

(No Model.)

2 Sheets—Sheet 1.

E. C. JUDD.
SOLE LEVELING MACHINE.

No. 543,385.

Patented July 23, 1895.

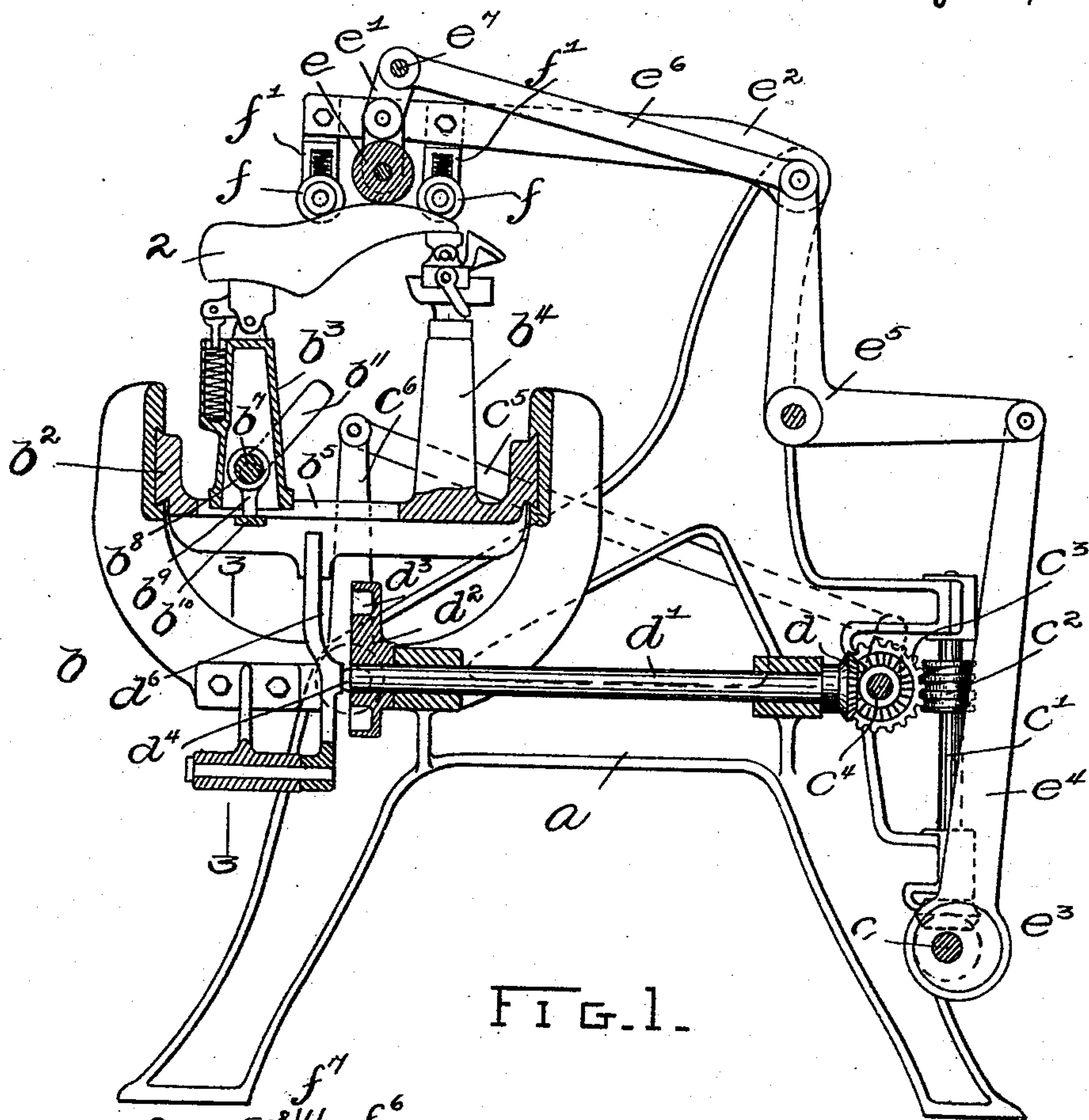


FIG. 1.

