C. F. DIECKMANN.

SHOE POLISHING MACHINE.

APPLICATION FILED SEPT. 7, 1912. RENEWED JULY 9, 1913.

1,086,032. Patented Feb. 3, 1914.

6 SHEETS—SHEET 1.

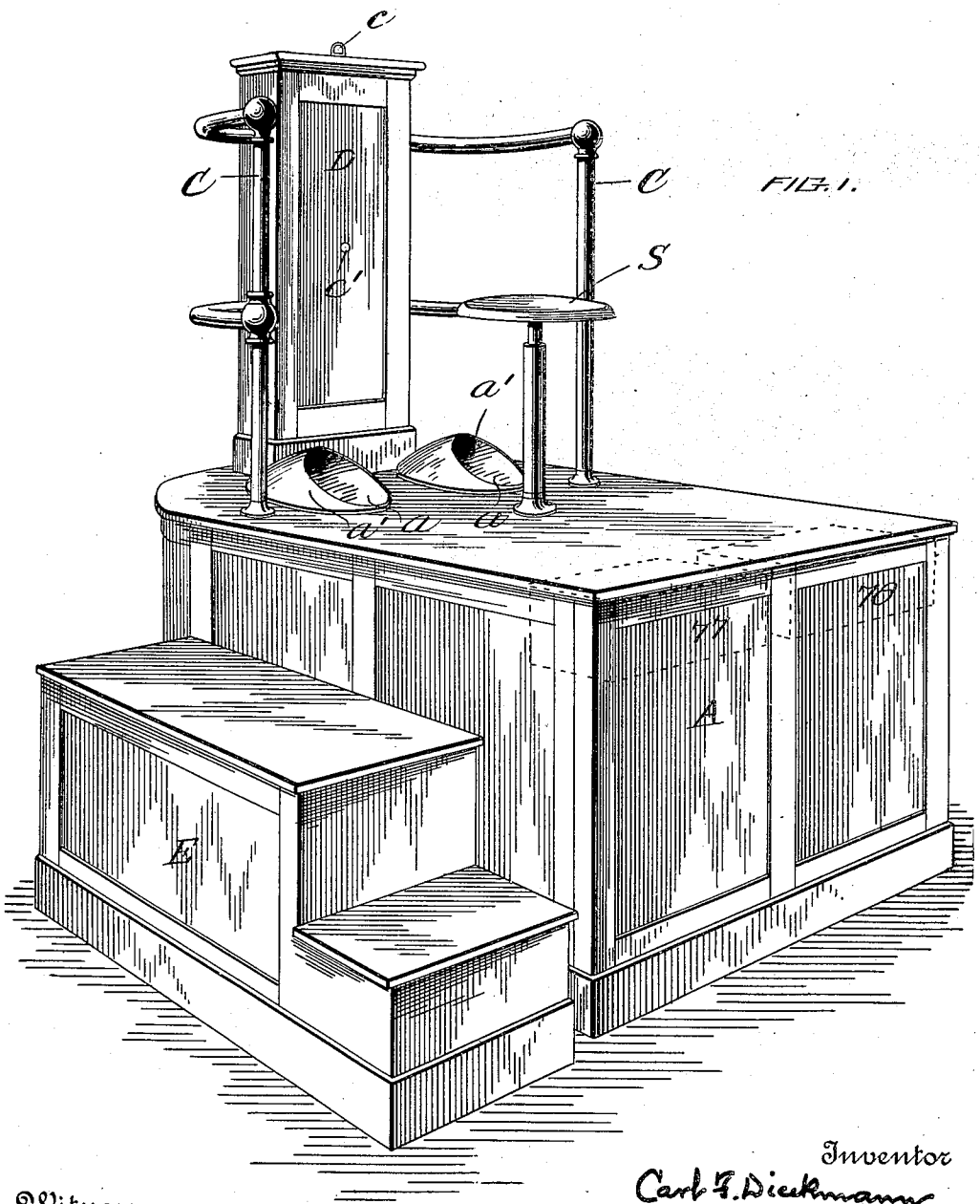


FIG. 1.

Witnesses
W. F. Foy
J. K. Moore

Inventor
Carl F. Dieckmann

By Whitaker & Prevost
Attorneys

C. F. DIECKMANN.

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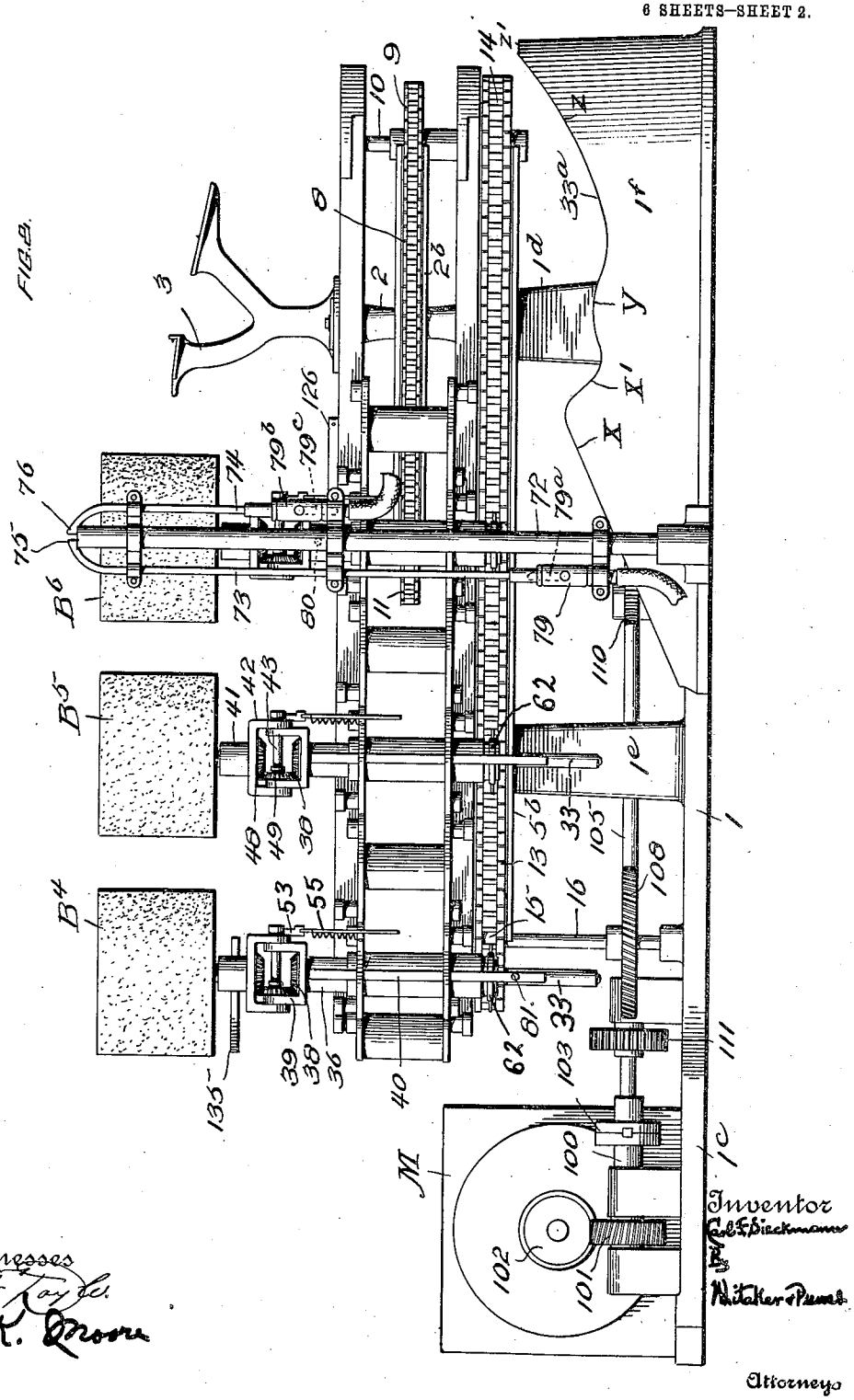
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6 SHEETS—SHEET 2.

