

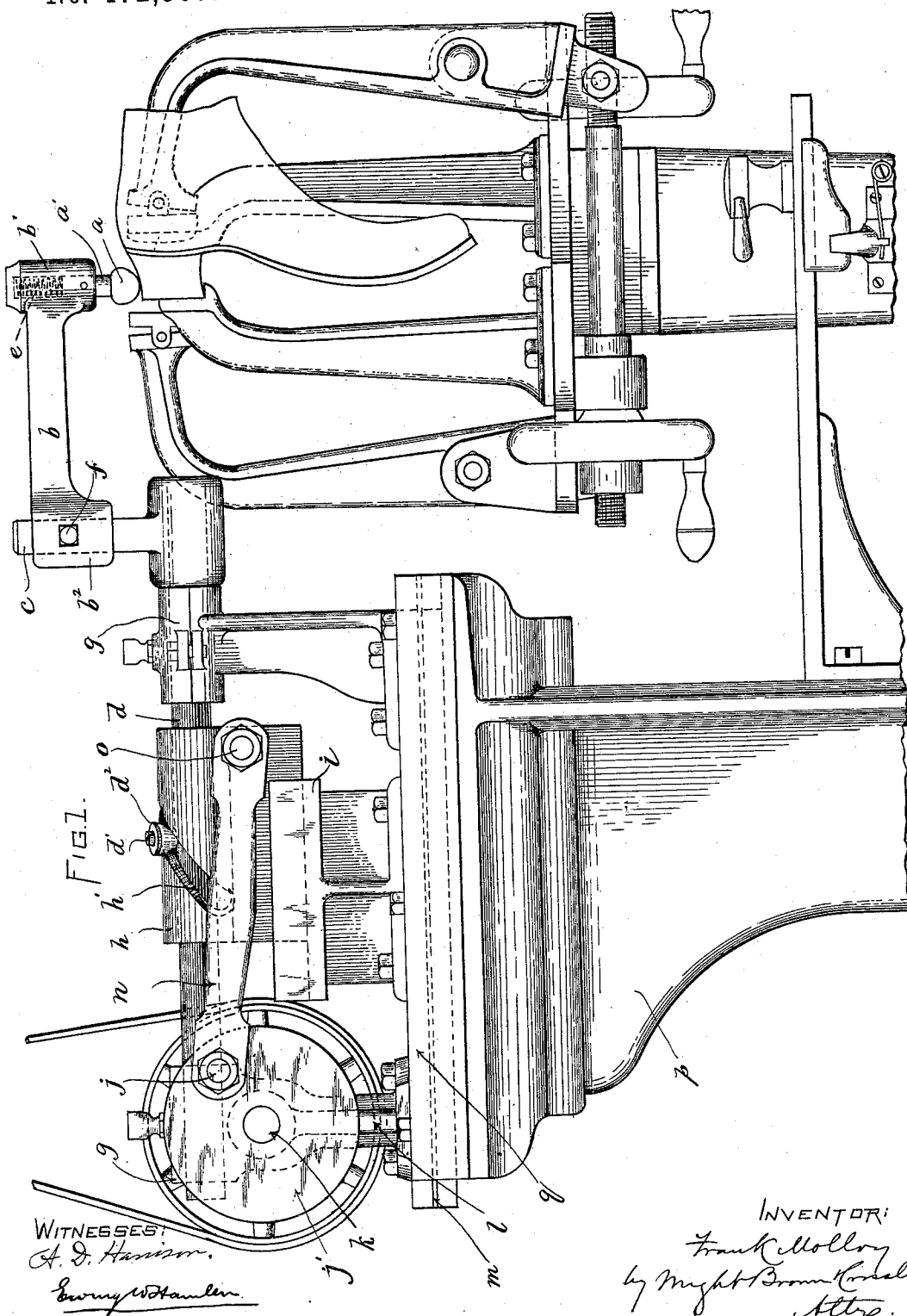
(No Model.)

4 Sheets—Sheet 1.

F. MOLLOY.
HEEL BURNISHING MACHINE.

No. 472,307.

Patented Apr. 5, 1892.



