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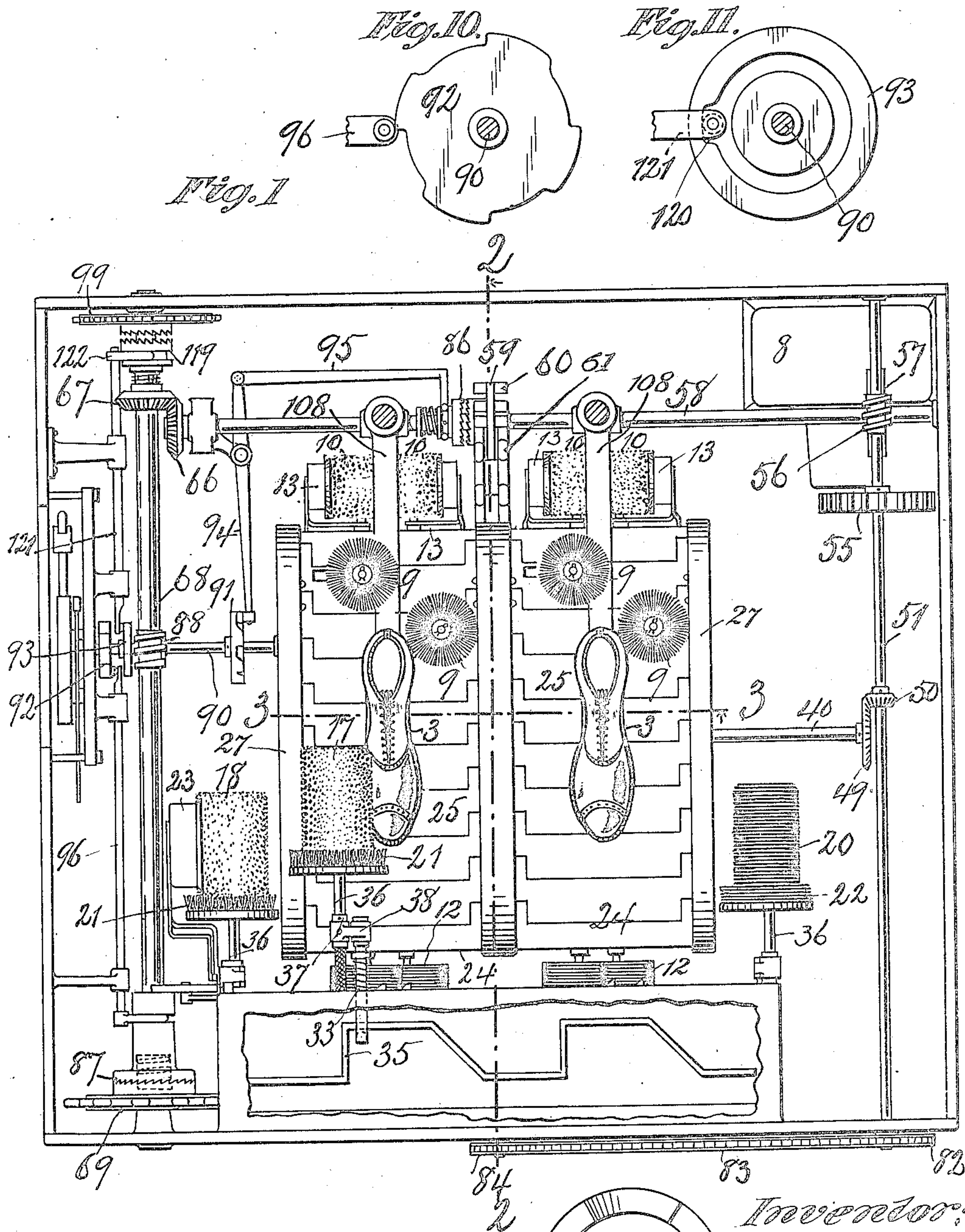
PATENTED DEC. 31, 1907.

M. SCHUPPE.

BOOT AND SHOE POLISHING MACHINE.

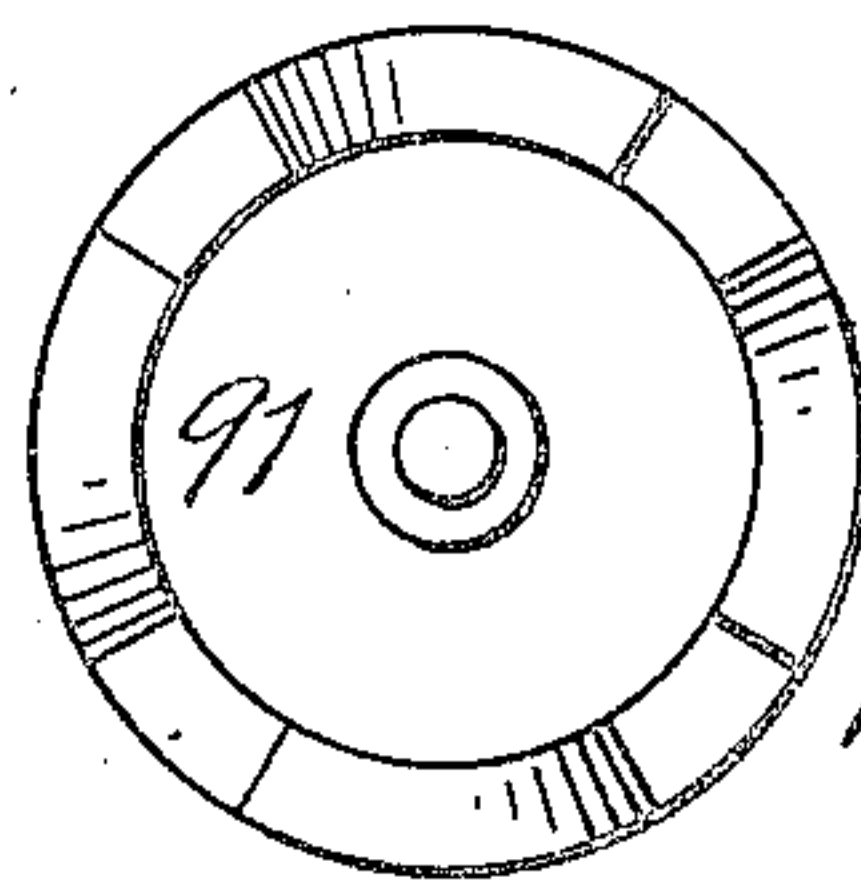
APPLICATION FILED JAN. 7, 1905.

5 SHEETS—SHEET 1.



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Fig. 9.