FIG. 2.



Witnesses

J. K. Moore

Inventor

Carl F. Dieckmann

By

Whitaker & Pierce

Attorneys

C. F. DIECKMANN.

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6 SHEETS—SHEET 3.

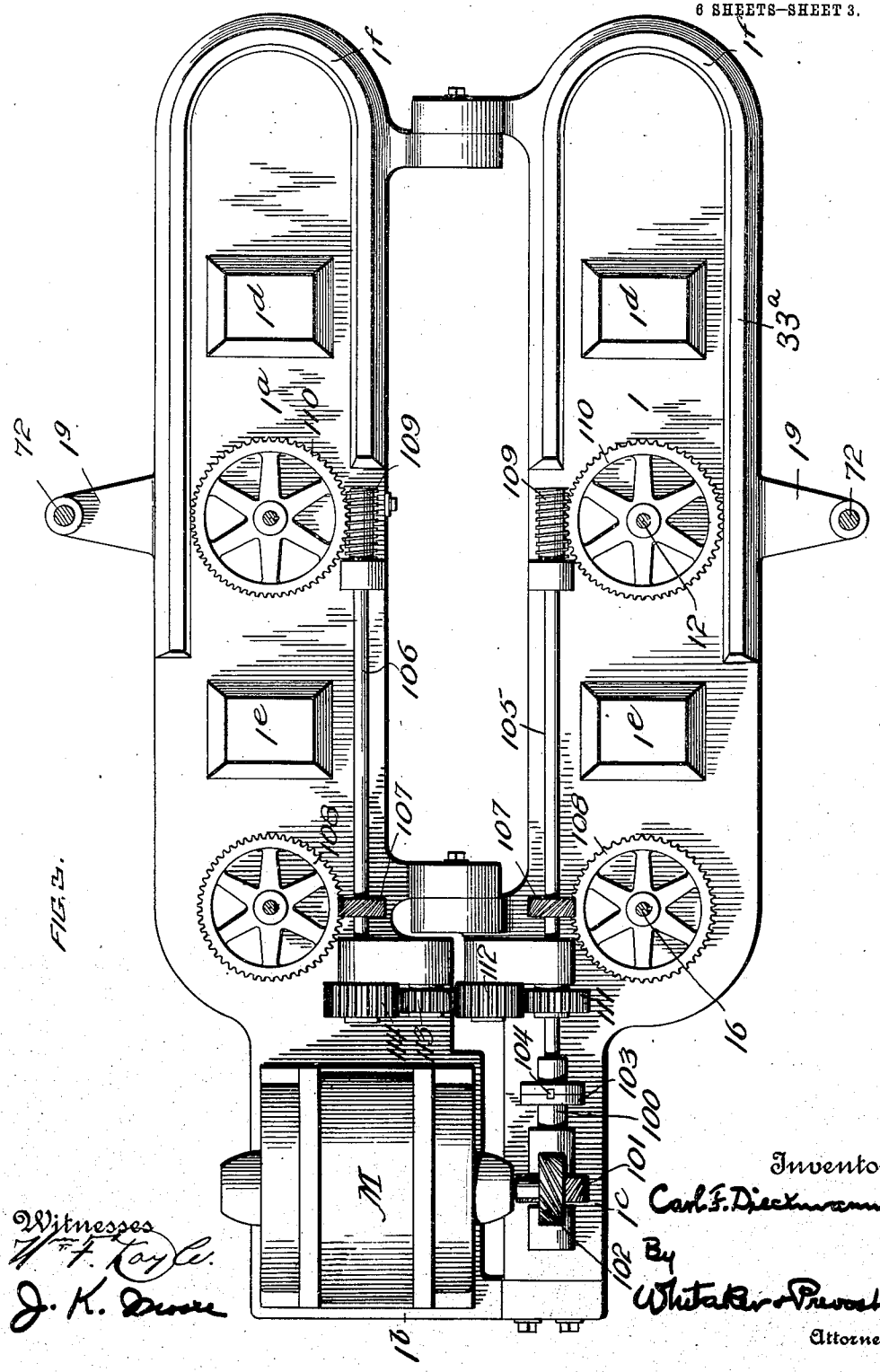


FIG. 3.

