

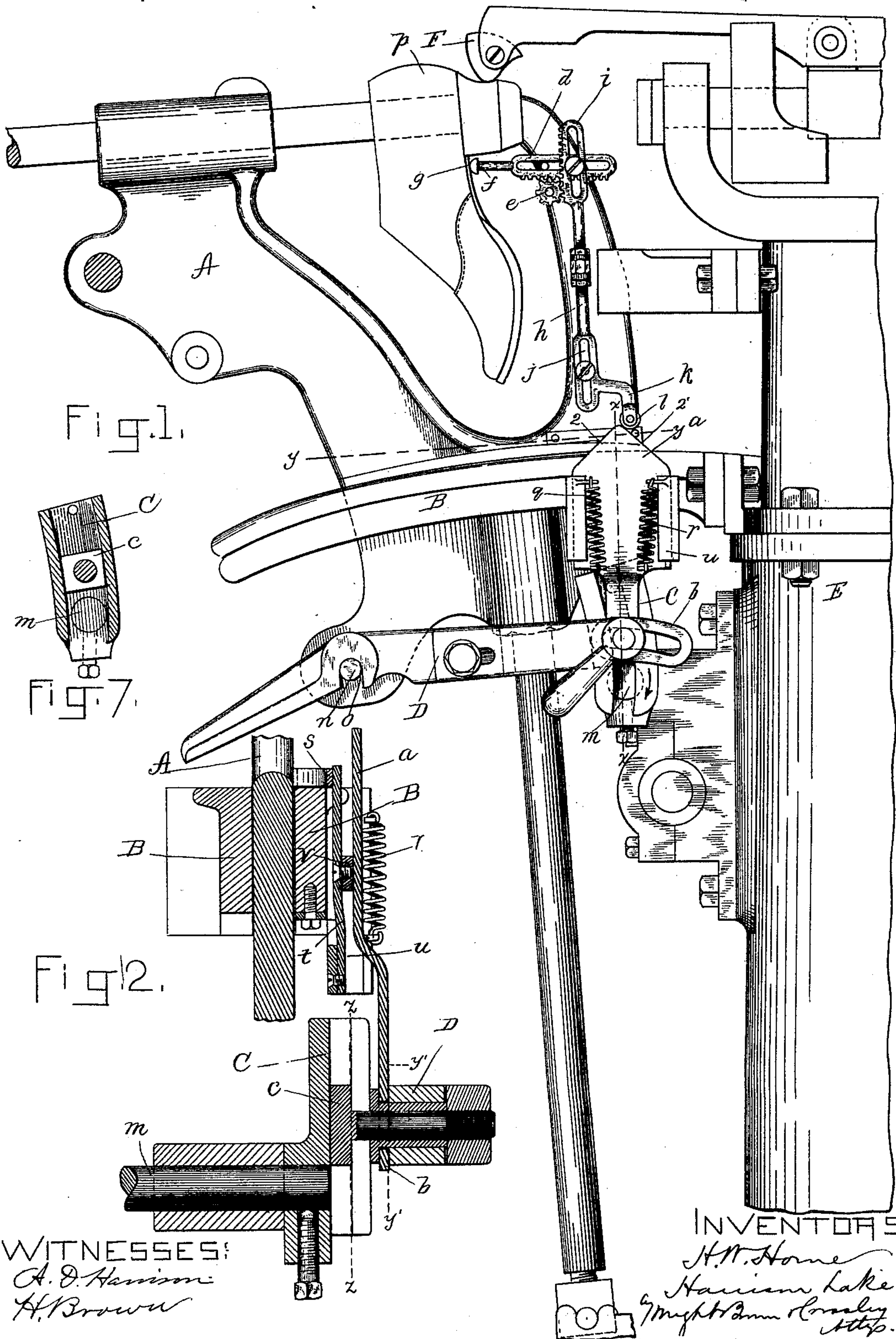
(No Model.)

2 Sheets—Sheet 1.

H. W. HORNE & H. LAKE.  
HEEL BURNISHING MACHINE.

No. 414,219.

Patented Nov. 5, 1889.



