

No. 610,314.

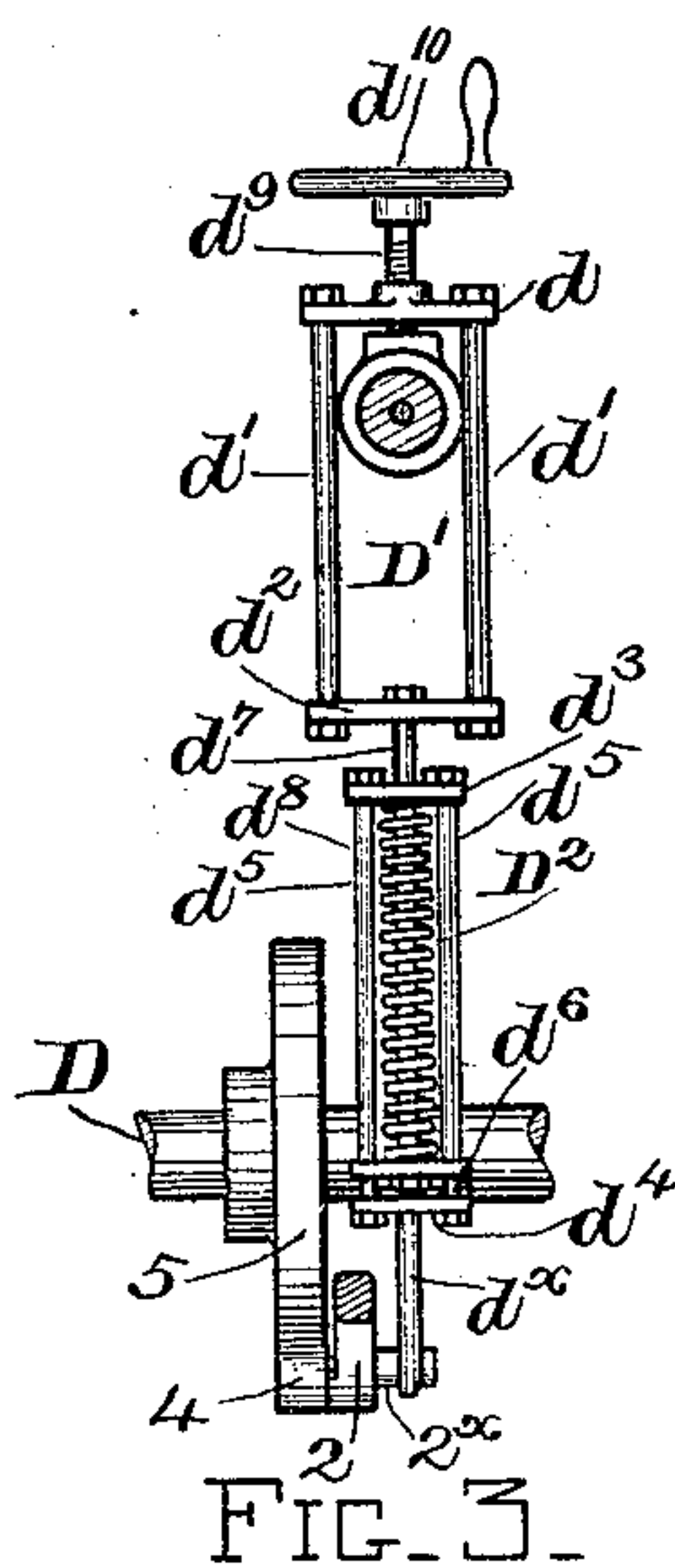
