A. EPPLER.

SOLE LEVELING MACHINE.

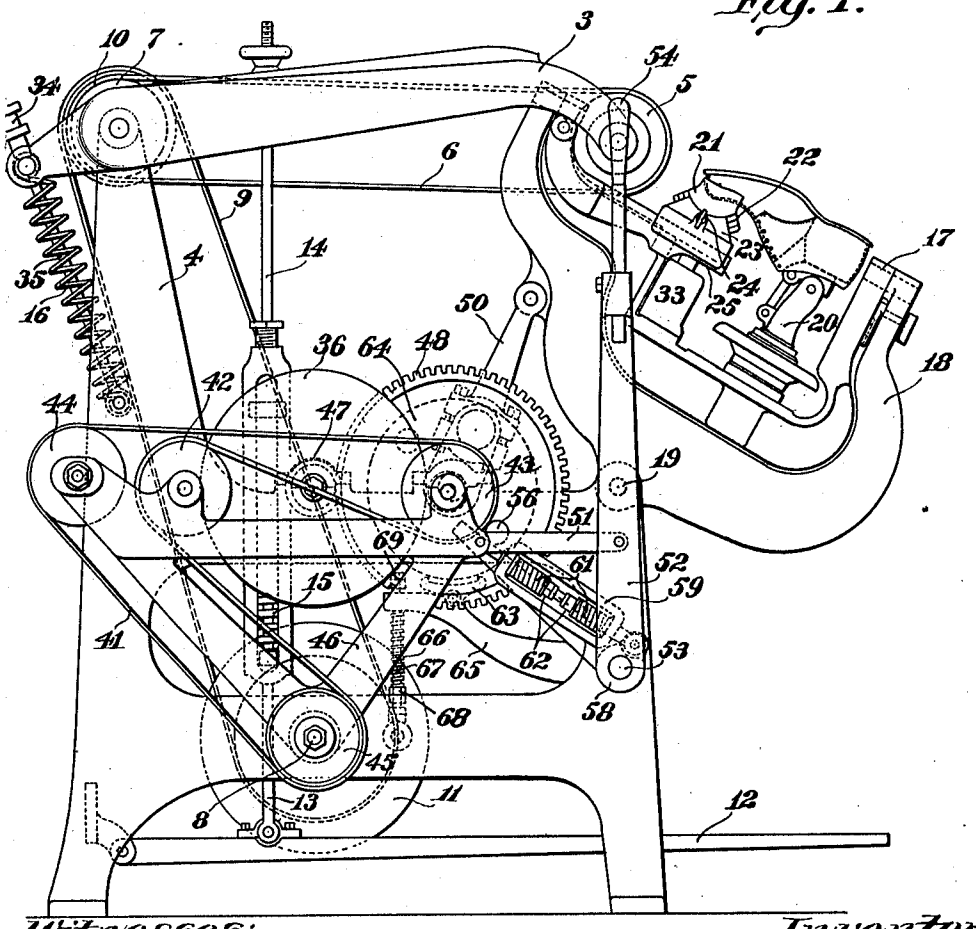
APPLICATION FILED MAY 3, 1906.

1,004,155.

Patented Sept. 26, 1911.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

E. C. Wurdeman.

Edward S. Day

Inventor:

Andrew Eppler.

by Phillips Van Orsdel & Fish

Atty's

A. EPPLER.

SOLE LEVELING MACHINE.

APPLICATION FILED MAY 3, 1906.

1,004,155. Patented Sept. 26, 1911.

