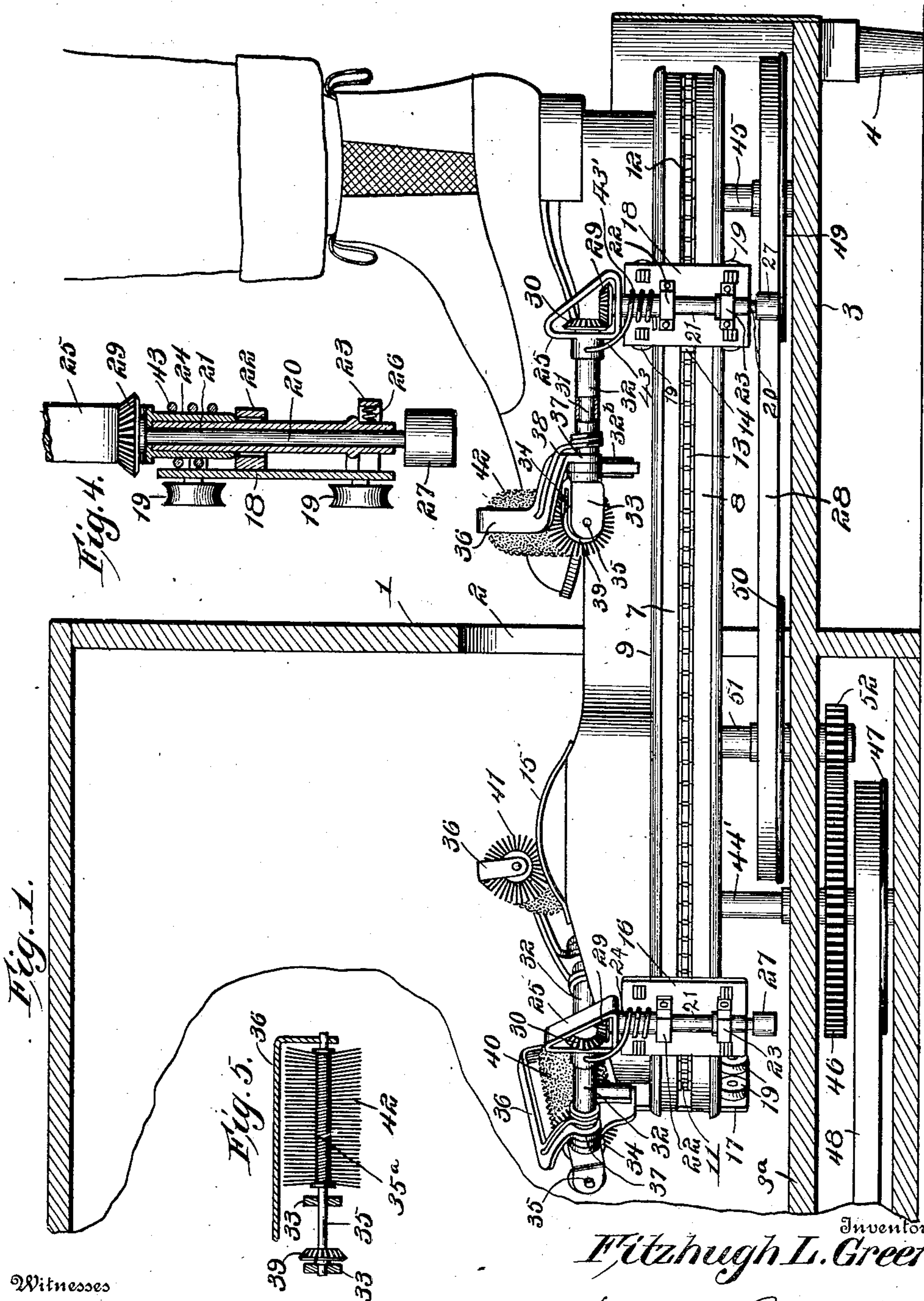


Fig. 1.

Fig. 4.

Fig. 5.