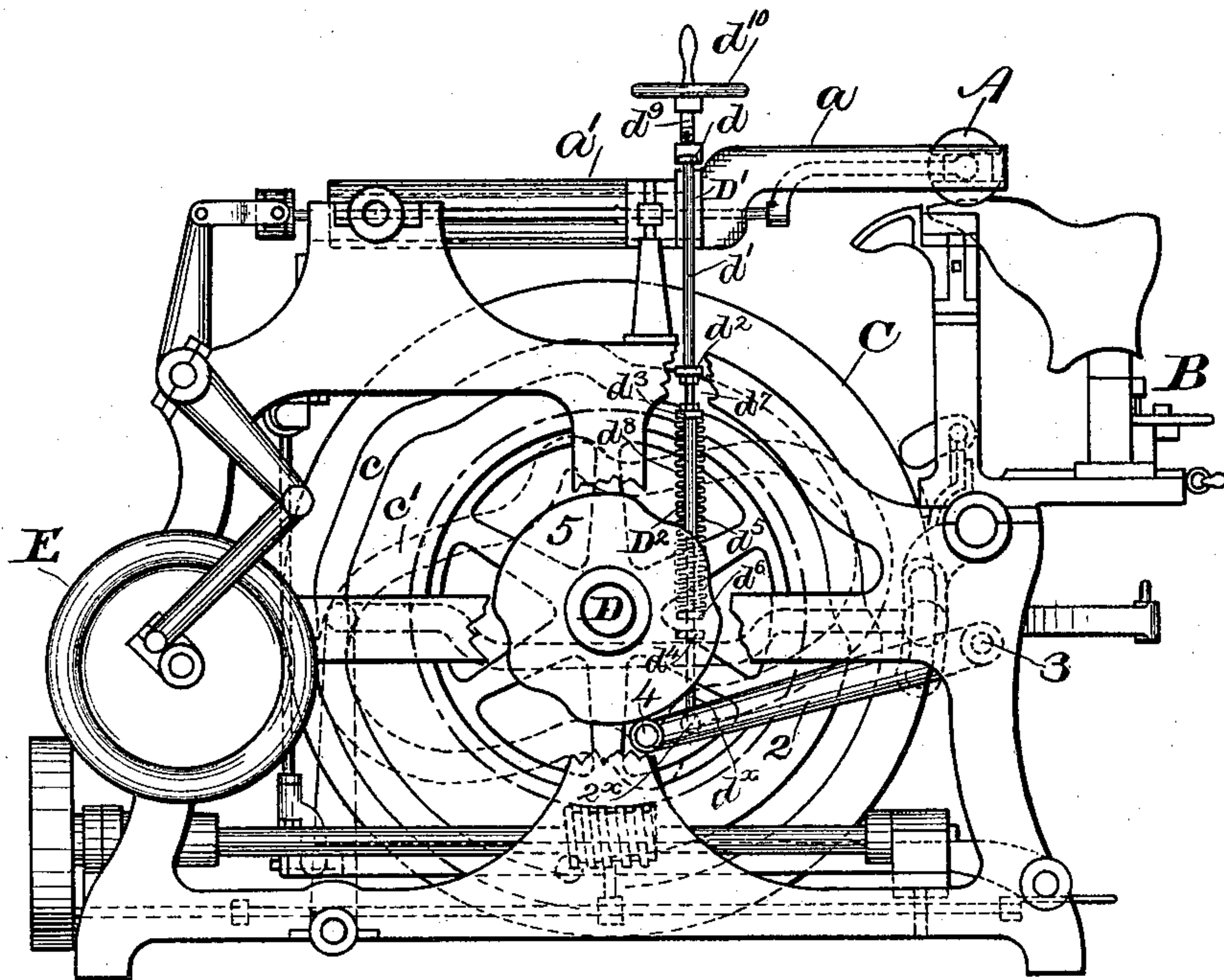
Patented Sept. 6, 1898.