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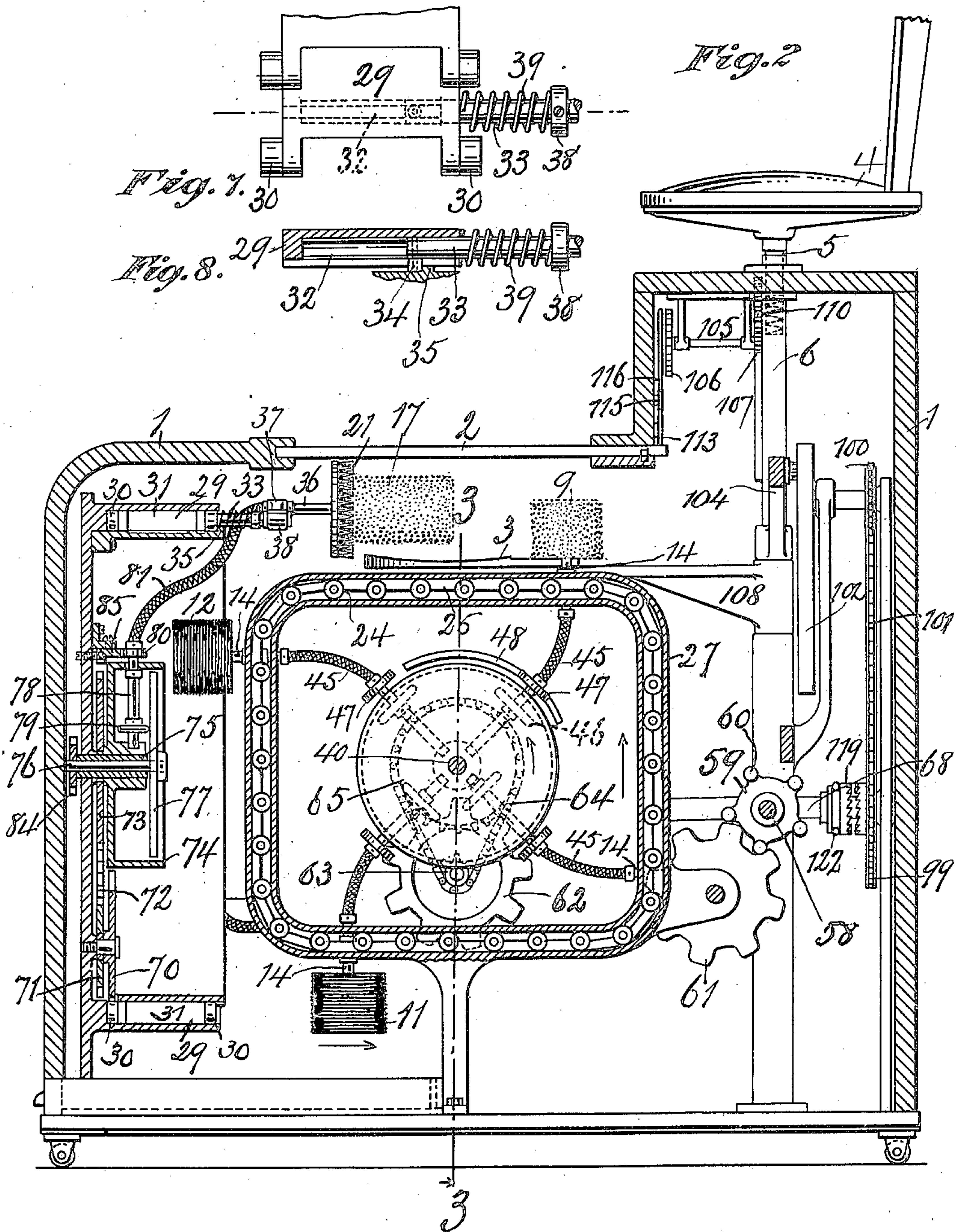
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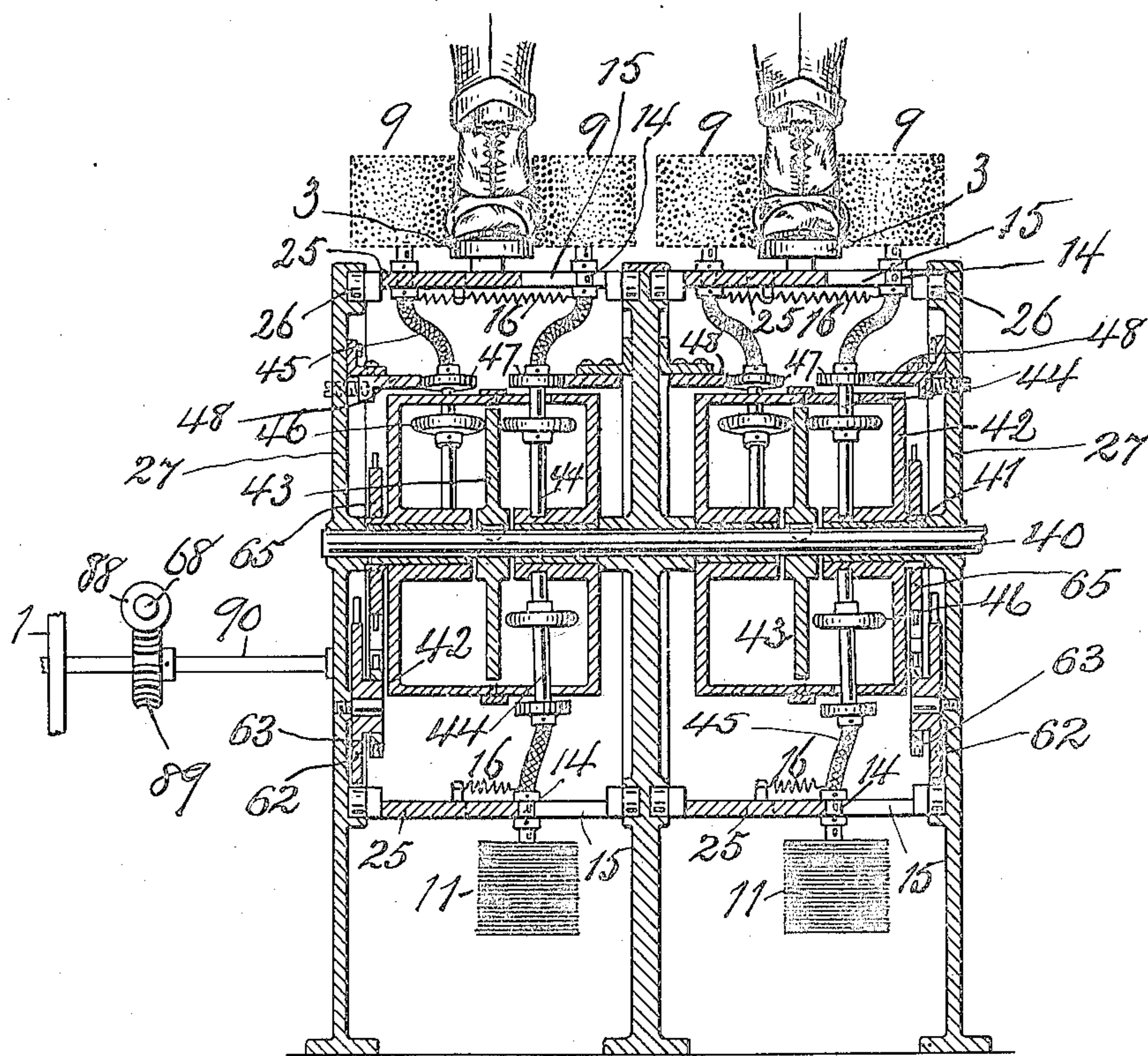
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5 SHEETS—SHEET 3.

