

No. 889,287.

PATENTED JUNE 2, 1908.

E. E. WINKLEY.
SOLE LEVELING MACHINE.

APPLICATION FILED MAY 7, 1906.

3 SHEETS—SHEET 1.

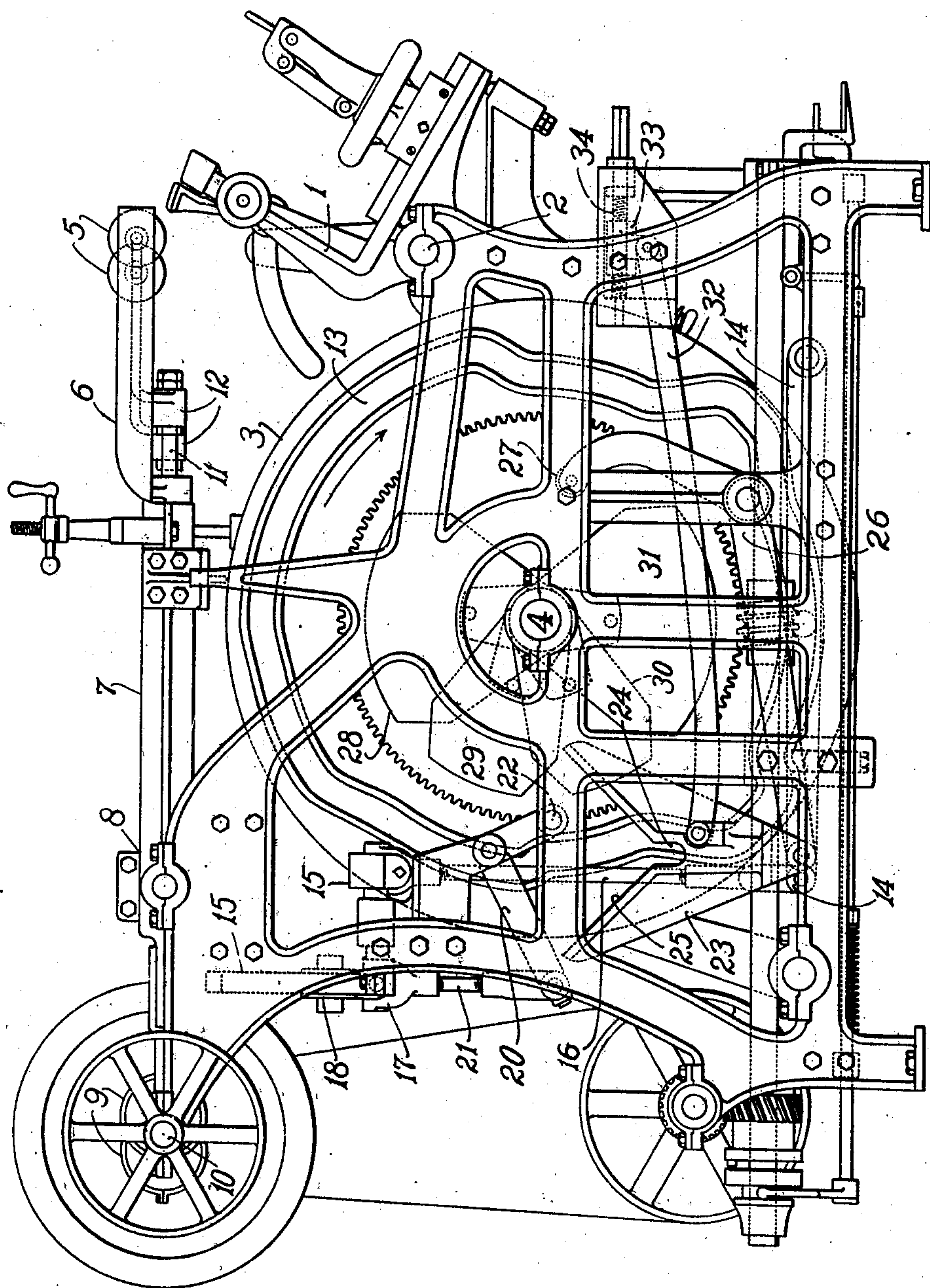


FIG. 1.

