R. F. BURNS.

HEEL AND SOLE POLISHING MACHINE.

No. 178,728. Patented June 13, 1876.

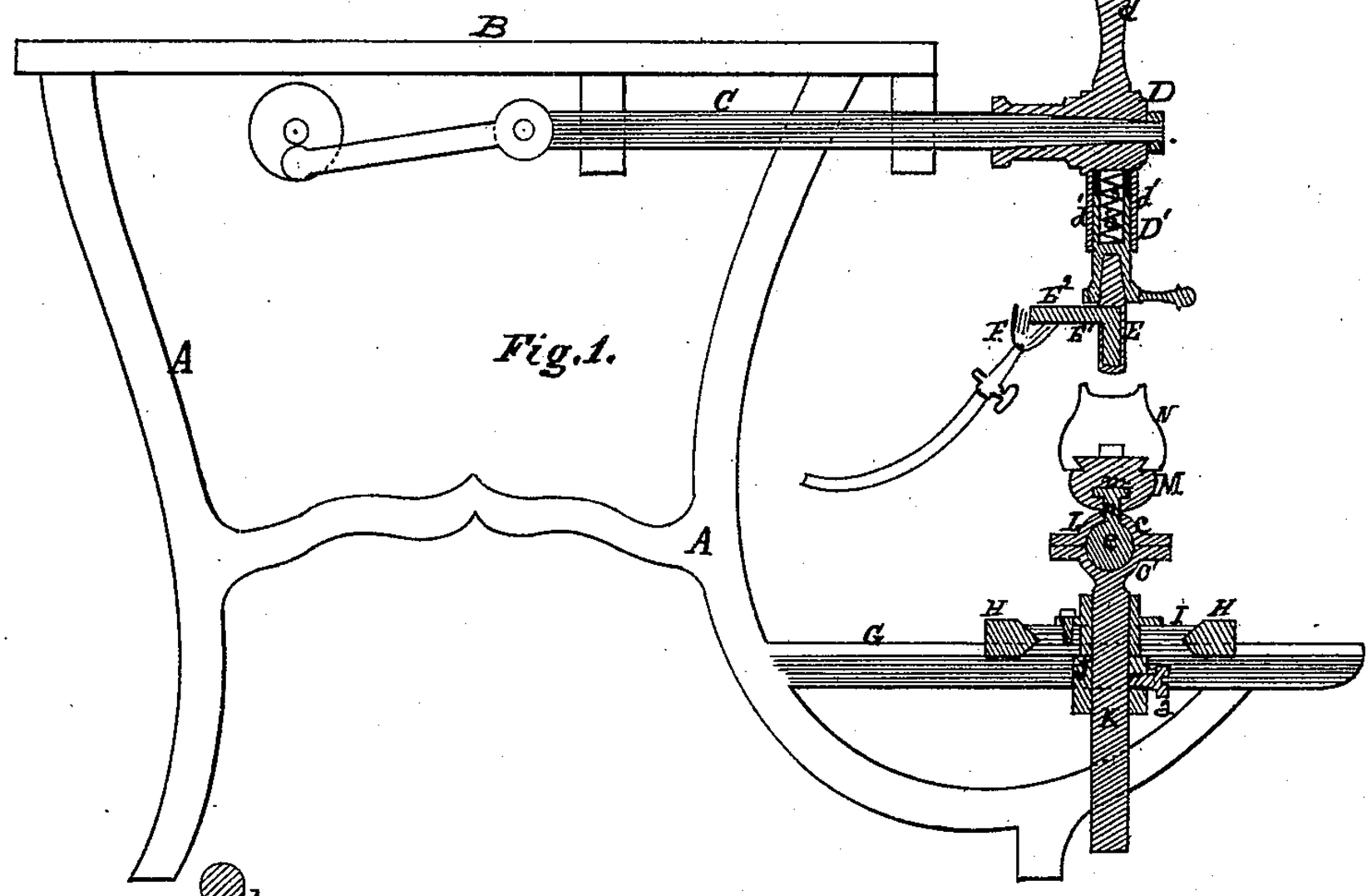

Fig. 1.