Witnesses

W. F. Doyle.

J. K. Dixon

Inventor

Carl F. Dieckmann

By Whittaker & Prescott

Attorneys

C. F. DIECKMANN.

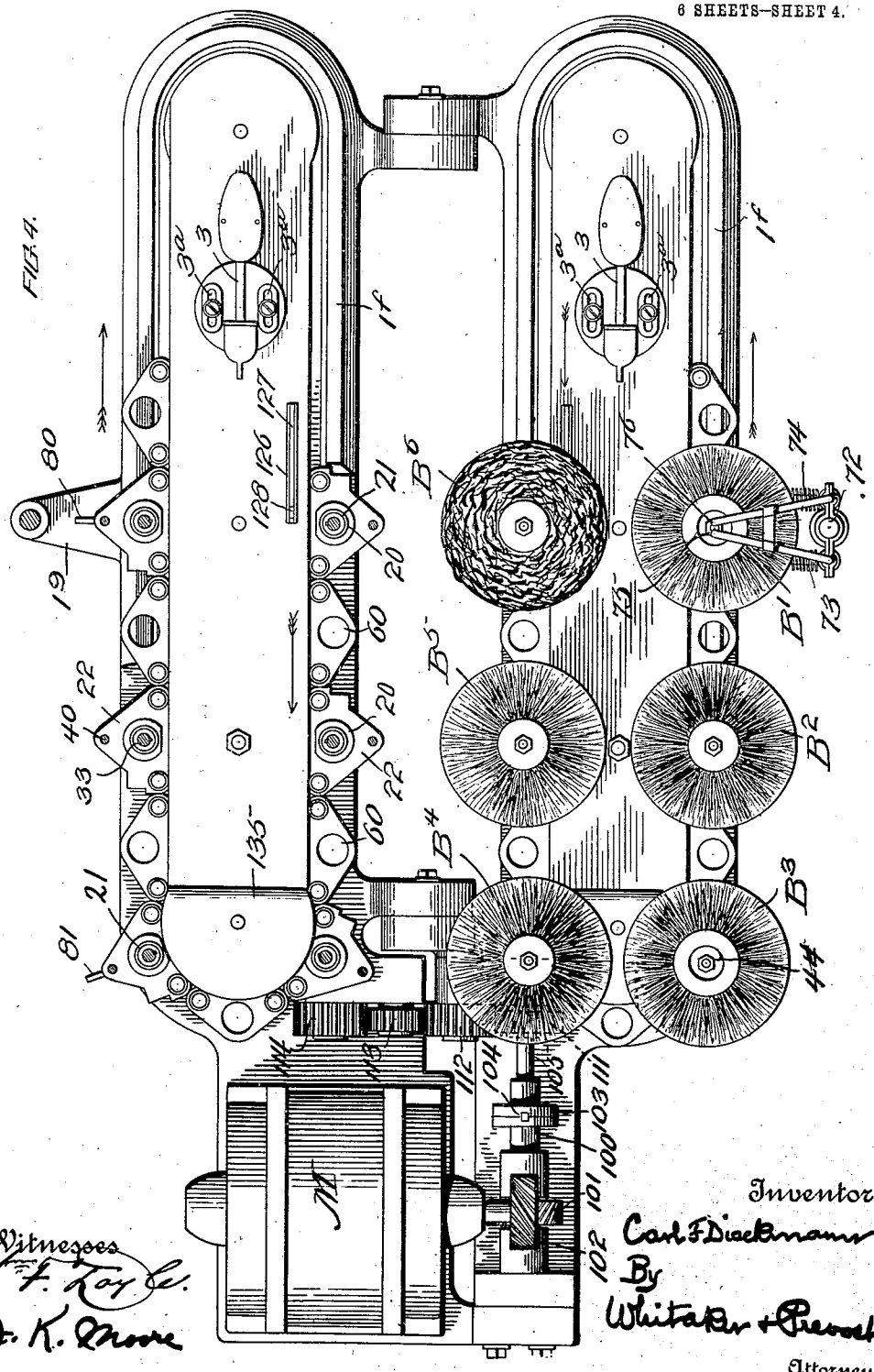
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6 SHEETS—SHEET 4.

FIG. 4.



Witnesses

W. F. Kay Jr.

J. K. Moore

Inventor

Carl F. Dieckmann

By

Whitaker & Prescott

Attorneys

C. F. DIECKMANN.

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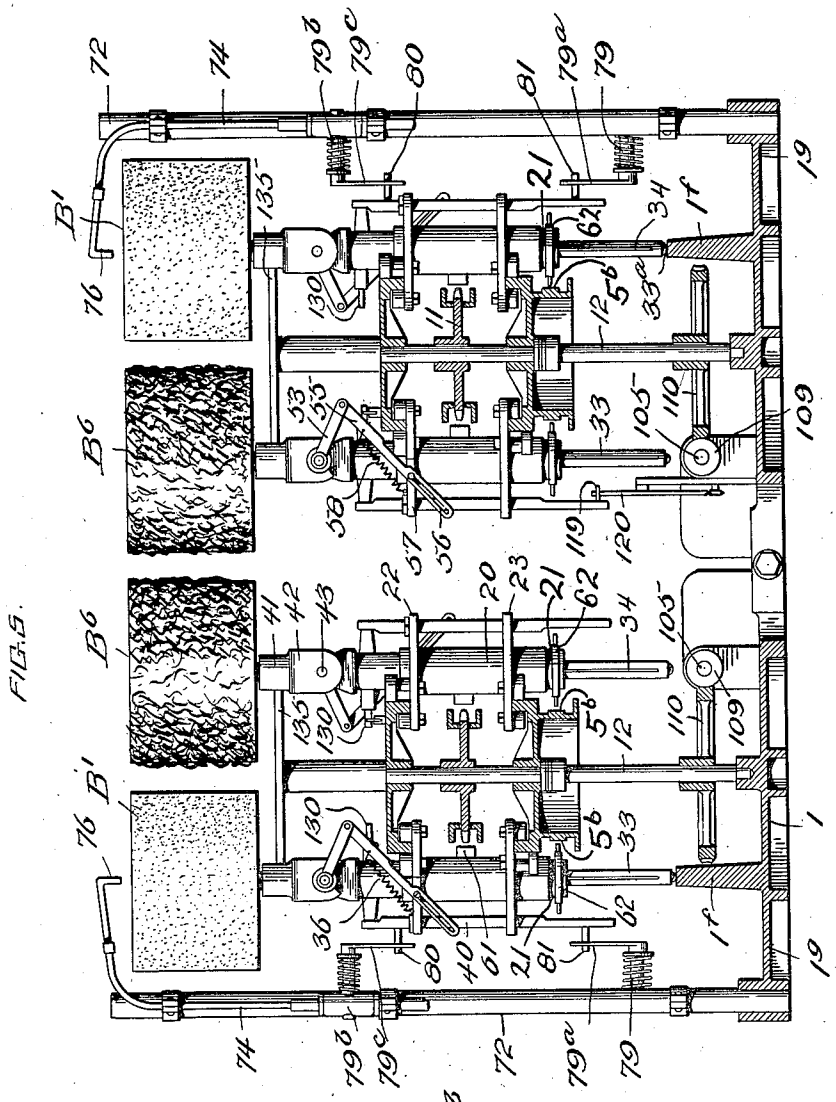


FIG. 5.

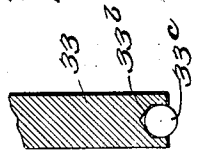


FIG. 5a.