Witnesses

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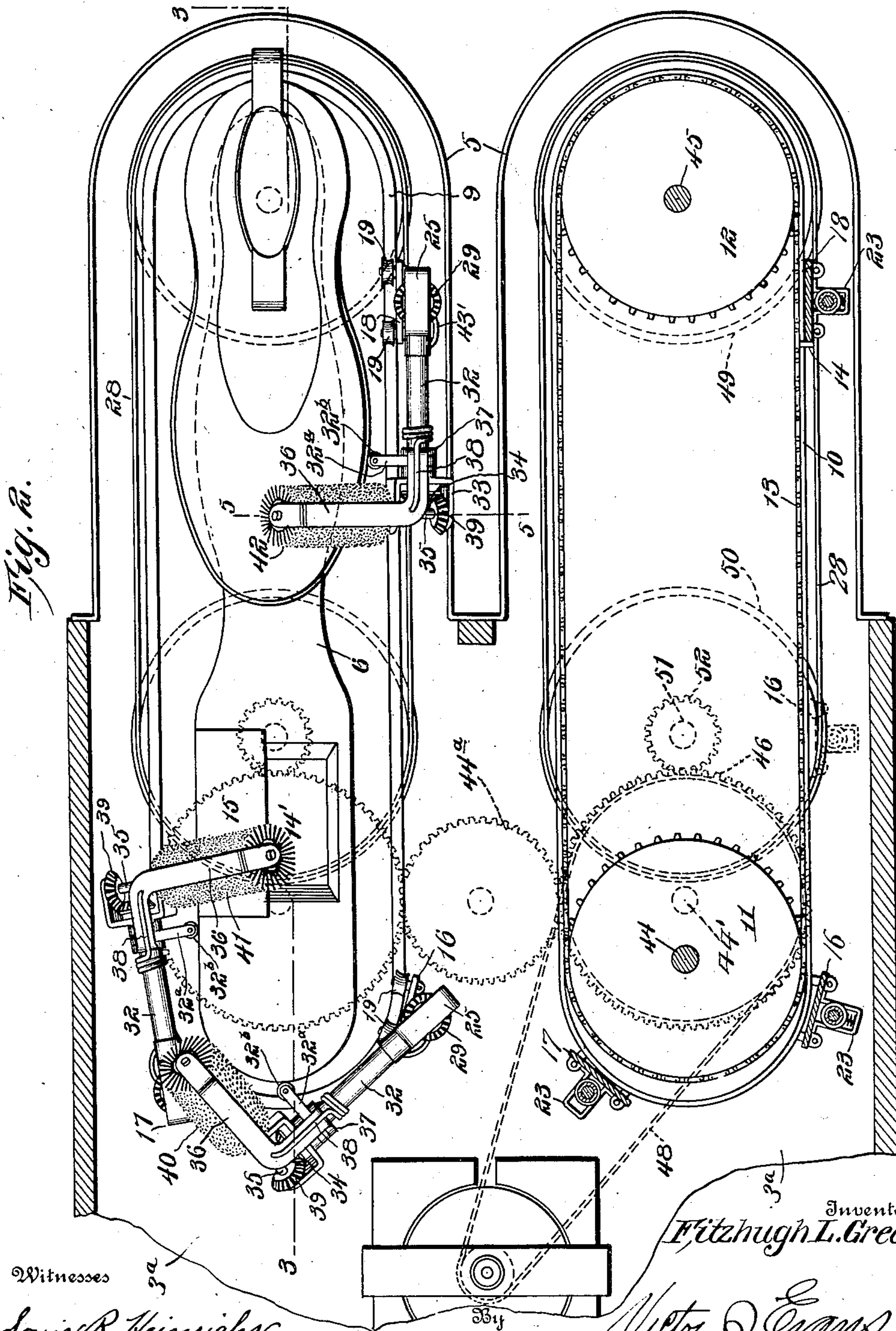
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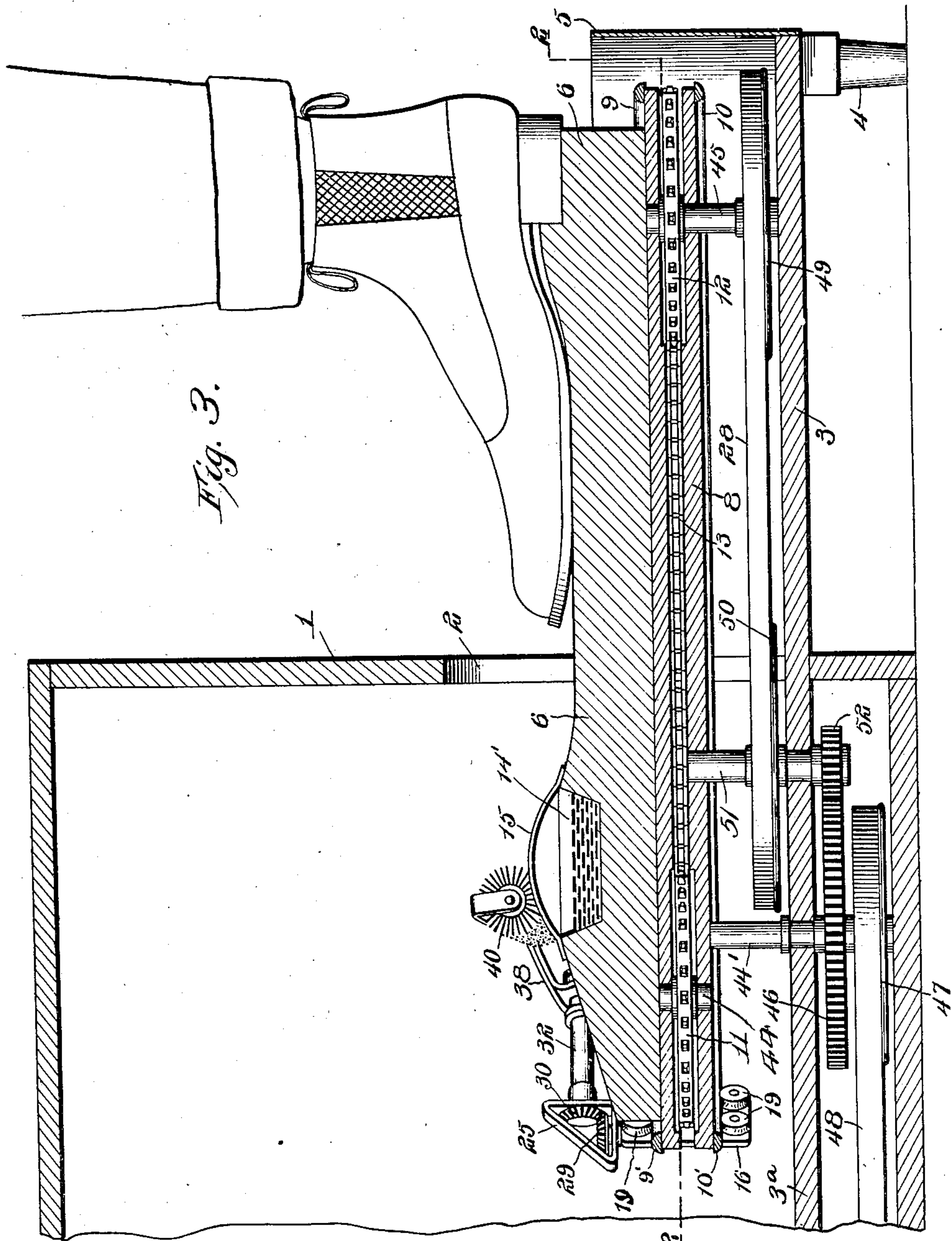