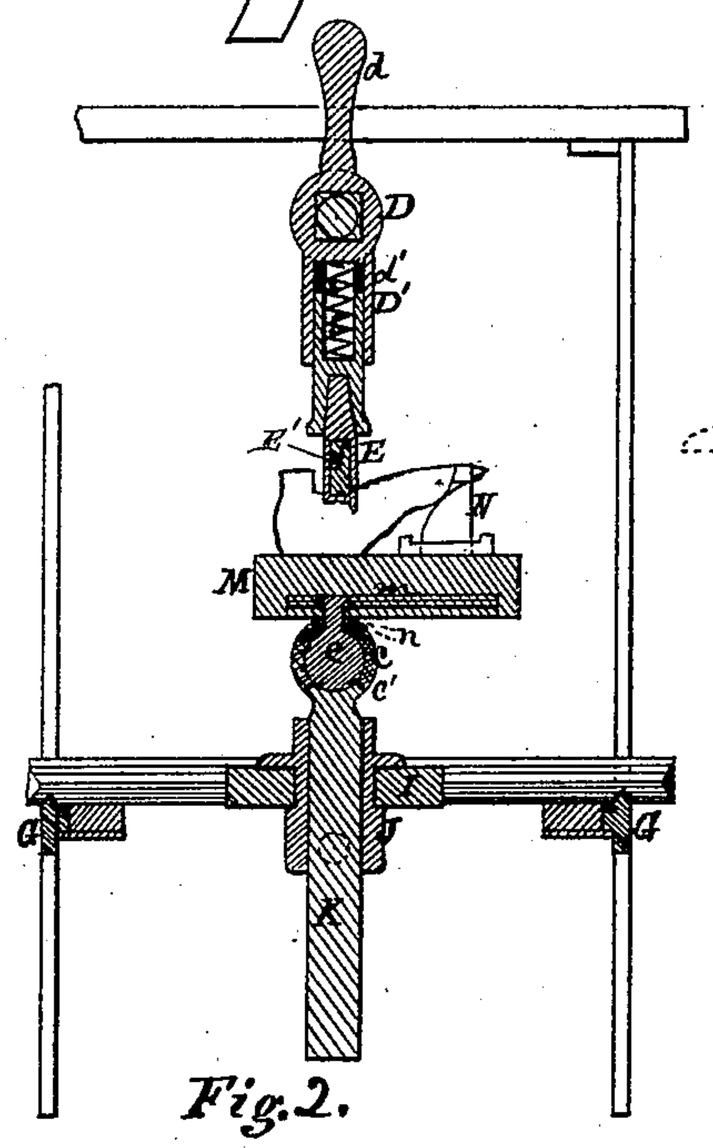

Fig. 2.

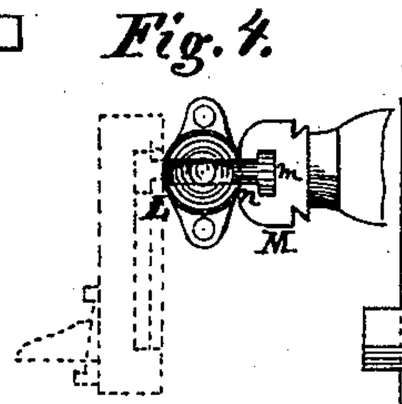

Fig. 4.