E. E. WINKLEY.
SOLE LEVELING MACHINE.

(Application filed Mar. 8, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

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INVENTOR_

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By his attorneys,
Phillips & Anderson.

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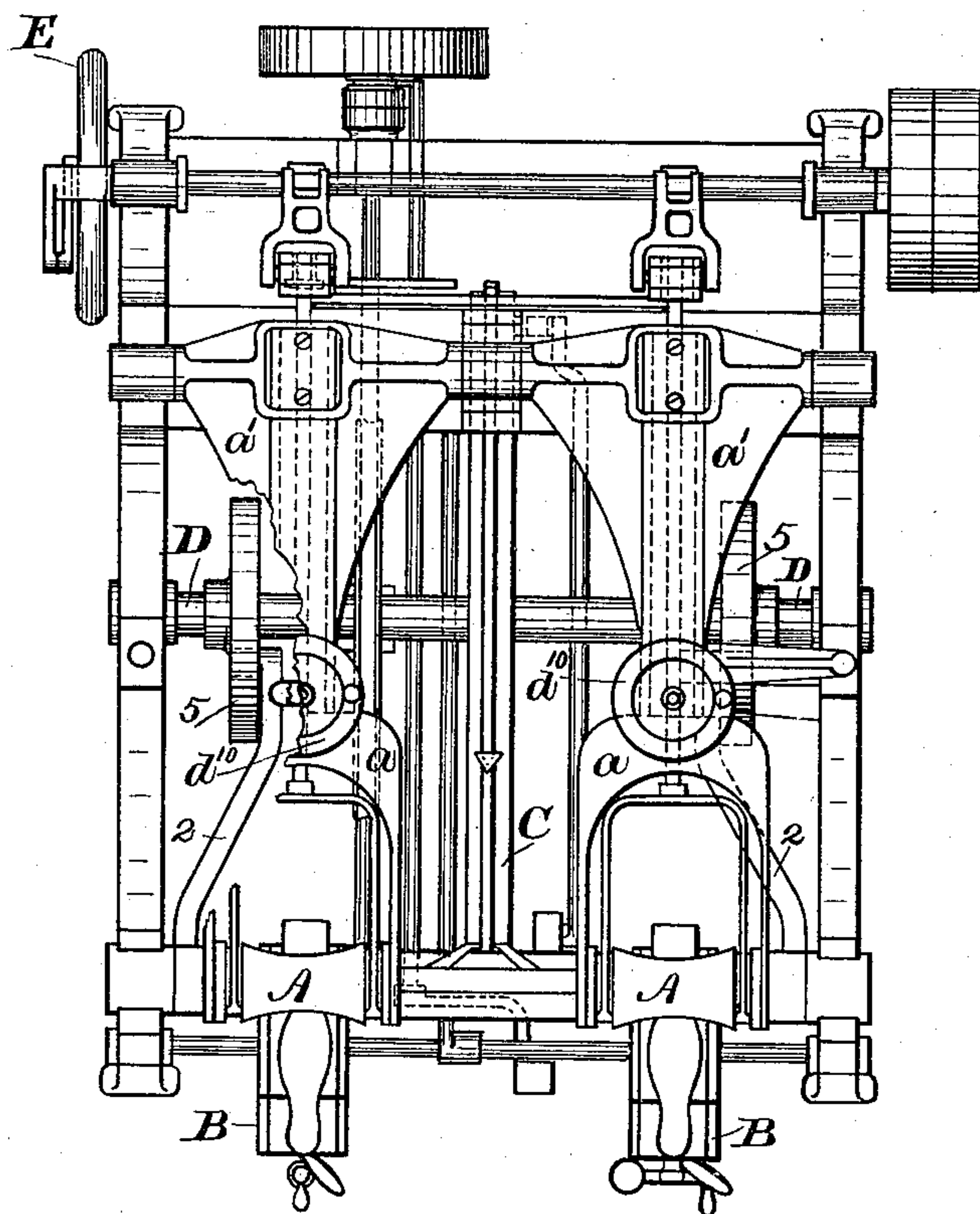


FIG. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

ERASTUS E. WINKLEY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE
GOODYEAR SHOE MACHINERY COMPANY, OF PORTLAND, MAINE.

SOLE-LEVELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 610,314, dated September 6, 1898.

Application filed March 8, 1897. Serial No. 626,370. (No model.)