Fig. 3.

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UNITED STATES PATENT OFFICE.

FITZHUGH L. GREER, OF NORFOLK, VIRGINIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
INTERNATIONAL MACHINE CORPORATION, A CORPORATION OF VIRGINIA.

SHOE-POLISHING MACHINE.

No. 907,786.

Specification of Letters Patent.

Patented Dec. 29, 1908.

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To all whom it may concern:

Be it known that I, FITZHUGH L. GREER, a citizen of the United States of America, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Shoe-Polishing Machines, of which the following is a specification.

This invention relates to an automatic shoe polishing machine, the main object of the invention being to provide a simple, effective and reliable machine of this character adapted to operate upon shoes of different sizes without change or adjustment of the mechanism thereof.

The invention further has for its object to provide a shoe polishing machine in which the blacking or polish-applying and polishing brushes will automatically accommodate themselves to variations in the shapes and sizes of shoes of different kinds and conform to the contour of the upper, so as to secure an even application of the polish and a regulated pressure of the polishing brushes upon all portions of the shoe to be polished.

With the above and other objects in view, the invention consists of the novel construction and combination of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a vertical section of the machine taken on a line between the sets of polishing devices. Fig. 2 is an irregular sectional plan view of the same showing one of the polishing devices in top plan and the other in horizontal section on a plane indicated substantially by line 2—2 of Fig. 3. Fig. 3 is a vertical longitudinal section through one of the polishing devices. Fig. 4 is a detail section through one of the brush carriages. Fig. 5 is a detail section through one of the brushes on a plane indicated substantially by line 5—5 of Fig. 2.

Referring to the drawings, the numeral 1 designates a box or casing of suitable form and size to inclose portions of the polishing mechanism, the said casing being provided in its front wall with openings 2.

Extending through the openings and projecting partially within and partially without the casing are platforms 3. These platforms constitute extensions from a frame-board 3^a, and each is provided at its outer end with a supporting leg 4 and has its out-

wardly projecting portion surrounded by a shield or guard strip 5 secured to the platform and front wall of the casing. Each platform 3 supports a shoe rest and a cooperating set of polishing devices, each rest 6 being properly shaped to receive the shoe and retain it in position thereon and also being long enough to support the largest shoe and narrowed to the size of a child's shoe. The rest is arranged to hold the shoe in a forwardly and downwardly inclined position so that the brushes in action will be caused to operate only upon the portions usually polished and prevented from extending above the top of an oxford or low-quarter shoe.

The shoe rest is supported by a frame comprising upper and lower boards or plates 7 and 8 suitably connected and held in spaced relation and having straight sides and curved ends and provided with track surfaces 9 and 10 extending continuously around the same. Arranged between and at the front and rear of these plates 7 and 8 are sprocket wheels 11 and 12 around which passes an endless carrier or chain belt 13 provided with a lateral projection 14, the sprocket wheel 12 having the outer portion of its periphery located in alinement or substantially so with the rear curved edges of the plates, while the sprocket wheel 11 has the outer portion of its periphery spaced from the inner ends of the plates and out of line with the adjacent curved portions 9' and 10' of the trackways, by which construction such portions of the trackways form means for throwing the polishing brushes out of operation, as hereinafter described. The inclosed portion of the rest 6 is formed with a liquid polish (or dressing) receptacle 14', over one side of which extends a shield or deflector 15.