Witnesses

H. F. Kay C.

D. K. Moore

Inventor

Carl F. Dieckmann

By Whitaker & Prevost

Attorneys

C. F. DIECKMANN.

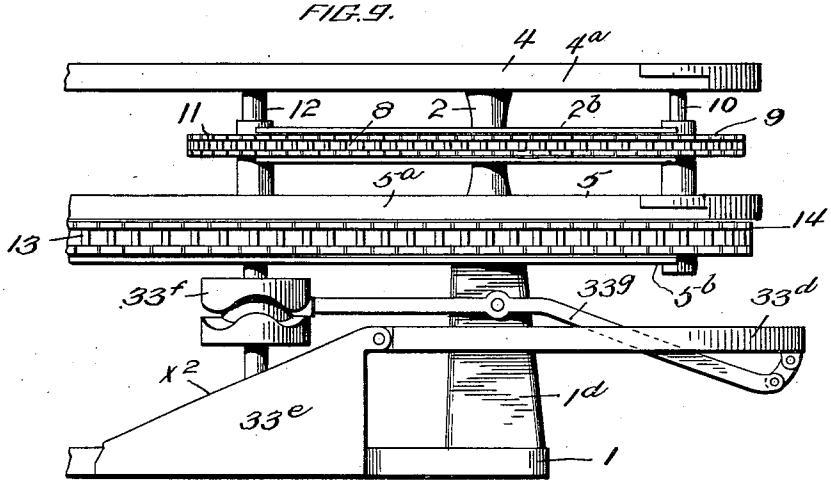
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6 SHEETS—SHEET 6.

FIG. 9.



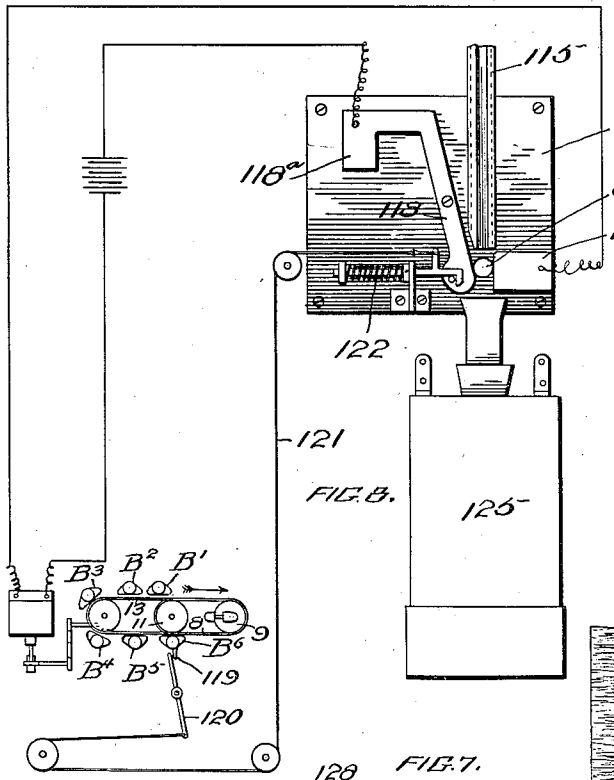
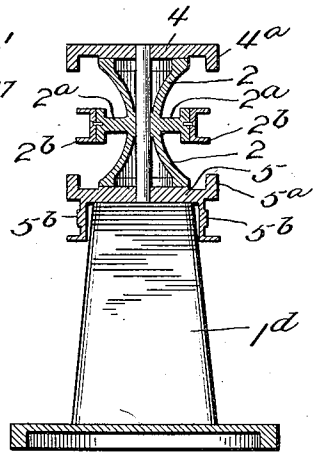


FIG. 8.

FIG. 6.



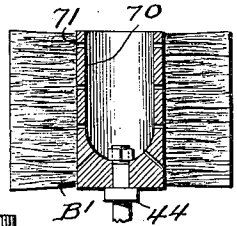


FIG. 10.

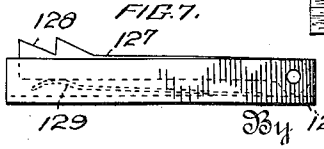


FIG. 7.

Witnesses

Wm. F. Doyle.

J. K. Moore

Inventor

Carl F. Dieckmann

By Whittaker & Prevost

Attorneys

UNITED STATES PATENT OFFICE.

CARL F. DIECKMANN, OF BRONXVILLE, NEW YORK, ASSIGNOR TO INTERNATIONAL MACHINE CORPORATION, OF RICHMOND, VIRGINIA, A CORPORATION OF VIRGINIA.

SHOE-POLISHING MACHINE.

1,086,032. Specification of Letters Patent. Patented Feb. 3, 1914.

Application filed September 7, 1912, Serial No. 719,126. Renewed July 9, 1913. Serial No. 778,179.

To all whom it may concern:

Be it known that I, CARL F. DIECKMANN, citizen of the United States, residing at Bronxville, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Shoe-Polishing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings which show one embodiment of the invention selected by me for purposes of illustration, together with a slight modification thereof, and my invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents an exterior view in perspective of the embodiment of my invention selected by me for purposes of illustration. Fig. 2 is a side elevation of the machine with the inclosing casing removed, and the pipes for supplying the cleaning and polishing fluids disconnected from the discharge nozzles therefor. Fig. 3 is a top plan view of the base of the machine frame, showing the motor and driving connections, and the stationary cam track, for elevating the brush carriers. Fig. 4 is a top plan view of the mechanism, the brushes being removed from one of the sections of the machine, and the vertically movable brush operating shafts being shown in section. Fig. 5 is a transverse vertical sectional view of the mechanism, parts being shown in elevation. Fig. 5ª is a detail of the lower end of one of the vertically movable shafts. Fig. 6 is a detail sectional view of a portion of the track plates and adjacent parts, with the moving parts removed. Fig. 7 is a detail view of the latch for preventing back lash of the carriages in the operation of the machine. Fig. 8 is a diagrammatic view illustrating the mechanism for starting the machine by the insertion of a coin in the coin operated mechanism and for automatically stopping the machine. Fig. 9 is a detail view illustrating a modified form of cam rail. Fig. 10 is a detail sectional view of one of the liquid receiving and distributing brushes.

In the accompanying drawings I have shown my invention embodied in a shoe polishing machine of the type illustrated in Letters Patent granted to W. H. McConnell, No. 1,024,589 dated April 30, 1912.

In the drawings, Fig. 1 represents a perspective view of the machine as it appears when set up ready for use, the working parts being inclosed in a suitable casing A, the upper face of which is provided with apertures *a*, *a* above the foot or shoe supports, and being preferably provided with hoods *a'*, *a'* as shown. I also prefer to provide the top surface of the casing with a suitable seat S, for the use of the persons whose shoes are to be polished and hand rails C, C which may be grasped to steady the operator in placing his feet upon and withdrawing them from the shoe supports. I also prefer to provide a starting mechanism operable by the insertion of a coin in a slot provided for the purpose, and for convenience the coin actuated starting mechanism is preferably located in a vertically disposed casing D at one end of the main casing A between the hand railings C, C and to which the latter may be secured. Steps E of any convenient form are also provided to facilitate persons ascending and descending from the top of the main casing, and I prefer to construct the steps separately from the main casing, and in the manner shown in order that they may be used at either side of the machine. The machine proper rests upon the floor and the casing may be entirely removed therefrom, as shown in Fig. 2 for example, to give access to the working parts for inspection, repair of or adjustment of the same.