5 SHEETS—SHEET 2.

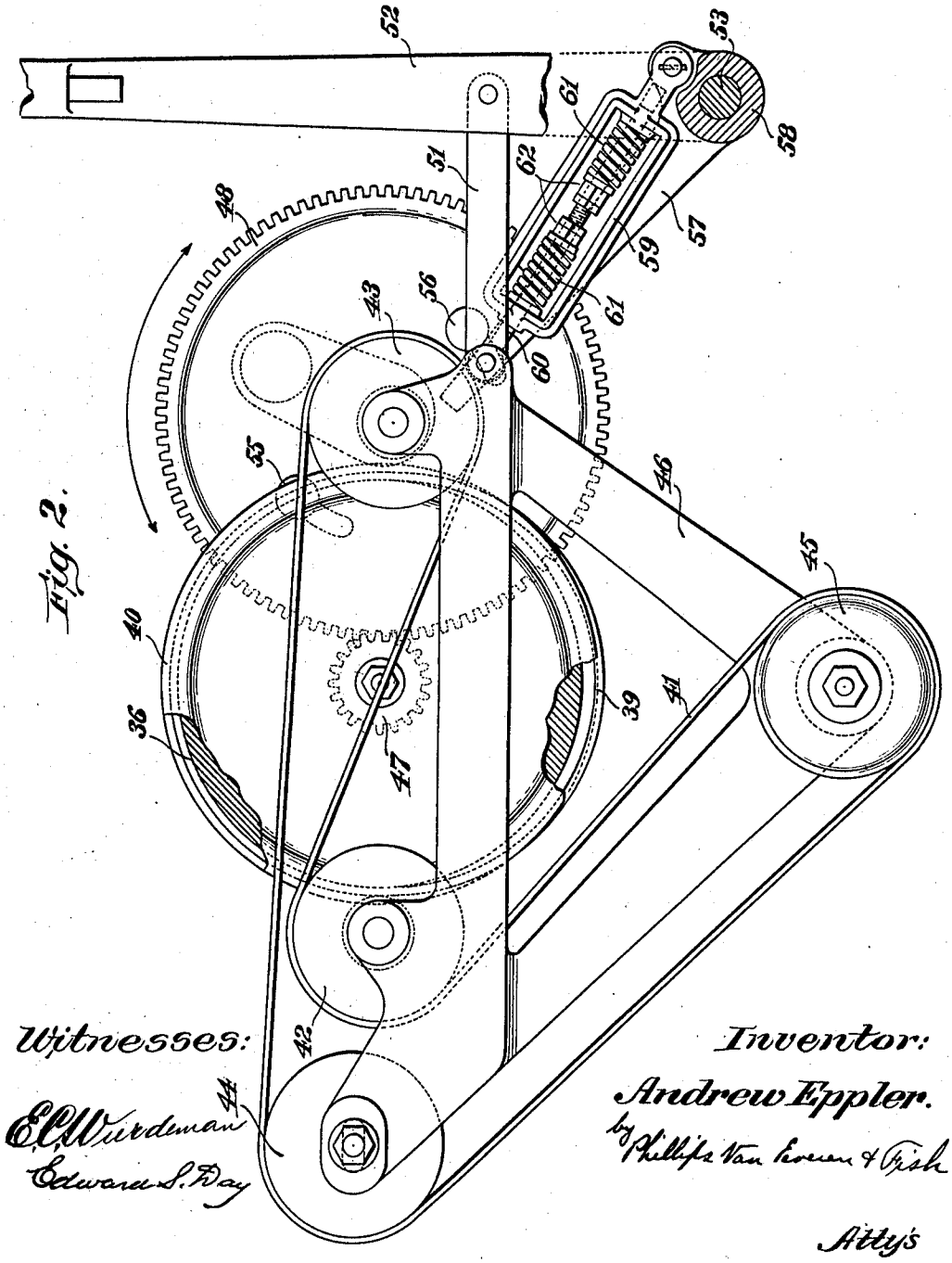


Fig. 2.

Witnesses:

E. C. Wurdeman

Edward S. Day

Inventor:

Andrew Eppler.

by Phillips Van Orsdel & Fish

Atty's

A. EPPLER.

SOLE LEVELING MACHINE.

APPLICATION FILED MAY 3, 1906.

1,004,155.

Patented Sept. 26, 1911.

5 SHEETS—SHEET 3.

Fig. 3.

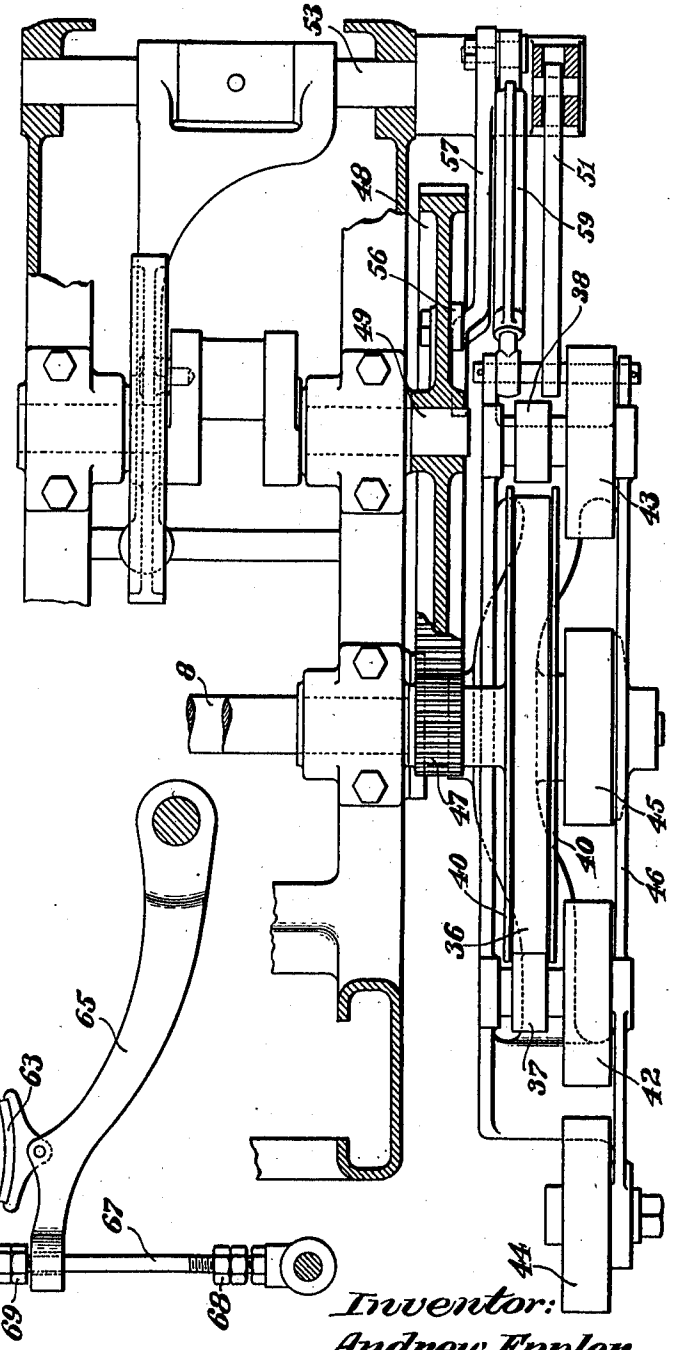
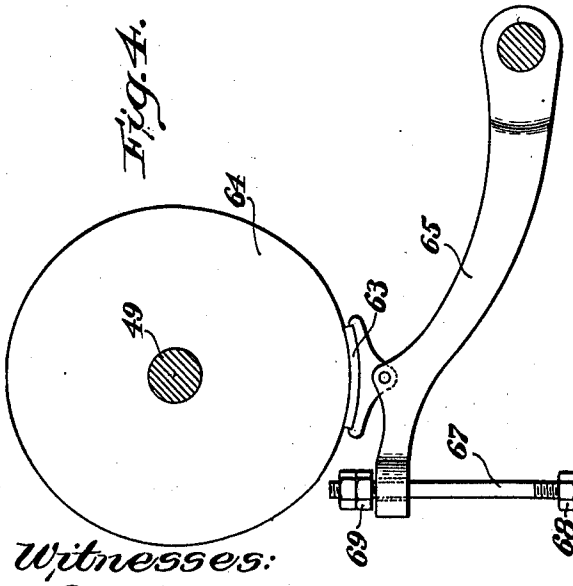