A plurality of brush-supporting carriages 16, 17 and 18 are arranged to traverse the trackways 9 and 10 and to be operated by the projection 14. Each carriage comprises a frame plate provided with rollers 19 to run upon the trackways and carrying a vertical shaft 20. The shaft 20 rotates in a bearing sleeve 21 extending loosely through a supporting bracket 22 and yoke 23 and projecting at its upper end into a sleeve 24 supporting a triangular bracket 25, the sleeves 21 and 24 being suitably shouldered to rest upon the said bracket 22 and yoke 23.

The sleeve 21 is held from rotary motion but is free to swing or tilt in the parts 22 and 23 and is held yieldingly pressed at its lower end toward the bracket plate by a spring 26 carried by the part 23. Rotary motion is imparted to the shaft 20 through the medium of a friction roller 27 upon the lower end thereof which is held by the spring 26 in engagement with a traveling belt 28, operated in the manner hereinafter described. The upper end of the shaft 20 carries a beveled gear 29 meshing with a similar gear 30 on a shaft 31 disposed at right angles thereto and journaled in a bearing sleeve 32 supported by the bracket 25 and having a yoked free end 33 inclosing a beveled gear 34 on the outer end of the shaft 31. A brush carrying shaft 35 is journaled at one end in the arms of the yoke 33 and projects laterally therefrom at right angles to the shaft 31, the outer end of said shaft 35 being journaled in the free end of an L-shaped bracket 36 carrying at its opposite end a collar 37 loosely engaging the sleeve 32. A spring 38 is coiled at one end about and fixed to the sleeve 32 and engages or bears at its opposite end upon the bracket 36, said spring tending to force the long arm of said bracket toward the shaft 35, which latter receives motion from the shaft 31 through the medium of a beveled gear 39 meshing with the gear 34. The shafts 35 have flexible portions 35^a which support brushes 40, 41 and 42, the brush 40 supported by the carriage 16 being designed for use as a polish-applying or (liquid-dressing-applying) brush and being shorter than the brushes 41 and 42 supported by the carriages 17 and 18, which are employed strictly as polishing brushes. The carriages 40 are designed to be alternately engaged by the chain belt and moved thereby around the trackways, the length of the brush 40 being such as to adapt it to pass over the shield 15 at one side of the reservoir 14 when said carriage 18 reaches the limit of its movement and to dip into said reservoir when the carriage moves forward again to take up and carry the necessary amount of polish to coat the shoe. The brushes 41 and 42 on the other hand are of such length that they will bridge across the mouth of the reservoir 14 and engage the shield 15 at all times when passing the reservoir, so that they will not dip into the polish contained therein.

In order to secure proper action of the respective brushes a spring 43 is arranged to engage the sleeve 32 to swing the shaft 31 laterally so that it will always be projected toward the shoe rest, said spring being connected at one end to said sleeve and having its opposite end coiled about the sleeve 24, as shown at 43', and with its terminal bearing against the frame plate of the carriage. The spring 38 exerts pressure upon the bracket 36 to bend or curve the brush-carry-

ing shaft 35 and to thus hold the brush in proper shape to conform to the curvature or contour of the shoe, the flexibility of the shaft permitting the brush to vary its form from its friction on the shoe to suit variations in the shape of the portions of the shoe over which the brush travels.

The sprocket wheels 11 and 12 are respectively mounted upon shafts 44 and 45. A shaft 44 disposed below and adjacent to the shaft 44' carries a gear wheel 46 and a belt wheel 47, the latter engaged by a belt 48 driven by a suitable motor arranged in the casing 1. The shaft 45 carries a belt wheel 49 engaged by the belt 28 which also passes around a belt wheel 50 on a shaft 51 carrying a pinion 52 receiving motion from the gear 46, whereby the parts of the apparatus are driven.