Fig. 3



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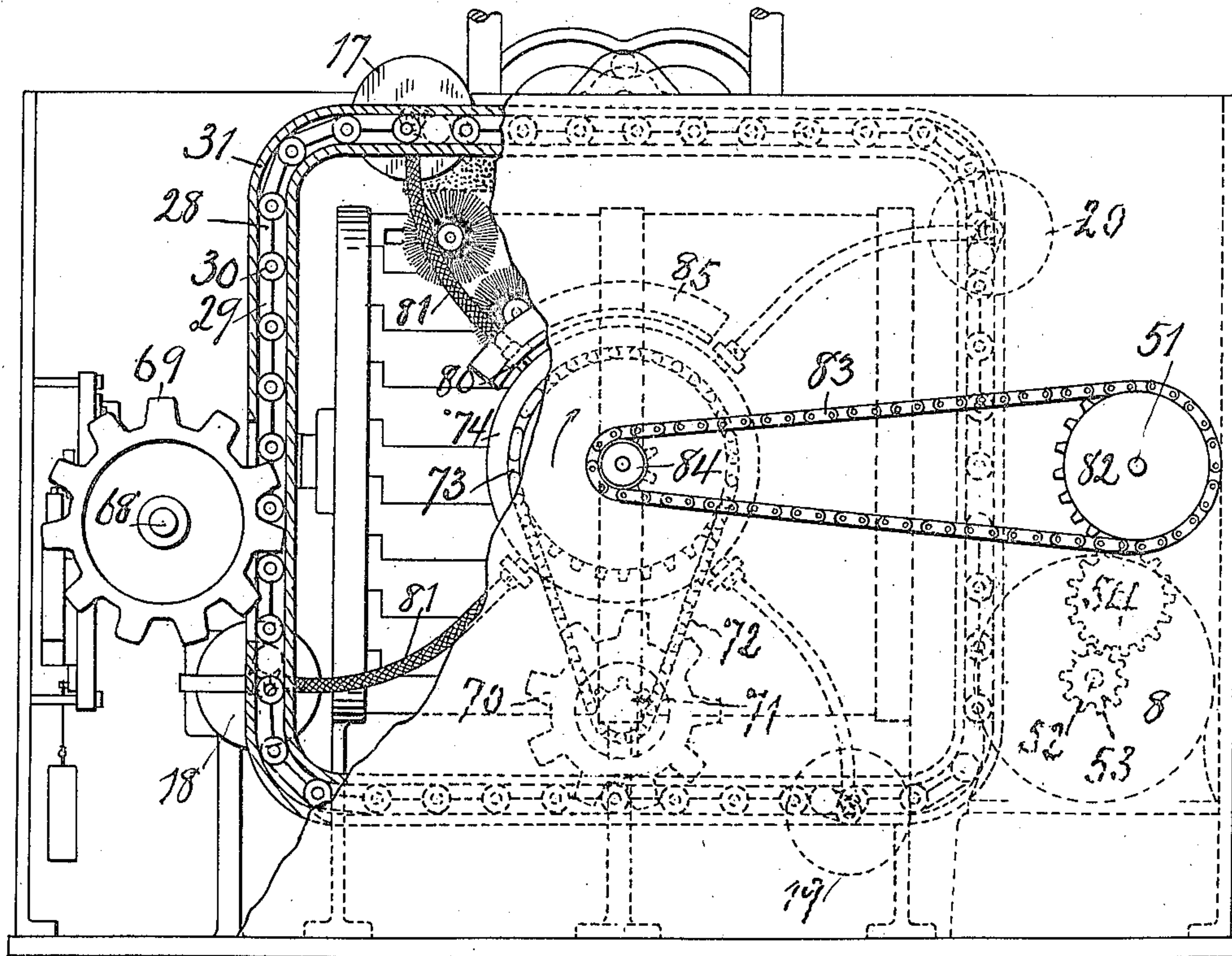
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5 SHEETS—SHEET 4.

*Fig. 4*



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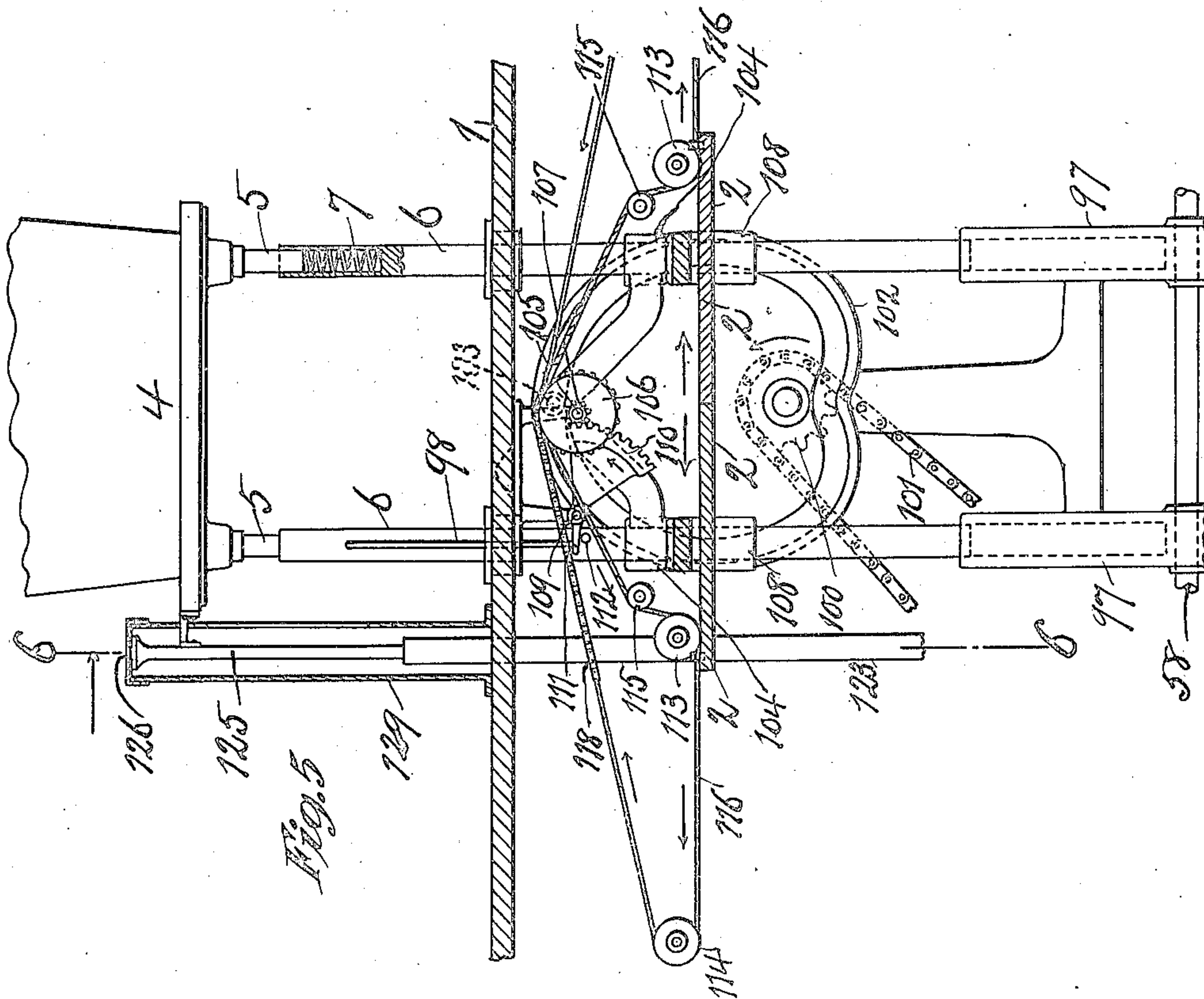
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5 SHEETS—SHEET 5.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## BOOT AND SHOE POLISHING MACHINE.

No. 875,115.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed January 7, 1905. Serial No. 240,089.

*To all whom it may concern:*

Be it known that I, MAX SCHUPPE, a citizen of the United States, and a resident of New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Boot and Shoe Polishing Machines, of which the following is a specification.