WITNESSES:  
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H. Brown

INVENTORS:

H. W. Horne  
Harrison Lake  
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Atty.

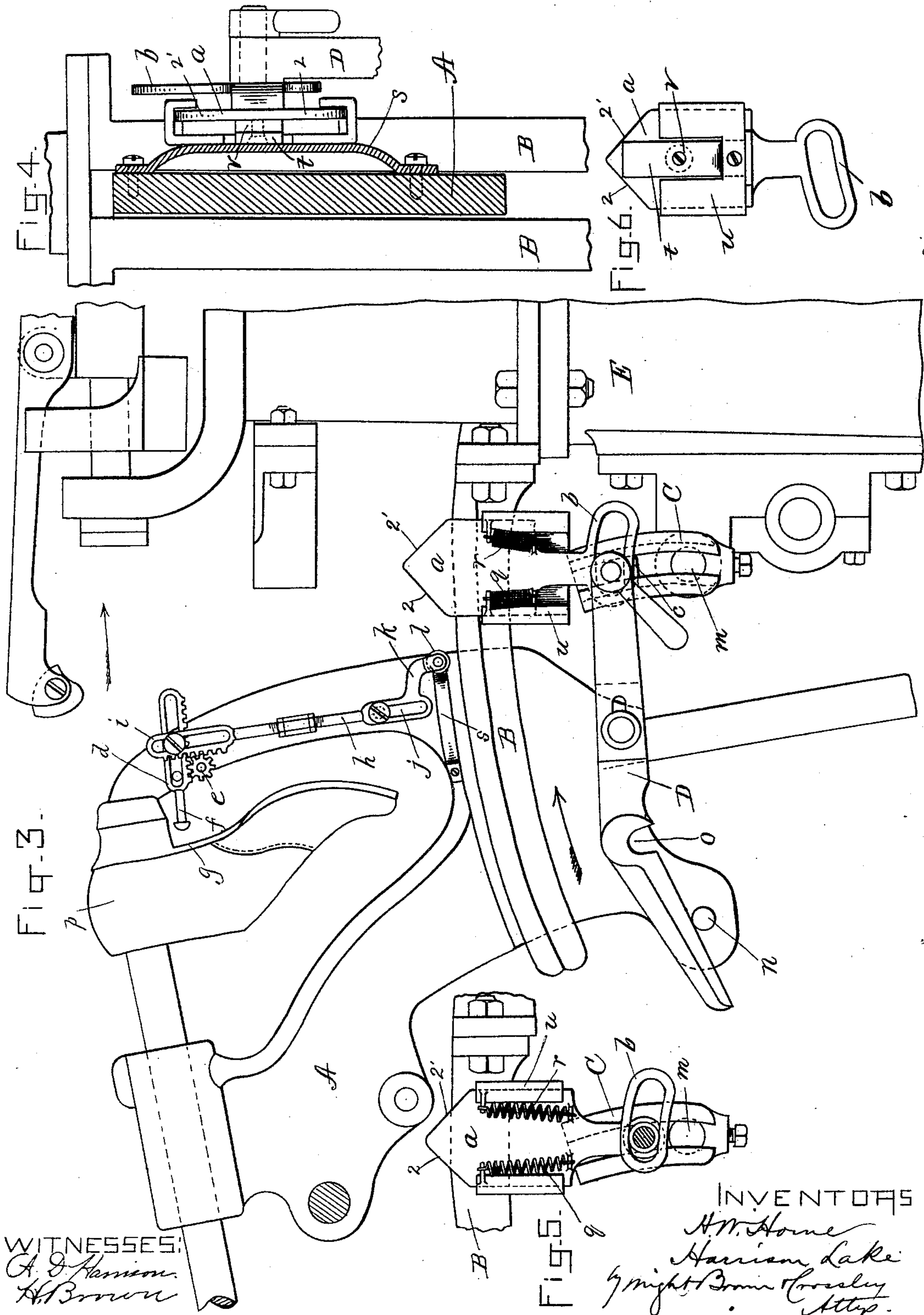
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H. Brown

INVENTORS

H. W. Horne

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# UNITED STATES PATENT OFFICE.