Fig. 4.



Witnesses:

E. C. Wurdeman

Edward S. Way

Inventor:

Andrew Eppler.

by Phillips Van Orden & Fish

Atty's

A. EPPLER.

SOLE LEVELING MACHINE.

APPLICATION FILED MAY 3, 1906.

1,004,155.

Patented Sept. 26, 1911.

5 SHEETS—SHEET 4.

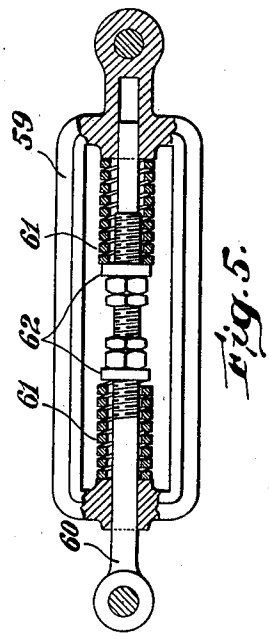


Fig. 5.

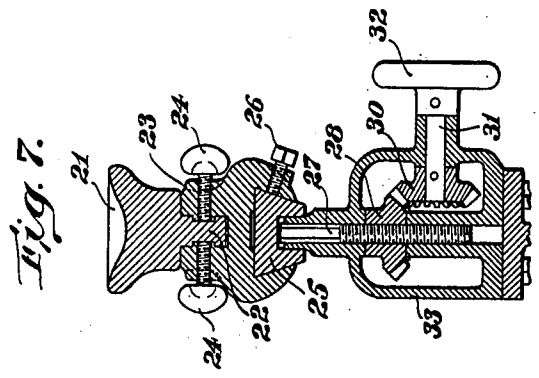


Fig. 7.

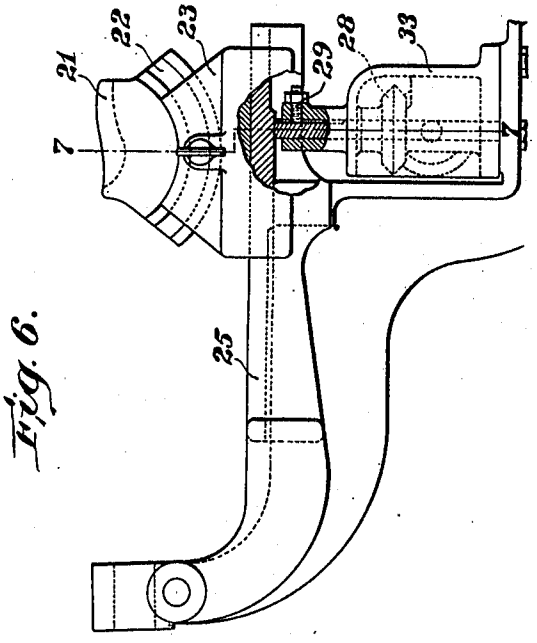


Fig. 6.

Witnesses:

E. C. Wurdeman

Edward S. Bay

Inventor:

Andrew Eppler.

by Phillips Van Essen & Fish

Atty's

A. EPPLER.

SOLE LEVELING MACHINE.

APPLICATION FILED MAY 3, 1906.