My invention relates to boot and shoe polishing machines.

The principal objects of my invention are to provide a boot and shoe polishing machine that will practically and thoroughly clean, varnish, and polish boots and shoes; and that will do so automatically and quickly. Also to provide a machine in which the cleaning, varnish applying and polishing devices properly treat every portion of the boot or shoe that should be treated, so that satisfactory results as to cleaning, varnish applying and polishing are secured.

My invention consists of the features, devices and combinations of the same as hereinafter described, and shown in the accompanying drawing.

The accompanying drawings illustrate one embodiment of my invention, in which,

Figure 1 is a plan view of a boot and shoe polishing machine with the outer casing of the machine and parts of the machine above the cover removed, and other parts of the machine broken away, and also showing a pair of shoes in position to be cleaned, varnished, and polished. Fig. 2 is a section from the front to the rear of the machine through the line 2—2 of Fig. 1, but omitting some of the parts for more clearly showing others, and including the machine casing and the seat of a person whose boots or shoes are being or to be treated. Fig. 3 is a section through the line 3—3 of Figs. 1 and 2, but omitting some of the parts of said figures for more clearly showing other parts. Fig. 4 is a front view of the machine partly broken away, and showing several operating parts in dotted lines. Fig. 5 is a vertical section of the machine and as made through the line 5—5, of Fig. 6, looking in the direction of the arrow, and showing the mechanism for raising and lowering the seat and foot rests and opening and closing the doors over the foot rests. Fig. 6 is a vertical section on the line 6—6, of Fig. 5, looking in the direction of the arrow in Fig. 5. Figs. 7 and 8 are details in plan and vertical section of a carrier for the

brushes or burnishers for the boot or shoe upper and toe. Fig. 9 is a face view of the cam controlling operation of one set of brushes; Fig. 10 is a face view of the cam controlling the other set of brushes; and Fig. 11 is a face view of the cam controlling movements of the doors and seats.

My improved machine is preferably intended to be put in operation by the dropping of a coin through and beyond a slot, and is preferably driven by an electric motor, although other means may be employed for operating the machine.

Similar characters represent like parts in all the figures.

1 is the outer casing of the machine.

2, 2 are horizontal sliding doors in that part of the top of casing 1, which is over the foot rests 3, and which doors when closed, with the casing 1 will entirely close the operating parts of the machine, the foot rests then being above said doors.

4 is a chair or other seat situated back of the foot rests 3, and on which the person sits who is to have his boots or shoes varnished and polished. The seat or chair 4 is provided with one or more downwardly extending supporting rods 5, which pass into a tubular column or columns 6. A spring 7 inclosed in said column supports the rod 5 and the seat 4, and said spring is preferably of such strength as to bear a fixed weight, say 75 pounds, before it will retract, the object of said spring being to prevent the operation of the machine until a weight of a certain amount or a weight more than said amount is resting upon the seat. The means for permitting the machine to be brought into operation by the lowering of the seat will be hereinafter described.

8 is a motor, preferably an electric motor for operating the machine.

The brushes and burnishers have a substantially planetary movement or course, part of said movement being parallel or substantially parallel with the foot rests 3. For each boot or shoe that is to be treated on the foot rests, there is a set of brushes and burnishers for treating the boot or shoe from the heel to the toe and on either side of the boot or shoe; the brushes and burnishers of each set traveling in the same course.

9, 10, 11 and 12, represent the brushes and burnishers of both of said sets, see Figs. 1, 2 and 3; 9 being the brush for removing the dirt



or dust from the boot or shoe, 10 being the brush for applying the varnish or paste, 11 being the first polisher or burnisher, and 12 being the final polisher or burnisher. The planetary course of said brushes and burnishers will continue from their course which is parallel to the foot rests, downward and upward to the beginning of said parallel course. I prefer that said course should be horizontal and parallel with the foot rests, vertically downward, substantially parallel with the foot rests below the same, and vertically upward to the foot rests again, as will be seen in Fig. 2. Said brushes and burnishers will also have a rapid revolution on their axes during the time they are in contact with the boots or shoes, and preferably just before reaching them, as the brushes 10 for applying the varnish, paste, or blacking should begin the rotation on their axes before reaching the boot or shoe, so as to take up the varnish, paste or blacking from the holder 13, against which the brushes 10 revolve. The spindles 14 of said brushes and burnishers, pass through transverse openings or slots 15 in their carriers, and are connected with coiled springs 16, which tend to draw the brushes and burnishers toward each other and against any boot or shoe that may be resting upon the foot rests, see Fig. 3, the boot or shoe pressing the brushes and burnishers apart against the action of the springs. Such a construction will cause the brushes and burnishers, during their course adjacent to the foot rests, to press against the boot or shoe during said course, following all irregularities of the boot or shoe, so that both sides of the same from the heel to the toe can be thoroughly brushed and polished. 17, 18, 19 and 20 are the brushes and burnishers for treating the boots and shoes in a transverse direction across the same, and which have a course transverse with the foot rests and near the same, downward and upward, and very similar to the course of the brushes and burnishers 9, 10, 11 and 12. Of the said brushes and burnishers 17, 18, 19 and 20, 17 is the brush for removing the dirt and dust from the boot or shoe. 18 is the brush for applying the paste, varnish or blacking, 19 is the first polisher or burnisher, and 20 is the finishing polisher or burnisher. The brushes 17 and 18 are formed of two sets of bristles, one set extending radially from the axis of the brush, the ends of which bristles are shown in the drawings, and the other set of bristles extending in the same direction as the axis and forming a flange 21 extending around and beyond the other portion of the brush. This construction permits the ends of the bristles of the brushes to rub over the boot or shoe upper, and the flange of bristles 21 will press and rub against the toe of the boot or shoe, and the sole at the toe. Said flanges also serve

as stops which regulate the proper positions of the brushes when they are treating the boot or shoe, for the flanges 21 bearing against the end of the toe will prevent the brushes passing back upon the boot or shoe farther than it is desired to have them in the proper treating. The burnishers and polishers 19 and 20 are also provided with flanges 22 extending beyond the other portion of the burnishers, and which operate upon the shoe in a similar manner to the flanges 21 of the brushes. The course of said brushes and burnishers 17, 18, 19 and 20 is across both foot rests, downward and upward, and across both foot rests again; so that it is only necessary to have one set of such brushes and burnishers for both boots or shoes. The brush 18 revolves upon its axis with the radial bristles in contact with the paste or varnish that is in the holder 23, so that said bristles will take up the paste or varnish before and then afterward apply it to the boots or shoes.

The polisher 19 I have only shown in dotted lines, it being unnecessary to otherwise show it, as it is made in the same manner as the finishing polisher 20, and this is clearly shown in Fig. 1. These burnishers or polishers are preferably made of a number of layers or disks of cloth, felt or similar material, and placed one over the other, and concentric with the axes of the polisher, and preferably with a circular stitching a slight distance from the edge of the disks leaving said edges nappy, or so that said disks will have a napped edge. These disks form the main portion of the burnishers, as shown in Fig. 1, the flanged portion being formed by means of disks of larger diameter than those forming the other portions of the burnishers.