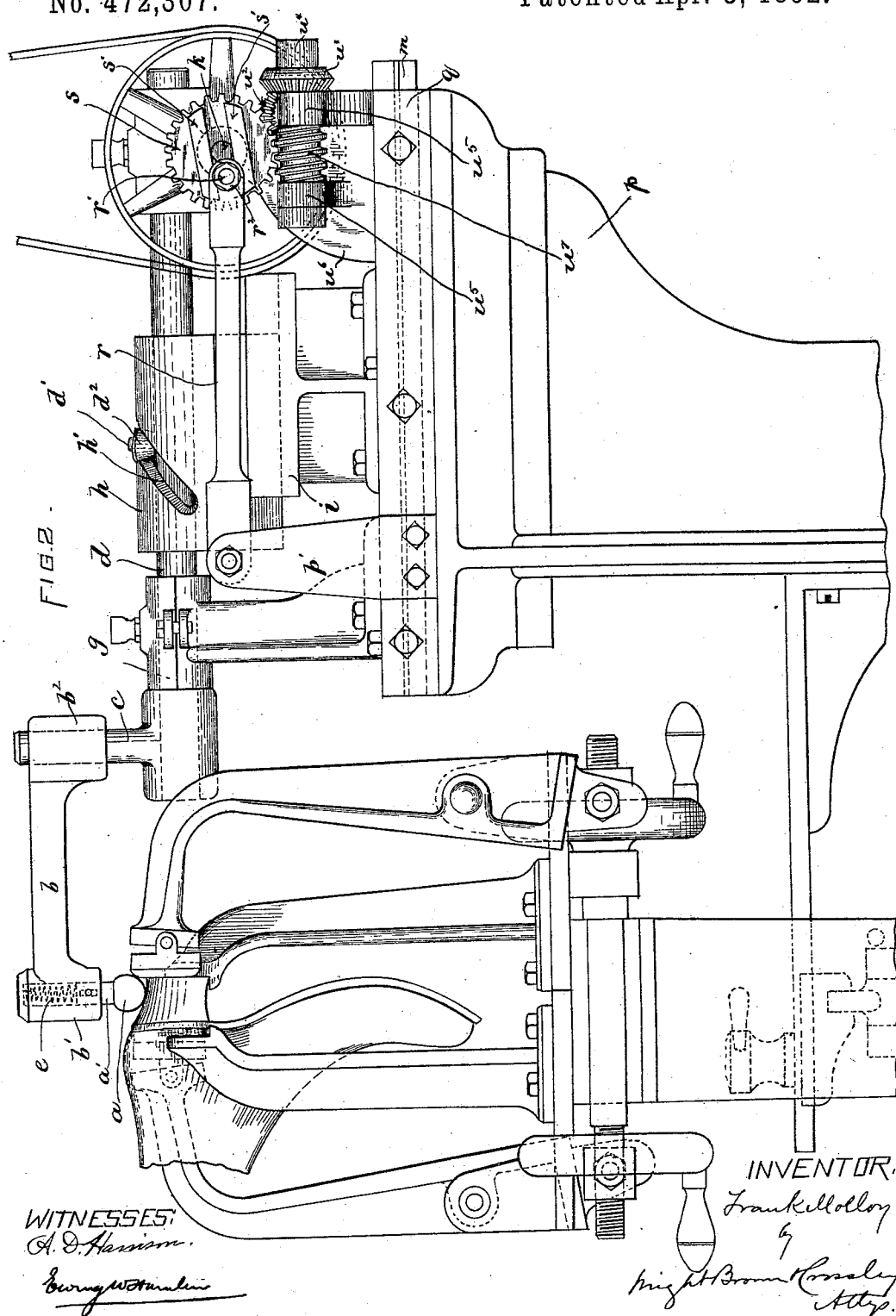
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FIG. 3.