1,004,155. **Patented Sept. 26, 1911.**

5 SHEETS—SHEET 5.

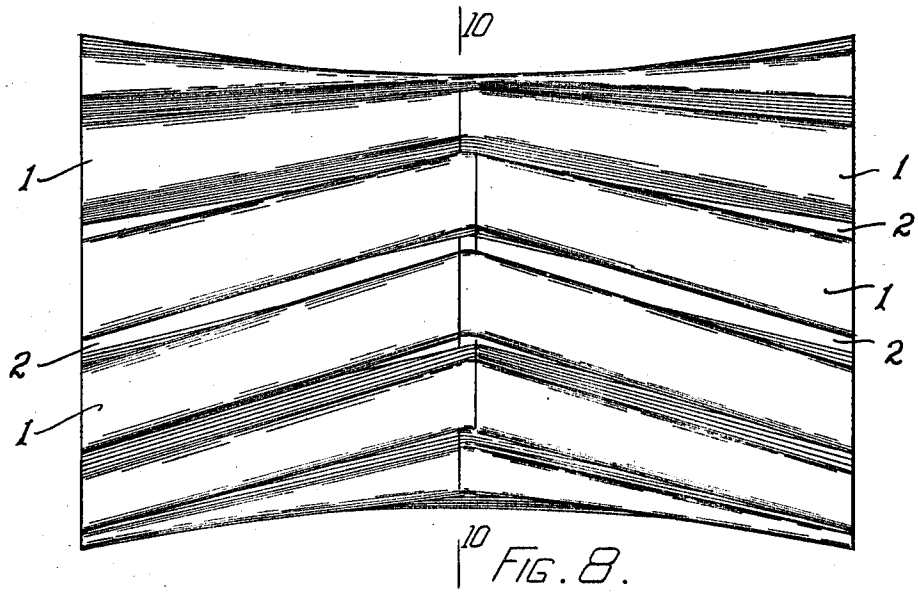


FIG. 8.

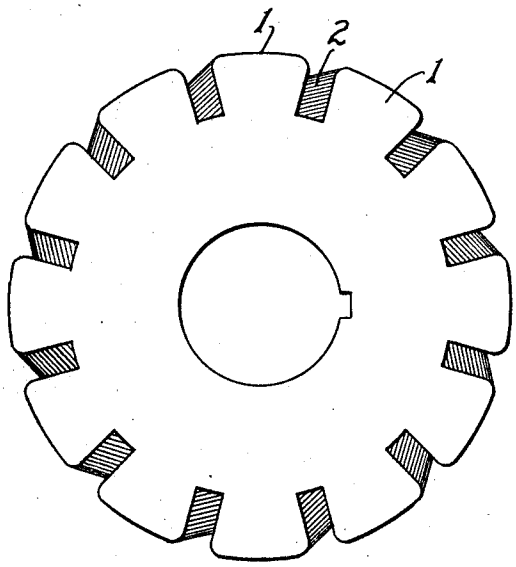


FIG. 9.

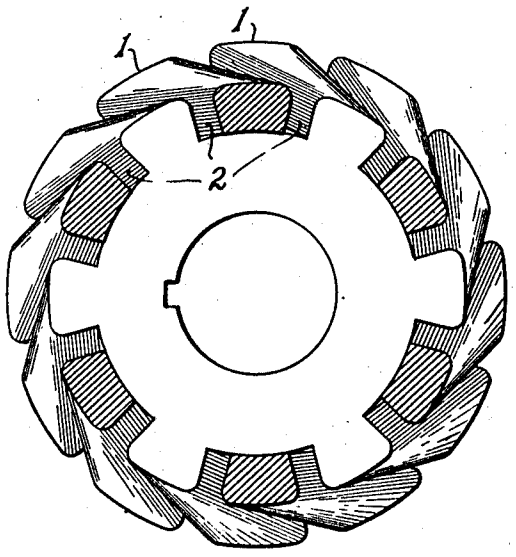


FIG. 10.

WITNESSES

E. C. Winderman

Edward S. Day

INVENTOR

Andrew Eppler

by his Attorneys

Phillips Van Orman & Fish

UNITED STATES PATENT OFFICE.

ANDREW EPPLER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SOLE-LEVELING MACHINE.

1,004,155. Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed May 3, 1906. Serial No. 315,024.

To all whom it may concern:

Be it known that I, ANDREW EPPLER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sole-Leveling 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.

The present invention relates to sole leveling machines and particularly to that class of sole leveling machines which comprise a sole leveling roll, or other suitable leveling device, and a shoe supporting jack relatively movable to change the relative longitudinal position of the leveling device and jack.

An object of the present invention is to provide an improved sole leveling roll particularly adapted for use in leveling turned shoes.

Another object of the invention is to provide a machine of the class above referred to with improved mechanism under the control of the operator for changing the relative longitudinal position of the leveling roll, or leveling device, and the jack.

Other objects of the present invention are in general to improve the construction, organization and arrangement of the various parts of sole leveling machines.

With these objects in view a feature of the present invention contemplates the provision in a sole leveling machine for operating upon turned shoes, of a sole leveling roll having its periphery divided into a series of rubbing and pounding surfaces by means of a series of slots which are of substantially the same width throughout their length, these slots being of a width necessary to cause the rigid surfaces of the roll to strike the sole with sufficient force to properly level the sole without injury to the surface thereof. By forming the rigid surfaces of the roll by means of slots which are of substantially the same width throughout their length, the blows delivered by the surfaces upon the sole during the rotation of the roll are of substantially the same force regardless of the particular portion of the roll which is acting upon the sole, so that the pounding action of the roll upon the sole is always the same whether the central portion of the roll or the portion of the roll near its end is in engagement with the sole. A sole leveling roll having fixed surfaces or projections which produce a uniform pounding action upon the sole throughout the length of the roll is believed to be new in the sole leveling art, all rolls of this character which have heretofore been devised having the fixed surfaces or projections so arranged that they are separated a greater distance at the ends than at the center of the roll so that the force of the blows delivered by the surfaces or projections increases as the point of contact of the roll with the sole travels from the center toward either end of the roll. For this reason sole leveling rolls provided with a series of fixed projections or surfaces have heretofore been unsatisfactory in operation, all portions of the sole not being acted upon in a uniform manner and the surface of certain portions of the sole often being torn in such a manner as to injure or spoil the shoe.