24 designates endless chains, each formed of links 25, each of which links has a roller on each side of the chain. The rollers on each side of each chain run in a four sided guideway 27, the upper side of each of said guideways being substantially parallel with the foot rests, the lowest side of the guideways being preferably parallel with the upper side, and the other two sides of the guideways uniting the upper and lower sides, and the corners of the guideways rounded, as shown in Fig. 2. The corresponding grooves or guideways for the two sets of rollers are parallel, and on opposite sides of the foot rests, see Figs. 1 and 3. The spindles 14 of the brushes and burnishers 9, 10, 11 and 12, pass through longitudinal slots 15 in links 25, the several different spindles being some distance apart from each other, and the distance between the spindles (or the distance between the links through which the spindles pass), being preferably the same between each two adjacent links, as shown in Fig. 2.

The above construction provides a planetary course for the brushes and burnishers 9, 130



10, 11 and 12, parallel to the foot rests, vertically downward, again parallel to the foot rests below the same, vertically upward, and to the starting point. The brushes and burnishers 17, 18, 19 and 20, are carried by an endless chain 28 formed of links 29, similar to links 25, and provided with rollers 30 which move in a four sided guideway or recess 31, said guideway or recess being preferably of substantially the same shape as the guideways or groove 27, with the upper side of the recess 31 extending in a plane transverse to the foot rests, see Fig. 4. Four of the links 29 are preferably equal distances apart on the chain 28, and are provided with longitudinal grooves 32, each of which incloses a rod 33 (see Figs. 7 and 8). A transverse spindle or pin on the side of said rod supports a roller 34 on which spindle said roller revolves. A fixed irregular flange 35, (see Figs. 1 and 8) extends along the lower side of the upper part of the recess 31, and the rollers 34, when they reach the top side of the said upper part of the recess 31, are bearing on the outside of said flange.

It will be seen from Fig. 1, that flange 35 extends transversely almost to a point opposite the toe of one foot rest and in a direction transverse to said foot rest, then outward again, and in a direction transverse to the foot rest, then inward toward the second foot rest, then in a direction transverse to the same, and then outward again. The object of this flange is to form a guideway for the brushes and burnishers, so that they will pass over the boot or shoe, away from the same, back to the second boot or shoe, and over the same, when the rollers 34 are bearing against the rear surface of said irregular flange 35. The brushes and burnishers 17, 18, 19 and 20 are secured to horizontal holders or spindles 36 each of which passes through a sleeve 37 on the end of arm 38, the other end of said arm being secured to a rod 33. A coiled spring 39 surrounds the rod 33 between the link 29 and the arm 38, and tends constantly to force said arm, the spindle 36, and the brushes and burnishers supported by said spindle away from the link 29 and in a direction toward the seat 4, so that if a boot or shoe be on the foot rest 3 the flange of said brushes and burnishers will be forced to press against the toe of the boot or shoe by reason of the action of said spring, the resiliency of the spring permitting of the movement back and forth of the brushes, to accommodate them to shoes of different lengths, the toe of the boot or shoe pressing the brushes and burnishers by reason of their flanges in a direction away from the seat. When, therefore, the brushes and burnishers 17, 18, 19 and 20 have their rapid revolution on their axes, in their course as above described over the boots or shoes, the tops of the shoes that should be finished

and polished, and the toes of the same and the soles of the shoes at the toe are thoroughly and completely rubbed and burnished.

The means for giving the radial motion on their axes of the different brushes and burnishers and their planetary motions will now be described.

40 is a horizontal shaft extending partly across the machine under the foot rests 3, and concentric with the course the chain 25.

41 is a sleeve surrounding shaft 40.

42, 42 are two casings secured to the sleeve 41, and adapted to revolve with the same on the shaft 40.

43, 43 are two disks passing through the sleeve 41, and concentrically secured to the shaft 40 with which they are adapted to revolve.

44 are spindles each having one end journaled in the inner bearing of the casing 42, and the outer end of said spindle extending through a slot in the outer wall of said casing and journaled in the same, said slot extending in a direction transverse to the disk 43. There is one of these spindles 44 for each brush and burnisher 9, 10, 11 and 12, and said spindles should extend radially from the sleeve 41 and in the same direction relative with each other as the spindles 14 of the brushes and burnishers 9, 10, 11 and 12. The spindles 44 are connected to their respective spindles 14 with flexible shafts 45. To each of the spindles is fixed a frictional disk 46, said disk 46 being inside the casing 42. Other disks 47 outside of said casing, and between it and the flexible shaft 45, are loosely journaled on the shaft 44. 48 represent fixed arched ribs or cams, which are concentric with the shaft 40 and sleeve 41 and in the course of the outer disks 47. These ribs or cams 48 are so situated, see Figs. 2 and 3, that during the revolution of the sleeve 41 and the casings 42, and the spindles 44 and brushes and burnishers 9, 10, 11 and 12, the disks 47 will reach said ribs or cams 48 when the brushes and burnishers 9, 10, 11 and 12 are a little to the rear of the foot rests 3, and said ribs or cams will then force the disks 46 (through the disks 47 and spindles 44) inward against the disks 43, which have a rapid revolution on the shaft 40, and through said disks 43 causing the disks 46 and the spindles 44 to revolve in their bearings, and through the flexible shaft 45 and spindles 14, causing the brushes and burnishers to revolve on their axes. The revolution of the brushes and burnishers on their axes continues only as long as the disks 47 are in contact or bearing upon the ribs 48, and these ribs 48 will be of a sufficient length to cause such revolution during the time that the brushes and burnishers are sweeping from the heel to the toe of the boot or shoe. When the disks 47 have passed the ribs 48 they will drop away from the disks 43 and



the disks 46 with the spindles 44 and 14, flexible shafts and the brushes and burnishers, will cease to revolve on their axes.

From the above it will be seen that the planetary motion of the brushes and burnishers first takes place, and the rapid revolution of the same on their axes is caused by and at a certain period of said planetary motion.

I will now describe the means for giving the planetary motion to the brushes and burnishers.

Secured to the shaft 40 is a gear 49 preferably beveled, engaging with another gear 50 on a shaft 51. The motor 8 for driving the machine, is preferably an electric motor, although any means for driving the machine may be used. On shaft 52 of the motor is a pinion 53 engaging with another pinion 54, which pinion engages with the gear 55 on the shaft 51, see Fig. 1. The shaft 51 is provided with a worm 56 engaging with a worm wheel 57 upon shaft 58.

59 is a disk loosely journaled on shaft 58, and provided with lateral pins or projections arranged at equal intervals apart on each side of said disk. Said pins engage with the sprocket wheel 61, see Fig. 2, and the pin disk 59—60 drives said sprocket wheel when it is clutched to its shaft, said disk then driving the sprocket chain 24, and which chain carries the brushes and burnishers 9, 10, 11 and 12 in their planetary movement as heretofore described.

The means for carrying the casings 42 with the shafts 44 that are secured to the brushes and burnishers by the flexible shaft 45, and which course or movement should be in unison and conform to the course of the brushes and burnishers, is as follows. The sprocket chain 24 engages with and rotates sprocket wheel 62, and small sprocket wheel 63 secured to the shaft of wheel 62 is connected by a sprocket chain 64 with a much larger sprocket wheel 65, which is secured to the sleeve 41, see Figs. 2 and 3.

