E. HUMPHREY.

Machinery for Finishing Boot and Shoe Sole-Edges.

No. 220,841. Patented Oct. 21, 1879.

FIG. 1

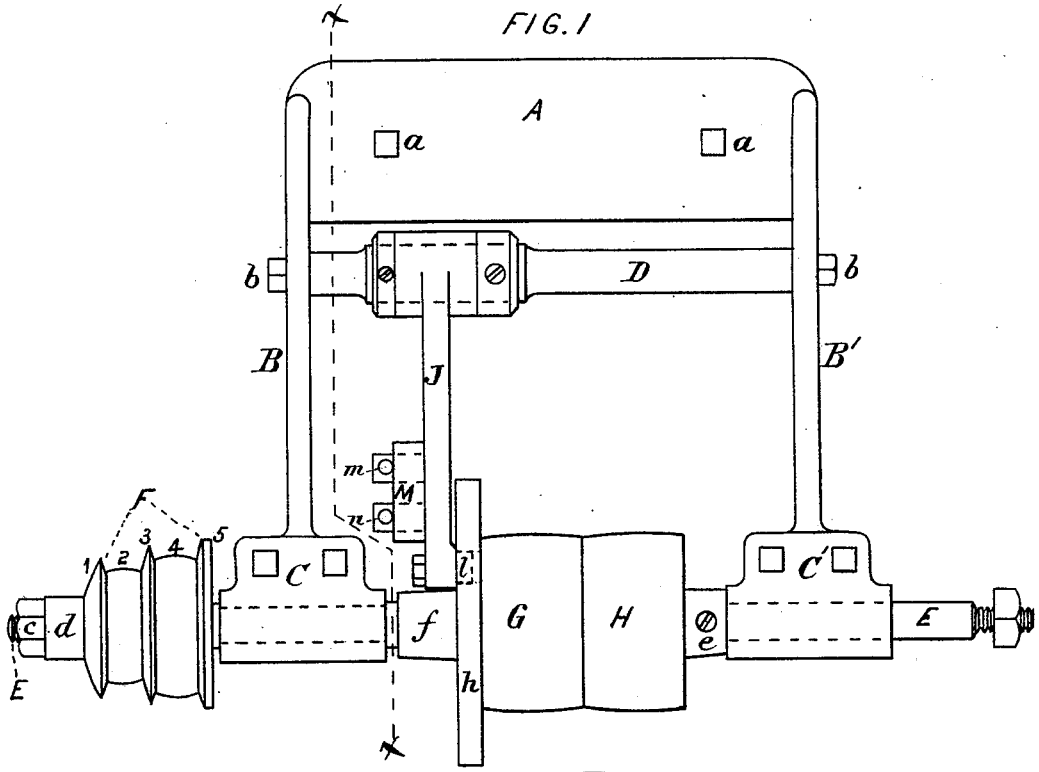


FIG. 2

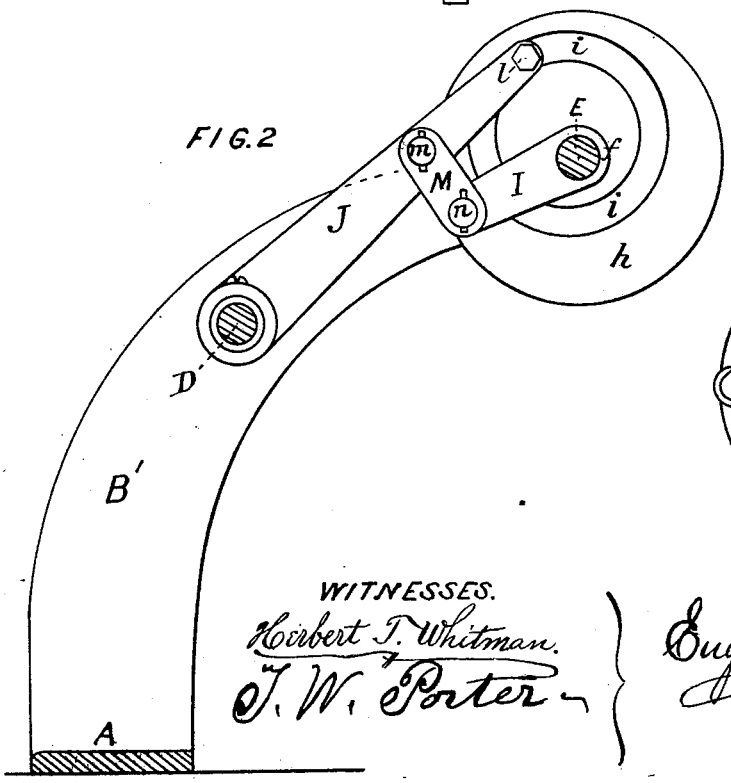
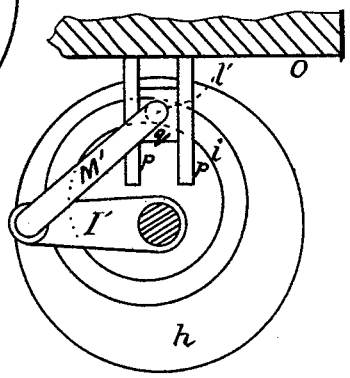


FIG. 3



WITNESSES.

Herbert T. Whitman.

T. W. Porter

INVENTOR.

Eugene Humphrey

UNITED STATES PATENT OFFICE.

EUGENE HUMPHREY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINERY FOR FINISHING BOOT AND SHOE SOLE EDGES.

