

(No Model.)

2 Sheets—Sheet 1.

A. B. FOWLER & G. E. WARREN.
HEEL BURNISHING MACHINE.

No. 452,345.

Patented May 12, 1891.

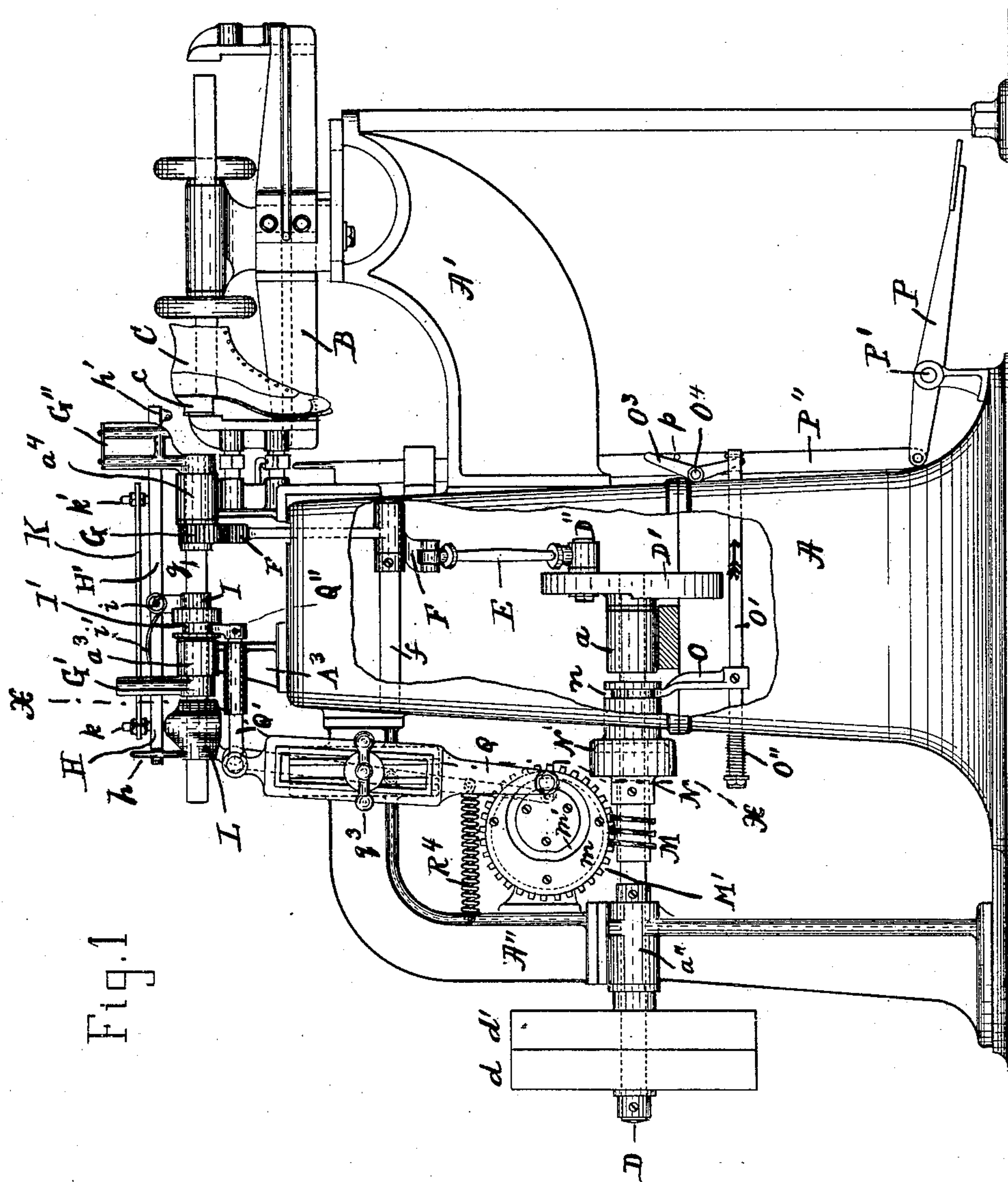


Fig. 1

Witnesses:

Geo. W. White
Alice A. Perkins

Inventors:

Alfred B. Fowler & George E. Warren
by *Alban Fredrick, atty.*

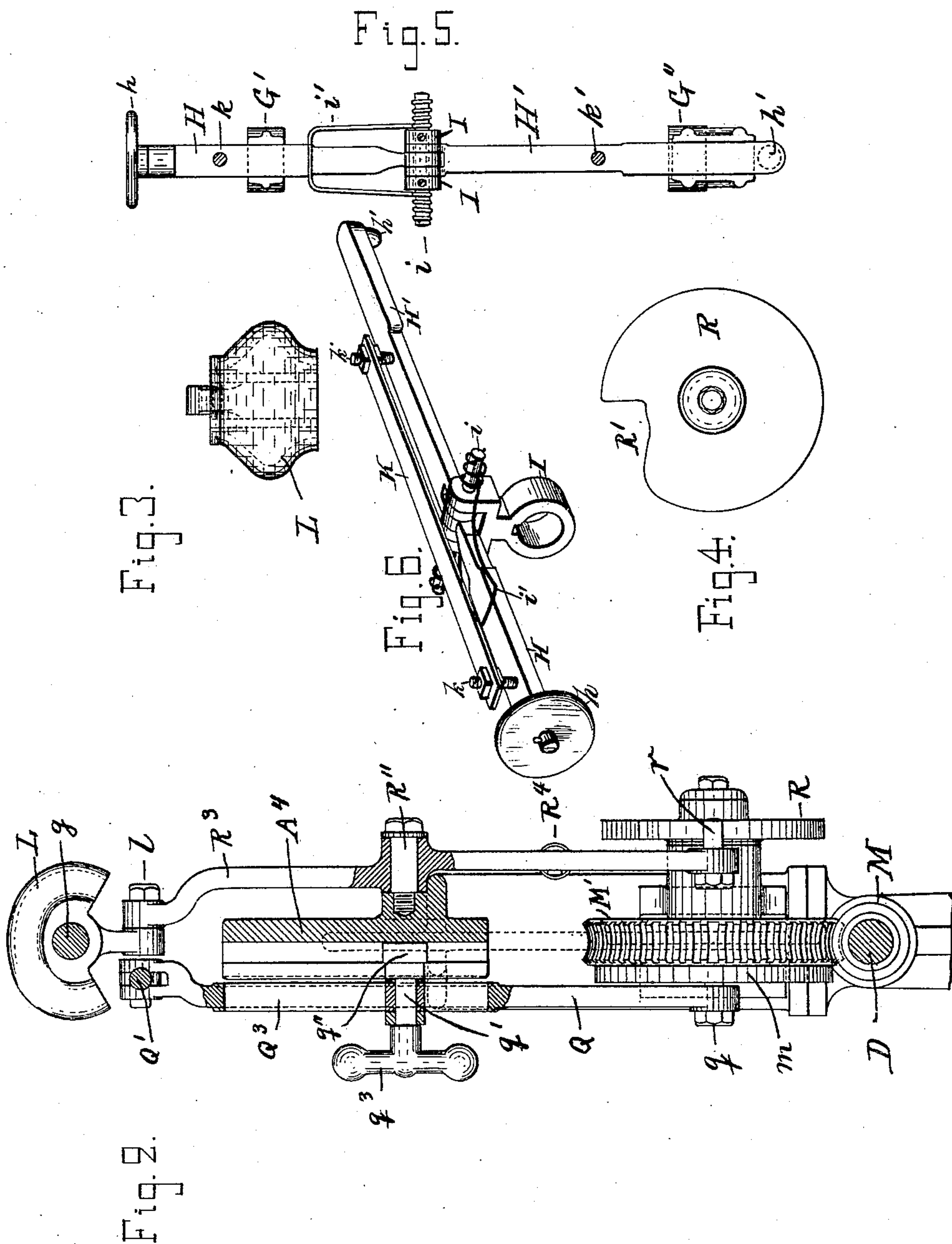
(No Model.)

2 Sheets—Sheet 2.

A. B. FOWLER & G. E. WARREN.
HEEL BURNISHING MACHINE.

No. 452,345.

Patented May 12, 1891.



Witnesses:

Geo. V. White
Alice A. Perkins

Inventors:

Alfred B. Fowler & George E. Warren
by Alban Spadrin atty

UNITED STATES PATENT OFFICE.

ALFRED B. FOWLER AND GEORGE E. WARREN, OF EXETER, NEW HAMPSHIRE, ASSIGNORS TO THE ROCKINGHAM MACHINE COMPANY, OF SAME PLACE.

HEEL-BURNISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 452,345, dated May 12, 1891.

Application filed October 16, 1890. Serial No. 368,293. (No model.)

To all whom it may concern:

Be it known that we, ALFRED B. FOWLER and GEORGE E. WARREN, both citizens of the United States, and residents of Exeter, in the county of Rockingham and State of New Hampshire, have jointly invented new and useful Improvements in Heel-Burnishing Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in heel-burnishing machines, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the machine, partly shown in section. Fig. 2 represents an enlarged detail section on the line X X shown in Fig. 1. Fig. 3 represents a top view of the cam for regulating the pressure of the burnishing-tool on the heel. Fig. 4 represents a side elevation of the cam by means of which the pressure-regulating cam is longitudinally moved. Fig. 5 represents a detail plan view of the jointed pressure and tool-carrying levers, and Fig. 6 represents a perspective view of the jointed levers and the sleeve to which they are pivoted.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

A is the frame or standard of the machine, as usual, having secured to its front portion a bracket A', on which is arranged a suitable jack B, having devices for securing to it a shoe C, the heel *c* of which is to be burnished. The jack may be a single or duplex one, as may be desired, and the mechanism for clamping and securing the shoe in position on such jack may be made in any suitable or well-known manner without departing from the essence of our invention.