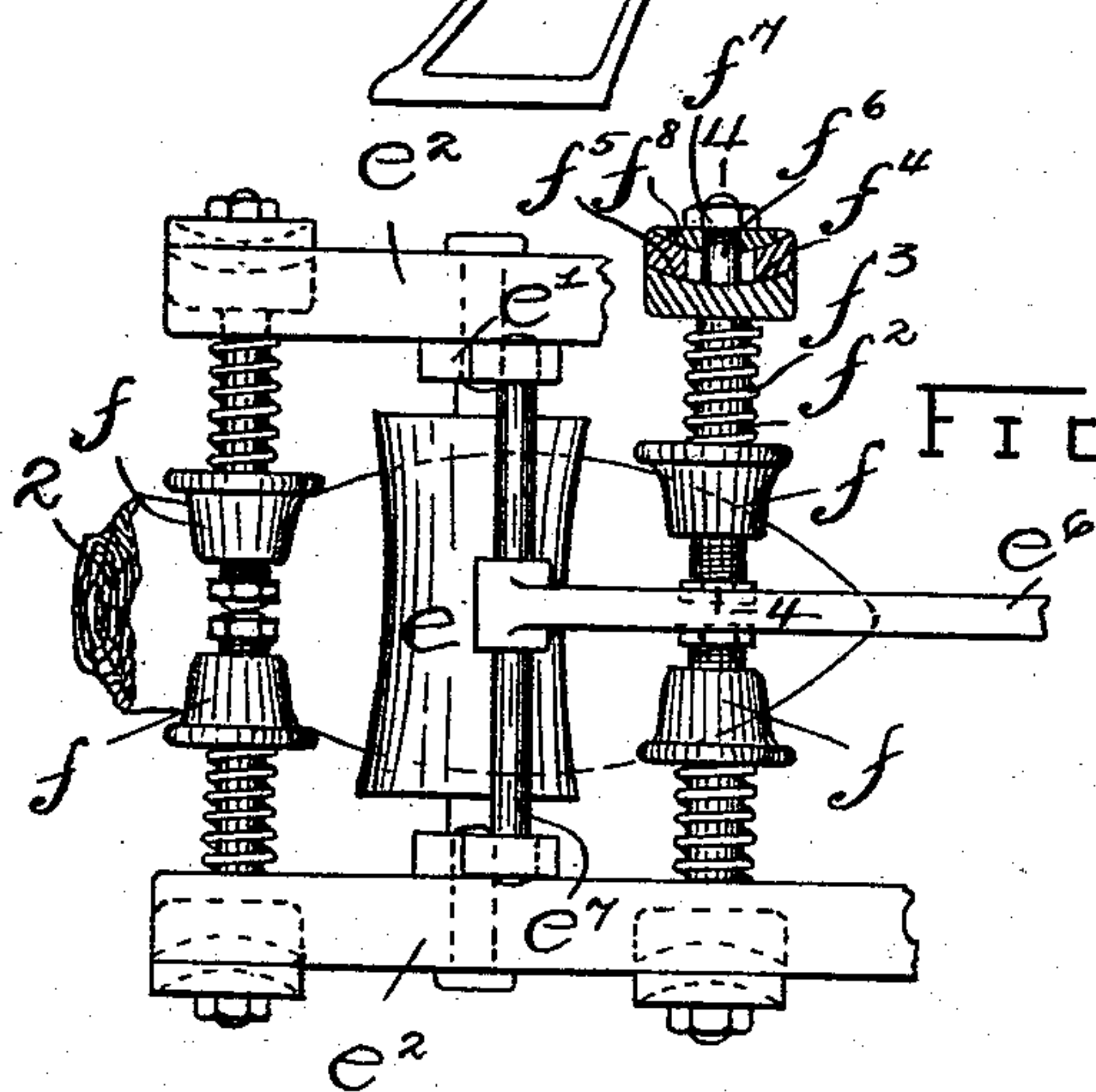


FIG. 2.