The set of polishing devices shown in full in Fig. 2 discloses the positions of the brushes when the last final polishing brush of the series, namely, the brush 42 carried by the carriage 18 has commenced its action on the shoe to complete the polishing operation. When this carriage reaches the limit of its movement, it engages the carriage 17 in advance thereof and transfers motion to the carriage 16, thus throwing the latter in position for the succeeding operation. It will be observed that the chain belt 13 has but a single operating projection 14 to engage and transfer motion to the carriages and that when this projection passes around the sprocket wheel 11 it will be automatically thrown out of engagement with the carriage, leaving the latter at rest. Fig. 2 shows the polish-applying carriage at the starting point and with the projection 14 engaging and operating the final polishing brush carriage 18. When the carriage 18 reaches the limit of its travel as before stated and transfers motion to the two carriages 16 and 17, the carriage 16 will be moved to the starting position shown in dotted lines in connection with the polishing device at the bottom of Fig. 2, while the carriages 17 and 18 will respectively occupy the positions of carriages 16 and 17 of the other polishing device at the top of Fig. 2. Hence when the carriage 18 reaches the portions 9' and 10' of the trackway, which will also be occupied by the carriage 17, the lug 14 will be disengaged from the carriage 18 as the chain travels around the sprocket wheel 11 and will engage and transfer motion to the carriage 16, the brush 40 of which will take up a supply of polish and apply the same to the shoe. The carriage 16 will in turn shift the carriage 17 into operation in like manner, and the carriage 17 on reaching the limit of its movement will shift the carriage 18 into operation, so that the two carriages 17 and 18 will be successively caused to travel with the chain to bring the polishing brushes 41 and 42 into

action. The brushes of the several carriages will yieldingly engage the shoe and be held in contact therewith by the pressure of their controlling springs and will thus act upon all portions of the shoe to be treated to apply the polish and shine the shoe. In order to adapt the brushes of the respective carriages to follow the precise contour of the shoe, the sleeve 32 thereof is provided with an arm 32^a carrying a guide roller 32^b. This roller 32^b engages the edge of the sole and heel of the shoe and thus adapts the brush to effectually follow the contour of the shoe surface. Hence it will be seen that the pivotal mounting of the sleeve 32 permits the brush to swing horizontally and laterally of the shoe-rest, while the pivotal mounting of bracket 36 on said sleeve permits the brush to swing in an up and down path, thus allowing the brush to accommodate itself to the varying form and arrangement of the parts of the shoe upper. The provision of the guiding means, comprising the arm 32^a and its contact roller 32^b, increases the efficiency of action of the brush, as such means, by running along the surface of the sole and heel, controls the vertical swing or tilting movements of the brush to adapt it to accurately follow the line of the upper around the shoe. By this means objectionable pressure of the brush on the surface of the shoe in varying its position against the resistance of spring 38 is prevented. Furthermore, it will be seen that the flexibility of the brush-carrying section 35^a of shaft 35 permits the brush itself to freely bend or curve and assume a variety of positions; under its friction on the shoe, to adapt it to conform to the varying contour of the shoe upper, and that this independent flexibility of the brush is permitted and provided for by the described mode of mounting the brush, the yielding nature of the spring-pressed bracket 36 allowing the flexible portion of the brush shaft to bow or bend to the exact contour of the portion of the shoe over which it passes under the frictional pressure of said shaft on the shoe. As a result, a uniform application of the blacking and polishing of the shoe surface will be secured.

Where two polishing devices are employed, as shown, to simultaneously polish a pair of shoes, motion will be communicated from the shaft 44 driven by the belt 48 through a gear 44^a to the gear 46 of the other shaft 44 of the apparatus, as shown in dotted lines in Fig. 2.

Having thus described the invention, what is claimed as new, is:—

1. A shoe polishing apparatus comprising a shoe support, an endless trackway extending around the same, suitably supported and driven gears arranged adjacent to the ends of the trackway, one of said gears being disposed a greater distance than the other from

the contiguous portion of the trackway, carriages arranged to travel upon said trackway and provided with brushes, and an endless carrier actuated by said gears and provided with a projection to successively engage and transfer motion to the carriages.

2. A shoe polishing machine comprising a shoe rest, a blacking reservoir, blacking applying and polishing brushes, means for propelling the brushes around the rest to act upon a shoe supported thereby, the blacking applying brush being adapted to dip into said reservoir and take blacking therefrom, and means for causing the polishing brush to move over the reservoir without dipping therein.

3. A shoe polishing machine comprising a shoe rest, carriages movable in a path around the same, said carriages being provided with yieldingly supported blacking applying and polishing brushes, guiding members upon the brush supports to engage the sole and heel of the shoe to control the action of the brushes, and means for successively operating said carriages to bring their brushes into action.

4. A shoe polishing machine, comprising a shoe rest, a carriage arranged to travel around the same, a flexible shaft supported by the carriage, a rotary brush carried by said flexible shaft, spring means supported by the carriage and exerting pressure on the shaft to yieldingly bow or curve the same and brush, a guide on the carriage to engage the sole and heel of the shoe and control the action of the brush, spring means for forcing the guide in engagement with the shoe, and means for operating the carriage.

5. In a shoe polishing apparatus, the combination of a shoe rest, a carriage, means for propelling the carriage around the shoe rest, brush supporting means mounted on the carriage, a brush comprising a shaft having flexible and inflexible portions, the former being provided with brush bristles and the latter journaled in the supporting means, said supporting means being pivotally mounted for movement in vertical and horizontal planes and in a plane transversely of the shoe rest, means for driving the brush shaft, springs for maintaining the parts of the supporting means in determinate position and permitting movement thereof, and a spring pressed support for the flexible portion of the brush shaft adapted to hold the same in contact with the shoe and permit free bending thereof independent of the pivotal movements of the supporting means.