Those features of the present invention which relate to an improved mechanism under the control of the operator for changing the relative longitudinal position of the jack and leveling device are designed for use in that class of sole leveling machines which are provided with a reversible driving mechanism under the control of the operator and suitable connections between said mechanism and either the jack or the roll, which connections act to reverse the direction of the relative movement of the jack and leveling device when the driving mechanism is reversed. These features of the invention consist in certain devices, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the description of the preferred embodiment of the invention hereinafter contained.

Other features of the invention consist in the arrangements of mechanism hereinafter described and claimed, tending to simplify the construction and improve the operation of sole leveling machines.

The various features of the present invention will be clearly understood from an inspection of the accompanying drawings in which—

Figure 1 is a view in side elevation of a sole leveling machine adapted for operation on turned shoes, and embodying the same in their preferred form. Fig. 2 is a view in

side elevation of a portion of the machine illustrated in Fig. 1, showing particularly the reversible driving mechanism, the means by which this mechanism is controlled by the operator, and a portion of the connections between this mechanism and the shoe supporting jack. Fig. 3 is a sectional plan view of a portion of the machine, illustrating the mechanism shown in Fig. 2 and also a brake mechanism which regulates the movement of the jack and stops the jack when the driving mechanism is thrown out of operation automatically at the limit of its movement in either direction. Fig. 4 is a detail view in side elevation of the brake mechanism. Fig. 5 is a detail view, partly in section, of a yielding connection forming a portion of the mechanism for automatically throwing the driving mechanism out of operation. Fig. 6 is a detail view in side elevation, partly in section, of the toe support on the jack, and the mechanism for adjusting the same. Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 6. Fig. 8 is a view in side elevation of the leveling roll. Fig. 9 is a view in end elevation thereof, and Fig. 10 is a cross-sectional view of the roll taken on the line 10—10 of Fig. 8.

Referring to Figs. 8, 9 and 10, the leveling roll therein shown is of substantially the same shape as rolls which are ordinarily used in sole leveling machines, being concave longitudinally to fit approximately the transverse curvature of the shoe sole. For convenience of construction the roll is made in two portions arranged end to end, each portion forming substantially one-half of the roll. The surface of each portion of the roll is divided into a series of rigid projections or ribs 1 by means of slots 2, which slots are of the same width throughout their length so that the sole rubbing and pounding surfaces of the projections 1 are separated the same distance from each other throughout their length. The edges of the projections 1 are slightly rounded off, as indicated in Figs. 9 and 10, to prevent injury to the sole as these edges strike the sole during the rotation of the roll. During the rotation of the roll while in contact with a shoe sole, the roll moves a short distance toward the sole as each projection is brought into engagement therewith and thus delivers a blow upon the sole. It will be evident that the force of the blows upon the sole is determined by the width of the slots 2, and by reason of the fact that the slots are of the same width throughout their length the pounding action of the roll upon the sole will be the same regardless of the particular portion of the roll which is in contact with the sole. The pounding action of the roll upon the sole is thus uniform throughout the length of the roll, and during the leveling operation all portions of the sole can be acted upon to level it in the desired manner without liability of injury to those portions which are engaged by the roll near its ends. In addition to being of the same width throughout their length, the slots 2 are preferably arranged in a uniform manner at equal distances around the roll, so that, although the rubbing surfaces of the projections 1 vary somewhat in width, their rubbing action upon the sole is substantially uniform throughout the length of the roll.

In assembling the two portions of the roll, joints are formed by the abutting ends of the projections 1, and in order to avoid any liability of the sole being permanently marked by these joints, the rubbing surfaces of the two portions of the roll are preferably arranged to overlap each other, as indicated in Fig. 8. To secure this result alternate projections 1 on each portion of the roll are extended beyond the other projections at their inner ends, and when the two portions of the roll are assembled the inner ends of the projections alternately overlap, so that the joints formed by the abutting ends of the projections on the two portions of the roll are arranged alternately on opposite sides of a line passing circumferentially around the roll at its center.

In order that the projections 1 of the roll may exert a rubbing action from the central longitudinal line of the sole toward its edges to smooth out and level the sole more quickly and in a more satisfactory manner, the slots 2 are formed in the roll at an angle to the axis of the roll and are so arranged that each rubbing surface of the roll formed by the surfaces of corresponding projections 1 on the two portions of the roll is V-shaped with its apex pointing in the direction of rotation of the roll. By reason of the overlapping of the inner ends of the projections 1 on the two portions of the roll, the apices of the V-shaped rubbing surfaces of the complete roll are arranged alternately on opposite sides of the center line of the roll, and thus any marking of the sole which might be produced by the apices of the rubbing surfaces is obliterated, and the entire sole is finished in a uniform manner.