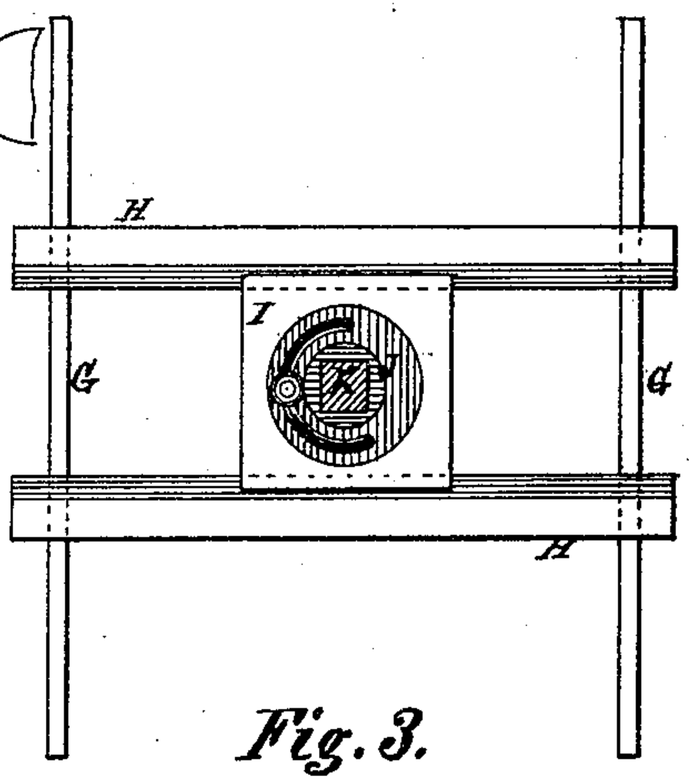

Fig. 3.

Fig. 5.

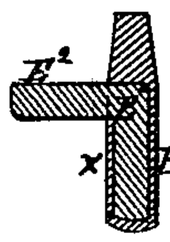

Fig. 6.

Witnesses. { Henry Pinley. / Edwd J. Selkirk.

Robert F. Burns
by his Attorney
Alex. Selkirk

Inventor.

UNITED STATES PATENT OFFICE.

ROBERT F. BURNS, OF ALBANY, NEW YORK, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO THOMAS FEAREY & SONS, OF SAME PLACE.

IMPROVEMENT IN HEEL AND SOLE POLISHING MACHINES.

Specification forming part of Letters Patent No. **178,728**, dated June 13, 1876; application filed March 27, 1875.

To all whom it may concern:

Be it known that I, ROBERT F. BURNS, of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Machines for Polishing the Edges, Heels, and Shanks of Boots and Shoes; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional elevation of the machine embodying the improvements in this invention. Fig. 2 is a cross-sectional elevation of the machine taken through the tool-head, tool, and jack-shaft. Fig. 3 is a plan view of the parts below the jack. Fig. 4 is a plan view of the jack-shaft joint. Figs. 5 and 6 are sectional view of the tool and its heating-block.

My invention relates to machines for polishing the edges, heels, shanks, and toes of boots and shoes; and consists of the several parts and devices, and their combinations, hereinafter described, rendering the machine capable of a variety of adjustment for operating upon the several parts of the sole to be polished, and preserving the tool at a uniform temperature, and also adapting the machine for all classes and sizes of boots and shoes.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings and the letters of reference marked thereon, the same letters indicating like parts.

In the drawings, A represents the frame of the machine. B is the table, made free from all machinery, on its top surface, so as to be capable of being employed for holding work. C is the horizontal reciprocating shaft, supported in proper bearings, and operated by a pitman actuated by a crank-wheel driven by power. Secured to the shaft C is the tool-head D, made, preferably, to swing or turn on said shaft, though it may be made rigid. The said tool-head is provided with a handle, *d*, and an elastic tool-holder, D′, which tool-holder works in the sleeve *d′*, and rendered elastic by the spring *s*.

The polishing-tool E is made in any desired form of construction of its polishing surface or end as to best adapt it to the nature of the work to be performed, the edges, heels, and shanks requiring different tools, any of which may be used with this machine, and held in place by its shank entering into the tool-socket made in the tool-holder. The body of the tool is recessed, so as to have a shell form of construction, as shown in Figs. 5 and 6. A heating-block, E^1, is also provided, and inserted in the said recess, from one of its sides, by removing a plate, *x*. Made with the heating-block is the limb E^2, which projects out from the body of the tool, and is heated by a gas-flame from a suitable gas-burner, or equivalent spirit-burner, supplied by a flexible tube. It is intended by this part of the invention to heat the tool, and maintain a uniform temperature of the same, by means of the said heating-block, which block is made of copper, or other good heat-conducting material.