From the above it will be seen that the sprocket wheel 61 drives the sprocket chain 24 and the brushes and burnishers 9, 10, 11 and 12, and at the same time said chain 24 through the sprocket wheel 65 and intermediate mechanism will drive the casings 42 and the shafts 44 in unison and with the same velocity, so that there will be no straining or pulling between the brushes and burnishers and the centers of their planetary course. Rotary motion is given to the disks 43 through the motor shaft 52, gears 53, 54, 55, shaft 51, gears 50, 49, and shaft 40, to which shaft the disks 43 are secured; and said shaft and disks are constantly revolving during the operation of the machine. As heretofore stated the friction disks 46 are in contact with the disks 43, and are rotated by said disks when, during the rotation of

the casings 42 the disks 47 have been brought in contact with the flanges 48, and the rapid revolution of said disks 46 and consequently of the brushes and burnishers 9, 10, 11 and 12, caused by the revolution of the disks 43, will only be for a short period and at intervals, caused by said flanges 48 forcing the disks 46 against the disks 43 just before the brushes and burnishers reach the shoe and so that they may just sweep the shoe from end to end.

It will be seen that the gearing between the motor shaft 52, and the two shafts 40 and 58, will cause the shaft 40 to revolve at a very much higher rate of speed than the shaft 58. This is necessary, as the shaft 40 transmits the rapid rotary motion on their axes of the brushes and burnishers, while the shaft 58 transmits a slow planetary motion to said brushes and burnishers.

Planetary movement is transmitted to the brushes and burnishers 17, 18, 19 and 20 as follows. The shaft 58 is connected by gears 66, 67 with shaft 68 extending from the front to the back of the machine, and loosely journaled on said shaft near its front end is a sprocket wheel 69, said sprocket wheel engaging with the sprocket chain 28 to which the brushes and burnishers 17, 18, 19 and 20 are connected. A sprocket wheel 70, see Fig. 4, engages with chain 28, and has rotary motion imparted to it from said chain. On the same shaft as the wheel 70 is a small sprocket wheel 71, and engaging with said sprocket wheel 71 is a sprocket chain 72 connecting the wheel 71 with a larger sprocket wheel 73 that is secured to and concentric with a casing 74. This casing 74 is similar to the casings 42, and is secured to a sleeve 75 that loosely surrounds shaft 76, see Fig. 2, in the same manner as the casings 42 are secured to sleeves 41 which surround the shaft 40. A friction disk 77 is secured to the inner end of the shaft 76 and rotates with said shaft. A spindle 78 is provided with friction wheels 79 and 80, (similar to spindles 44 with their wheels 46 and 47,) and which are journaled in the center portion of the casing 74 in a corresponding manner to that of the spindles 44, and are also connected by flexible shafts 81 with the spindles 36 of the brushes and burnishers. Secured to the shaft 51 at its front end is a sprocket wheel 82, which is connected by a sprocket chain 83 with a small sprocket wheel 84 secured to the shaft 76. The rapid speed shaft 51 will transmit, through the sprocket wheel 82, chain 83 and wheel 84, a rapid revolution to the friction disk 77, and said disk will rotate the spindles 78, and through the flexible shafts 81 the spindles 36 and brushes and burnishers 17, 18, 19 and 20, when the friction wheels 79 on the spindles 78 are brought into contact with said disk; and this is accomplished in a similar manner to that de-



scribed in relation to the friction disks 43, when the friction wheels 80 reach the arched shape flange or cam 85, see Figs. 2 and 4, said flange or cam being similar to flanges 48, and  
 5 extending just about long enough to have said wheels 80 in engagement with them from a point a little before they reach the foot rests and only after they have passed the same. This will insure the rapid revolution  
 10 of the brushes and burnishers for a sufficient period to take up the varnish or paste before reaching the foot rests, and during the time they are passing over said foot rests. After they have passed the foot rests, and the  
 15 wheels 80 have passed the flange 85 the wheels 79 will have dropped away from the rapidly revolving disks 77, and the rotation of the brushes and burnishers on their axes will cease until the wheels 80 have again  
 20 come in contact with the flange 85.

During the above movements the whole speed that has been imparted to the sprocket wheel 69 will be imparted to the sprocket chain 28 that carries the brushes and burnishers 17, 18, 19 and 20, and the casing 74 with the spindles 78, and wheels 79 and 80 will be rotated in unison and at a corresponding speed to that of the chain 28 and the brushes and burnishers.

30 86 is a spring clutch on the shaft 58 for bringing the pin disk 60 into and out of rotation with the constantly rotating shaft 58.

87 is a clutch on shaft 68 for bringing the sprocket wheel 69 into and out of rotation  
 35 with the constantly rotating shaft 68. Shaft 68 is provided with a worm 88 which engages with a worm wheel 89 on shaft 90, see Figs. 1 and 3. The shaft 90 is provided with three cams 91, 92, 93. The cam 91 is a face  
 40 cam provided with four raised portions on its face at equal distances apart, and four corresponding depressions between said raised portions, see Fig. 9.

94 is a lever pivoted to the frame of the  
 45 machine, and having rollers at its free end for engaging with cam 91. The other end of said lever is pivotally connected to an elbow arm 95, which arm is connected with the clutch 86. The parts are so connected that  
 50 when the raised portions of cam 91 are bearing upon the end of the lever 94 the clutch 86 will be out of engagement with the pin gear 60, so that said gear will not revolve with shaft 58, but during the four intervals when  
 55 the lever 94 is in engagement with the depressions on cam 91 the clutch 86 will be in engagement with the pin gear 60, and during such four intervals said gear will revolve, and operate the sprocket chain 24 and  
 60 thus give the planetary movements to the brushes and burnishers 9, 10, 11 and 12.

The cam 92 is provided with four peripheral swells or projections at regular intervals apart, and corresponding interposed de-  
 65 pressions, as shown in Fig. 10. 96 is a slid-

ing rod having one end connected with clutch 87 and the other end provided with a roller which is kept in engagement with said cam 92. The parts are so arranged that when the end of the rod 96, or the roller on  
 70 the same, is in engagement with the swells or projections on the cam 92, the clutch 87 will be in operation and the sprocket wheel 69 will be caused to rotate with the shaft 68; but when the end of the rod 96 or its roller,  
 75 is in the recesses of cam 92 the clutch will be drawn out of engagement with the wheel 69, and said wheel will remain at rest and the carrying chain 28 will not be rotated and will not give the planetary movement to the  
 80 brushes and burnishers 17, 18, 19 and 20. The bringing of the wheel 69 into and out of rotation or operation should be during the four intervals or periods when the brushes and burnishers are in a position to cross  
 85 over the foot rests. The cams 91 and 92 should be so arranged upon the shaft 90 that the movements of the two carrying chains 24 and 28, and consequently the two sets of brushes and burnishers would alternate  
 90 with each other.

97—97 are two vertical columns for supporting the columns 6 that support the seat 4; the upper parts of said columns 97 constituting sleeves in which the columns 6 are  
 95 adapted to slide, see Figs. 5 and 6. The columns 6 pass through bushings in the casing 1 and are adapted to slide in said bushings. One of said columns 6 is provided with a vertical web 98 engaging with a cor-  
 100 responding groove, (not shown) in the bushing that surround said column, which may guide the columns vertically, and prevent them and the seat from turning, and for another purpose hereinafter to be described. 105

99 is a sprocket wheel loosely journaled upon the shaft 68, and said wheel is connected with a smaller sprocket 100 by a sprocket chain 101. Secured to the shaft of the sprocket 100 is an eccentric grooved  
 110 cam 102.