6. In a shoe polishing machine, the combination of a shoe rest, a carriage mounted to travel around the same, a bracket mounted upon the carriage, a vertical drive shaft supported by the bracket, means for propelling the carriage around the rest and driving said vertical shaft, a horizontal shaft in gear with the vertical shaft, a bracket pivotally sup-

porting said horizontal shaft from the first named bracket, springs controlling the movements of said brackets to permit said shaft to swing in a plane laterally of the shoe rest, a
 5 third bracket pivotally mounted at one end upon the second named bracket, a brush shaft having flexible and inflexible portions respectively journaled upon said second and third brackets, said shaft being in gear with
 19 the horizontal shaft, and a spring supported by the second bracket and acting on the third bracket to permit yielding vertical movement and a free bending action of the flexible portion of the shaft, said flexible portion of the
 15 shaft being provided with brush bristles.

7. In a shoe polishing machine, the combination of a shoe rest, a carriage mounted to travel around the same, a bracket mounted upon the carriage, a vertical drive shaft supported by the bracket, means for propelling
 20 the carriage around the rest and driving said vertical shaft, a horizontal shaft in gear with the vertical shaft, a second bracket pivotally supporting said horizontal shaft from the
 25 first named bracket, springs controlling the movements of said brackets to permit said shafts to swing in a plane laterally of the shoe rest, a third bracket pivotally supported at one end upon the second bracket and extending in a plane transversely thereof, a
 30 spring connecting said second and third brackets to permit yielding movement of the latter in a vertical plane, a third shaft having flexible and inflexible portions respectively
 35 journaled on the second bracket and in gear with the horizontal shaft and journaled in the third bracket, the flexible portion of said shaft being provided with polishing material, and guiding means carried by the third
 40 bracket to engage the sole and heel of the shoe.

8. A shoe polishing machine comprising a shoe rest, a carriage adapted to travel around the same, means for propelling the carriage,
 45 a driving shaft mounted vertically on the carriage, a power transmitting shaft in gear with the driving shaft and extending horizontally rearwardly therefrom in the direction of movement of the carriage, a brush
 50 carrying shaft in gear with the power transmitting shaft and projecting at right angles thereto inwardly toward the shoe rest, brackets pivotally supporting said power transmitting and brush carrying shafts, and
 55 controlling springs respectively arranged to force the power transmitting shaft inwardly and permit lateral movement thereof and the power transmitting shaft downwardly and permit vertical movement thereof.

9. A shoe polishing machine comprising a shoe rest, a carriage arranged to travel around the same, a drive shaft mounted vertically on the carriage, a power transmitting shaft meshing with the drive shaft and extending rearwardly therefrom in a horizontal

plane in the direction of motion of the carriage, a pivotal support for said power transmitting shaft, a brush carrying shaft in gear with the rear end of the power transmitting shaft and extending at right angles thereto
 70 inwardly toward the shoe rest, said shaft having a flexible brush carrying portion, pivotal supporting means for said brush carrying shaft adapted to permit the same to have movement in a vertical plane and the
 75 flexible portion thereof to freely bend, springs controlling said support, and a spring for normally forcing the power transmitting shaft inwardly and permitting it to have swinging movement laterally of the
 80 shoe rest.

10. A shoe polishing machine comprising a shoe rest, a carriage adapted to travel around the same, a vertical drive shaft on the carriage provided with a pulley, a traveling belt engaged by the pulley for imparting motion to the shaft in the travel of the carriage, a rotary brush driven by the shaft, pivoted brackets for supporting said shaft from the carriage, and means for operating the carriage and belt.

11. In a shoe polishing machine, the combination of a shoe rest, a carriage, means for propelling the carriage around the rest, a flexible shaft having inflexible and flexible portions, the latter carrying a brush to operate upon the surface of the shoe, supporting and drive gearing for said shaft adapted to permit the same to swing laterally and vertically, means for driving said gearing, and means associated with the supporting means to sustain the flexible portion of the shaft and permit an independent yielding action thereof.

12. In a shoe polishing machine, a shoe rest, a carriage adapted to travel around the same, guiding and propelling means for the carriage, a brush, supporting and driving means for the brush mounted on the carriage and adapted to permit the brush to swing
 125 laterally of the shoe rest, a bracket connected with the brush and supporting means and yieldingly mounted to permit the brush to move in an arc vertically and transversely with relation to the rest, a spring controlling
 130 the action of the bracket, and guiding means carried by the bracket to engage the sole and heel of the shoe, whereby the swinging movements of the brush are regulated in the travel of the carriage.