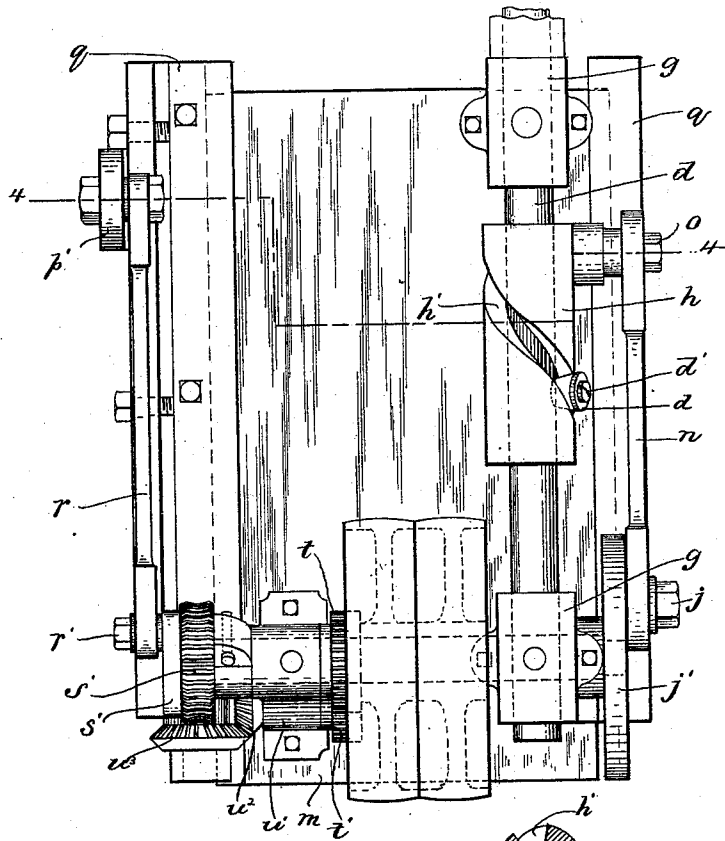
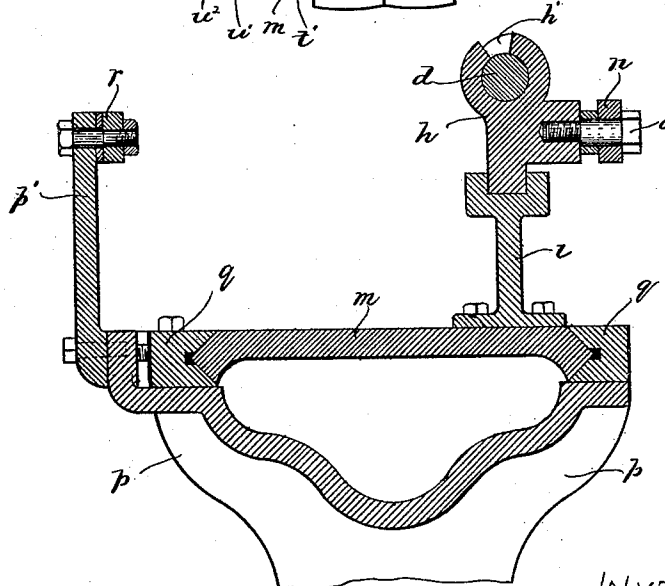


FIG. 4.



WITNESSES:

A. D. Harrison.

Erving W. Hamlin

INVENTOR:

Frank Molloy
By Wright & Brown, Attys.

