T. P. YOUNG.

SOLE-EDGE SETTING AND BURNISHING MACHINES FOR BOOTS AND SHOES.

No. 195,069. Patented Sept. 11, 1877.

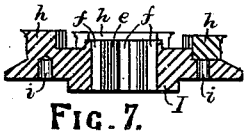

FIG. 7.

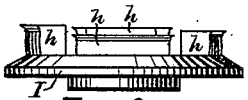

FIG. 6.

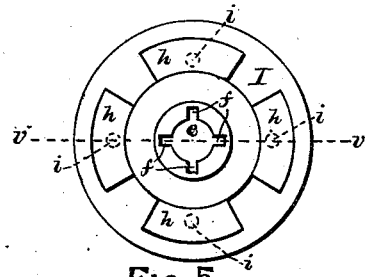

FIG. 5.

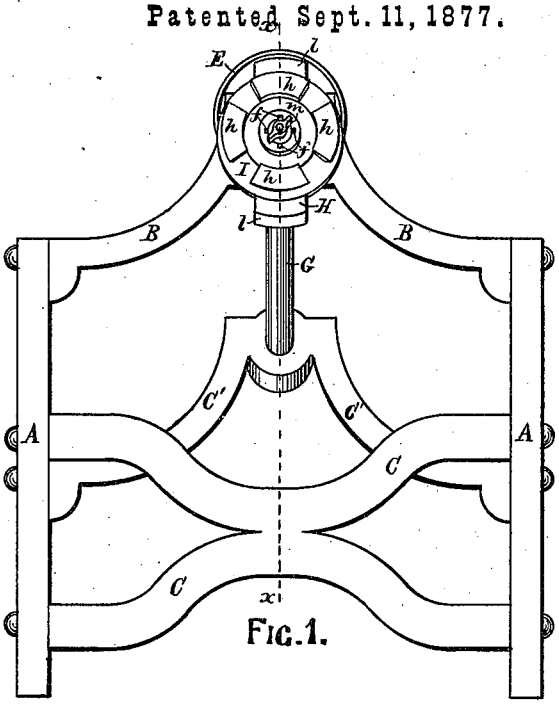

FIG. 1.

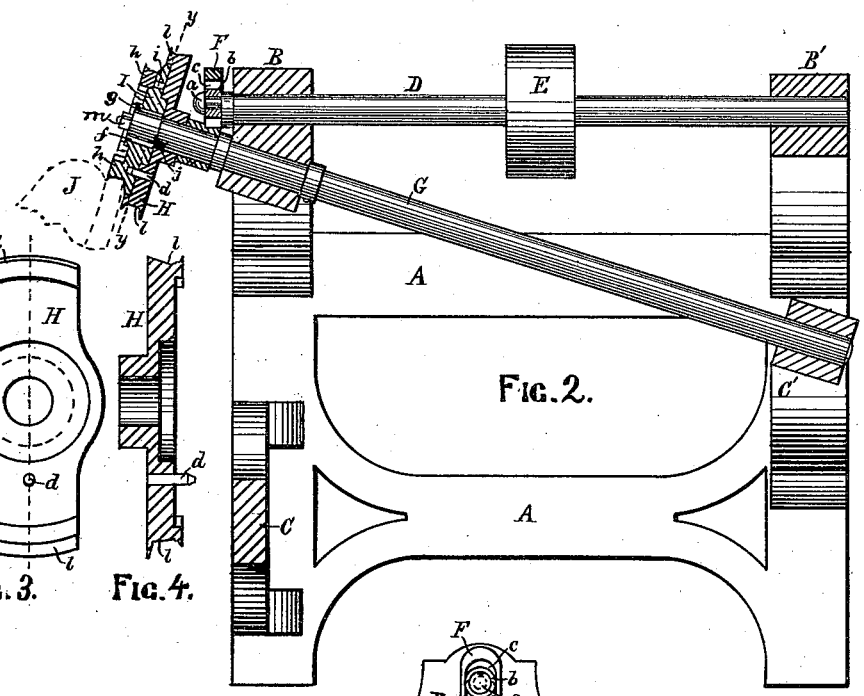

FIG. 2.

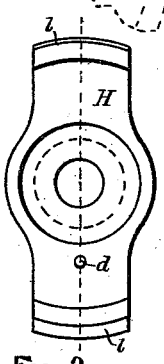

FIG. 3.

FIG. 4.

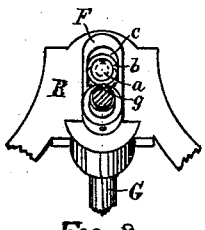

FIG. 8.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN SOLE-EDGE SETTING AND BURNISHING MACHINES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **195,069**, dated September 11, 1877; application filed May 9, 1877.