The working parts of the machine are supported upon a base plate or bed, which is preferably constructed in two parts 1 and 1ª which are bolted together, each part supporting the instrumentalities for cleaning and polishing one shoe, the said instrumentalities being identical in construction and operation, so that a description of one side or half of the machine will, except for certain minor matters, serve for both. For example, the bed plate 1ª is made slightly different in shape at the rear end as shown to provide a broad supporting surface 1ᵇ to receive a motor M, and the corresponding portion 1ᶜ of the other bed plate which is much narrower, carries the bearings for a short transmission shaft, hereinafter referred to, which is connected by a coupling

or otherwise to one of the connected driving shafts which operate the two halves or portions of the machine.

Each of the bed plates is provided with two pillars 1^d, 1^e and at the front end with a curved wall 1^f the upper face of which forms a cam for elevating the vertically movable shafts of the carriages as hereinafter described. In this instance the cam wall is shown as cast integrally with the bed plate but it may be made separately therefrom if desired.

Each of the sections of the base plate is also provided with a lateral offset portion carrying a socket in which is inserted a vertical bar or standard, to which the discharge nozzles for the cleaning and polishing liquids are secured as hereinafter described.

The pillars 1^d, 1^e of each bed plate section support an endless track construction comprising a lower track plate or frame and an upper track plate or frame separated by vertically disposed columns 2 (see Fig. 6). The upper track frame 4 is provided in this instance with a downwardly extending track rail 4^a, and the lower track frame 5 is provided with an upwardly extending track rail 5^a.

Substantially midway between the upper and lower track frames is a horizontally disposed endless carrier 8 consisting preferably of a sprocket chain, carried by a sprocket wheel 9 on an idle vertical shaft 10 mounted in bearings in the forward portions of the upper and lower track frames concentrically to the curved frame portions of the track rails and by a driving sprocket wheel 11 mounted on a vertical shaft 12, mounted in bearings in the upper and lower track frames and extending downward to and engaging a bearing in the adjacent section of the base plate, as shown in Fig. 5.

Below the lower track frame 5 is an endless horizontally disposed driving chain 13, of a length corresponding substantially to the length of the track rails, said chain being supported at the front end of the machine by a sprocket wheel 14, on the lower end of the shaft 10, and at the rear end of the machine by a driving sprocket wheel 15 on a vertical shaft 16, mounted in bearings in the track frames and having its lower end engaging a bearing in the adjacent section of the bed plate, said shaft being arranged concentrically with the curved rear portion of the track rails.

The track frames of each section or side portion of the machine are provided with a plurality of brush carriages preferably six in number, which are so constructed as to be movable entirely around the endless track rails before described, and are identical in structure except for certain details which will be particularly pointed out. Each of said carriages is provided with a frame 20 consisting of a vertical sleeve having horizontally disposed brackets 22, 23 carrying guiding rolls or projections for engaging the inner and outer faces of the upper and lower track rails, so as to maintain the carriage in vertical position and in the same relation to the track rails at all times. The particular construction of the track rails and guiding rollers forms no part of my present invention.

Within the sleeve of the carriage is a rotatable sleeve 21, which preferably extends below the end of the bearing sleeve and is provided with a sprocket wheel 62 for engaging the sprocket chain 13, as shown, the said rotatable sleeve being held from vertical movement in the carriage in any desired way.

33 represents a vertically movable shaft extending through the rotatable sleeve, connected to rotate therewith by a key 34 and having its upper end extending through a head block 36, provided with arms 39 and being provided with a miter gear 38.

The head block 36 is provided with means for maintaining it in a predetermined relation with the carriage frame while it is moved vertically with respect thereto, consisting in this instance of a depending guide bar 40 passing through guiding recesses or apertures in the brackets 22, 23 of the carriage. Above the head block 36 is a pivoted brush carrier comprising a sleeve 41 having a yoke 42 at its lower end, pivotally connected to arms 39 of the head block by a rod or shaft 43. A vertically disposed brush shaft 44 extends through the sleeve 41 and is provided at its lower end with a miter gear 48 meshing with an idle miter gear 49 on the pivot bolt 43 which in turn meshes with the miter gear 38.

Each brush carriage is provided with means for causing the brush shaft to tilt on its pivot 43, when the vertical shaft 33 is raised or lowered. To this end I have shown in this instance an actuating arm 53 secured rigidly to the yoke 42 of the brush carrier and having connected to its outer end a link 55 slotted as at 56, the slot engaging a fixed stud 57 on one of the flanges of the brush carriage. A spring 58 is connected at one end to the carriage and at the other end to the link (or arm 53) thus holding the link with the upper end of its slot normally in engagement with the stud 57. The specific details of this construction form no part of my present invention. It will follow from this construction that if the vertical shaft 33 is raised more or less the brush carrier will be tilted more or less inwardly toward the shoe support 3, which is located at a convenient point within the travel of the brushes, and preferably at the forward end of the upper track frame as shown. At the same time in all positions of the brush, whether vertical, inclined or substantially

horizontal, the brush is maintained against the shoe in a yielding manner, and may yield in a direction away from the shoe, such yielding being permitted by the slot 56 and spring 58, so that while the position of the brush is positively controlled as hereinafter described, it can yield to any irregularities of surface which it engages, thus enabling it to move perfectly, treat the surface it engages, and preventing any possibility of injury to, or too great pressure upon the foot. Each carriage is provided with a tooth or lug 61, to engage a suitable projection on the conveyer 8, for propelling the carriage along the tracks, and the vertical shaft 33 of each carriage is rotated during the operation of the machine by the engagement of the sprocket wheel 62 and chain 13, before referred to.