WITNESSES

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by his Attorneys

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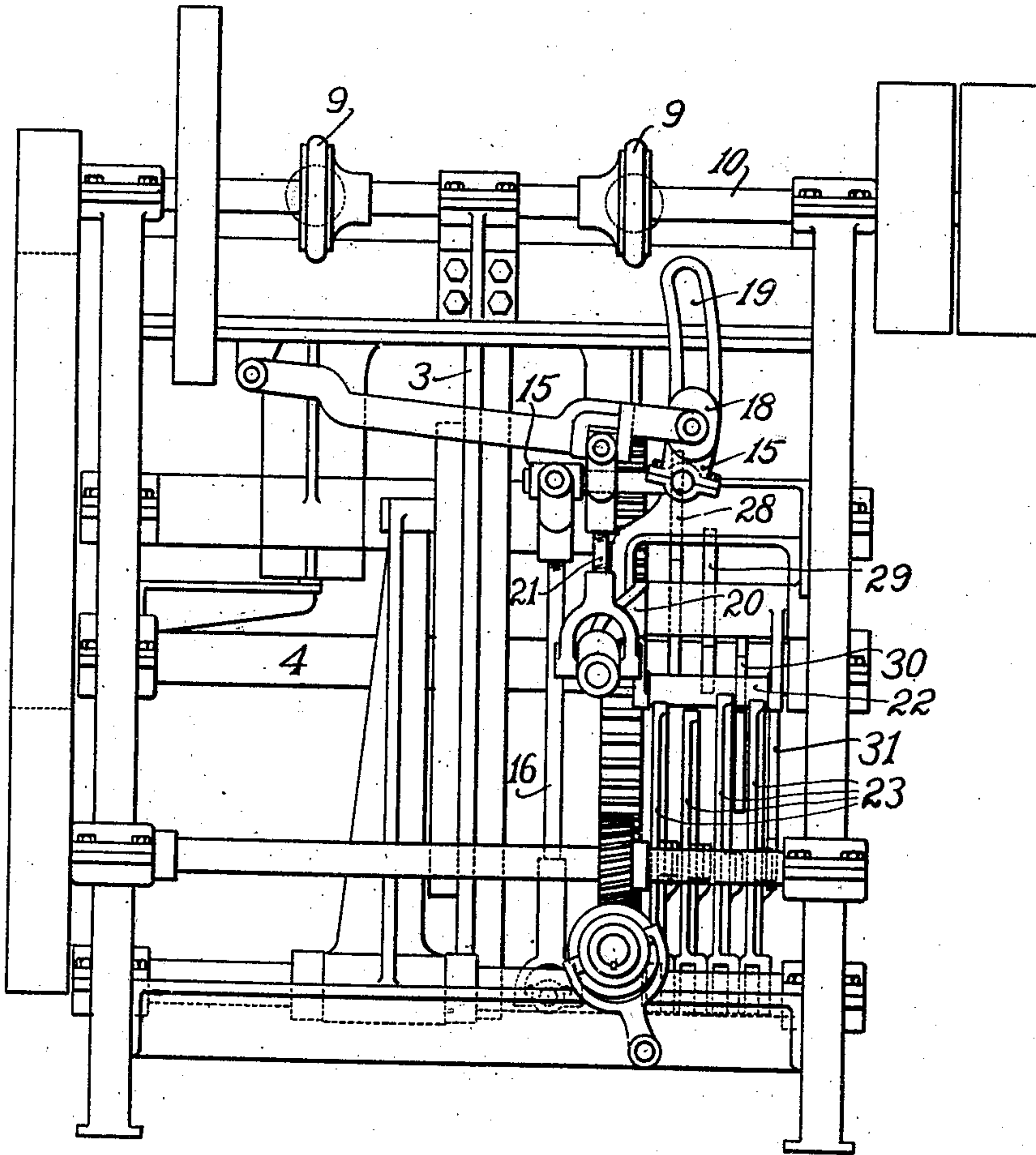


FIG. 2.

