

(No Model.)

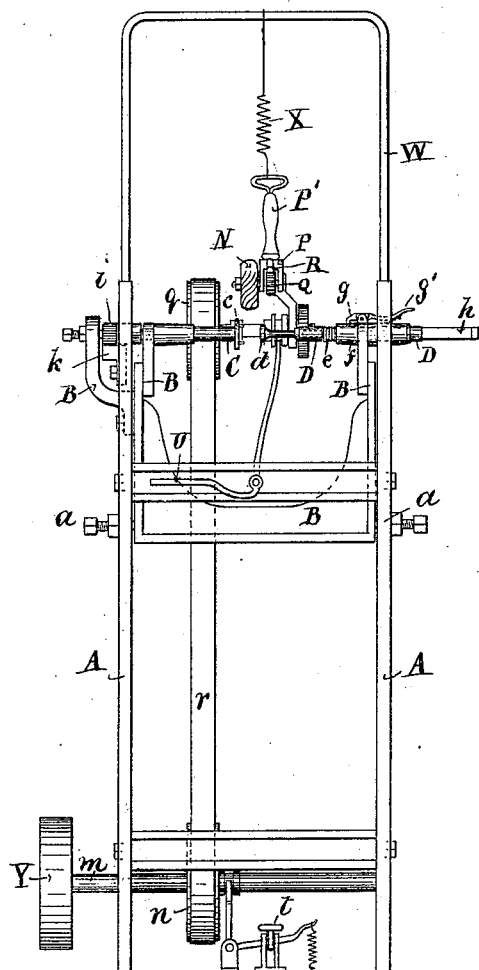
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## HEEL FINISHING MACHINE.

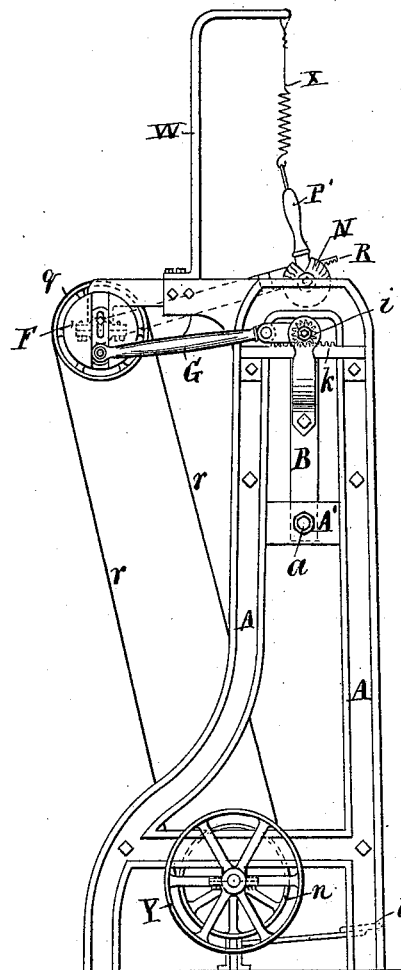
No. 304,498.

Patented Sept. 2, 1884.

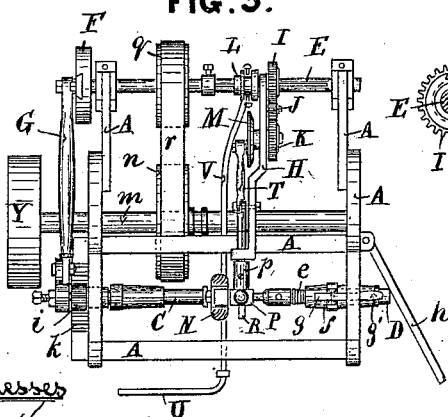
**FIG.1.**



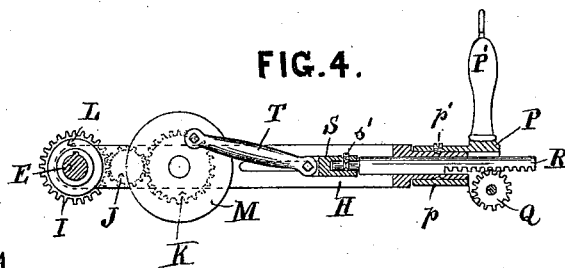
**FIG. 2.**



**FIG. 3.**



**FIG.4.**



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES BUSFIELD AND EDUARD BOURGEOIS, OF HAVERHILL, MASS.

## HEEL-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 304,498, dated September 2, 1884.

Application filed May 5, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES BUSFIELD, a citizen of the United States, and EDUARD BOURGEOIS, a citizen of Canada, both residing at Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Heel Burnishing and Waxing Machines, of which the following is a specification.

Our invention relates to an improvement in heel burnishing and waxing machines; and the invention consists in constructing the clamping device for holding the boot or shoe so that a reciprocating and semi-rotary motion will be imparted thereto, whereby the back and sides of the heel are successively brought into proper position for the burnisher to operate upon them. A semi-rotary motion is also imparted to the burnisher, which is mounted in such a manner that it can be held in any desired position or at any angle while in operation, as more fully hereinafter described.

Referring to the accompanying drawings, Figure 1 is a front elevation of a machine embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan or top view. Fig. 4 is an enlarged view in detail of the arm carrying the burnisher and connections.

A is the frame of the machine.