13. In a shoe polishing machine, a shoe rest, a carriage arranged to travel around the same, propelling means for the carriage, a vertical driving shaft on the carriage, means for driving the same, a bearing sleeve supporting said shaft and carrying a bracket, a power transmitting shaft supported by the bracket and in gear with the driving shaft, said bracket having a sleeve extending rearwardly therefrom and inclosing said power 1

transmitting shaft, a spring associated with the first named sleeve and the bracket to permit lateral motion of the power transmitting shaft with respect to the shoe rest, a brush carrying shaft having an inflexible portion journaled at one end on the second named sleeve and provided with a flexible portion extending inwardly therefrom toward the shoe rest, the said inflexible portion of the shaft being in gear with the power transmitting shaft, brush bristles upon the flexible portion of the shaft, a bracket pivotally mounted at one end upon the second sleeve and forming a bearing at its opposite end for the flexible portion of the brush shaft, a spring connecting said bracket and sleeve, and guiding means on the bracket to engage the sole and heel of the shoe in the travel of the carriage.

14. A shoe polishing machine comprising a shoe rest, a carriage arranged to travel around the same, operating means for the carriage, a vertical drive shaft on the carriage, means for operating the same, a power transmitting shaft driven by the drive shaft and extending rearwardly therefrom in the direction of motion of the carriage, a brush carrying shaft driven by the power transmitting shaft and extending inwardly therefrom toward the shoe rest, pivoted brackets for supporting said shafts from the carriage and springs acting on said brackets and respectively controlling the power transmitting and brush shafts to permit the former to swing laterally of the shoe rest and the latter to have a combined vertical and lateral movement.

15. In a shoe polishing machine, the combination of a shoe rest, a chain running around said rest and having a projection to engage brush-carrying carriages, a track around said rest, a number of brush-carrying carriages on said track, each carriage consisting of a frame, a vertical shaft in said frame, another shaft that is normally at right angles to said shaft, bevel gears transmitting the motion of the vertical shaft to the horizontal shaft, a rotary brush operatively connected with said horizontal shaft, springs whereby said horizontal shaft may be moved laterally and vertically when the brush is forced against the shoe, and a means for causing said brushes to rotate when passing over the surface of the shoe.

16. In a shoe polishing machine, a brush-carriage, a rotary brush, and driving means and supporting means for the brush adapted to permit the brush to yield in a plurality of independent planes, said brush with its core or shaft being universally flexible and permitted to bend by said supporting means for independent yielding movement.

17. In a shoe polishing machine, a brush-carriage, operating means therefor, a rotary brush, supporting means and driving means

for the brush adapted to permit the same to yield bodily in a plurality of planes, the brush having a flexible shaft adapting it to have an independent bowing action, and spring means forming part of said supporting means for controlling the movements of the brush and permitting it to bow.

18. In a shoe polishing machine, a revolving brush mounted on a flexible shaft adapting the brush to vary its plane of motion to correspond to the varying contour of the shoe, a carriage, means for supporting the brush from the carriage and permitting it to variably bow as it rotates in connection with the shoe, and means for operating the carriage and brush.

19. In a shoe polishing machine, a revolving brush having a flexible supporting core or shaft, whereby the friction of the brush against the shoe causes said brush to bow and vary its plane of motion to correspond to the varying contour of the shoe, a carriage, means for propelling the carriage around the shoe, and yielding supporting means for the brush mounted on the carriage and adapted to permit the brush to bow, said supporting means constituting brush-driving mechanism.

20. In a shoe polishing machine, a revolving brush having a flexible core or shaft whereby the friction of the brush against the shoe adapts the brush to bend or curve as a whole to vary its plane of motion to correspond to the varying contour of the shoe, a carriage, and yieldable supporting means for the brush mounted on the carriage, said supporting means being adapted to permit the brush to bow and to bodily yield vertically and laterally.

21. In a shoe polishing machine, a traveling carriage, means for operating the same, brush-driving and supporting means mounted on the carriage, a brush supported and operated thereby, said brush having a flexible shaft or core adapting it to sinuously bow or curve to conform to the varying contour of the shoe, and means associated with said driving and supporting means for permitting the brush to independently bend or bow and to bodily yield vertically and laterally.

22. In a shoe polishing machine, a carriage, operating means therefor, brush driving mechanism yieldable in a plane laterally to the plane of motion of the carriage, a spring controlling such motion, a bracket pivotally mounted on said driving mechanism for vertical movement, a guide carried by the bracket to engage the heel and sole of the shoe, a rotary brush having a shaft provided with inflexible and flexible portions respectively journaled in the driving mechanism and bracket, the yielding motion of the latter permitting the flexible shaft section to independently bow or curve, and a spring acting

on the bracket to control the vertical movement thereof.

23. In a shoe shining machine, and in combination with a shoe rest, a traveling carriage, and yielding brush supporting and driving means mounted on the carriage, a rotary brush driven by said driving means and supported by said supporting means for yielding movement in a plurality of planes, said brush being bodily flexible and held by said supporting means to independently bend or yield, whereby the friction of the brush against the shoe causes said brush to bow or curve and vary its plane of motion to correspond to the varying contour of the shoe.