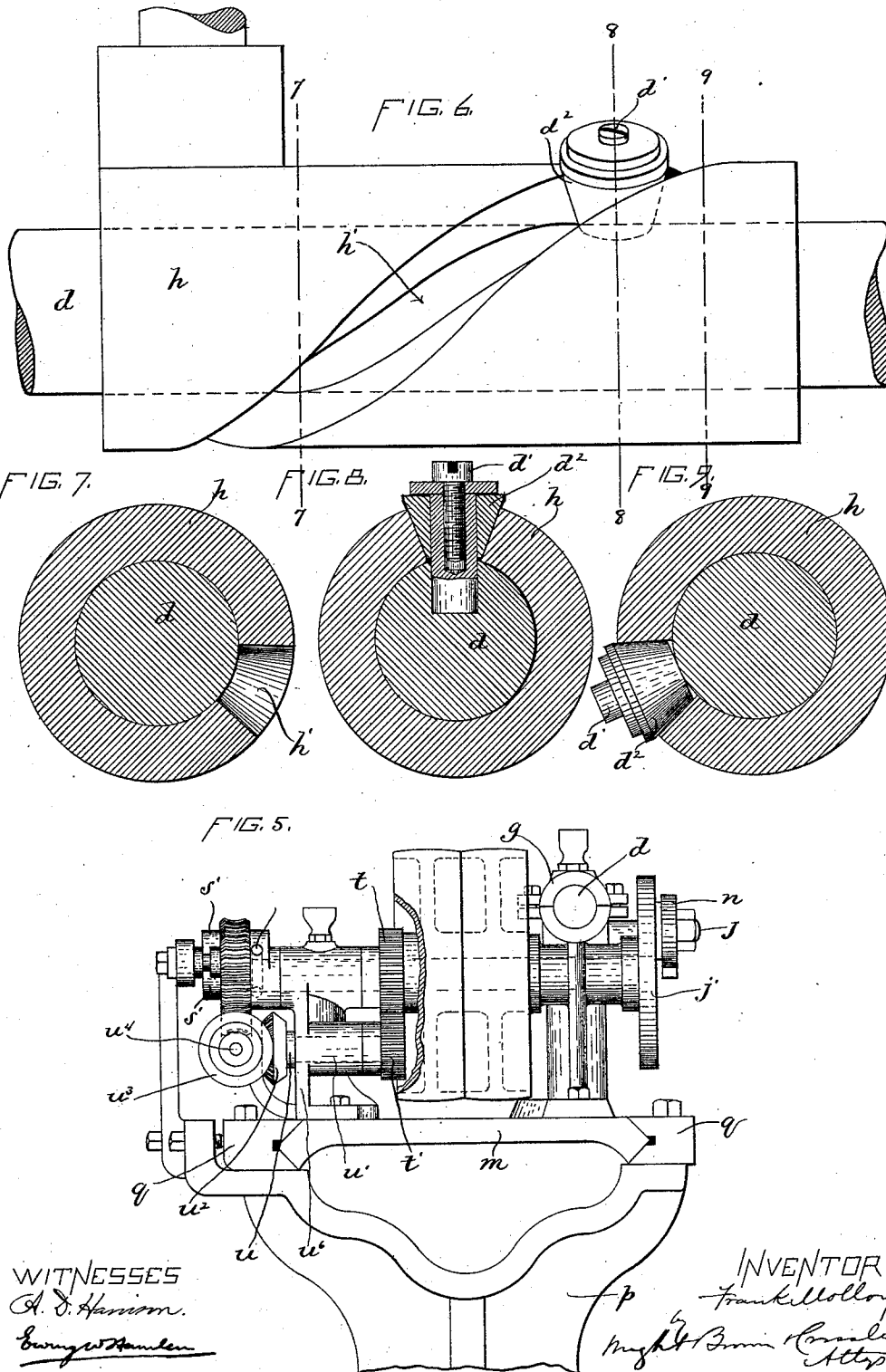
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No. 472,307.

Patented Apr. 5, 1892.



UNITED STATES PATENT OFFICE.

FRANK MOLLOY, OF HAVERHILL, MASSACHUSETTS, ASSIGNOR OF ELEVENTWENTIETHS TO ADRIANCE S. DINSMORE AND WINFIELD S. PETERS, OF SAME PLACE.

HEEL-BURNISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,307, dated April 5, 1892.

Application filed March 3, 1891. Renewed February 23, 1892. Serial No. 422,367. (No model.)

To all whom it may concern:

Be it known that I, FRANK MOLLOY, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Heel-Burnishing Machines, of which the following is a specification.

This invention has for its object to provide a simple and efficient machine for burnishing the heels of boots or shoes; and it consists in the several improvements which I will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a heel-burnishing machine constructed in accordance with my invention. Fig. 2 represents an elevation of the opposite side of the same. Fig. 3 represents a top view of a portion of the machine. Fig. 4 represents a section on line 4 4, Fig. 3. Fig. 5 represents an end view of the portion of the machine shown in Fig. 3. Fig. 6 represents a top view of the sleeve which rocks or oscillates the shaft carrying the burnishing-tool. Figs. 7, 8, and 9 represent sections on lines 7 7, 8 8, and 9 9, respectively.

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

My invention relates to the type of heel-burnishing machines in which the heel to be burnished is held in a fixed position and the burnishing-tool is oscillated about the heel, moving from the corner of the breast at one side around the heel to the corner of the breast at the opposite side back and forth, and during said movement is moved progressively in a lateral direction, so that its burnishing action may commence at one end of the heel, as at the top lift, and extend gradually and automatically to the opposite end, as the heel seat or rand.