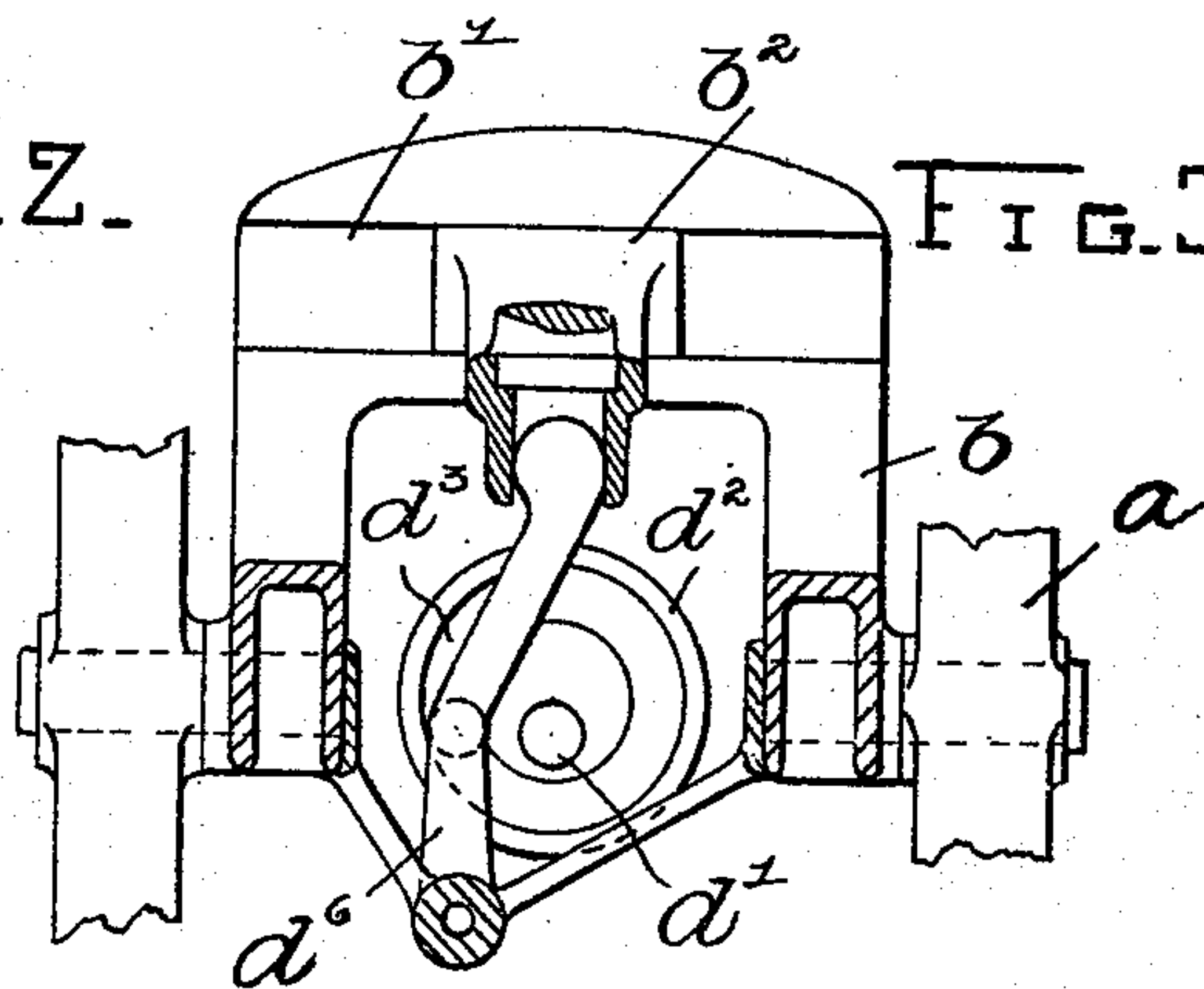


FIG. 3.

WITNESSES:

A. D. Harrison.
 Parker Davis

INVENTOR:

by E. C. Judd
Wm. Brown & Co.
J. H. W.