To all whom it may concern:

Be it known that I, THOMAS P. YOUNG, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Edge Setting and Burnishing Machines for Boots and Shoes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the construction of edge setting and burnishing tools, and the method of operating the same; and it consists, first, in the use of an edge setting and burnishing tool mounted upon a shaft or axis, with its working-face between said axis and the edge of the sole to be acted upon, and adapted to oscillate partially around said axis in a curved path, to which said sole-edge is tangent, and in a plane parallel to, or nearly parallel to, the tread-surface of said sole.

My invention further consists in the use of a sole-edge setting or burnishing tool mounted upon an inclined shaft, adapted to be vibrated about its axis in such a manner as to impart to the burnishing-surface of the tool a reciprocating motion in a curved path, the center of motion being outside of the edge of the sole being burnished, and upon the same side thereof that the tool is acting upon, the inclination of the tool-shaft presenting the tool in a more convenient or accessible position for the application of the sole-edge thereto than when the axis of motion is horizontal.

My invention further consists in the use, in combination, of an edge setting and burnishing tool adapted to set and finish the edge of that portion of the sole forward of the shank, and a tool for finishing the edge of the shank portion of the sole, located just below and at the rear of the tool for finishing the fore-part edge, and secured thereto so as to vibrate therewith, all so arranged that the operator may set and finish the edge of the whole sole from the heel upon one side around to the heel upon the other side without stopping the machine to adjust or change the tools or laying down the boot or shoe, it only being necessary to change from one tool to the other in passing from the shank to the fore part, or vice versa, which only requires a change of position of about a half inch or less, and may be readily made without stopping the machine.

My invention further consists in the combination of a driving-shaft mounted in suitable bearings in a horizontal position, and provided upon its front end with a crank, and an inclined shaft located beneath said driving-shaft, with its rear end the lowest, and carrying at its front end one or more edge setting and burnishing tools, and a slotted arm or lever secured to said inclined shaft, and adapted to engage with the crank-pin on the front end of the driving-shaft in such a manner that a complete revolution of the driving-shaft shall impart to the inclined shaft and the edge setting and burnishing tools mounted thereon a reciprocating motion, as will be described.

My invention further consists in the use, in combination, of two or more shank-burnishing tools formed upon or secured to opposite ends of a bar mounted by its center upon a shaft, and a circular disk provided with a projecting lip, to serve as a gage or rest for the tread-surface of the boot or shoe sole, and having formed thereon or secured thereto two or more burnishing-tools of different thicknesses, adapted to fit different thicknesses of soles, and to finish the edges of the fore parts thereof, said disk being also mounted upon the same shaft with the arm which carries the shank-burnishing tools, and so connected thereto and to the shaft that they will move together when operating upon the sole-edge, and so that either of the shank-tools or either of the fore-part tools may be brought into position for operation.

My invention further consists in a novel method of mounting and securing the two kinds or sets of burnishing-tools upon the shaft, and connecting them to each other, whereby they may be readily applied thereon, or removed therefrom, or adjusted thereon, to bring any desired tool of either set into working position, which will be best understood in connection with the description of the drawings, in which—

Figure 1 is a front elevation of a machine

illustrating my invention. Fig. 2 is a vertical longitudinal section on line *x x* on Fig. 1. Figs. 3 and 4 are, respectively, a front elevation and a vertical section of the shank-burnishing tools and the arm for carrying the same. Fig. 5 is a front elevation of the series of fore-part burnishing-tools and the supporting-disk. Fig. 6 is an edge view of the same, and Fig. 7 is a section on line *v v* on Fig. 5; and Fig. 8 is a section of the inclined shaft on line *y y*, with the burnishing-tools removed, and showing the slotted arm, the crank, and a portion of the frame in elevation.

A A are the two side frames of the machine, connected together by the girts B, B′, C, and C′. D is the driving-shaft, mounted in bearings on the girts B and B′, and provided with the pulley E, by means of which and a belt (not shown) a constant rotary motion may be imparted to said shaft. The front end of the shaft E has formed thereon or secured thereto the crank-pin *a*, on which is mounted the truck *b*, which fits into the slot *c* formed in the arm F, firmly secured to the shaft G, mounted in an inclined position in bearings on the girts B and C′, as shown.

H is an arm mounted loosely upon the shaft G, and projecting equal distances therefrom upon opposite sides thereof, and having secured or formed upon its opposite ends shank-edge setting and burnishing tools *l* of different patterns, and having set in its front face the pin *d*, the purpose of which will presently appear.

I is a metal disk, provided with a central hole, *e*, to fit the shaft G, and a series of spline-grooves, *f f*, cut in the inner periphery of said disk, at equal distances apart, and parallel with the axis of the shaft G, upon which said disk is mounted, with the spline or key *g* set in the shaft fitting into one of the grooves *f*, to prevent the disk I from being moved around the shaft G.