A'' is a rear standard secured in a suitable manner to the main frame or standard A, as shown in Fig. 1. D is the driving-shaft, journaled in bearings *a a''* and provided with fast and loose pulleys *d d'*, as is common in machinery of this kind. A rotary motion is imparted to the shaft D by belt power, as usual, and a suitable belt-shipper is to be used in connection with the pulleys *d d'* for the pur-

pose of slipping the belt from one to the other pulley, as usual. Such belt-shipper, however, is not represented in the drawings.

To the forward end of the driving-shaft D is secured a disk D', provided with a crank-pin D'', to which is pivoted the lower end of a connecting-rod E, having its upper end pivoted to the lower arm or lever F' on a toothed segment F, that is journaled on the pin or shaft *f*, as shown in Fig. 1. The teeth of the segment-gear F mesh in the teeth of a pinion G, secured to the rock-shaft *g*, that carries the burnishing-tool, and by this arrangement a rocking motion is imparted to said shaft *g* from the driving-shaft D for the purpose of oscillating the burnisher-tool from breast to breast of the boot or shoe heel. The shaft *g* is journaled in stationary bearings *a³ a⁴*, preferably secured to the top of the standard A. To the rock-shaft *g* are secured forked arms G' and G'', in which are guided, respectively, the pressure and tool-carrying levers H and H', which are pivoted to a hub or tool-carrying sleeve I at *i*, as shown in Figs. 1 and 5.

The sleeve I is splined upon the shaft *g* and is longitudinally adjustable thereon for the purpose of carrying the burnisher-tool *h'* (that is secured to the forward end of the lever H') from the top lift to the heel-seat of the heel during the operation of burnishing the latter. To the jointed levers H and H' is secured a flat or leaf spring K by means of the respective adjustable set-screws *k k'*, or in any other suitable or equivalent manner. The leaf-spring extends or spans over the jointed portions of the levers, and since the ends of the spring connect, respectively, with said levers H H' it will be obvious that the motion of one lever is yieldingly imparted to the other.

On the rear end of the shaft *g* is loosely journaled the heel-former or cam L, and against its curved surface is guided and brought to bear a small wheel or roller *h*, journaled on the rear end of the lever H, as shown in Figs. 1 and 5.

i' is a spring attached to the sleeve I and adapted to bear against the top of the lever H for the purpose of holding the wheel or roller *h* in contact with the heel-former L, as

shown in Fig. 1. The curvature of the cam or former L in a longitudinal direction is the reverse of the longitudinal curvature of the heel—that is, where the heel is concave the cam is convex, and vice versa. In a lateral direction the curvature of said cam corresponds inversely to the curvature of the heel to be burnished.

By moving the jointed levers H H' in a longitudinal direction the wheel *h* will be guided on the cam L, and thus cause the burnisher-tool *h'* to be fed from the top lift to heel-seat of the heel, and held in contact with the latter with a uniform pressure, which may be regulated by adjusting the tension of the spring K. During such feed motion of the burnisher-tool it is also oscillated from breast to breast of the heel by the mechanism herein above described.

The mechanism for automatically feeding the burnisher-tool from the top lift to the heel-seat of the heel is constructed and arranged and follows: On the driving-shaft D is loosely mounted a worm M, to which is secured, preferably, one section N of a friction-clutch, adapted to be engaged, preferably, by the other section N', which is splined on the shaft D and capable of longitudinal adjustment thereon, as is common in section devices. The clutch N' has an annular groove *n* on its hub adapted to receive the upper end of a shipper-arm O, secured to a rod O', adapted to slide in stationary bearings and provided with a spring O'', by means of which the clutch-sections N N' are normally coupled together, as shown in Fig. 1. For the purpose of disconnecting the section N' from the section N a treadle-lever P is made use of, which lever is pivoted at P' and has connected to its inner end a rod P'', on which is a pin or projection *p*, adapted to come in contact with a lever O³, pivoted to the standard A at O⁴, and having one of its ends connected to the shipper-rod O', by which arrangement the latter is caused to move in the direction shown by arrow in Fig. 1, when the treadle-lever P is depressed, thereby causing the section N' to be disconnected from the section N, and thus stopping the rotation of the worm M. The said worm M meshes in the teeth of a worm-wheel M', the shaft of which is journaled in a stationary bearing attached to the standard A'' or other stationary part of the machine. To one side of the said worm-wheel M' is secured or made in one piece a cam-disk *m*, having a cam-groove *m'*, adapted to receive a pin or pin and roll *q* on the lower end of a lever Q, the upper end of which is connected to a rod Q', adapted to slide in a bearing A³, secured to the upper end of the standard A, as shown in Fig. 1, said rod having a projection Q'', fitting into a portion of an annular groove I' on the sleeve I, to which the levers H H' are jointed. The lever Q is adjustably pivoted to a vertically-grooved portion A⁴ of the standard A'' for the purpose of adjusting the feed of the bur-