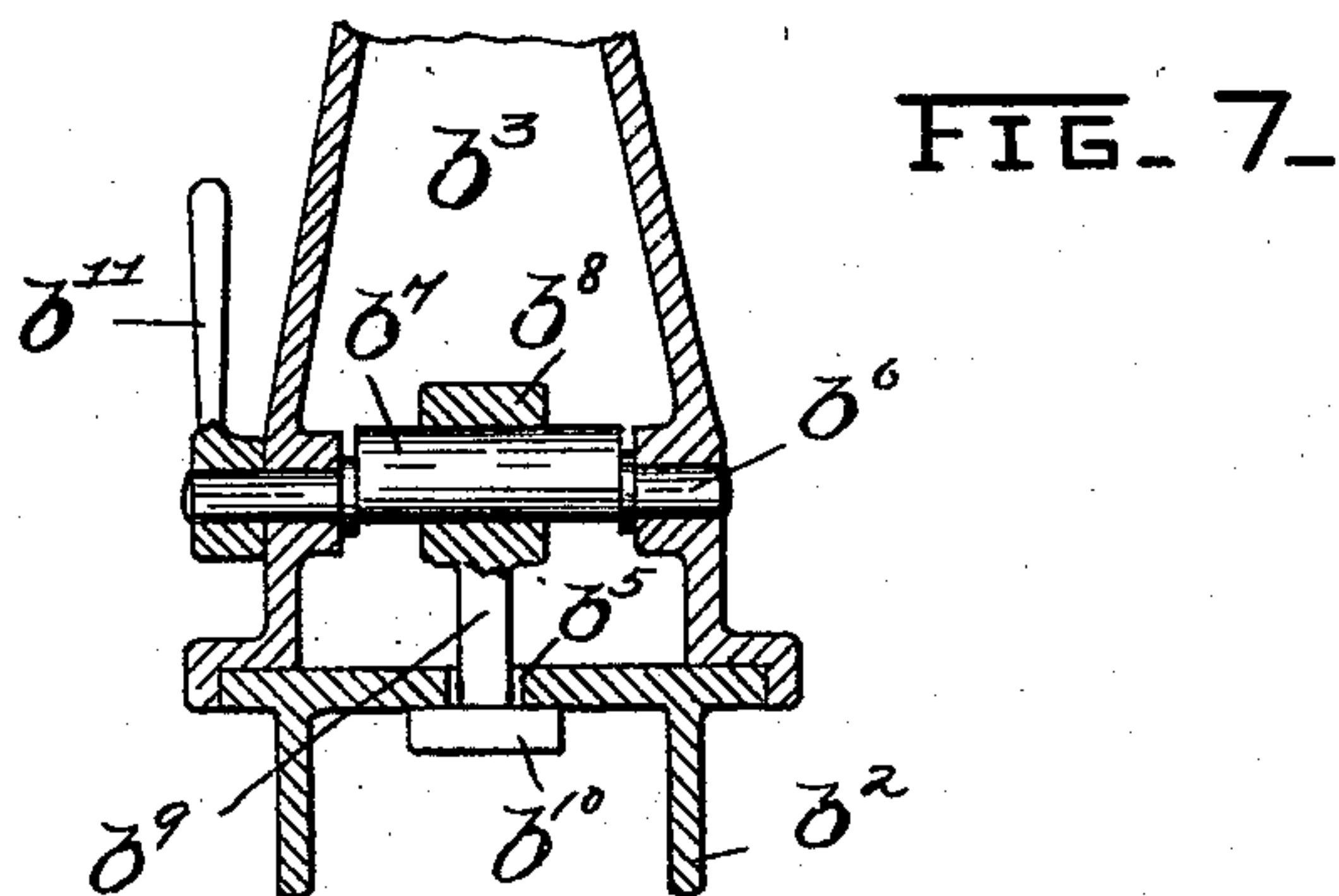