Referring now to Fig. 1, 3 indicates a frame pivotally mounted at its rear end in the upper rear portion of the machine frame 4 and having a leveling roll rotatably mounted in its forward end. Upon the shaft of the leveling roll is mounted a pulley 5 over which a belt 6 passes, by means of which the leveling roll is constantly rotated while the machine is in operation. The belt 6 also passes over a pulley 7 mounted upon the pivotal axis of the frame 3, which pulley is driven from a main driving shaft 8, journaled in the lower portion of the machine frame, by means of a belt 9, passing over a

pulley 10 connected with the pulley 7, and over a pulley 11 secured to the driving shaft 8. The leveling roll is forced against the sole of a shoe to level the same by means of a foot treadle 12 which is yieldingly connected to the frame 3 by means of rods 13 and 14 and a connecting spring 15, the construction being such, as will be apparent from an inspection of Fig. 1, that a depression of the treadle 12 yieldingly forces the frame 3 and the leveling roll mounted therein, downwardly.

In a machine for leveling turned soles comprising a rotating roll which acts to deliver a series of blows upon the sole, it is desirable, if not absolutely essential, that the roll be capable of moving quickly toward or from the shoe support in order to avoid injury to the sole of the shoe when a projection on the sole is encountered during the leveling operation. To this end, in the machine illustrated in Fig. 1, the frame 3 is provided with a counter-balancing spring 16 which is connected at its upper end to the rear end of the frame 3 and at its lower end to the frame of the machine. Thus practically the only force which acts to hold the leveling roll in contact with the sole of the shoe is that of the spring 15, and consequently the leveling roll is allowed to rise quickly when a projection on a shoe sole is encountered, and to smooth out the projection without injuring the sole.

The mechanism so far described is particularly applicable to a machine for leveling turned soles. The shoe supporting jack and the mechanism for actuating the same which will now be described however, are equally applicable to machines for leveling other kinds of shoes such for instance as welt shoes, and it is to be understood that the features of invention embodied in the jack actuating mechanism about to be described, are not limited to use in a machine for operation upon any particular kind of shoe.

The shoe supporting jack comprises a frame 17 provided with suitable heel and toe supports, and is pivotally mounted in a jack supporting frame 18, which is pivoted at 19 upon the main frame of the machine, the arrangement of the pivotal supports of the jack frame 17 and of the jack supporting frame 18 being such that the jack can be moved longitudinally and rocked laterally to present all portions of the sole of the shoe supported thereon to the action of the sole leveling roll.

The heel support for the jack is indicated at 20 and is the same in construction and mode of operation as the heel post of the jack disclosed in the patent to William C. Meyer, No. 677,550, dated July 2nd, 1901, to which patent reference is made for a full disclosure thereof.

The toe support of the jack is indicated at 21 and consists of a block having its upper surface suitably shaped to support the toe of the lasted shoe. To enable the toe support to be adjusted for different styles of shoes it is provided on its lower surface with a projecting grooved rib 22 which is received in a correspondingly shaped groove in a block 23, the upper surface of which is curved to fit a corresponding surface on the toe support. These surfaces together with the coöperating surfaces of the rib 22 and groove in the block 23 are concentric with an axis which passes just above the upper surface of the toe rest so that an angular adjustment of the toe rest can be made without producing any substantial movement of the upper surface of the toe rest toward or from the heel support. The toe rest is held in adjusted position by means of one or more clamping screws 24 passing through the block 23 and bearing against the rib 22. To enable the jack to support shoes of different sizes in the proper position in the machine, the toe rest 21 is adjusted toward and from the heel support, and to this end the block 23 is supported upon a lever 25 so as to be capable of longitudinal adjustment thereon. The block 23 is held in adjusted position on the lever 25, by means of a clamping screw 26 passing through the block and bearing against the lever. The lever 25 is pivotally mounted at its rear end upon the jack frame 17 and at its forward end rests upon a vertical adjusting rod 27 by means of which the forward end of the lever can be raised or lowered. The rod passes through a bevel gear 28 and has a screw-threaded engagement therewith and is provided with a vertical groove engaged by a screw 29 whereby the rod is prevented from turning and can be raised and lowered by rotating the bevel gear 28. The bevel gear 28 meshes with a bevel gear 30 secured to a short horizontal shaft 31 upon the outer end of which is secured a hand wheel 32 in convenient position to be grasped by the operator. The rod 27, screw 29, and shaft 31 are mounted in a frame 33 secured to the jack frame 17, and the bevel gear 28 is engaged at both ends of its hub by the frame 33 so as to be held against longitudinal movement, as is clearly shown in Fig. 7. When the shoe supporting jack is in its extreme outward position as indicated in Fig. 1, the leveling roll is out of engagement with the shoe support on the jack and its position is controlled by a stop nut 34 upon the upper end of a rod 35 which is pivotally connected at its lower end to the frame of the machine and at its upper end passes through the rear end of the frame 3. The object of the adjusting mechanism above described for raising and lowering the lever 25 is to adjust the toe support 21 of the

jack vertically to bring the toe portion of the shoe into a position to engage and raise the sole leveling roll as the shoe passes beneath the roll.