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 improvements in machines for leveling the soles of boots and shoes, and more particularly to such types of sole-leveling machines as embody in their structure a leveling-roll which is automatically—that is, without manual interference on the part of the operator—caused to pass over the surface of the sole of the boot or shoe while supported upon a suitable jack and to impart thereto the contour required in the finished product. As machines of the last-defined types have heretofore been constructed pressure has been obtained to enable the leveling-roll to perform its function by means of a suitably-arranged spring commonly secured to the leveling-roll carrier or its bed and bearing against a fixed abutment or support, the arrangement being such that while the leveling-roll during the operation of the machine is made to act upon all parts of the sole requiring the leveling operation under a certain amount of pressure such pressure varies as the roll is raised or lowered by contact with the work, or, to speak more specifically, in all former types of automatic leveling-machines an increased pressure of the roll is secured along the higher ball portions of the shoe (jacked in an inverted position) and a decreased pressure along the lower shank and toe portions. It is a well-known fact in the art of sole-leveling that it requires a greater amount of work to properly level the shank of a shoe-sole than it does to level the fore part, and the variation in pressure above suggested would therefore seem to tend to prevent the successful operation of the machine. The difficulty last suggested has been to a great extent obviated in the prior art by causing the roll to dwell longer on the shank portion of the sole,

thus compensating for a loss in the power factor of the amount of work done by an increase of the time factor.

The object of the present invention is to remedy the above-suggested defects by properly controlling the action of the pressure mechanism, and thus to improve the quality of work done by machine, and, if desired, by decreasing the time factor to increase its output, and to the above end I have provided automatic means for controlling the pressure mechanism to secure a uniform pressure over the whole sole requiring the leveling operation or a change of pressure at such points along the sole-surface as such change is required.

The present invention is illustrated in the drawings herewith submitted, in which—

Figure 1 is a side view of a sole-leveling machine embodying a preferred form thereof, with parts broken out to more fully illustrate the same. Fig. 2 is a plan view also having parts broken away for a similar purpose, and Fig. 3 is a front view of a portion of pressure mechanism detached.

Similar letters and figures of reference refer to similar parts throughout the several views.

In the drawings, A represents the leveling-roll, B represents the shoe-supporting jack, and C represents a disk or wheel mounted upon the main shaft D of the machine and carrying the cam-paths *c* and *c'*, which by suitable connections act to change the relative longitudinal position and lateral inclination of the roll and jack, so that the roll A, which is given a short vibratory motion by the crank-wheel E and suitable connections, will properly contact with the sole to perform the leveling operation.

The machine of the drawings being, except as hereinafter pointed out, substantially the same in the form and arrangement of its parts as the machine shown and described in Letters Patent of the United States No. 540,223, issued May 28, 1895, to E. E. Winkley and B. Phillips, a detailed description of such parts as do not in themselves form any part of the present invention is not deemed necessary herein, and the foregoing brief description is given merely for the purpose of more clearly

explaining the connection of my present invention therewith.

In the machine of the drawings the leveling-roll A is mounted in a laterally-rocking roll-carrier a , which is mounted in a vertically-tipping roll-carrier bed a' , substantially as shown in said Letters Patent.

I also prefer to retain a portion of the pressure mechanism of said patented machine, and the present drawings illustrate the frame D' , comprising the upper cross-head or yoke d , located above and near the outer end of the roll-carrier bed a' , the lower cross-head d^2 , and the parallel vertical rods d' on each side of the carrier-bed a' , connecting the yoke d with the lower cross-head d^2 . The drawings further illustrate the lower frame D^2 , comprising the upper cross-head d^3 , the lower cross-head d^4 , and their parallel connecting-rods d^5 , also the movable cross-head d^6 , movable along said rods d^5 and connected by a connecting-rod d^7 with the cross-head d^2 , also the coiled spring d^8 , coiled about the rod d^7 and bearing against the movable cross-head d^6 and the upper cross-head d^3 of the lower frame D^2 , also the threaded adjustment-bolt d^9 , having a correspondingly-threaded bearing in the yoke d , its lower end bearing upon the roll-carrier bed a' and carrying at its upper end the operating-wheel d^{10} , all of which parts may be and conveniently are similar to corresponding parts shown and described in said Letters Patent.