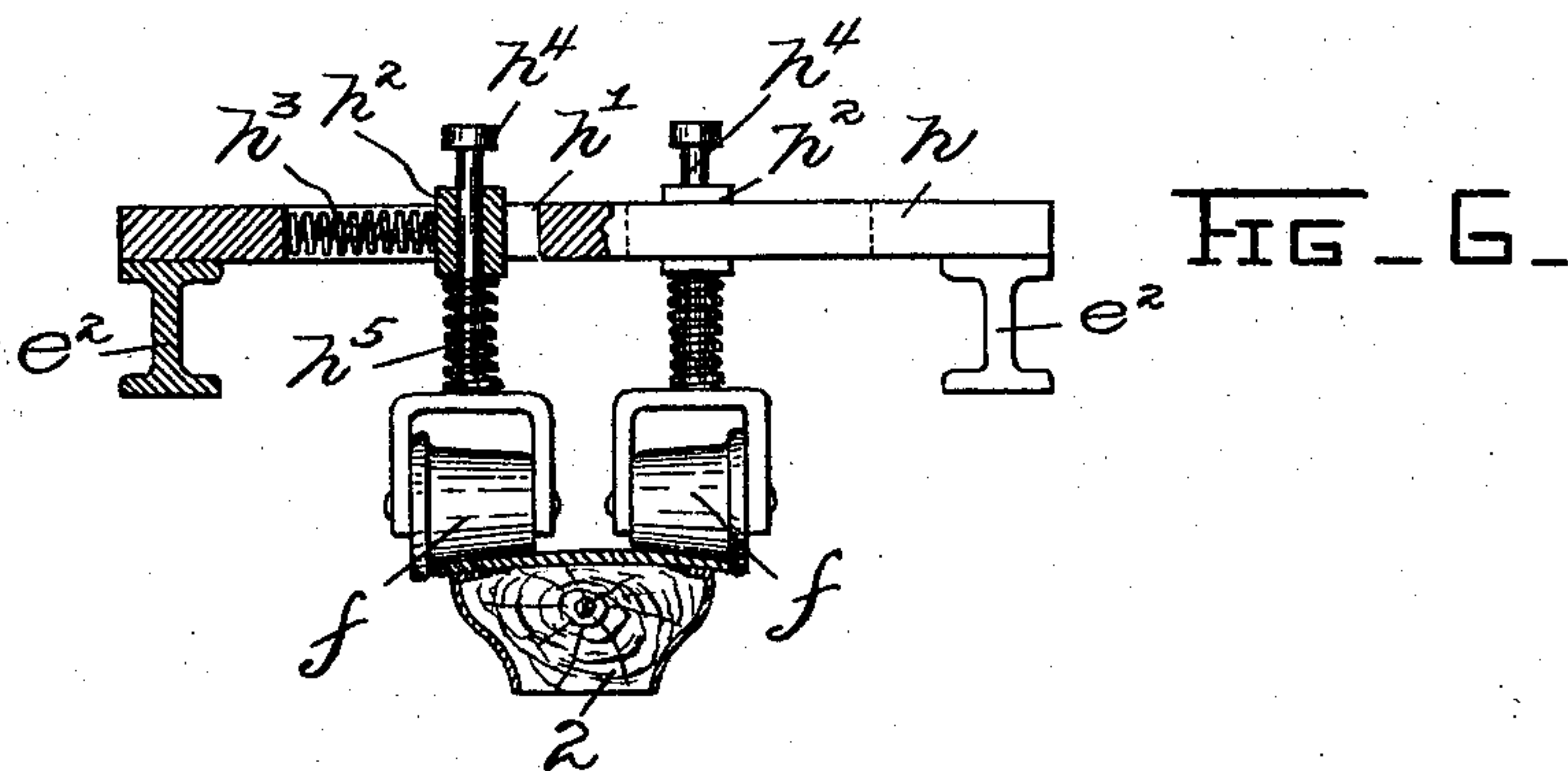
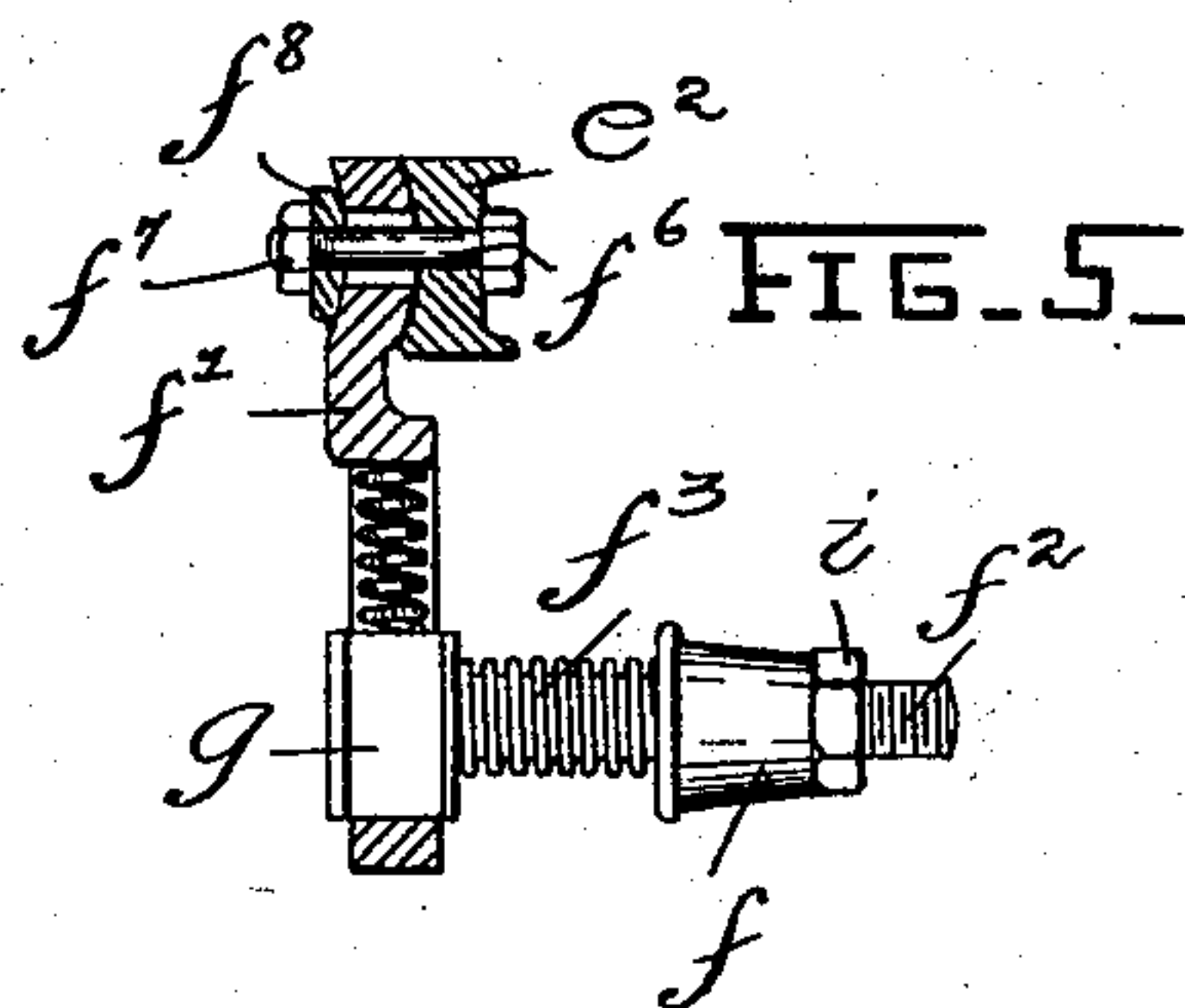