Specification forming part of Letters Patent No. **220,841**, dated October 21, 1879; application filed February 10, 1879.

To all whom it may concern:

Be it known that I, EUGENE HUMPHREY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful or Improved Machine for Finishing the Sole-Edges of Boots and Shoes, which invention is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to that class of machines which are employed to burnish and polish the edges of boot and shoe soles; and the invention will be described in the specification, and specified in the claim, in connection with the accompanying drawings.

In the accompanying drawings, Figure 1 is a plan of my machine. Fig. 2 is a side elevation viewed from the left of Fig. 1, and with that portion to the left of line *x x* removed. Fig. 3 is a modification of my invention respecting the connections between the driving-pulley and the rocking arm on the shaft.

The frame of the machine consists of a bed-plate, A, and two curved stands or arms, B and B′, based upon said bed, and terminating upwardly in journal-boxes C and C′. The bed is designed to be bolted upon the front edge of a common work-bench at *a a*, and the arms are curved upward and outward to carry the tools forward and give the operator convenient freedom in handling his work, while the machine is operated by steam or other motive power. This method of constructing the frame is not, however, essential, as the machine may, if deemed best, be made self-supporting upon a suitable stand forming a part thereof. A brace, D, which serves a double purpose, is bolted between the arms B B′, at *b b*.

A tool-shaft, E, is mounted upon said arms and fitted to rock in the boxes C C′, and extends beyond said boxes in both directions, as shown, to receive the burnishing or other sole-edge-finishing tools.

Upon the end of the shaft, to the left, is a burnishing-tool, F, composed of five parts, (indicated by Figs. 1, 2, 3, 4, 5,) and secured thereon so as to be obliged to move with the shaft, and kept in place thereon lineally by the nut *c* and collar *d*.

The parts numbered 2 and 4 act upon the sole-edge, and represent two sizes, or different widths, adapted to different thicknesses of edges; and these parts may be made flat, convex, beaded, or otherwise formed to produce the style of edge desired, and also changeable for different widths and forms of rings to suit all the gradations of thickness in sole-edges by simply removing the nut and collar and parts 1 and 3, and replacing rings 2 and 4 with such other widths and styles as may be required. When ring 2 is being used upon an edge of its appropriate width, part 1 serves as a rand-guide and a guard to protect the upper, and part 3 as a rest for the bottom of the sole; and when ring 4 is employed on a thicker edge, part 3 serves as such guide and guard, and part 5 as a bottom rest.

The sole-edge of the boot or shoe is presented to and moved against the tool by the hands of the operator without the aid of any jacks or other mechanical supports; and the vibratory movement of the tool being in the arc of a circle having a fixed center, the operator is enabled to turn his work around the curves of the toe without the aid of any finger-rests or other fixed supports by pressing his work steadily against the tool in the direction of its fixed center of vibration, the same as if the tool operated by a continuous rotation in one direction.

Although the tool shown is believed to be new, it is not my invention, and I therefore omit any further description of its construction and advantages.

The opposite end of the tool-shaft is terminated with a screw and provided with a nut to secure thereon a stone-wheel, brush, or any other suitable and useful tool for the purpose stated. There are also arranged upon said shaft two loose pulleys, G and H, between a collar, *e*, and hub *f* of lever I. Pulley H receives the driving-belt when the machine is idle. Pulley G is formed with a disk, *h*, of increased diameter, in the face of which is cut an eccentric circular groove, *i*, Fig. 2.

Upon an enlarged portion of brace D is pivoted a lever, J, the opposite end of which is provided with a stud and roll, *l*, which acts in the groove *i* of disk *h*; and upon the tool-shaft E is a rocking arm or lever, I, whose hub is rigidly fixed to said shaft, and its arm extends backward under lever J, and the two move

together in the same vertical plane. Said levers are respectively formed with pintles *m n*, whereby they are united through a link, M, pinned thereon, as shown.

The pulley G being free to turn upon the shaft E, it will be obvious that by putting it in rotation in either direction, the eccentric groove *i* in the face of its disk *h* will cause the lever J to rock upon its bearing D, and through the connecting-link M said movement will be imparted to lever I proportionately to the leverage at the point of such connection, and thence through arm I to shaft E and the tools mounted thereon.

Fig. 3 represents a modification of the mechanism which may be used; but that already described is deemed preferable.

O is a hanger to be attached to the framework of the machine, and having pendent arms *p p*, between which a block, *q*, is fitted to slide vertically, and in a line which is diametrical to disk *h*. This block is fitted to a stud upon which is a roll that runs in the groove *i*, and thereby, when the pulley G is in motion, is made to travel up and down in like manner as the corresponding end of lever J in Fig. 2; and by connecting said block or its stud with lever I′ by a pivoted link, M′, corresponding to link M in Fig. 2, a rocking motion may be thereby imparted to shaft E and its tools, substantially as in the case before described. Thus it will be seen that substitutes for lever J may be employed without essentially departing from the principle of my machine.

What I claim is—

In a shoe-edge polishing and burnishing machine, in combination with the tool-carrying shaft E, having the rocking arm I secured thereon, the pulley G, formed with groove *i* eccentric to its axis, and an arm connected with such groove by stud and roll *l*, and also connected with the arm I, whereby the rotation of pulley G will impart a reciprocating rotary movement to the tool F on shaft E, substantially as and for the purposes specified.

EUGENE HUMPHREY.

Witnesses:

T. W. PORTER,

EBEN HUTCHINSON.