103 is a roller journaled horizontally in a brace 104, secured to and which connects the columns 6—6, said roller 103 engaging with the groove of the cam 102. The cam 102  
 115 serves to cause the vertical up and down movement through the roller 103, of the columns 6 and the seat 4, the seat and said columns being in their lowest position when the roller 103 is in that portion of the cam groove  
 120 nearest to the cam shaft, and in their highest raised positions when said roller 103 is in that portion of the groove farthest away from said shaft, as shown in Fig. 5. Also journaled in a part of the machine frame and on a plane  
 125 between the two columns 6—6 is a shaft 105 carrying a sprocket wheel 106 and a pinion 107.

108—108 are two brackets secured to the respective columns 6—6 and supporting at  
 130



their forward ends two foot rests 3—3. The brace 104 and the brackets 108 both being secured to the columns 6—6, insures the rising and falling together of said columns, seat and foot rests.

109 is a rock shaft which is horizontally journaled in the frame of the machine, and secured to said rock shaft is a segmental gear 110, and also secured to said shaft and extending in the opposite direction to said gear is an arm 111. This arm 111 rests upon a pin 112, extending horizontally from the columns 6.

113, 114, 115 are three sets of pulleys, the pulleys 113 being above the two sliding doors 2 respectively, the pulleys 115 being a little higher and near the pulleys 113, and the pulleys 114 being beyond and substantially parallel with the pulleys 113. An endless line or chain 116 is secured to the doors 2, and extends from said doors under and around the nearest pulley 114 over said pulley, over the top of sprocket wheel 106, down and over the pulley 115 over the second door, and from thence around the inside of the pulley 113 over the second door, then around the outside of a pulley (not shown) beyond the second door, but similarly situated to said door, as pulley 114 is to the other door 2, then over the top of the pulley 117 and thence over the pulley 115 over the first door and under pulley 113 over the first door to the starting point where the line or chain 116 is secured to the first door 2. The said line or chain 116 will be very much in the form of a bent figure eight, so that if said line is pulled in one direction it will pull all the way around, and if pulled in the direction of the arrow shown in Fig. 5, will open the two doors 2—2, and if pulled in the opposite direction will close said doors. The portion of the line 116 which passes over the sprocket wheel 106 should be a sprocket chain 118, as shown in Fig. 5. The position of the parts should be as shown in said figure when the seat and foot rests are in their raised positions and the doors 2 closed, and it will be seen that the roller 103 is in the portion of the groove of the cam farthest from its shaft, the upper part of the segmental gear 110 being in engagement with the pinion 107, and the arm 111 of said gear resting substantially horizontally on the pin 112. When the cam 102 revolves, the roller 103 will be drawn by said cam gradually downward and nearer and nearer to the cam shaft, and at the same time the seat 4, the foot rests 3, and the columns 6 will descend, and cause the lower end of web 98 to force down the arm 111, thereby raising the segmental gear 110, and rotating the pinion 107 and the sprocket 106, so as to draw the chain 118 over said sprocket in the direction of the arrow, and thereby draw the remainder of the line 116 in the same direction, thus opening the two doors 2—2. The

two doors 2—2 will gradually open as the seat 4, foot rests 3, and columns 6—6 gradually descend, until the seat, columns and foot rests have got to the end of their downward movements, with the foot rests below the level of the doors 2—2, and in proper positions for the brushes and burnishers to act upon any boots or shoes that are resting upon the foot rests. The outer end of arm 111 will rest against the side of web 98 until the column 6 bearing said web has traveled far enough in its upward movement until the web 98 has passed beyond the arm 111, and consequently said web will hold the arm 111 in its lowered position, and the rack 110 in its raised position, so as to prevent the doors 2—2 from closing until the seat and foot rests have attained nearly their highest positions, with the foot rests above the doors 2—2, and at this time the web 98 will have just passed above arm 111, and pin 112 will act upon arm 111 to close the doors. When the cam 102 revolves so as to force up the roller 103, the seat 4, columns 6, foot rests 3, and the pin 112 which is below the arm 111, said pin will force up said arm and lower the segmental gear 110 so as to revolve the pinion 107 and the sprocket wheel 106 in the opposite direction from that which was caused by the before mentioned movement of lowering the seat, and will draw the chain 118 and the line 116 in a direction opposite to that in which the arrows point in Fig. 5, and the doors 2—2 will be gradually closed during the gradual raising of the seat 4 and the foot rests 3. At the time that the seat has got to the end of its upper movement, the doors 2—2 will be closed as shown in Fig. 5, and below the foot rests 3.

119 is a spring clutch on the shaft 68, which is normally out of engagement with the sprocket wheel 99, see Fig. 1, the spring of said clutch tending to force it into engagement with said wheel. 93 is a grooved cam provided with a concentric groove, and a recess 120 extending from said groove toward the periphery of the cam at one point, see Fig. 11.

121 is a sliding rod provided with a yoke 122 at one end which spans the clutch 119, and the other end of said rod is provided with a roller for engaging with and riding in the groove and recess of the cam 93. The parts are so adjusted that when the roller is in the recess 120 the clutch 119 will be in engagement with the sprocket wheel 99, and when the roller on the rod 121 is in the groove of said cam 93, but out of the recess 120, the clutch 119 will be out of engagement with the sprocket wheel 99, as shown in Fig. 1. The parts should also be adjusted so that when the shaft 90 and the casings 42 and 74 will have nearly completed one revolution, and when the roller of the rod 121 has passed into the recess 120 the clutch 87 will



be out of engagement with the sprocket wheel 69, and the clutch 119 will be in engagement with the sprocket wheel 99, and at this point the sprocket wheel 99 will be  
 5 caused to rotate, and by the time the roller on the rod 121 has reached the middle of the recess 120, the shaft 90 will have completed one revolution, the seat and foot rests will have arrived at the top of their upward  
 10 movement, and the doors 2—2 will be closed. When the machine is again started, the cam 93 will turn slowly with the shaft 90, and during the time that the roller is reaching the opposite side of the recess from the side  
 15 it had previously reached, the seat and foot rests will be gradually lowering, and the doors 2—2 opening. The raising of the seat and foot rests and closing the doors will all have been accomplished at the completion  
 20 of one revolution of the shaft 90, and at the same time the switch for turning on and off the electric current (as will hereinafter be described), will have broken the circuit and turned off the power from the motor, and at  
 25 this time therefore the operation of the machine will stop. As soon as the roller on rod 121 has passed out from the recess 120 the doors will be opened and the seat and foot rests will be at their lowest positions, and the  
 30 parts of the machine within the casing will operate, and this will continue until the shaft 90 and the cam 93 have nearly completed one revolution and until the roller on rod 121 has got into the recess 120 as above  
 35 stated, when the seat and foot rests will rise and the doors will begin to close.

123 is a chute extending from the upper horizontal portion of the casing 1 under the seat 4 and beyond the trip lever 124, see Figs.  
 40 5 and 6. The lower part of the chute 123 is provided with a vertical slot as indicated in Fig. 6, through which passes the end of the long arm of lever 124.

125 is a vertical tube secured to the seat 4, and having its upper end closed with the exception of a slot 126 of just the proper size to admit the desired coin or token for starting the operating parts of the machine. The lower end of the tube 125 passes into the up-  
 50 per end of the chute 123, and is inclosed by the same, see Figs. 5 and 6.