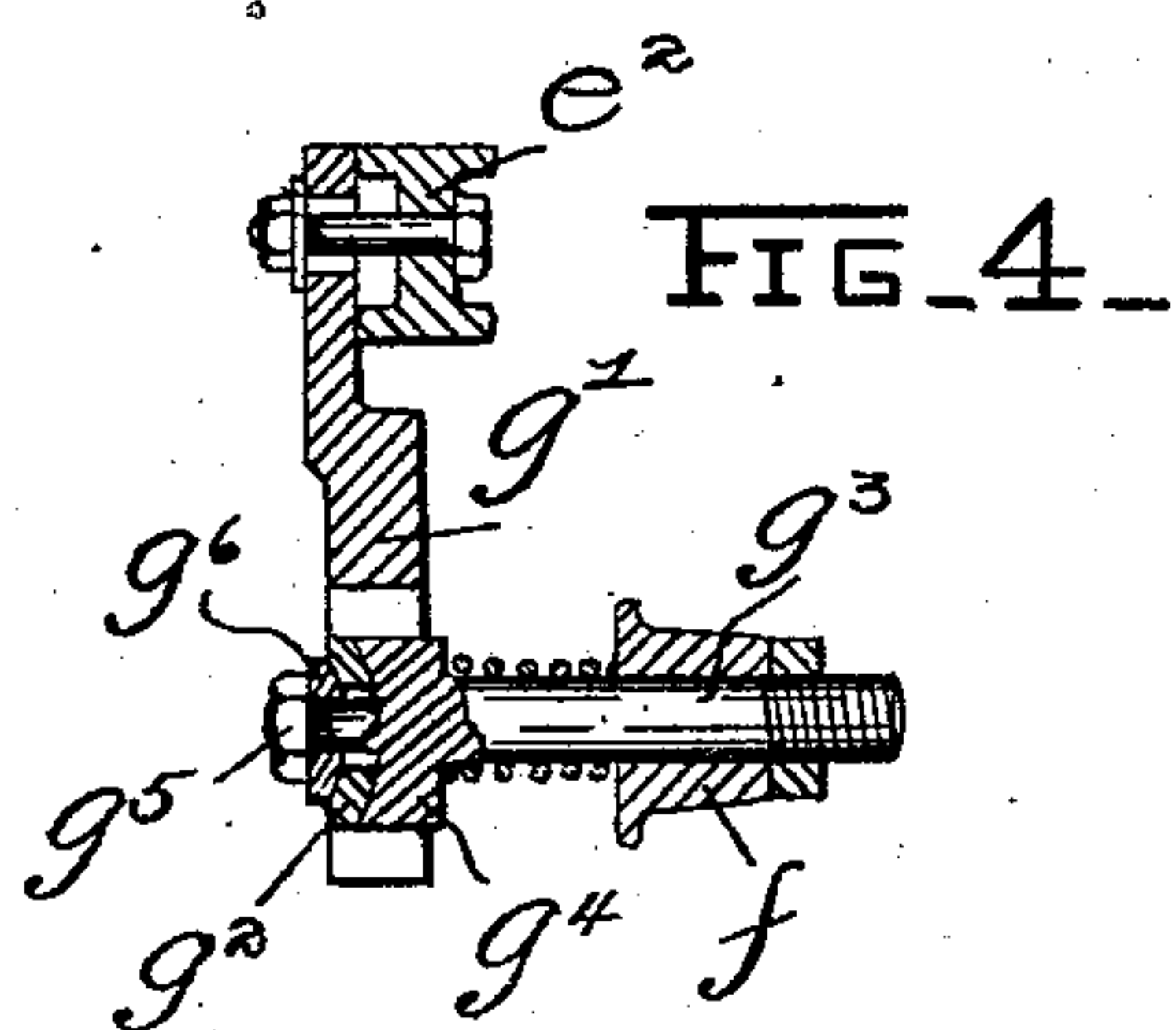
(No Model.)