HORACE W. HORNE AND HARRISON LAKE, OF HAVERHILL, MASSACHUSETTS.

## HEEL-BURNISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,219, dated November 5, 1889.

Application filed April 22, 1889. Serial No. 308,072. (No model.)

*To all whom it may concern:*

Be it known that we, HORACE W. HORNE and HARRISON LAKE, 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.

Our invention relates to machines for burnishing the heels of boots or shoes, and more especially to that class of machines known as the "Tapley Heel-Burnisher."

In the above-mentioned machine the burnishing movement of the boot or shoe holding "jack" is imparted thereto by a rocker-arm (mounted on a shaft journaled in suitable bearings on the supporting-frame) provided with a slot, in which slot is a block adapted to be moved vertically therein, said block having a shank to which is attached devices intermediate of said rocker-arm and jack, so that by moving said block longitudinally in said slot the travel of the jack may be regulated to conform to the different height of the heel to be operated upon, as is well known to all skilled in the use of said machine. The principal objection to this method of regulating the travel of the jack has been that the position of the block in the slotted rocker-arm is dependent entirely upon the judgment of the operator, and when necessary to change the regulating devices for heels of varying depth it not infrequently happens that the adjustment is such that the jack is given too much travel, the result being that the burnishing-tool comes in contact with the "heel-seat," thereby causing damage to the boot or shoe being operated upon.

Our invention has for its object to provide means whereby the above-named objections may be obviated and the travel of the boot or shoe carrying jack be automatically controlled to conform to heels of varying depth, all of which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of that part of a Tapley burnishing-machine to which our improvements are attached, showing a shoe in position to be operated upon by the burnishing-tool. Fig. 2 is an enlarged sectional view on the line  $x$

$x$  of Fig. 1. Fig. 3 is a view of the devices shown in Fig. 1, but in a different position, as hereinafter described. Fig. 4 represents a section on line  $y y$ , Fig. 1. Fig. 5 represents a section on line  $y' y'$ , Fig. 2. Fig. 6 represents a rear view of our improvement. Fig. 7 represents a section on line  $z z$ , Fig. 2.

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

In the drawings, A indicates the jack; B, the guides and lateral supports for the same; C, the slotted rocker-arm; D, the connection between said rocker-arm and the jack, and E the supporting frame or base of the machine. The above-named parts are shown and used in the Tapley heel-burnisher, and constitute no part of our invention, and will only be referred to in connection with our improvements.

Fitted to move in guides secured to the jack-support B is a plate or lug  $a$ , provided at its upper end with inclined edges  $2 2'$ , (for a purpose to be presently explained,) and at its lower end with a segmental slotted portion  $b$ , which we term the "lug of the arm," through which slot is adapted to pass the shank of the block  $c$ .

$d$  represents a slotted rack-rod suitably secured to the heel-rest of the jack and adapted to mesh with a pinion  $e$ , also secured to said rest. The rack  $d$  is provided with a projection  $f$ , adapted to engage the shank  $g$  of the shoe or boot being operated upon.

$h$  represents an adjustable rod, provided at its upper end with a slotted rack  $i$ , meshing with the pinion  $e$ , and at its lower end with a slot  $j$  and an arm  $k$ , to which arm is journaled a roll  $l$ , (hereinafter explained,) all as clearly shown in Figs. 1 and 3.

By reference to Fig. 3, it will be seen that the jack A and lug  $a$  are in a position different from that shown in Fig. 1. The position here shown, Fig. 3, is that previous to the burnishing operation, in which the arm D has been thrown out of engagement with the jack, so that the latter may be retracted from engagement with the burnisher F and permit of the "unjacking" of the shoe. Suppose, now, that the shoe shown in the before-mentioned figure is to be operated upon by the burnishing-tool. The jack will be moved



by the operator in the direction of the arrow marked thereon, and when the arm *k* on rod *h* comes in contact with the incline 2 of lug *a* said rod will be raised and will impart motion to pinion *e*, causing slotted rack *d* to be moved toward and be brought into engagement with the shank of the shoe, as shown in Fig. 1, and as said engagement prevents arm *k* from rising the result will be that as the jack continues to move forward to the burnishing-tool said movement depresses the lug *a*, and with it the block *c* in the slotted arm *C*, to the position shown in Fig. 1, which position is just the required distance from the center of rotation of rock-shaft *m*, the radius of movement of the rocker-arm at this point being equal to the depth of heel of the boot or shoe to be operated upon. At this point the connecting-rod *D* is brought into engagement with the jack by the latter having been moved forward until the pin *n* registers with the slot *o* in the rod, as also seen in Fig. 1.