In said patented machine the lower cross-head d^4 of the frame D^2 is connected to a fixed portion of the machine, and the compression of the spring d^8 is varied, aside from the lifting action of the work on the roll, only by means of the adjustment-bolt d^9 , which is operated by the wheel d^{10} , which the operator must turn by hand. In accordance with the present invention I connect the lower cross-head d^4 of the frame D^2 with a vertically-swinging lever 2, preferably by means of a rod d^x , projected from the cross-head d^4 and pivoted upon a stud 2^x , laterally projected from the lever 2. The lever 2 is pivotally supported at 3 on a suitable stud or boss laterally projected from the frame of the machine. The lever 2 carries adjacent to its inner end a cam-roll 4, which is acted upon by a cam 5, which is mounted upon and rotates with the shaft D, the rotation of the cam 5 by means of the cam-roll 4 imparting to the lever 2 a vertically-swinging movement. The cam 5 is preferably a peripheral cam, and the cam-roll 4 is held in contact therewith by the action of spring d^8 .

The above-described arrangement is such that when the lever 2 is depressed it compresses spring d^8 and brings an increased pressure upon the roll A, and when the lever 2 is allowed to rise it allows the spring d^8 to expand and thereby diminishes the pressure exerted by the springs d^8 on the roll A.

The timing of cam 5 can be best understood by a description of the operation of the

machine, which in so far as it is material to the present invention is as follows: A shoe being placed upon jack B and the machine set in operation, the toe of the shoe is first presented to the roll, and as the toe is a relatively lower portion of the sole and exerts little lifting action on the roll A the cam 5 immediately acts to compress the spring d^8 , so that sufficient pressure will be obtained to properly level the toe as the roll passes off the toe onto the ball portion of the sole, which is commonly the higher part of the sole, the lifting action of the work on the roll A tending of itself to compress spring d^8 and increase the pressure. The further rotation of the cam 5 allows the lever 2 to rise and the spring d^8 to expand to prevent an undue increase of pressure, which in styles of shoes having a very high ball would tend to injure the shoe. As the roll A passes off the ball onto the shank a further rotation of the cam 5 again depresses lever 2 and compresses spring d^8 to compensate for a lack of compression by the lifting action of the work and preferably to give an increased pressure to more quickly bring down the shank to the proper contour, the proper shaping of the shank being, as before stated, the most difficult part of the leveling operation. As the roll A returns to the ball portion of the shoe the cam 5 again allows the lever 2 to rise and depress it again at the toe, and the machine stops with the cam 5 in position to recommence the operations above noted.

By changing the form of cam 5 the above operation may be varied as desired.

In case of a machine comprising a plurality of jacks and rolls the mechanism described herein may be duplicated.

Having thus described my invention and its mode of operation, I desire to say that in so far as I am advised of the art I am the first to ever propose in machines of this class automatic means for regulating the pressure mechanism during the leveling operation. I do not therefore consider the present invention as limited to the details of mechanism herein shown and described nor to its application to the machine of the drawings; but

I claim as broadly novel and desire to secure by Letters Patent of the United States—

1. In a sole-leveling machine, the combination with a leveling-roll and jack and their actuating mechanism, of means for securing pressure on the roll, and connected mechanism operating automatically upon the pressure-securing means to regulate the same during the leveling operation, substantially as described.

2. In a sole-leveling machine, the combination with a leveling-roll and jack and their actuating mechanism, of a spring arranged to secure pressure of the leveling-roll and means for automatically regulating the tension of said spring, substantially as described.

3. In a sole-leveling machine, the combination with a leveling-roll and jack, of a carrier

for the leveling-roll, a spring secured at one
end to said carrier, a lever to which the other
end of the spring is secured and automatic
means to actuate said lever to regulate the
5 tension of the spring, substantially as de-
scribed.

4. In a sole-leveling machine, the combina-
tion with a leveling-roll and jack, of means to
impart thereto relative longitudinal move-
10 ments, a swinging carrier for said leveling-

roll, a lever, a cam for actuating said lever,
and a spring connection between the leveling-
roll carrier and said lever, substantially as
described.

In testimony whereof I affix my signature 15
in presence of two witnesses.

ERASTUS E. WINKLEY.

Witnesses:

THOMAS H. ANDERSON,
BENJAMIN PHILLIPS.