In the drawings, *a* represents the burnishing-tool, the shank *a'* of which is fitted to move lengthwise in a socket *b'*, formed on an arm *b*, which is affixed to an arm *c*, projecting laterally from a horizontal shaft *d*. The burnishing-tool is normally pressed outwardly from the socket *b'* by means of a spring *e*, Fig. 1, so that it bears with a yielding press-

ure upon the heel to which it is presented. The arm *b* has a socketed sleeve *b²*, which receives the arm *c* and is attached thereto by means of a set-screw *f*. The arm *c* is rigidly affixed to the shaft *d*, and when said shaft is rocked in its bearings, as hereinafter described, the arm *c* and the tool-carrying arm *b*, together with the tool *a*, carried thereby, are oscillated, the tool being thus caused to move about the heel from breast to breast. The shaft *d* is journaled in bearings *g g* and is provided at a suitable point with a lateral stud or arm *d'*, on which is mounted a trundle-roll *d²*.

h represents a sleeve, which surrounds the shaft *d* and is adapted to move endwise thereon. Said sleeve is provided with a spiral slot *h'*, which receives the trundle-roll *d²*, said slot being of such width that its sides bear against diametrically-opposite points on the trundle-roll. The form of the slot *h'* is such that when the sleeve *h* is reciprocated on the shaft *d* the bearing of the sides of the slot on the trundle-roll causes the shaft *d* to rock or reversely rotate in its bearings.

i represents a guide, which is affixed to the same base *m* that supports the bearings *g g*. Said guide extends parallel with the shaft *d* and permits the sleeve *h* to reciprocate upon said shaft and at the same time prevents it from rotating with or upon the shaft. The sleeve *h* is reciprocated by means of a wrist-pin *j* on a disk *j'*, affixed to the driving-shaft *k*, which is journaled in bearings in a bracket *l*, mounted on the supporting-base *m*, and a pitman *n*, connecting the wrist-pin *j* with a stud or pin *o*, affixed to the sleeve *h*. It will be seen that the rotation of the shaft *k* and disk *j'* causes a reciprocating movement of the sleeve *h* through the wrist-pin *j* and pitman *n*, said reciprocating movement being converted into a reversely-rotating movement of the shaft *d* and an oscillating movement of the burnishing-tool.

The above-described means for converting reciprocating into oscillating or reversely-rotating motion constitute what is believed by me to be a new mechanical movement, which may be applied to other kinds of mechanism,

its use not being limited to heel-burnishing machines. Said means are the most simple and desirable of any of which I am at present aware for imparting an oscillating motion to a burnishing-tool. Hence I consider their use in a machine of this class highly desirable.

To give the burnishing-tool the progressive movement above indicated, whereby it is caused to move from one end of the heel to the other while oscillating about the heel, I make the base *m*, which supports the bearings of the shaft *d*, movable horizontally between fixed guides *q q* on a fixed support *p*. On said pedestal or support *p* is mounted a fixed arm *p'*, to which is pivotally connected one end of a pitman *r*, the other end of which is connected with an adjustable wrist-pin *r'*, secured to the outer face of a worm-gear *s*, which is loosely mounted upon the driving-shaft *k*, so that it is adapted to rotate independently of said shaft, the connection between said gear *s* and the shaft being shown in Fig. 5 as a pin *s'*, inserted in one of the bearings in which the driving-shaft rotates and entering a peripheral groove in a hub formed on the gear *s*. The gear *s* is supported by the shaft *k* only as a matter of convenience, and it may equally well be supported by an independent stud or bearing, the rotation of the shaft having no effect upon the gear *s*.

t, Figs. 3 and 5, represents a gear affixed rigidly to the shaft *k* and meshing with another gear or pinion *t'*, affixed to a short shaft *u*, which is journaled in a bearing *u'*, affixed to the sliding base *m*.

*w*² represents a beveled gear affixed to the shaft *u* and meshing with a like gear *w*³, affixed to a shaft *u*⁴, which is journaled in bearings *w*⁵ *w*⁶, formed on a bracket *u*⁶ on the sliding bed *m*. To the shaft *u*⁴ is affixed a worm *u*⁷, which meshes with the worm-gear *s*. The gears *t t' w*² *w*³ are so proportioned that they impart to the shaft *u*⁴ from the driving-shaft *k* a slow rotary movement, which is imparted by the worm *u*⁷ to the gear *s*. The rotation of the gear *s* causes a slow revolution of the wrist-pin *r'* thereon, and as said wrist-pin is connected by the pitman *r* with an immovable support—viz., the fixed bracket *p'*—it follows that the rotation of the gear *s* causes the sliding base *m*, together with all the mechanism carried thereby, including the shaft *d* and the burnishing-tool thereon, to reciprocate slowly in a direction lengthwise of said shaft, thus carrying the burnishing-tool slowly across the heel back and forth from the top-lift edge to the heel seat or rand edge as long as the machine continues in operation. It will be seen, therefore, that the tool is presented to all parts of the heel by the combined movements resulting from its oscillation about the heel and its progressive movement across the same.