WITNESSES

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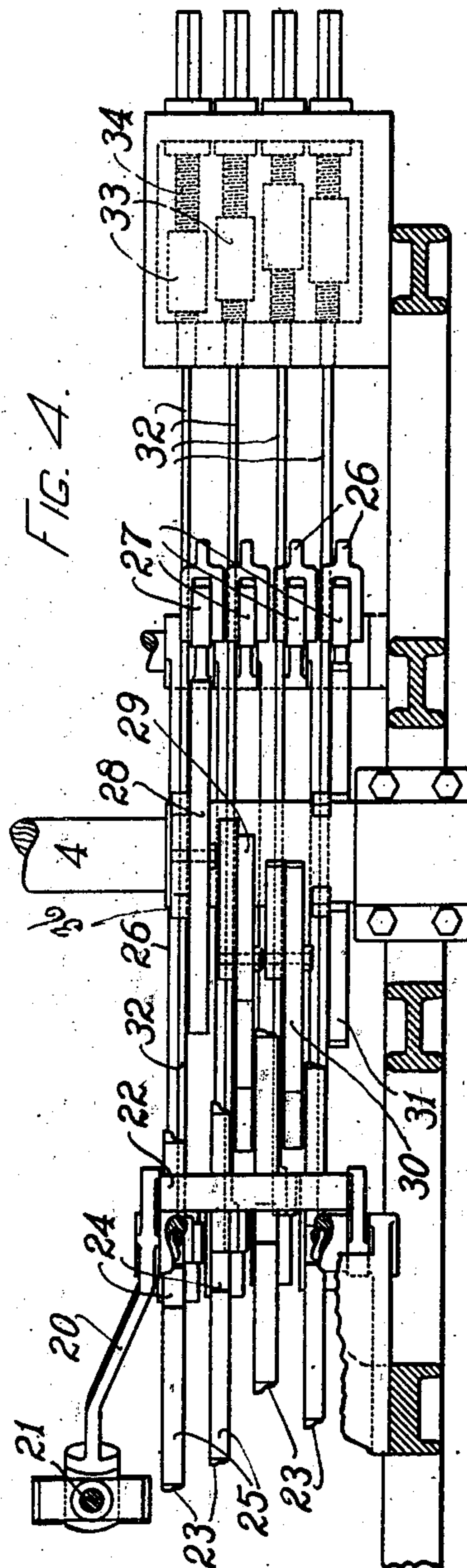
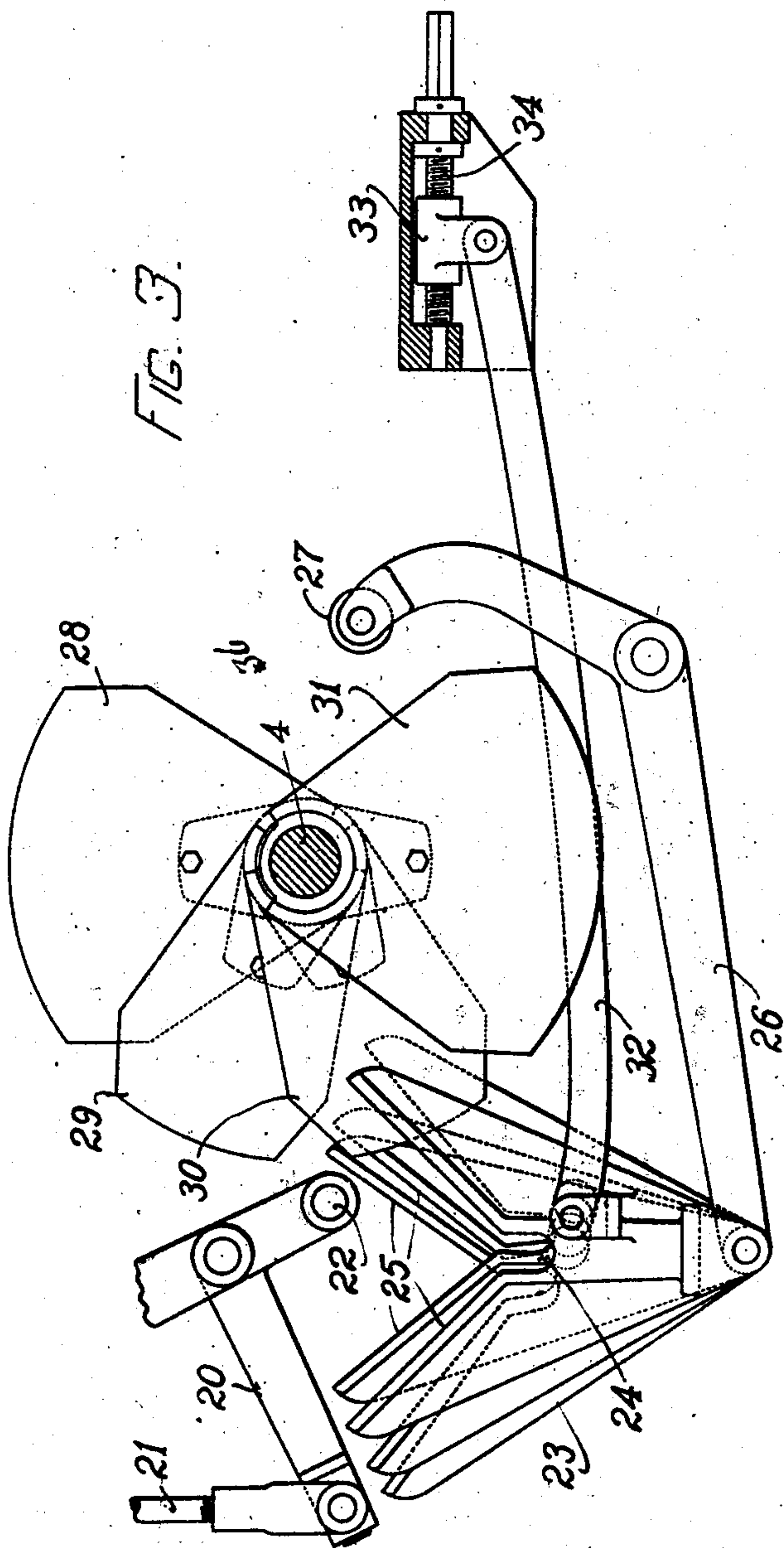
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3 SHEETS—SHEET 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