It will be seen by reference to Fig. 1 that the arm *k* has passed over the incline 2 and the burnishing action has commenced. The direction of rotation of the rock-shaft is in the direction of the arrow in said figure, the radius of the rocker-arm, as before explained, being in proportion to the heel; or, in other words, the jack will be moved in the direction of said arrow until just before the burnishing-tool reaches the heel-seat, when the rock-shaft will move in the opposite direction by means well understood by those skilled in the use of the Tapley burnisher, and which are no part of our invention. When the arm *k* has passed over the incline 2 of the lug, it becomes inoperative and has no further influence upon the operation of burnishing until the next shoe is to be operated upon, and said arm is free to follow the incline 2' and does not pass the center point of the lug until the completion of the burnishing operation and the jack is retracted or "thrown out of gear," as seen in Fig. 3. When the lug has been depressed by the means described and the arm *k* has become inoperative or has passed over the center of the lug, it is necessary to hold said lug in the last-named position against the tension of springs *q r*. To this end we have provided a bracket *s*, attached to the jack and so arranged as to come in contact with a tongue-piece *t*, secured to the rear end of a guide-piece *u*, in which lug *a* slides, and having a piece of rubber *v* or other yielding material attached thereto, so that when bracket *s* comes into engagement therewith it is pressed against the lug with sufficient force to hold the same in its depressed position, as shown in Figs. 2 and 4.

*q r* represent springs, the upper ends of which are attached to ears on guide-piece *u*

and the lower ends to ears on the lug *a*, so that when the jack is retracted and the bracket released from engagement with tongue-piece *v* the lug will be drawn up by said springs to the position shown in Fig. 3, so that it may be operated upon for the succeeding burnishing operation.

Having thus explained the nature and manner of using our invention, we declare that what we claim is—

1. In a shoe-burnishing machine, the combination, with the oscillating jack designed to hold a shoe thereon and the rocker-arm for oscillating said jack, of the adjustable connection between said rocker-arm and jack, and the horizontally-disposed movable bar mounted on said jack and designed to come in contact with the shoe placed thereon, and the connections therewith, substantially as set forth, whereby the connections between the rocker-arm and the jack may be adjusted, substantially as set forth.

2. In a shoe-burnishing machine, the jack, the rocker-arm, adjustable connections between the rocker-arm and jack, a lug or plate connected with said adjustable connections, and connections, substantially as described, on the jack constructed and arranged to be operated upon by the shoe on the jack and to operate upon said lug or plate, as set forth.

3. In a shoe-burnishing machine, the combination, with the jack and the rocker-arm for oscillating the same, of the adjustable fulcrum-block for regulating the extent of oscillating movement of the jack, a movable lug or plate *a*, connected with said adjustable fulcrum-block, a clamp connected with the jack for clamping said lug or plate after being moved, and the connections for operating said lug or plate when contact is had with a shoe carried by said jack, substantially as set forth.

4. In a shoe-burnishing machine, the combination, with the jack and the rocker-arm for oscillating the same, of the adjustable fulcrum-block for regulating the extent of oscillating movement of the jack, a movable lug or plate *a*, connected with said adjustable fulcrum-block, a movable bar mounted on said jack and designed to come in contact with the shoe carried thereon, and the means for operating said bar designed to bear upon said lug or plate, substantially as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 13th day of April, A. D. 1889.

HORACE W. HORNE.  
HARRISON LAKE.

Witnesses:

HARRY J. COLE,  
EDMUND B. FULLER.