I will now describe the means by which the vertical shafts 33 are raised and lowered to effect the proper tilting of the brushes as they pass around the shoe support and engage the various portions of the shoe. For this purpose I provide each shaft 33, at its lower end with an anti-friction bearing, and arrange around the front end of each section of the machine a horizontally disposed cam track or rail to be engaged by said bearings, and cause the said shafts to be raised to the required positions at different portions of the travel to give the brushes the required tilting positions. In the main figures of the drawing I have shown the track referred to, and which I have indicated by 33^a as being the top face of the wall 1^f heretofore referred to, which may engage the lower ends of the shafts 33, but I prefer to provide the lower end of each shaft with a recess 33^b containing a steel ball 33^c (see Fig. 5^a) but I may employ some other anti-friction bearing if desired. Where the cam track is stationary as shown in Figs. 2, 3, 4 and 5, it is provided with suitable grades, as shown to impart the desired tilting movements to the brush. In the cam shown the grade x lifts each shaft 33 and causes the brush to swing inwardly around the rear of the heel of the shoe on the shoe support, the downwardly inclined grade x' permits the shaft to descend, thus swinging the brush outwardly around the heel; the grade y, causes the brush to tilt inwardly where the foot narrows below the ankle, and the grade z lifts the shaft gradually tilting the brush over upon the top of the foot as the carriage passes around the toe portion until the highest part $2'$ of the cam track is reached at the front of the machine when the brush will lie in a nearly horizontal position, thus brushing the top of the toe portion of the shoe, the inner portion of the cam track is provided with corresponding grades to control the position of the brush as it passes along the inner side of the foot, and in rear of the heel, in completing its circuit around the same.

In Fig. 9 I have illustrated a modification of the cam track for engaging the lower end of the shafts 33 and elevating the same. In this instance I employ a vertically movable cam rail, 33^d which is pivoted at one end to a support 33^e at each side of the machine, which supports may be provided with a preliminary cam grade x^2 as shown to control the first elevation and final lowering of the shaft 33, the other vertical movements of said shafts being imparted by vertically moving the pivoted cam rail 33^d, through the instrumentality of a rotary cam 33^f on the vertical shaft 12 (provided in this instance with a cam groove) and engaging one end of an operating lever 33^g, pivoted in the forward pedestal of the machine, and having its outer end connected with the cam rail 33^d. It is obvious that by means of the cam 33^f the same movements can be imparted to the shafts 33, as are imparted by the stationary cam track.

By employing the construction just described the elevation of the vertical brush operating shafts and the brushes may be accomplished without materially increasing the draft on the endless carrier, (which results where the shafts are forced by the carrier into contact with a fixed cam surface) thus enabling the machine to be operated with less power. And further wear can be compensated for by renewing the operating cam at slight expense without renewing the cam track or other parts of the machine. The cam 33^f is detachably connected to the shaft 12, and by changing the form of said cam, a different series of movements can be imparted to the vertical shafts and brushes if this be or becomes desirable, as in polishing certain classes of shoes, as children's shoes and ladies' shoes, without altering any of the other parts of the machine.

Any desired means may be employed for securing the successive operation or travel of the brushes around the shoe support. In the present instance I have shown the same means as that disclosed in the McConnell patent before referred to, which consists in locating a bumper, or bumper-frame 60, between each brush carriage and the one adjacent, each consisting of a metal frame similar to the frame of the carriages and having means for engaging the track rails, but carrying no mechanism and performing no other function. The propelling chain 8 is of less extent than the endless track rails leaving a dead portion at the rear of the track rails sufficient to accommodate all of the brush carriages and bumpers, except the carriage which is in engagement with the said chain 8, and is being carried around the shoe rest, with its bumper preceding it. As the carriage in motion reaches the end of its

travel under the influence of the chain 8, the bumper preceding it will strike the next carriage, pushing all the carriages and bumpers around the dead portion of the track rails and forcing the next carriage into such position that its lug 61, will engage the chain 8, and be caused to move around the shoe support in its turn, the operation continuing until all the brush carriages have made the circuit of the track rails, when the machine will be stopped, by shutting off the power, either by hand or automatically as hereinafter described.

I prefer to provide certain of the brushes of each series with means for receiving and distributing liquids, for cleaning or polishing the shoe, and in the present instance I have shown the brushes arranged in the following order: The first brush B′ receives and distributes on the shoe, a cleaning liquid; the second brush B^2 is a polishing brush; the third brush B^3 receives and distributes a liquid polish; the next brushes B^4 and B^5 are polishing brushes and the last brush B^6 is also a polishing brush but is preferably made of cloth and may be termed the buffer. I do not, however, limit myself to the particular number or arrangement of the brushes as these may be varied without departing from my invention. The liquid distributing brushes B′ and B^3 are provided with hollow cores 70, provided with lateral passages 71, extending through the walls of the same to the spaces between the tufts of bristles, so that liquid inserted in the hollow core will be thrown against the inner surface of its wall and will pass through said apertures 71, and along the bristles to the shoe.

I provide means for supplying the desired quantity of liquid to the brush just before it reaches the shoe to be polished, and in the present instance such means comprises the following instrumentalities: On the outer side of each of the base plate sections I arrange a vertical standard 72 (preferably fixed in the sockets carried by the lateral extensions 1^s) which standards carry two pipes 73, 74 having their upper ends curved inwardly toward the path of travel of the brushes and terminating in downwardly extending nozzles 75, 76 so located that they will discharge liquid into the interior of the hollow cores of the brushes B′ and B^3. Each of the pipes 73, 74 is connected by a suitable pipe (not shown) as a rubber pipe or tube, with a reservoir or reservoirs containing the liquid to be supplied, and which may be conveniently supported within the casing A, as indicated at 77 and 78, Fig. 1. One of these reservoirs is preferably filled with a cleaning fluid and connected with the pipes 74, 74 and the other is connected with a liquid polish and connected with the pipes 73, 73 or I may use a separate reservoir for each pipe if preferred, it being only necessary that the reservoirs should be placed high enough to deliver the liquid from the nozzles. Each of the pipes 73 is provided with a spring actuated normally closed cock 79, having a trip arm 79^a and the pipes 74 are provided with similar cocks 79^b having each a trip arm 79^c.

The brush carriages, carrying the hollow cover brushes B′ B′ are provided each with a selective projection 80, located conveniently on the guide rod 40 thereof, which will operate the adjacent cock 79^b at the proper time in the cycle of the machine, and cause an amount of the cleaning fluid to be discharged into the hollow core of the brush just before it reaches the shoe, thus enabling the brush to cleanse the shoe of dust, etc. Each of the carriages carrying the hollow brushes B^3, B^3 is provided with a similar selective projection 81 for operating the adjacent valve 79 and discharging a quantity of the liquid polish into the brush B^3, which will then apply it to the shoe. The relative arrangement of the projections 80 and 81 and the trip arms 79^a and 79^b respectively, constitutes a selective means by which one or other of the liquids will be supplied to each brush having a hollow core, in accordance with the said relative arrangements of the parts. Each of the shoe rests or supports 3 is provided with a base having a pair of slots 3^a, 3^a disposed longitudinally of the track frame upon which it is supported and is secured in position by two screws or bolts, so that it can be adjusted back or forward and also twisted to a slight degree, to secure it in the most advantageous position with respect to the travel of the brushes.