2 Sheets—Sheet 2.

E. C. JUDD.
SOLE LEVELING MACHINE.

No. 543,385.

Patented July 23, 1895.



WITNESSES:

A. D. Harrison.

Charles Wares

INVENTOR:

E. C. Judd.

Wm. Brown & Co.
Atty

UNITED STATES PATENT OFFICE.

EDWARD C. JUDD, OF BOSTON, MASSACHUSETTS.

SOLE-LEVELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,385, dated July 23, 1895.

Application filed October 9, 1893. Serial No. 487,619. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. JUDD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sole-Leveling Machines, of which the following is a specification.

This invention relates to sole-leveling machines employed in the manufacture of boots and shoes, and the principal object of the invention is to provide means for more effectually treating the marginal portions of the face of the sole than heretofore.

Another object is to provide an improved construction of jack for supporting the work and permitting the desired movements of the same.

To the above ends the invention consists in certain novel features of construction and combinations of parts, which will hereinafter be described and claimed.

Figure 1 shows a part side elevation and part sectional view of a machine constructed in accordance with the invention. Fig. 2 shows a top plan of the leveling-rolls, the supports for one of the side rolls appearing in section. Fig. 3 shows a section on line 3 3 of Fig. 1. Fig. 4 shows a section on line 4 4 of Fig. 2. Fig. 5 shows a similar view illustrating a modified construction. Fig. 6 shows another modification. Fig. 7 shows a detail sectional view of one of the standards which support the last, illustrative of means for adjusting the position of said standard longitudinally of the slide which supports it.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, the letter *a* designates the stationary supporting-frame of the machine, in which is pivotally mounted a yoke *b*, having slideways *b'*, which receive a slide *b²*, carrying standards *b³* *b⁴* for the last 2 to rest upon, the standard *b³* being adjustable longitudinally of the slide by reason of the following construction: The slide is provided with a longitudinal slot *b⁵*, and a rotatable rod *b⁶* is mounted in the standard *b³* and provided with an eccentric *b⁷*, engaged by a strap *b⁸*, which is formed integral with a bolt *b⁹*, engaging the slot *b⁵*, and having a head *b¹⁰* below the said slot.

The standard may be moved along the slide

and fastened at different adjustments by turning the rod *b⁶*, which is provided with a handle *b¹¹*. By this means adjustment for lasts of different lengths is secured.

The standards *b³* and *b⁴* are suitably constructed to receive and hold the last.

The parts above enumerated constitute the jack, and movements of the pivoted yoke and slide are brought about through means to be presently described.

The letter *c* designates the main driving-shaft, which is connected by bevel-gears with a vertical shaft *c'*, carrying a worm *c²*, which meshes with a gear *c³* on a counter-shaft *c⁴*. This counter-shaft carries a crank which is connected by a rod or pitman *c⁵* with an arm *c⁶* on the yoke *b*. Through this means the yoke is oscillated on its pivot. The counter-shaft *c⁴* is connected through bevel-gears *d* with a shaft *d'*, which carries at its front end a disk *d²*, having a cam-groove *d³* in its face and engaged by a roller *d⁴* on a lever *d⁶*, pivoted at its lower end to a bearing on the yoke *b* and engaging the slide *b²* at its upper end. Through these means the said slide is reciprocated in the ways *b'*.

The chief leveling-roll *e*, whose leveling-surface is preferably concave, as shown in Fig. 2, is supported in a pivoted carrier having arms *e'*, which are pivoted to a vertically-swinging frame composed of arms *e²*, whose rear ends are pivoted to the frame *a*. This leveling-roll receives an oscillatory motion through the following connections with the main driving-shaft *c*: An eccentric *e³* is affixed to said shaft and coacts with a pitman *e⁴*, which is jointed to one arm of a bell-crank lever *e⁵*, whose other arm is connected by a rod *e⁶* with a bar *e⁷*, connecting the arms *e'* and forming therewith a carrier for the roll *e*. In addition to supporting the chief leveling-roll *e* the arms *e²* also support auxiliary rolls *f*, of which there are here shown two pairs, located on opposite sides of the roll *e*. These auxiliary rolls, besides in assisting in leveling the sole, are designed to act on the marginal portions of the face of the sole and more effectively close the thread-channel than would otherwise be done, and in furtherance of this design are of substantially frusto-conical form (but this form of roll is not essential) with flanged bases. The flanges by

bearing on the edges of the sole constitute an important factor in closing the thread-channel. Each auxiliary roll is supported in the following manner: A standard f' , fastened to the arm e^2 , carries in a sliding spring-pressed box g at its lower end a stud f^2 , which projects inwardly and forms a bearing for the roll, permitting endwise movement of the same. A spring f^3 , mounted on the stud f^2 , acts against the roll and resists movement of the same toward the standard f' , thereby producing a constant endwise pressure of the roll on the sole. The amount of endwise play of the roll can be regulated by means of a nut i , screwed on the end of the stud. This endwise pressure causes a wiping action on the face and edge of the sole, which is very effective in closing down the lip turned up to form the thread-channel. At the same time the roll has a yielding downward pressure on the sole imparted to it by the spring which acts on the box g .