During the operation of the machine the jack is moved back and forth beneath the leveling roll and is rocked laterally, the backward and forward movements of the jack being produced by an improved power driven mechanism under the control of the operator and the rocking movements being produced manually by the operator. The power driven mechanism comprises an improved reversible friction driving mechanism and improved connections between the friction driving mechanism and the jack. The reversible friction driving mechanism comprises a friction disk 36 and two friction driving disks 37 and 38 which are driven constantly in opposite directions and which are so mounted that either disk can be brought into engagement with the disk 36. To increase the friction between the disk 36 and the driving disks 37 and 38, the disk 36 is provided with a loose band of leather 39, encircling the disk and held in position thereon by projecting flanges 40. The friction disks 37 and 38 are driven by means of a belt 41 passing over pulleys 42 and 43 secured to the shafts of the disks, and also passing over an idler pulley 44, and a pulley 45 secured to the main driving shaft 8. To enable the driving disks 37 and 38 to be brought alternately into engagement with the disk 36, the driving disks, together with the pulleys 42, 43 and 44, are mounted in a frame 46 which is pivotally supported on the main driving shaft 8, whereby the frame can be moved to bring either driving disk into engagement with the disk 36 without altering the tension of the belt 41. The connections between the reversible friction driving mechanism and the jack, comprise a pinion 47 mounted to rotate with the disk 36, a gear 48 meshing with the pinion 47, a crank shaft 49 to which the gear 48 is secured, and a link 50 connecting the crank shaft to the jack, the arrangement of these connections being such that a rotation of the friction disk 36 alternately in opposite direction oscillates the crank shaft 49 and through the link 50 oscillates the jack carrying frame 18 to move the shoe supported upon the jack back and forth beneath the leveling roll. To place the friction driving mechanism under the control of the operator so that the movement of the jack carrying frame 18 may be reversed at any desired time, the frame 46 carrying the driving disks 37 and 38 is connected by means of a link 51 to a lever 52 pivotally mounted at its lower end upon a rod 53 and provided at its upper end with a handle 54 in convenient position to be grasped by the operator.

During the normal operation of the machine the handle 54 is continuously grasped by the operator and one or the other of the friction driving disks 37 and 38 is held by the operator in engagement with the disk 36. To guard against an overthrow of the jack carrying frame, and to throw the friction driving mechanism out of operation when the jack carrying frame reaches its limit of movement in either direction, means are provided for automatically moving the frame 46 in a direction to disengage the driving disk which is in operation from the disk 36. As illustrated this means comprises two pins 55 and 56 adjustably secured to the face of the gear 48 at diametrically opposite points, which pins are arranged to engage an arm 57 projecting from a sleeve 58 mounted on the rod 53 and connected, by links 59 and 60 and springs 61, to the frame 46. As will be obvious from an inspection of Fig. 2, as the jack carrying frame reaches the limit of its movement in one direction, the pin 56 will engage the arm 57 and, through the connections above described, will move the frame 46 to disengage the driving disk 37 from the disk 36, and when the jack reaches the limit of its movement in the opposite direction, the pin 55 will engage the arm 57 and move the frame 46 in the opposite direction to disengage the driving disk 38 from the disk 36. The yielding connection between the sleeve 58 and the frame 46 is for the purpose of avoiding possible breakage of the arm 57 or of any of the parts between the arm and the frame 46 on account of the continued rotation of gear 48 after the friction disk 37 or 38 has been disengaged from the disk 36. The yielding connection also allows the frame 46 to be moved a sufficient distance to bring the other driving disk into engagement with the disk 36, which driving disk then acts as a brake until the rotation of the gear 48 is stopped. It will be noted that the connections between the sleeve 58 and frame 46 are arranged to yield when the arm 57 is moved in either direction, the link 60 extending longitudinally of the link 59 and having two bearings therein between which and adjustable nuts 62 on the link 60 the springs 61 are arranged, one spring being compressed when the arm 57 is moved in one direction and the other spring being compressed when the arm is moved in the opposite direction.

It is desirable in sole leveling machines of the class to which the present invention relates that the movements of the jack back and forth beneath the leveling roll should be steady and even, that is, without any sudden accelerations or retardations. To secure this result the machine illustrated in the drawings is provided with a brake 63 arranged to press continuously on a brake disk 64 secured to the crank shaft. This brake is mounted on a pivoted lever 65 and

is pressed against the disk 64 by means of a spring 66, see Fig. 1, coiled around a rod 67 and interposed between the lever 65 and an adjustable nut 68 on the rod. The rod 67 is pivoted at its lower end to the machine frame and at its upper end extends through the free end of the lever 65, being provided above the lever with an adjustable stop nut 69 by which the upward movement of the lever may be limited if desired. To assist in stopping the jack and its actuating mechanism when the reversible friction driving mechanism is thrown out of operation automatically, the disk 64 is preferably formed with raised surfaces, as indicated in Fig. 4, which are brought into engagement with the brake 63 at the limit of the movement of the jack in each direction.

The operation of the machine illustrated in the drawings and above described has been sufficiently indicated to be readily understood by those skilled in the art without a separate description thereof.

The nature and scope of the present invention having been indicated and a machine embodying the various features thereof in their preferred form having been specifically described, what is claimed is:—

1. A sole leveling roll concave longitudinally and provided with a series of slots of the same width throughout their length dividing the roll into a series of sole rubbing and pounding projections or ribs adapted to pound the sole in a substantially uniform manner throughout the length of the roll.