B is a frame consisting of a lower portion extending across the inside of the frame A, and having two side pieces or arms extending upward. The lower portion of frame B is pivoted by means of set-screws *a* to cross-pieces *A'* *A'*, constituting a part of frame A, so as to admit of a rocking movement of the upperside extensions of frame B. To the upper ends of the frame B is connected a clamping device, consisting of two shafts or spindles, C D, journaled on opposite sides of the frame. On the inner end of the shaft C is a plate, *e*, provided with pins on its outer face, and on the inner end of the shaft D is a boss, *d*. The boot or shoe to be operated upon is held between the plate *e* and the boss *d*. On the shaft D are a number of concentric indentations or grooves, *e*, that form a rack.

To the frame A is attached a cylindrical shell or sleeve, *f*, in which the shaft D is fitted to slide, and on the sleeve *f* is pivoted a spring-pawl, *g*, having a tooth at one end, which passes through the sleeve *f* and engages with one of

the grooves *e* on the shaft. By this means the shaft D is allowed a rotary motion, and its longitudinal position in the sleeve *f* can be changed by depressing the outer end, *g'*, of the spring-pawl *g* to raise the tooth out of the grooves, as required. The shaft D is pushed forward to clamp the boot or shoe by means of a lever, *h*. (See Fig. 3.) On the outer end of the shaft C is fitted a pinion, *i*, that gears with a rack, *k*, attached to the side of the frame A.

The upper end of the frame B has a vibrating movement imparted to it by means of a pitman, G, connected to a disk, F, on the shaft E, and as the frame B is moved forward and backward at its upper end the pinion *i*, gearing with the rack *k*, is caused to partially rotate, and with it the shafts C, so that the shoe or boot which is held by the shafts C D will have a semi-rotating movement imparted to it, by which means the back of the heel is first subjected to the action of the burnisher N, then one side, then the back again, and then the other side.

On the shaft E is mounted an arm, H, a cog-wheel, I, and a clutch, L. These are held together, but are free to slide upon the shaft E, the latter being provided with a spline or feather, so that the wheel I and clutch L are caused to revolve with the shaft E.

On the arm H (see Fig. 4) is mounted a disk, M, to which a rotary motion is imparted from the shaft E, through the cog-wheel I, pinion J, and gear-wheel K, which is on the same shaft with the disk M.

N is a burnisher carried on a spindle mounted in a saddle-frame, P, connected with a sleeve, *p*, (see Fig. 4,) on the outer end of the arm H. The sleeve *p* is held on the arm H by means of a screw, *p'*, which passes through the sleeve and enters a concentric groove on the arm H, so that the sleeve has a rotary but not a longitudinal movement on the said arm.

Q is a pinion mounted on the spindle that carries the burnisher N, and R is a rack with which the pinion Q engages. This rack R passes through an opening in the end of the arm H, and its rear end enters and is secured to a short bar, S, by means of a screw, *s'*, which passes through the bar H and enters a concentric groove on the inner end of the rack, so that the latter is free to rotate and still keep in gear with the pinion Q at whatever angle the bur-

nisher may be placed. The bar S is connected to the disk M by means of a pitman, T. The pin that connects the bar S and pitman T passes through a slot in the arm H, so that by the rotation of the disk M a reciprocating motion is imparted to the rack R, which, by means of the pinion Q, imparts a semi-rotating movement to the burnisher N.

In Fig. 2 the burnisher N is shown as having a V-shaped recess in its periphery, thereby indicating that it does not have a complete rotary movement.

The arm H, with its connections, can be moved along the shaft E as may be required by means of a handle, U, which, in connection with the rod V, serves to actuate a clutch, L, on the shaft E.

To the outer or free end of the arm H is attached the handle P', by means of which the burnisher N can be manipulated and turned in any required direction. The handle P' on the outer end of the arm H is held by an elastic support, X, attached to a frame, W, which support draws up the free end of arm H' and burnisher out of the way when not in operation.

In operating the machine, power is applied to the shaft m, which carries the pulley n, over which a belt, r, runs, connecting with the pulley q on the shaft E.

It will be seen that while a semi-rotating motion is imparted to the boot or shoe heel, a similar motion is at the same time imparted to the burnisher, thus giving it a motion analogous to the rubbing movement imparted by a hand-tool for the same purpose in the place of a continuous rotary motion, as usual in this class of machines.

What we claim as our invention is—

1. In a heel-burnishing machine, the combination of means for imparting a semi-rotary motion to a boot or shoe heel, consisting of the vibrating frame B, pitman G, disk F, shaft E, pinion i, and rack k, and shafts C D, with means for simultaneously imparting a semi-rotary motion to the burnisher, consisting of the arm H, bar S, pitman T, disk M, rack R, pinion Q, and burnisher N, substantially as shown and described.

2. The combination of the shaft C, provided with the plate c, and the shaft D, provided with a boss, d, and having concentric grooves e, the sleeve f, and spring-pawl g, as and for the purpose set forth.

3. The combination of the shaft C, pinion i, rack k, attached to the frame A, pitman G, and the disk F on shaft E, as and for the purpose set forth.

4. The combination of the arm H, shaft E, disk M, clutch L, gear-wheels, and pinion I K J, pitman T, bar S, rack R, and pinion Q, substantially as and for the purpose set forth.

5. The burnisher N, mounted in a saddle-frame, P, and having a semi-rotating motion imparted to it by means of the rotary sleeve p on the arm H, the reciprocating rack R, and pinion Q, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES BUSFIELD.  
EDUARD BOURGEOIS.

Witnesses:

JOS. H. ADAMS,  
E. PLANTA.