ERASTUS E. WINKLEY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SOLE-LEVELING MACHINE.

No. 889,287.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed May 7, 1906. Serial No. 315,487.

To all whom it may concern:

Be it known that I, ERASTUS E. WINKLEY, a citizen of the United States, residing at Lynn, in the county of Essex 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, a shoe supporting jack, and mechanism for relatively actuating the jack and roll to cause the roll to properly level the sole of the shoe.

The present invention is intended primarily as an improvement on the Goodyear automatic sole leveling machine, commercial forms of which are disclosed in applicant's prior patent No. 555,548, dated March 3, 1896, and in the patent to George H. Gifford, No. 668,635, dated February 26, 1901. The various features of the present invention, however, are not limited to this particular machine, but are applicable to any sole leveling machine of the class above referred to.

In the machine disclosed in applicant's prior patent No. 555,548, mechanism is provided which acts automatically during the operation of the machine to change the relative lateral inclination of the leveling roll and jack. This mechanism is provided with an adjusting device whereby the extent or degree of the relative lateral inclination imparted to the roll and jack can be adjusted, and in order that such adjustment may not be effective to the same extent throughout the entire leveling operation, an auxiliary mechanism is provided which acts automatically during a portion of the leveling operation to change the position of the adjusting device. This auxiliary mechanism is arranged to act upon the adjusting device while the forepart of the shoe sole is being leveled, and is provided with means of adjustment whereby the extent to which the adjusting device is moved may be varied as desired.

In this machine, as will be apparent from an inspection of the drawings and specifica-

tion of the patent, an adjustment of the relative lateral inclination of the roll and jack for operation upon the forepart of the shoe can be made without affecting the relative lateral inclination imparted to the roll and jack while the shank portion of the sole is being operated upon. An adjustment of the relative lateral inclination of the roll and jack for operation upon the shank, however, produces a corresponding change in the relative lateral inclination imparted to the jack and roll while the forepart of the shoe is being operated upon so that if it is desired to change the lateral inclination of the roll and jack at the shank portion of a shoe only, an adjustment of the relative lateral inclination of the roll and jack is required both for operation upon the shank and also for operation upon the forepart.

The machine disclosed in the Gifford patent is substantially the same as the machine of applicant's prior patent with the exception that a second adjusting device is provided and an additional auxiliary mechanism for actuating said device during the operation of the machine. This second auxiliary mechanism is brought into operation while the outer edge of the forepart of the sole is being acted upon, and is provided with means of adjustment whereby the relative lateral inclination of the jack and roll can be adjusted for operation upon the outer edge of the forepart. In this machine an adjustment of the relative lateral inclination of the jack and roll for operation upon the outer edge of the forepart can be made without affecting the relative lateral inclination of the jack and roll while other portions of the shoe are being operated upon. An adjustment of the relative lateral inclination of the jack and roll for operation upon the inner edge of the forepart, however, affects the inclination of the jack and roll while the outer edge of the forepart is being acted upon, and an adjustment of the inclination of the jack and roll for operation upon the shank affects the lateral inclination of the jack and roll while acting upon the inner edge of the forepart, and also while acting upon the outer edge. In both the machine of applicant's prior patent and the machine of the Gifford patent, therefore, the relative lateral inclination of the roll and jack can be adjusted for operation upon but one portion of the shoe with-

out affecting the relative lateral inclination of the roll and jack while operating upon other portions of the shoe. Also in the machine of applicant's prior patent adjustments can be made for operation upon but two portions of the sole, and in the machine of the Gifford patent adjustments can be made for operation upon but three portions of the sole.

The objects of the present invention are to provide improved means for adjusting the relative lateral inclination of the roll and jack for operation upon different portions of the shoe, to provide means whereby adjustments of the lateral inclination of the roll and jack can be made for operation upon a greater number of portions of the shoe, and in general to improve the construction, organization and mode of operation of the various parts of sole leveling machines of the class to which the present invention relates.

With these objects in view the present invention contemplates the provision in a sole leveling machine comprising a sole leveling roll, or other suitable leveling device, a shoe supporting jack, and means to change the relative lateral inclination of the roll and jack, of means for independently adjusting the lateral inclination of the roll and jack for operation upon any one of a plurality of different portions of the shoe. The adjustment of the lateral inclination of the roll and jack for operation upon each portion of the shoe can thus be made without affecting the lateral inclination of the roll and jack while a different portion of the shoe is being operated upon, and but a single adjustment is required to cause the roll to act in the desired manner at any portion of the shoe.