nisher-tool according to the height of the heel, and for this purpose a slot Q³ is made in said lever Q, in which is adjustable the pivot-bolt *q'*, the inner end of which is provided with a head *q''*, adapted to be adjusted up and down in the grooved block A⁴, and secured in position by means of a nut or handle *q³*, as shown in Figs. 1 and 2.

For the purpose of automatically raising the burnisher-tool *h'* above the heel of the boot or shoe after it is burnished, so as to enable the shoe to be removed from the jack and replaced by another, we make use of the following automatic mechanism: To the shaft of the worm-wheel M' is secured a circular disk R, (shown in Figs. 2 and 4,) having a recess R' on its periphery, as shown in Fig. 4. To the standard A'' or its block or portion A⁴ is pivoted at R'' a lever R³, having a pin or pin and roll *r* in its lower end, adapted to bear against the periphery of the disk R by the influence of a spring R⁴, one end of which is attached to the standard A'' and the other end to the lever R³. The upper end of the said lever R³ is pivoted to the heel-former or cam L at *l*, as shown in Fig. 2, by which arrangement the cam or heel-former L is moved once during the revolution of the disk R to the position shown in Fig. 1, at which time the pin *r* is forced by the spring R⁴ into the recess R', and the wheel or roller *h* forced and held by the spring *i'* against a reduced portion of said former L or against the shaft *g*, thus tipping the levers H H' so as to raise the burnisher-tool *h'* above the boot or shoe heel, as shown in Fig. 1, to permit the burnished shoe to be removed and replaced by another. The rod P'', when in its normal position, is adapted to lock and hold the jack in a stationary position, as is common in burnishing-machines of this kind.

The operation of the machine is as follows: The tool being withdrawn, as described, a shoe is secured in position in the jack and the feed mechanism of the burnisher-tool is started by relieving the pressure on the treadle-lever P, causing the cam *m m'* on the worm-wheel shaft, acting upon the lever Q, to move the former or cam L backward, and thereby bringing the tool *h'* in contact with the heel, preferably at its top-lift portion, and the tool is oscillated and fed to the heel-seat and back to its starting-point, when it is automatically withdrawn from contact by the action of the lever R³ and its spring R⁴. Pressure upon the treadle-lever releases the jack and stops the feed-motion, when the shoe may be removed and another one put in its place.

Having thus fully described the nature, construction, and operation of our invention, we wish to secure by Letters Patent and claim—

1. In a burnishing-machine, the combination of an oscillating shaft, a sleeve movable along the length of the shaft and oscillating therewith, a former or cam, and a pair of spring-pressed levers pivoted to said sleeve

and oscillating with the shaft, one of said levers having a roller or wheel acting on the former or cam and the other having a burnishing-tool, substantially as described.

5 2. In a burnishing-machine, the combination of an oscillating shaft, a former or cam, and a pair of jointed spring-pressed levers oscillating in unison with the shaft and movable longitudinally independently of the said shaft,
10 one of said levers having a roller or wheel acting on the former or cam and the other lever having a burnishing-tool, substantially as described.

15 3. In a burnishing-machine, the combination of an oscillating shaft, a former or cam, a pair of jointed levers oscillating with the shaft and movable lengthwise independently of the latter, and a leaf-spring extending across the joint of the levers and connected
20 to the latter, one of said levers having a roller or wheel acting on the former or cam and the other lever having a burnishing-tool, substantially as described.

4. In a burnishing-machine, the combination of an oscillating shaft, a former or cam, 25 a sleeve turning with and movable along the length of the shaft, a pair of spring-pressed levers jointed to the sleeve and one carrying a roller or wheel acting on the former or cam and the other carrying a burnishing-tool, a 30 main drive-shaft, and devices actuated by the shaft for oscillating the sleeve-carrying shaft and moving the sleeve along the length thereof, substantially as described.

In testimony whereof we have signed our 35 names to this specification, in the presence of two subscribing witnesses, on this 16th day of August, A. D. 1890.

ALFRED B. FOWLER.
GEORGE E. WARREN.

Witnesses:

MYRTLE DOLLOFF,
HARRY H. TAYLOR.