The machine is preferably driven by means of the motor M although any suitable source of power may be employed. When a motor is used I prefer to use a self starting motor, which will start without load, immediately upon closing the electric circuit, and after the armature attains sufficient speed will automatically clutch in the driving shaft by means for example, of a centrifugal operated clutch. Such motors are on the market, and as the construction of the same forms no part of my invention, it will not be particularly described. I also prefer to insert a breakable coupling between the motor and the driving mechanism of the machine, and to this end I provide a short transmission shaft 100 provided with a spiral gear wheel 101 engaging a similar gear 102 on the motor shaft, the transmission shaft being in alinement with one of the driving shafts 105, 106 of the machine (in this case shaft 105) to which it is connected by a shaft coupling 103, having a soft or easily shearable plug 104, in a well known way, so that in case of accident the plug will be sheared and injury to the ma-

chine prevented. Each section of the machine is provided with a longitudinal driving shaft (105, 106) operatively connected with the vertical shafts 12 and 16 which impart motion to the propelling chain 8 and brush operating chain 13 respectively. In this instance each of said shafts 105, and 106 is connected to the shaft 16 by spiral gear wheels 107, 108 and to the shaft 12 by worm and worm wheel 109, 110 but any suitable gearing plan may be employed. The shafts 105 and 106 are operatively connected by a train of gears 111, 112, 113, 114 so that the motor will drive both simultaneously.

I prefer that the machine shall be capable of being started by the insertion of a coin and automatically stopped when it has caused each of the series of brushes of each section of the machine to travel around the adjacent shoe support, and to this end I prefer to provide the casing D with a coin aperture. Within the casing D is a coin guide 115 (see Fig. 8) at the lower end of which are located on a suitable insulated base 116, a stationary contact 117, and a pivoted contact 118 to which the wires for the motor circuit are connected, so that the circuit will be closed by the coin which passes down the guide 115, and drops edgewise between said contacts. This causes the motor to immediately start and as soon as the armature has gained sufficient momentum the machine will be started and will complete its cycle of operation, thus cleaning, polishing and buffing both shoes of the operator simultaneously. As the last carriages B^6, B^6 arrive at their final positions, a projection 119 on one of said carriages (see diagram in Fig. 8) will engage one end of a lever 120, supported on the frame work of the machine, and throw said lever, which is connected by a chain or other flexible connection 121 with a spring actuated bolt 122, in casing C, having a hook portion for engaging a projection on the movable contact 118, thus withdrawing the latter, and permitting the coin to drop into a coin receptacle 125. The carriage projection 119 passes entirely over the end of trip lever 120, releasing the same, and permitting the bolt to return to normal position, the movable contact 118 being returned to position by a weight 118^a (or spring). The parts 119 and 120 are indicated in Fig. 5 but the flexible connection is broken away as the casing is removed in that figure. I also prefer to provide a locking mechanism for locking each carriage against back lash, when it is pushed rearwardly along the inner side portion of the rails and upon the dead portion of the same, at the conclusion of its operative travel under the influence of chain 8. In the present instance I have shown each of the upper track frames provided with a locking device, one of which is shown in detail in Fig. 7. The device consists of a vertically slotted casing 126, in which is placed a pivoted pawl 127, provided with one or more ratchet teeth 128. A spring 129 shown in dotted lines holds the pawl in such position that its teeth may be engaged by a horizontal stud 130 extending inwardly from each of the carriages (see Fig. 5). As each carriage completes its travel under the influence of the chain 8, the stud 130 will pass over one of the ratchet teeth 128, thus preventing back lash or return movement and holding the carriage in position until the next carriage bumper engages the same. I also prefer to provide means for guiding the brushes during their travel around the rear end of each section of the machine, and to apply a slight friction to the carriages so as to prevent them from moving too rapidly when they are forced around by the bumpers. For this purpose I preferably provide at the rear end of each section a horizontal friction and guiding disk 135, supported at such distance above the upper track frame, as to have its vertical edges engage the sleeve portions 41 of the brush carriers, with slight friction. As the carriages pass around the rear end of the machine section, therefore, the engagement of said sleeves with said disk will hold the brushes from jarring inwardly on their horizontal pivots, which might cause them to come into contact and wear, and also slightly resists the onward movement of the carriages, which prevents the carriages and bumpers from separating and causes them to move smoothly around the rear end of the track frame. I also provide the frame work of the machine with guiding means for the horizontal chains 8 and 13. To this end the front columns 2 (see Figs. 2 and 6) are provided with lateral brackets 2^a, 2^a on opposite sides to which are secured horizontal chain guides 2^b, 2^b for guiding the portions of chain 8 between the sprocket wheels 9 and 11. The lower track frame 5 is also provided on each side between the sprocket wheels 14 and 15, with depending chain guides 5^b, 5^b which are preferably cast integrally with the track frame 5, although obviously they might be made separately and secured thereto.

In operating the machine the person desiring to have his shoes polished will ascend to the platform on the top of casing A, and seat himself on the seat S, grasp the hand rails C, and place both feet through the apertures *a* upon the shoe supports 3, 3. He will then insert a coin in the coin aperture *c* on the top of the casing C and the coin will descend through the chute 115, until it rests between the contacts 117 and 118, when the current through the motor is closed by the coin. The coin in this position is visible through a small

window c' (see Figs. 1 and 8) to the operator and it remains in sight during the operation of the machine until the operation of polishing both shoes, which proceeds simultaneously, is accomplished, when the coin drops into the coin receptacle, as before described and the machine stops. Arrows in Fig. 4 indicate the direction in which the carriages travel in their circuit around the shoe support.

What I claim and desire to secure by Letters Patent is:—

1. In a shoe polishing machine, the combination with a shoe support, a traveling brush carriage, guiding means for said carriage extending around the shoe support, a vertically movable brush carrier, pivoted on a horizontal pivot and capable of tilting toward and from the shoe support, a rotary brush mounted in said brush carrier, means for rotating said brush, connections between said brush carrier and said carriage for effecting the tilting of the brush and carrier by the vertical movement of the same, a cam track extending around the shoe support and having vertically movable portions, a part operatively connected with the brush carrier for engaging said cam track, and means for raising and lowering the vertically movable portion of said cam track.

2. In a shoe polishing machine, the combination with a shoe support, a traveling brush carriage, guiding means for said carriage extending around the shoe support, a vertically movable brush carrier, pivoted on a horizontal pivot and capable of tilting toward and from the shoe support, a rotary brush mounted in said brush carrier, means for rotating said brush, connections between said brush carrier and said carriage for effecting the tilting of the brush and carrier by the vertical movement of the same, a cam track extending around the shoe support and having vertically movable portions, a part operatively connected with the brush carrier for engaging said cam track, the face of said vertically movable portions of said track engaged by said part being in substantially the same plane, and a rotary cam operatively connected with said movable portion of the cam track, and constructed to move the same vertically to effect the desired vertical and tilting movements of the brush.