2. A sole leveling roll provided with a series of slots of the same width throughout their length arranged to divide the surface of the roll into a series of V-shaped rubbing and pounding surfaces having their apices at the center of the roll and adapted to pound the sole in a substantially uniform manner throughout the length of the roll.

3. A sole leveling roll provided with a series of slots of the same width throughout their length arranged to divide the surface of the roll into a series of V-shaped rubbing and pounding surfaces having their apices arranged alternately on opposite sides of a line extending circumferentially of the roll and adapted to pound the sole in a substantially uniform manner throughout the length of the roll.

4. A sole leveling roll consisting of two portions arranged end to end, each portion being provided with slots of the same width throughout their length dividing the surface thereof into a series of rubbing and pounding surfaces and the surfaces on the two portions of the roll overlapping each other at the center of the roll.

5. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling device, a reversible friction driving mechanism, a rock shaft, connections between the rock shaft and the driving mechanism arranged to reverse the movement of the rock shaft whenever the driving mechanism is reversed, connections between the rock shaft and the jack for actuating the jack and for reversing the movement of the jack when the movement of the rock shaft is reversed and means under the control of the operator for reversing said driving mechanism at will.

6. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling device, reversible friction driving mechanism comprising a friction disk and two driving disks, said driving disks acting respectively to rotate the friction disk in opposite directions when in engagement therewith, connections between said friction disk and the jack for actuating the jack and for reversing the movement of the jack when the movement of the friction disk is reversed, means controlled by the operator for moving either driving disk into engagement with the friction disk and means acting automatically to throw said driving disks out of operation as the jack reaches the limit of its movement in each direction.

7. A sole leveling machine, having, in combination, a pivotally mounted shoe supporting jack, a sole leveling device, a crank shaft and suitable connections for actuating the jack, a reversible driving mechanism for actuating the crank shaft acting to reverse the movement of the crank shaft and jack when said mechanism is reversed, and means controlled by the operator for reversing the driving mechanism to reverse the movement of the crank shaft and the jack.

8. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling roll constructed to exert a pounding and rubbing action on the sole of a shoe supported on the jack, a frame supporting the leveling roll mounted to move with the roll toward and from the jack, means for yieldingly pressing the frame toward the jack, and means for counterbalancing the weight of the frame.

9. A sole leveling machine, having, in combination, a sole leveling device, a shoe supporting jack mounted to move back and forth beneath the sole leveling device, a reversible driving mechanism, connections between the driving mechanism and the jack arranged to reverse the movement of the jack when the driving mechanism is reversed and a brake mechanism arranged to steady the movement of the jack.

10. A sole leveling machine, having, in combination, a sole leveling device, a shoe supporting jack mounted to move back and forth beneath the sole leveling device, a reversible driving mechanism, means under the control of the operator for reversing said driving mechanism at will, connections

between the driving mechanism and the jack arranged to reverse the movement of the jack when the driving mechanism is reversed, means for automatically throwing said driving mechanism out of operation at predetermined points in the movement of the jack, and a brake mechanism comprising a brake disk and a brake arranged to steady the movement of the jack and to increase their braking action when the driving mechanism is automatically thrown out of operation.

11. A sole leveling machine, having, in combination, a sole leveling device, a shoe supporting jack mounted to move back and forth beneath the sole leveling device, a reversible driving mechanism, a rock shaft, connections between the rock shaft and driving mechanism arranged to reverse the direction of the rock shaft when the driving mechanism is reversed, connections between the rock shaft and the jack for actuating the jack, means under the control of the operator for reversing the driving mechanism at will, a brake disk secured to the rock shaft, and a brake coöperating with said brake disk to steady the movement of the jack.

12. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling device, a reversible friction driving mechanism comprising a friction disk and two driving disks, means for rotating said driving disks in opposite directions, mechanism connecting the friction disk and the jack for actuating the jack and for reversing the movement of the jack when the movement of the friction disk is reversed, and means, including a yielding connection, actuated by said connecting mechanism, for automatically moving a driving disk out of engagement with said friction disk as the jack reaches the limit of its movement.

13. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling device, a reversible friction driving mechanism comprising a friction disk and two driving disks, means for rotating said driving disks in opposite directions, mechanism connecting the friction disk and the jack for actuating the jack and for reversing the movement of the jack when the movement of the friction disk is reversed, means including a yielding connection actuated by said connecting mechanism for automatically moving a driving disk out of engagement with said friction disk as the jack reaches the limit of its movement and means under the control of the operator for moving either friction disk into engagement with the driving disk at will.

14. A sole leveling machine, having, in combination, a shoe supporting jack, a sole leveling device, a reversible friction driving mechanism comprising a friction disk and two driving disks, a pivotally mounted frame carrying the driving disks and movable to bring either driving disk into engagement with the friction disk, a rotating pulley at the pivot of said frame, pulleys mounted on the shafts of the driving disks, a belt passing over said pulleys arranged to rotate the driving disks in opposite directions, connections between the friction disk and the jack for actuating the jack and for reversing the movement of the jack when the movement of the friction disk is reversed, and means controlled by the operator for moving the pivotally mounted frame.

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

ANDREW EPPLER.

Witnesses:
FRED O. FISH,
ALFRED H. HILDRETH.