It will be observed that the mechanism for giving the tool the progressive movement

across the heel is simple and effective and not liable to get out of order, the entire organized machine constituted as above described being as a whole simple and durable in its construction and efficient in its operation.

The jack which supports the boot or shoe may be of any suitable construction, and as I have not represented any construction of jack that is new with me I do not deem it necessary to describe the construction of jack here shown, as the same is well known.

The wrist-pin *r'* on the side of the gear *s* is adjustable toward and from the center of rotation of the said gear, so that its throw may be increased or decreased, thus varying the length of the reciprocating movement of the bed or slide *m*. To this end the wrist-pin is fitted between two guides *s' s'*, affixed to the outer side of the gear *s*, said guides being beveled or recessed at their inner edges to receive a corresponding head or enlargement on the inner end of the wrist-pin *r'*. The wrist-pin is provided with a nut *r*², which when loosened permits the wrist-pin to be adjusted between the guides *s' s'* and when tightened secures the wrist-pin rigidly to said guides.

It is obvious that the wrist-pin may be applied to a separate disk affixed in any suitable way to the gear *s*, it being immaterial whether the wrist-pin is engaged directly with the outer side of said gear or not so long as it is adapted to be revolved by the rotation of said gear.

I claim—

1. The combination, with a rock-shaft having a tool-carrying arm, of a burnishing-tool, a sleeve surrounding said rock-shaft and provided with a spiral slot which receives a stud or roll projecting from the rock-shaft, a guide independent of the rock-shaft, in which said sleeve is fitted to reciprocate in a direction parallel with the rock-shaft, and means for reciprocating said sleeve and thereby causing its engagement with the spiral slot, the reciprocating movement of the sleeve being shorter than the length of the slot, whereby the slot is kept in continuous engagement with the stud and caused to oscillate the rock-shaft, as set forth.

2. The combination of a jack to hold a boot or shoe, a slide or bed movable on a fixed support toward and from said jack, a rock-shaft mounted in bearings on said slide and provided with an arm carrying a burnishing-tool, a sleeve surrounding the shaft and provided with a spiral slot receiving a stud affixed to the rock-shaft, a guide affixed to said slide or bed and engaged with said sleeve, whereby the sleeve is permitted to move endwise on the rock-shaft without rotating, a driving-shaft mounted in bearings on the slide or bed, connections between the driving-shaft and the sliding sleeve, whereby the latter is reciprocated and caused to oscillate the tool, and means, substantially as described, for slowly

reciprocating the slide or bed and the rock-shaft and oscillating tool carried thereby, as set forth.

3. The combination of the slide or bed, the
5 rock-shaft mounted in bearings on the said slide and provided with an arm having a bur-
nishing-tool, a driving-shaft mounted in bear-
ings affixed to said slide, means for imparting
a rocking motion from said driving-shaft to
10 the rock-shaft and thereby oscillating the tool
carried thereby, a loose gear or disk mounted on
a support on the slide or bed, connections be-
tween said gear and the driving-shaft, whereby
the gear or disk is slowly rotated, and a pit-
15 man connected at one end with a wrist-pin on
said gear or disk and at the other end with a
fixed support, whereby the rotation of the
gear or disk is caused to slowly reciprocate
the slide or bed and the rock-shaft and oscil-
20 lating tool carried thereby, as set forth.

4. The combination of the slide or bed, the

tool-carrying rock-shaft, and the driving-shaft
supported thereby, means, substantially as
described, for imparting motion to the rock-
shaft from the driving-shaft, a worm-gear 25
mounted on a support on the slide or bed, a
wrist-pin adjustably mounted on said gear, a
pitman connecting said wrist-pin with a fixed
support, a shaft having a worm mounted in
bearings on the slide or bed and engaged with 30
said worm-gear, and connections, substan-
tially as described, between the worm and
driving-shaft, whereby the worm is rotated, as
set forth.

In testimony whereof I have signed my 35
name to this specification, in the presence of
two subscribing witnesses, this 20th day of
January, A. D. 1891.

FRANK MOLLOY.

Witnesses:

EDWARD E. WEBB,
JOHN R. BECKETT, Jr.