In the preferred form of the invention mechanism is provided, as in the machines of the patents hereinbefore referred to, for changing the relative lateral inclination of the roll and jack, which mechanism is provided with an adjusting device, and the independent adjustment of the lateral inclination of the roll and jack for operation upon different portions of the shoe is produced by means of a plurality of mechanisms each of which is provided with means of adjustment and which are arranged to actuate said adjusting device independently at different times during the leveling operation. This means for securing an independent adjustment of the relative lateral inclination of the roll and jack for operation upon different portions of the shoe provides a simple, efficient and compact construction not only for changing the adjustment of the lateral inclination of the roll and jack, but also for changing the relative lateral inclination of the roll and jack as the different portions of the sole are acted upon successively by the roll. This construction is believed to be new, and a feature of the invention is considered to consist in the provision in a sole level-

ing machine provided with mechanism for relatively actuating the roll and jack to level the sole of a shoe of a plurality of mechanisms which act independently at different times during the operation of the machine to adjust the mechanism for relatively actuating the roll and jack.

In the best form of the invention which has as yet been devised, the mechanisms for actuating the adjusting device above referred to consist of a series of cam plates each of which is operatively connected with an actuating cam by which it is moved at the proper time during the operation of the machine to act, through suitable connections, on the adjusting device, the said actuating cams being so arranged that the cam plates are brought into operation successively so that each cam plate in turn controls the position of the adjusting device.

In addition to the features of invention above referred to the present invention also consists 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 following description.

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 vibrating roll sole leveling machine embodying the same in their preferred form. Fig. 2 is a view in rear end elevation of the machine illustrated in Fig. 1, with certain parts which would appear in said view omitted. Fig. 3 is a detail view in side elevation illustrating the construction and arrangement of the mechanisms which act successively during the operation of the machine to move the adjusting device of the mechanism for changing the relative lateral inclination of the jack and roll, and Fig. 4 is a detail plan view of the mechanism illustrated in Fig. 3.

Except for the mechanism which constitutes the illustrated embodiment of the present invention the machine illustrated in Figs. 1 and 2 is substantially the same in construction and mode of operation as the machine disclosed in applicant's prior patent No. 555,548, comprising two shoe supporting jacks, two vibrating sole leveling rolls cooperating respectively therewith, mechanism for actuating the jacks to change the relative longitudinal position of the jacks and rolls, means for connecting and disconnecting each jack and the jack oscillating mechanism, and means for tipping the rolls to change the relative lateral inclination of a jack and its cooperating roll during the leveling operation.

The jacks are indicated at 1 in the position which they assume when disconnected from the jack oscillating mechanism, and are pivotally mounted at 2 in the front portion of

the machine frame. The jack oscillating mechanism consists of a cam disk 3 secured to the cam shaft 4 and provided in one face with a cam groove, and a series of levers and links actuated by the cam groove, to which series of levers and links either jack can be operatively connected. The leveling rolls are indicated at 5 and are mounted to vibrate in roll carriers 6 secured to sleeves mounted to turn in roll carrying beds 7 which are pivotally mounted at 8 in the upper rear portion of the machine frame. Each leveling roll is vibrated by means of an eccentric 9 on a constantly rotating shaft 10 journaled in the upper rear portion of the machine frame, which eccentric acts upon a rod 11 extending through the sleeve to which the roll carrier 6 is secured, and provided at its forward end with a light yoke 12 engaging the shaft of the roll 5. The mechanism for tipping the rolls during the leveling operation to change the relative lateral inclination of a jack and its cooperating roll is arranged to act upon the roll carriers 6. This mechanism comprises a cam groove 13 in one face of the cam disk 3, a lever 14 provided with a roll or stud engaging the cam groove, a bell crank 15, a link 16 connecting the free end of the lever 14 and the horizontal arm of the bell crank 15, a link 17 connected at one end to the vertical arm of the bell crank 15, and connections between the other end of the link 17 and the roll carriers 6, these connections as well as the parts hereinbefore referred to and all other parts appearing on the drawings and not hereinafter specifically referred to being constructed and arranged to operate in the same manner as the corresponding parts of the machine of applicant's prior patent No. 555,548.