24. In a shoe polishing machine, and in combination with a shoe rest, a carriage arranged to travel around the rest, and propelling means for the carriage, polishing mechanism mounted upon the carriage and including a flexible shaft carrying brush material, means for supporting said shaft to yield vertically and laterally and also for permitting the same to independently bow or curve under its pressure upon the varying contour of the surfaces of the shoe, and means for driving the brush.

25. A shoe polishing machine comprising a shoe support, an endless trackway extending around the same, carriages adapted to traverse said track-way, brushes supported by the carriages, and an endless carrier traveling in said track-way and having a projection to engage said carriages to impart motion thereto, the track-way being provided with a portion projecting beyond the carrier and upon which the carriages successively pass out of engagement with the projection, whereby each carriage on reaching such portion of the track-way is adapted to engage and impart motion to a preceding carriage to move the same into position to be engaged by said projection.

26. A shoe polishing machine comprising a shoe support, an endless track-way extending around said support, carriages arranged to travel upon said track-way, polish supplying, initial and final polishing brushes respectively supported by said carriages, an endless carrier arranged in operative relation with respect to said track way and having a projection to successively engage and operate the carriages, said track-way being provided with a portion projecting beyond the carrier to throw the carriages out of engagement with said projection and to permit the carriage reaching the final point of travel to impart motion to a preceding inoperative carriage and move the same into position to be engaged by said projection.

27. A shoe polishing machine comprising a shoe rest, a carrier, brushes disconnected from each other and adapted to travel around the rest and to be propelled by the

carrier, a guiding means for the brushes operative at one point of their path of travel to throw them out of engagement with the carrier and to cause the brushes to contact with and successively shift one another into engagement with the carrier.

28. A shoe polishing machine comprising a shoe rest, a track-way extending around the same, an endless carrier traveling near said track-way, said track-way having a portion projecting beyond the carrier, brushes arranged to travel upon the track-way, and means upon the carrier to engage the brushes, the construction being such that the projecting portion of the track-way is adapted to throw the brushes out of engagement with the said engaging means on the carrier, to permit the succeeding brush so thrown out of engagement with the carrier to throw the preceding one into engagement with the carrier for the succeeding operation.

29. A shoe polishing apparatus comprising a shoe rest, a track-way extending around the same, an endless carrier arranged in operative relation with respect to the track-way, said track-way formed with a portion projecting beyond the carrier, a projection upon the carrier, carriages arranged to travel upon the track-way and to be successively engaged by said projection and thrown out of engagement therewith by said projecting portion of the track-way and to remain at a state of rest upon said portion, the construction being such that each carriage is adapted when thrown out of engagement with the projection to shift the preceding carriage into engagement therewith, and brushes supported by said carriages.

30. A shoe polishing machine comprising a shoe support, a track, a plurality of traveling brush carriages independent of each other and each movable in a circuit around said support and upon said track, and means for positively moving each carriage a part only of its circuit and each carriage being shiftable by a cooperating carriage to complete its circuit.

31. A shoe polishing machine comprising a support, a track-way associating with said support, independent carriages arranged to traverse said track-way, polish applying and polishing brushes supported upon said carriages and adapted to successively and independently operate upon the shoe upon the support, and a carrier arranged in operative relation with respect to said track-way and embodying means adapted to successively engage said carriages whereby each of said carriages is successively and independently carried around said support so that the brush carried by the carriage will perform its function, said track-way and carrier so disposed with respect to each other as to throw the carriages out of engagement with said means whereby the shifting movement of the car-

riages by the carrier will be arrested and further providing the shifting of the carriages by one another so as to position the carriage to be engaged by the said means and positively shift it by the carrier.

32. A shoe polishing machine comprising a shoe rest, a trackway, carriages independently movable in a path around the rest and traveling upon said trackway, blacking applying and polishing brushes mounted upon the carriages, guiding members adapted to engage the sole and heel of the shoe to control the action of the brushes, and means for successively and independently operating said carriages to bring the brushes into action.

33. A shoe polishing machine comprising a shoe rest, a trackway, a carriage arranged to travel around the rest and upon the trackway, a rotatable brush, means connected with the carriage for supporting said brush, means carried by the carriage for driving the brush, resilient means for retaining the brush

against the shoe, a guide on the carriage adapted to engage the sole and heel of the shoe and control the action of the brush, and means for operating the carriage.

34. In a shoe polishing machine, the combination of a shoe rest, a trackway, a carriage, means for propelling the carriage around the shoe rest and upon the trackway, brush supporting means mounted on the carriage, a rotatable brush carried by said supporting means, said supporting means being pivotally mounted for movement in vertical and horizontal planes and in a plane transversely of the shoe rest, means for rotating the brush, and means for maintaining the parts of the supporting means in determinate position and permitting movement thereof.

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

FITZHUGH L. GREER.

Witnesses:

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