As the heat is applied to the tool, through the medium of the heating-block E^1, and its limb E^2, by the direct application of the flame to the said limb, all smoke or soot is prevented from lodging on the tool to the danger or liability of smutting the work, while at the same time the tool itself may be raised to a proper temperature without liability of excessive heating, or liability of burning the leather.

Firmly secured to the frame A are the fixed horizontal ways G G, running longitudinal with the shaft C. The said ways support the movable ways H H in a transverse direction.

A platform, I, working in the said movable ways, is capable of being moved in a transverse direction from the movable ways H, and, by the means of the said platform moving in a direction the transverse to the movable ways on the fixed ways G, any relative position of the said platform may be secured. The said platform carries the sleeve J, capable of being turned in the platform, and secured in a set place by screws.

If desired, a ring-slot made in the flange of the said sleeve, and a set-screw, may be employed, to facilitate the operation of adjusting the sleeve.

The sleeve J carries the vertical shaft K, which I denominate the jack-shaft, which is capable of a vertical adjustment in either di-

rection, so as to carry the jack upward, nearer to the tool or down from the same, and may be set at any vertical height by a set-screw, *a*, Fig. 1. A lever with proper cords, chains, or rods, to be operated by the foot, may also be employed, when the set-screw may be dispensed with, and the operator, by his foot, may elevate or depress the said shaft and its attached jack. The upper end of the jack-shaft K carries a ball-joint, L, composed of the cups *c c'*, slotted transversely to permit the stem *n* of the ball *e* to attain horizontal positions from opposite sides of the cups. The jack M, constructed in the usual manner, is connected with the ball-joint by the stem *n*, secured to the ball *e*, and working in the slot *m* made in the jack, as shown, and secured by a proper head. Being thus connected with the shaft K by means of the ball-joint, and the headed stem working in its slot, the jack may be made to assume any desired position, and be brought directly over the vertical shaft for polishing the shank of a shoe, as in Figs. 1 and 2; or may be thrown to either side, as shown by outlines in Fig. 4, for operating with the side edges of the shoe; or be thrown to a side, with either end dropping down, so as to operate with either the heel or toe, as may be required; and at the same time, as the several surfaces requiring to be operated upon demand special adjustment, the operator may readily control the movements of the jack so as to bring the several parts in proper position for operation of the tool.

It should here be understood that it is not intended to operate upon all the several parts, such as the shank, heel, and edges and toes at one operation and with the same tool, but that the tools are to be changed and adapted to the work to be performed, and the heels to be done at one time, the shanks at another, and the side and toe edges at another time, the several parts of this machine operating substantially in the same manner in all cases, the tools only being changed, according as the nature of the work may demand.

The jack is provided with the usual adjustable toe-support N generally employed.

By the several improvements in this invention a single machine may be made to operate upon all the parts requiring to be polished, and the tools employed may be uniformly heated without danger of burning the work or smutting the surfaces to be operated upon, while shoes or boots of all styles and sizes may be operated upon in a manner fully equal to that had in special machines, and the operator may have full control over his work and the operations of the tool.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for polishing the edges, heels, and shanks of boots and shoes, the vertically-adjustable jack-shaft K, provided with the ball-joint L composed of the transversely-slotted cups *c* and *c'*, united to partially encircle the ball *e*, and permit the stem *n* to attain horizontal positions in two opposite directions, for the purposes set forth.

2. In combination, the jack M, having the slot *m*, ball-joint L, composed of the transversely-slotted cup *c c'*, ball *e*, and stem *n*, and the vertically-adjustable jack-shaft K, substantially as and for the purposes set forth.

3. In combination, the jack M, vertically-adjustable shaft K, adjustable sleeve J, platform I, and ways G G and H H, substantially as and for the purposes set forth.

4. The combination, with the recessed tool E, of the heating-block E^1 made of copper or other good heat-conducting material, and provided with the limb E^2, heated by a gas or other flame, substantially as and for the purpose set forth.

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Witnesses:
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