127 is a small arm or lever fulcrumed in and to the chute 123, and normally extending under the lower end of the tube 125, and  
 55 normally held in such position by a spring 128. A casing 129 surrounds the tube 125 and the end of the chute 123 for the better protection of the same. When the coin or token is dropped through the slot 126 it will  
 60 fall upon and be held by the arm 127 until the seat 4 has been lowered, which must be sufficient to compress the spring 7 on the upper end of the vertical columns 6. As soon as sufficient weight on the seat 4 has accom-  
 65 plished this purpose, the lower end of the

tube 125 will force and push back the arm 127, so that the coin or token 130 will be released and fall through chute 123 and strike the long arm of lever 124 and depress the same. After the machine has completed its  
 70 operation of varnishing and polishing the shoes, the cam 102 will operate so as to raise the seat 4, as heretofore described, and this raising of the seat will draw up the tube 125 and the seat and whatever weight is upon  
 75 said seat, if any, until said chute 125 has reached its uppermost position, as shown in Fig. 6, and the arm 127 will extend over the lower end of the tube 125. The short arm of lever 124, that is the arm opposite to that  
 80 which is in the chute 123, is provided with a counterbalance weight 131, so that the long arm of the lever 124 will be held at the upper end of the slot in said chute until a coin or token of the proper weight drops upon  
 85 said arm of the lever, which coin or token will be sufficient to overbalance said counter weight and trip the lever.

It will be seen that any or all of what I have herein before described as brushes or  
 90 burnishers may be any rubbing devices which might rub the dirt or dust off a boot or shoe, or apply the blacking, paste, or polish to the same, or polish or burnish the boot or shoe. 95

My invention in its broader aspects is not limited to the precise construction described and shown, as many changes other than those suggested may be made without departing from the main principles of my in-  
 100 vention or sacrificing its chief advantages.

What I claim as new and desire to secure by Letters Patent, is:

1. In a boot or shoe polishing machine, the combination of a boot rest, two rubbing de-  
 105 vices, means for giving one of said rubbing devices a movement part of the course of which is adjacent to and substantially parallel with said rest, and the remainder of which is away from said rest, and part of  
 110 such remainder transverse to the plane of the rest, to bring said rubbing device along the side of a shoe when in position in the machine, and then to move it out of the way of the other rubbing device, and means for  
 115 moving the other rubbing device transversely across the toes in front of a shoe when in position in the machine, and then to move it out of the way of the other rubbing device, whereby two separate and distinct rubbing  
 120 devices can be used having intersecting paths but without interference with each other.

2. In a boot or shoe polishing machine, the combination of a boot rest, two rotary rub-  
 125 bing devices, means for rotating them on their axes, means for giving one of said rubbing devices a movement part of the course of which is adjacent to and substantially parallel with said rest, and the remainder of  
 130



which is away from said rest, and part of such remainder transverse to the plane of the rest, to bring said rubbing device along the side of a shoe when in position in the machine, and then to move it out of the way of the other rubbing device, and means for moving the other rubbing device transversely across the toes and front of a shoe when in position in the machine, and then to move it out of the way of the other rubbing device, whereby two separate and distinct rubbing devices can be used having intersecting paths but without interference with each other.

3. In a boot or shoe polishing machine, the combination with a rotary rubbing device, of an endless movable chain supporting said device, all as and for the purposes described.

4. In a boot or shoe polishing machine, the combination with a rotary rubbing device, an endless movable chain supporting said device, and means for producing a rotary movement of said device of greater velocity than the movement of the chain.

5. In a boot or shoe polishing machine, the combination with a rotary rubbing device, of an endless movable chain supporting said device, and means for giving the rotary movement of said device during only a certain part of the course of its movement with the chain.

6. In a boot or shoe polishing machine, the combination with a rotary rubbing device, of a carrier by which said device is supported, and said carrier giving a planetary movement to said device, a friction disk connected with said device and rotatable with the same, and means mounted independently of said carrier for giving a rapid intermittent revolution to said disk.

7. In a boot or shoe polishing machine, the combination with a rotary rubbing device, a carrier by which said device is supported, means for giving said device a planetary movement, a friction disk connected with the shaft of said device and rotatable with the same, a rapidly revolving disk mounted independently of said carrier, and means for bringing the friction disk during a certain part of the planetary movement into contact with said rapidly revolving disk, all as and for the purposes set forth.

8. In a boot and shoe polishing machine, the combination of a rubbing device, means for operating the same, a movable rest for the boot or shoe normally out of operative position and means for moving said rest into operative position before the rubbing device begins to operate, and for moving the rest out of operative position when said device has ceased to operate.

9. In a boot or shoe polishing machine, the combination of a rubbing device, means for operating the same, a rest for the boot or shoe, a seat for the wearer of said boot or

shoe, and means for lowering said seat and also for lowering said foot rest into operative position before the rubbing device begins to operate, and to raise said seat and rest out of operative position after said device has ceased to operate.

10. In a boot and shoe polishing machine, the combination of a rubbing device, means for operating the same, a casing for said means provided with an opening, a rest for a boot or shoe, a door for said opening, means for opening and closing said door, at the commencement and close respectively of the operation of the machine, and means for moving said rest through said opening into operative position before the rubbing device begins to operate and to move it back through said opening and out of operative position when said device has ceased to operate.

11. In a boot or shoe polishing machine, the combination with a rest for the boot or shoe, of a rubbing device, a support for the same having a course transverse to said rest, and a cam shaped so as to permit the rubbing device and its support to move toward the rest when the rubbing device is opposite the rest, and to force them away from it at other points of the course of said support and means to cause the rubbing device to move toward the rest when permitted to do so by the cam.

12. In a boot and shoe polishing machine, the combination with a rest for the boot or shoe, of a rubbing device, a support for the same, a carrier for said support having a course transverse to said rest and a cam shaped so as to permit the rubbing device to move toward the rest when the rubbing device is opposite the same and to force it away from the rest at other parts of its course, means for causing the rubbing device to move toward the rest when permitted by the cam to do so, and means for normally keeping the rubbing device at the same distance from the cam.

13. In a boot or shoe polishing machine, the combination of two sets of rubbing devices, two flexible carriers for supporting and carrying said rubbing devices, one carrier for each set, means for moving one carrier to bring its rubbing devices along the sides of a shoe when in position in the machine, and then to move the rubbing devices out of the way of the other set, and means for moving the other carrier to bring its set of brushes transversely across the toes and front of a shoe when in position in the machine, and then to move them out of the way of the other set of rubbing devices, whereby two sets of brushes can be used having intersecting paths but without interference with each other.

14. In a boot or shoe polishing machine, the combination of two sets of rubbing devices, two flexible carriers for supporting and



carrying said rubbing devices, one carrier for each set, means for moving one carrier to bring its rubbing devices along the sides of a shoe when in position in the machine, and  
5 then to move the rubbing devices out of the way of the other set, and means for moving the other carrier to bring its set of brushes transversely across the toes and front of a shoe when in position in the machine, and  
10 then to move them out of the way of the other set of rubbing devices, whereby the two sets of brushes can be used having intersecting paths but without interference with each other, and means for rotating the rub-  
15 bing devices on their axes.

15. In a boot or shoe polishing machine, the combination of a set of brushing devices adapted to complete the blacking and polishing operations, a rest for the boot or shoe  
20 normally above the operative rubbing position of all of said rubbing devices, means for

lowering the rest to bring the boot or shoe into operative position to be acted upon by the rubbing devices and also to raise said rest.

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16. In a boot or shoe polishing machine, the combination of a plurality of rubbing devices, means for moving each in a path different from the other so that while in operating position they move in the same plane, a  
30 rest for a boot or shoe normally out of said plane of operation and means for moving the boot rest transversely to the common plane of operation of said rubbing devices.

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

MAX SCHUPPE.

Witnesses:

PENNINGTON HALSTED,  
EDWIN SEGER.