During the operation of the machine the bell crank lever 15 is oscillated, through the connections above described, from the cam groove 13 on the disk 3 and thus the roll carriers 6 are actuated to tip the rolls. To enable the extent of these tipping movements to be varied the link 17 is adjustably connected to the vertical arm of the bell crank 15 by means of an adjusting device consisting of a block 18 mounted in a slot 19 in the vertical arm of the bell crank, this construction being substantially the same as in the machine of applicant's prior patent.

In the illustrated embodiment of the present invention a plurality of mechanisms are provided for actuating the adjusting device 18 and these mechanisms are arranged to actuate said device independently at different times during the operation of the machine. To enable the adjusting device to be acted upon by these mechanisms a bell crank 20 is pivotally mounted in the machine frame below and at right angles to the bell crank 15 and one arm of this bell crank is connected by means of a link 21 to the link 17, as best shown in Fig. 2. The other arm of the bell

crank 20 is provided with a horizontal pin 22 which pin is arranged to be engaged successively by the mechanisms which will now be described. Below the pin 22 a series of cam plates 23 is arranged, there being four of these plates illustrated in the drawings, and each plate being provided with a vertical groove 24 adapted to engage the pin 22 when the plate is raised, and with diverging surfaces 25 above the notch 24 adapted to contact with the pin 22 during the upward movement of the plate and guide the pin into the notch 24. An upward movement of any one of the plates 23 thus actuates the bell crank 20 and moves the adjusting device 18 in the slot 19 of the bell crank 15. Each cam plate 23 is pivotally mounted at its lower end upon one end of a bent lever 26, the other end of which is provided with a roll or stud 27 arranged in the path of movement of a cam secured upon the cam shaft 4. The cams for actuating the bent levers 26 correspond in number to the cam plates 23 and are indicated on the drawings at 28, 29, 30 and 31. These cams are best illustrated in Figs. 3 and 4, and, as therein shown, are arranged to actuate the bent levers 26 and the cam plate 23 mounted thereon successively, and to cause but one plate 23 to be in engagement with the pin 22 at a time. The plates 23 are guided in their vertical movements by means of links 32, a link 32 being provided for each plate, and one end of the link being connected to the plate and the other end to a block 33 mounted in the front portion of the machine frame. It will be evident that the extent of movement imparted to the bell crank 20 when a cam plate 23 is raised will depend upon the angular position of the plate, and that the movement of the bell crank 20, and consequently the movement imparted to the adjusting device 18, can be varied by changing the angular position of the plate. The blocks 33 are accordingly adjustably mounted in the frame of the machine, each block having a screw-threaded engagement with an adjusting screw 34 journaled in the machine frame and provided at its front end with a squared portion whereby the screw can be readily turned by the operator by means of a handle or wrench to adjust the block 33 and change the angular position of the cam plates 23 connected therewith. It is necessary that each cam plate 23 after having been raised into engagement with the pin 22 of the bell crank 20 shall be moved out of engagement with the pin before another cam plate is raised into engagement therewith. To insure this result a cam 36 is associated with each of the cams 28, 29, 30 and 31, and is arranged to engage the link 32 connected to the cam plate which has been raised, as the cam which raised the plate passes out of engagement with the corresponding bent lever 26.