The roll-supporting stud may be adjusted to different angular positions through the following means: The portion of the standard f' which engages the arm e^2 is formed with a convex face f^4 , which engages a concaved seat f^5 in the said arm, and a bolt f^6 passes through the arm, its head bearing against the inner side of the arm and through a slot in the standard f' and carries a nut f^7 , bearing against a washer f^8 , which has a convex inner side in engagement with the standard. After loosening the nut f^7 the standard can be turned to bring the stud to the desired angular position and fastened by tightening the nut.

A modified construction for securing angular adjustment of the roll-supporting stud is illustrated in Fig. 5. The standard g' is adjustably secured to the arm e^2 by a bolt g^3 passing through a slot g^9 , and is formed near its lower end with a concavo-convex web g^2 .

The roll-supporting stud g^3 is formed with an enlargement g^4 , having a concave side, which engages the convex side of the web g^2 , and said stud has an end which extends through an enlarged opening in the web and is screw-threaded to receive a nut g^5 , a washer g^6 being interposed between said nut and the web and formed with a convex side to fit the concavity of the web. It will be observed that after loosening the said nut the stud can be adjusted to any angle desired and fixed by tightening the nut.

Fig. 6 illustrates another way of supporting the auxiliary rolls. A cross-bar h extends between the arms e^2 , and is provided in opposite sides of the center with two longitudinal slots h' , which are engaged by boxes h^2 , actuated toward the middle of the bar by springs h^3 . Stems h^4 extend vertically through said boxes and are arranged to slide therein, and said stems are bifurcated at the lower end and straddle the auxiliary leveling-rolls for whose trunnions the arms of their bifurcations constitute bearings. Springs h^5 on the stems

place a downward pressure in the rolls, while the springs h^3 press the rolls toward each other.

Besides their function of acting on the marginal portions of the sole the auxiliary rolls are useful in preventing the chief roll e from dropping off either end of the last, for while the said chief roll is working on the end portion of the sole a pair of auxiliary rolls bear on the sole behind the chief roll.

It is evident the construction here shown may be varied without departing from the spirit and scope of the invention, and that the invention is not therefore limited in this respect; but a single pair of side rolls could be used, and when two pairs are employed they could be located both on the same side of the chief roll, and not necessarily on opposite sides, as shown.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A sole-leveling machine, combining in its structure a jack, a vertically swinging frame or holder, a roll-carrier on the frame or holder, a leveling roll mounted on the carrier, and side rolls mounted on the frame or holder independent of the said roll-carrier.

2. A sole-leveling machine, combining in its structure a jack, a swinging frame or holder, a movable roll-carrier mounted on the frame or holder, a leveling-roll arranged on the said carrier, and yielding side rolls mounted in pairs on the swinging frame and the rolls of each pair having their axes substantially coincident.

3. A sole-leveling machine, comprising in its construction a jack, a vertically swinging frame or holder above said jack, a leveling-roll supported by the said frame or holder, and one or more pairs of side-rolls connected with the frame or holder on one side of the said leveling-roll, the axes of the two rolls of a pair being substantially in line with each other.

4. The combination of a jack, a vertically swinging frame or holder above said jack, a leveling-roll supported by said holder and side-rolls supported by said holder in position to bear on the marginal portions of the sole face, the said side-rolls being yieldingly supported whereby they are adapted to move endwise and follow the curves of the sole edge, as set forth.

5. The combination of a jack, a vertically swinging frame or holder above the jack, a leveling-roll mounted in a carrier which is pivotally connected with said holder, mechanism for oscillating said carrier to move the roll back and forth on the sole, and side-rolls supported by said holder as set forth.

6. The combination of a jack, a vertically swinging frame or holder above the jack, a leveling-roll supported by said holder, studs or bearings secured to the holder, independently-movable flanged side-rolls adapted to slide on said studs, and springs whereby said

rolls are yieldingly pressed inwardly, their flanges bearing against the edge of the sole as set forth.

5 7. The combination of a jack, a vertically-swinging frame or holder above the jack, a leveling-roll supported by said holder, vertically adjustable standards carried by the holder and auxiliary side-rolls carried by said standards.

10 8. The combination of a jack, a vertically-swinging frame or holder above the jack, a leveling-roll supported by said holder, standards adjustably secured to the holder, studs or bearings secured to said standards and ad-
15 justable therewith so that the studs may stand at different angles, and independently-mov-

able spring-pressed flanged side-rolls adapted to slide on said studs, as set forth.

9. A sole-leveling machine, comprising in its construction a pivoted yoke having slide- 20 ways, a slide fitting said ways and carrying last-supporting devices, and means for oscillating the yoke and reciprocating the slide.

In testimony whereof I have signed my name to this specification, in the presence of 25 two subscribing witnesses, this 5th day of October, A. D. 1893.

EDWARD C. JUDD.

Witnesses:

A. D. HARRISON,
F. PARKER DAVIS.