The disk I has formed upon or secured to its front side a series of fore-part edge setting and burnishing tools, *h*, made of different thicknesses to fit different thicknesses of soles, the outer edges of said tools being located a short distance within and equidistant from the outer periphery of the disk I, so that the projecting outer edge of the disk I may serve as a rest and guide for the tread-surface of the boot or shoe.

The number of the tools *h* and the spline-grooves *f f* should be the same; and the back side of the disk I is also provided with an equal number of holes, *i i*, (shown in Figs. 2 and 7, and in dotted lines in Fig. 5,) to receive the pin *d*, and thereby lock the arm H in position on the shaft G, and compel it to vibrate about its axis of motion with the disk I and the fore-part burnishing-tools *h h*.

The diameter of the shaft G at that point where the arm H embraces it is considerably greater than that portion surrounded by the hub of the disk I, so that the arm H may be slipped onto the shaft over the spline or key *g*.

The arm H is held in a perpendicular position till the disk I is placed in position on the shaft, with the spline or key *g* in the proper groove *f* to bring the desired tool *h* below the shaft, and just above and outside of the shank-tool that is to be used for the particular job in hand.

When the disk I is forced into position, with its back side bearing against the front of the arm H and the rear end of its hub bearing against the shoulder *j* on the shaft, the pin *d* engages with one of the holes *i* and locks the arm H to the disk I, and, as the disk is prevented from turning upon the shaft, it follows that when the shaft G is vibrated about its axis the disk I and arm H will be made to vibrate with it, causing a reciprocating motion of the burnishing-tools *h* and *l* in a curved path while they bear upon the edge of the boot or shoe sole held in the hands of the operator below the tools, as indicated in dotted lines at J in Fig. 2.

The disk I is secured in position on the shaft G by the button *m*, which is attached by its center to the end of the shaft G in such a manner that it may be partially rotated to cause its two extremities to bear on the hub of the disk to hold it in place, said button being so formed that by turning it till its two ends coincide with two of the spline-grooves *f f* the disk I may be removed, rotated more or less about its axis, and replaced with the spline or key *g* fitting into a new groove, *f*, according to the particular tool that it is desired to bring into action.

When it is desired to change the style of finish of the shank the disk I is removed, as above described, the arm H is turned end for end by giving it a half-revolution about the shaft G, the disk I is replaced, the pin *d* entering a new hole in the disk, and the button *m* is turned into the oblique position shown in Fig. 1, when the machine is ready for operation again.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for burnishing or setting the edge of a boot or shoe sole, a burnishing or edge-setting tool, mounted upon and adapted to oscillate partially around a shaft or axis, with its working-face between said axis and the support or rest for the sole upon the edge of which it is to act, and moving in a curved path convex to said sole-edge, substantially as described.

2. In a machine for burnishing or setting the edge of a boot or shoe sole, a burnishing or edge-setting tool, mounted upon and adapted to oscillate or reciprocate partially about an inclined axis, moving in a path concentric to said axis, with its working-face between it and the supporting-surface or rest for the sole to be acted upon, substantially as and for the purposes described.

3. In combination with an edge setting or burnishing tool, adapted to set or finish the edge of that portion of the sole forward of the

shank, a tool for finishing the edge of the shank portion of the sole, located just below and in the rear of the fore-part burnishing-tool, and adapted to oscillate or reciprocate therewith, and to be interchangeably used without changing the position of either tool, substantially as and for the purposes described.

4. The combination, in a sole-edge setting or burnishing machine, of the horizontal driving-shaft D, provided with a crank-pin, *a*, the inclined shaft G, carrying upon its front end one or more burnishing or edge-setting tools, and the slotted arm F, secured to said inclined shaft, and adapted to engage with and be acted upon by the crank-pin *a*, substantially as and for the purposes described.

5. The combination of the arm H, provided with the pin *d*, and having formed upon or secured to its opposite ends shank-edge setting and burnishing tools *l* of different patterns or styles, and mounted by its center upon a rocking shaft, and the disk I, provided with two or more holes, *i i*, in its rear face, adapted to engage with the pin *d* in the arm H, and having formed upon or secured to its front face two or more fore-part burnishing-tools, *h*, of different thicknesses, the working-faces of which are a short distance within and equidistant, or nearly so, from the periphery of said disk, said disk being mounted upon the same shaft with and secured to the arm H, substantially as and for the purposes described.

6. The combination of the arm H, having formed upon or secured to its opposite ends shank-burnishing tools *l* of different patterns or styles, and provided with the pin *d*, and mounted loosely upon the shaft G, the disk I, having formed thereon a series of fore-part burnishing-tools, *h*, of different thicknesses, and provided with a central opening and a series of spline grooves, *f*, equal in number to its burnishing-tools, and an equal number of holes, *i*, to engage with the pin *d*, the shaft G, provided with a single spline or key, *g*, and the button *m*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 5th day of May, A. D. 1877.

THOMAS P. YOUNG.

Witnesses:
N. C. LOMBARD,
E. A. HEMMENWAY.