The cams 28, 29, 30 and 31 are so arranged that during the first portion of the revolution of the cam shaft 4 all of the cam plates 23 remain in their lowest position out of engagement with the pin 22 of the bell crank 20, the adjusting device 18 at this time being in the position indicated in Fig. 2. While the adjusting device remains in this position the jack which is connected to the jack oscillating mechanism moves inwardly and the relative lateral inclination of the roll and jack is determined solely by the shape of the cam groove 13 in the disk 3. While the inner edge of the shank portion of the sole is being leveled the cam 28 is in engagement with its corresponding bent lever 26 and the position of the adjusting device 18 is controlled by the cam plate 23 which is actuated by the cam 28, so that the extent of the lateral inclination imparted to the roll is determined both by the shape of the cam groove 13 in the disk 3 and by the cam plate 23 which is in engagement with the pin 22. As the leveling roll passes from the inner edge of the shank portion of the shoe on to the inner edge of the forepart the cam plate 23 which was in engagement with the pin 22 is depressed and another cam plate 23 is raised into engagement with the pin 22 by the cam 29 and held in engagement therewith until the roll passes from the inner edge of the forepart onto the outer edge of the forepart. While the outer edge of the forepart is being operated upon the cam plate 22 which is actuated by the cam 30, is in engagement with the pin 22, and while the outer edge of the shank portion of the shoe sole is being operated upon the cam plate 23 which is actuated by the cam 31, is in engagement with the pin 22. The inclination imparted to the roll while acting upon any one of the four portions of the shoe sole above referred to is thus controlled by the cam 13 and by one of the cam plates 23, and it will be evident that the amount of inclination imparted to the roll while acting upon any one of these portions of the shoe sole can be adjusted by changing the angular position of one of the plates 23 without affecting the amount of inclination imparted to the roll while acting upon any of the other portions of the shoe sole. But a single adjustment is therefore required to adjust the relative lateral inclination of the roll and jack for operation upon any one of a plurality of different portions of the shoe sole, and the relative lateral inclination of the roll and jack can be independently adjusted for operation upon any portion of the shoe sole.

The operation of all portions of the machine will be clearly understood from the foregoing description taken in connection with the description contained in applicant's prior patent, and further description thereof is considered unnecessary.

The nature and scope of the present inven-

tion having been indicated, and the preferred form of the invention having been specifically described, what is claimed is:—

1. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, means to change the relative lateral inclination of the roll and jack, and means for independently adjusting the relative lateral inclination of the roll and jack for operation upon any one of a plurality of different portions of the shoe. 70 75

2. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for relatively actuating the roll and jack to level the sole of a shoe placed upon the jack, and plurality of mechanisms acting independently at different times during the operation of the machine to adjust said mechanism for relatively actuating the roll and jack. 80 85

3. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for relatively actuating the roll and jack to level the sole of a shoe placed upon the jack, an adjusting device connected with said mechanism, and a plurality of mechanisms for actuating said device arranged to actuate said device independently at different times during the operation of the machine. 90 95

4. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for changing the relative lateral inclination of the roll and jack, and a plurality of mechanisms acting independently at different times during the operation of the machine to adjust said mechanism for changing the relative lateral inclination of the roll and jack. 100

5. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for changing the relative lateral inclination of the roll and jack, an adjusting device connected with said mechanism, and a plurality of mechanisms for actuating said device arranged to actuate said device independently at different times during the operation of the machine, and each having provision for adjustment to vary the extent of movement imparted to said adjusting device. 105 110 115

6. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for relatively actuating the roll and jack to level the sole of a shoe placed upon the jack, an adjusting device connected with said mechanism, and a plurality of mechanisms for actuating said device comprising a plurality of cam plates and means for actuating said plates arranged to cause said plates to actuate the adjusting device successively. 120 125

7. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for relatively actuating 130

the roll and jack to level the sole of a shoe placed upon the jack, an adjusting device connected with said mechanism, a plurality of cam plates, connections between the cam plates and the adjusting device, means for actuating said plates successively to actuate the adjusting device, and means for adjusting each plate to vary the movement imparted to the adjusting device thereby.

10 8. A sole leveling machine, having, in combination, a sole leveling roll, a shoe supporting jack, mechanism for relatively actuating the roll and jack to level the sole of a shoe

placed upon the jack, an adjusting device connected with said mechanism, a plurality 15 of cams acting independently at different times during the operation of the machine to actuate said adjusting device, and suitable connections between the cams and adjusting device. 20

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

ERASTUS E. WINKLEY.

Witnesses:

FRED O. FISH,
FARNUM F. DORSEY.