3. In a shoe polishing machine, the combination with a shoe support, a traveling brush carriage, guiding means for said carriage extending around the shoe support, a vertically movable rotatable shaft mounted in said carriage, a brush carrier connected to a part carried by said shaft, by a horizontal pivot, a rotary brush carried by said brush carrier and operatively connected with said shaft, means for rotating said shaft, connections between said brush carrier and said carriage for rocking the carrier on its horizontal pivot by the vertical movement of the same, a cam track located adjacent to the path of, and in position to engage a part connected with the lower end of said vertical shaft, said track having a vertically movable portion, and an elevating cam for said cam track.

4. In a shoe polishing machine, the combination with a shoe support, a traveling brush carriage, guiding means for said carriage extending around the shoe support, of a rotary brush carried by said carriage and provided with an axial recess open at its upper end and with passages communicating with the periphery of the brush, means for normally holding said brush and recess in a substantially vertical position, and means for discharging liquid into said brush recess, when the brush and recess are in substantially vertical position.

5. In a shoe polishing machine the combination with a shoe support, of a revoluble brush provided with an axially disposed liquid receiving recess open at its upper end and with passages therefrom communicating with the periphery of the brush, means for causing the travel of the brush and means for rotating the brush.

6. In a shoe polishing machine, the combination with a shoe support, of a revoluble brush provided with an axially disposed liquid receiving recess open at its upper end and with passages therefrom communicating with the periphery of the brush, means for causing the travel of said brush, means for rotating the brush, and means for discharging a liquid into said open recess.

7. In a shoe polishing machine, the combination with a shoe support, of a revoluble brush provided with an axially disposed liquid receiving recess open at its upper end and with passages therefrom communicating with the periphery of the brush, means for causing the travel of said brush, means for rotating the brush, a stationary liquid supply, and means for discharging liquid into said open recess without interfering with the travel of the brush.

8. In a shoe polishing machine the combination with a shoe support, a plurality of separately movable revoluble brushes, means for causing the travel of said brushes, and means for rotating the brushes, certain of said brushes being provided with liquid recesses open at the upper end, and with passages therefrom in communication with the periphery of the brush, means for supplying a fluid to certain of said recessed brushes and separate means for supplying a different liquid to certain of said recessed brushes.

9. In a shoe polishing machine having a shoe support, a plurality of brushes carrying devices, means for causing the travel of

said devices with respect to the shoe support and means for rotating said brushes carried by said brush carrying devices, certain of said brushes being provided with a liquid receiving recess, open at its upper end, and liquid passages from said recess to the periphery of the brush, stationary means for supplying a plurality of liquids to said brushes including a discharge nozzle for each liquid, said nozzles being located above the path of travel of said brushes, and selective means operated by the travel of the said carriages for effecting the discharge of liquid from one or other of said nozzles into the recess of each of said brushes so provided.

10. In a shoe polishing machine having a shoe support, a plurality of brush carrying devices, means for causing the travel of said devices with respect to the shoe support and means for rotating said brushes carried by said brush carrying devices, certain of said brushes being provided with a liquid receiving recess, open at its upper end, and liquid passages from said recess to the periphery of the brush, stationary means for supplying a plurality of liquids to said brushes including a discharge nozzle for each liquid, said nozzles being located above the path of travel of said brushes, and separate controlling devices for said nozzles, the brush carriages carrying said recessed brushes, being provided with a selective projection to operate the controlling devices of said nozzles respectively.

11. In a shoe polishing machine, the combination with a shoe support, a traveling brush carriage, guiding means for said carriage extending around the shoe support, a vertically movable brush carrier, pivoted on a horizontal pivot and capable of tilting toward and from the shoe support, a rotary brush mounted in said brush carrier, means for rotating said brush, connections between said brush carrier and said carriage for effecting the tilting of the brush and carrier by the vertical movement of the same, a cam track extending around the shoe support and having vertically movable portions, a part operatively connected with the brush carrier for engaging said cam track, said rotary brush being provided with a liquid receiving recess in communication with the periphery of the brush, a liquid discharging device, located adjacent to the travel of said brush and means for supplying liquid from said discharging device into the liquid receiving recess of the brush, without interfering with the travel of the brush.

12. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of brush carriages mounted in said track, an endless carrier having portions of less extent than the track, located adjacent thereto, means on each carriage for engaging said carrier, and a friction device located adjacent to portions of the track not contiguous to the said carrier, for frictionally engaging parts carried by said carriages to retard the travel thereof.

13. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of carriages mounted on said track, each provided with a tilting brush carrier and a rotary brush carried thereby, an endless carrier of less extent than said track, devices on said carriages for engaging said carrier, and a stationary friction device, for engaging said brush carriers, along portions of said track not contiguous with said endless carrier, to assist in maintaining the brushes in vertical position and to retard the travel of said brushes.

14. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of carriages mounted on said track, each provided with a tilting brush carrier, and a rotary brush carried thereby, an endless carrier of less extent than said track, devices on said carriages for engaging said carrier and a horizontally disposed friction device having a curved friction surface disposed adjacent to a curved portion of the track at a distance from said endless carrier and located in position to engage the tilting brush carriers of said carriages.

15. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of brush carriages mounted on said track, an endless carrier having portions of less extent than the track, located adjacent thereto, means on each carriage for engaging said carrier, and means for locking the carriages from backward movement after disengaging the carrier.

16. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of brush carriages mounted on said track, an endless carrier of less extent than the track located adjacent to portions of the track the carriages when not in operative engagement with the carrier being accommodated by the "dead" portions of the track, and a locking device located adjacent to the point where the carriages enter upon said "dead" portion of the track, for preventing backward movement of the carriages, and devices on said carriages for engaging said locking device.

17. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of brush carriages mounted on said track, an endless carrier of less extent than the track

located adjacent to portions of the track the carriages when not in operative engagement with the carrier being accommodated by the "dead" portions of the track, a pivoted locking pawl located adjacent to the point where the carriages enter the "dead" portion of the track for preventing backward movement of the carriages and a part on each carriage for engaging said pawl.

18. In a shoe polishing machine, the combination with a shoe support, of an endless track surrounding the same, a plurality of brush carriages mounted on said track, an endless carrier of less extent than the track located adjacent to portions of the track the carriages when not in operative engagement with the carrier being accommodated by the "dead" portion of the track, a pivoted locking pawl located adjacent to the point where the carriages enter upon the "dead" portion of the track, for engaging each carriage as it passes and preventing backward movement of the same, and a device for retarding the forward movement of the carriages, adapted to frictionally engage parts connected therewith.

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

CARL F. DIECKMANN.

Witnesses:

MALCOLM COOK,

JERALD RUZICKA.