E. H. DOWNING & W. JOINT.

Machines for Burnishing Heels.

No. 135,786. Patented Feb. 11, 1873.

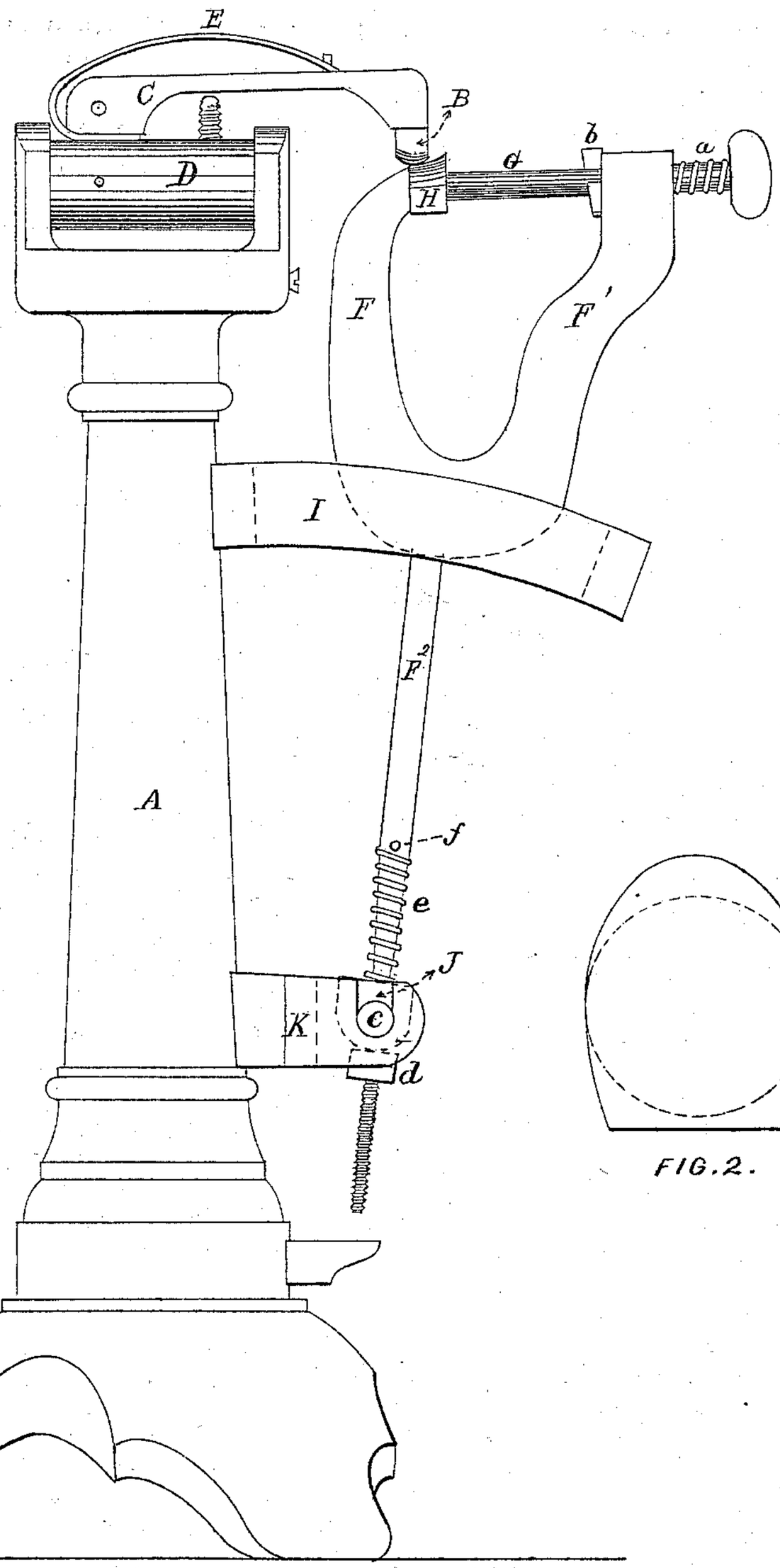

FIG. 1.

FIG. 2.

WITNESSES.

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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

EBEN H. DOWNING AND WILLIAM JOINT, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR BURNISHING HEELS.

Specification forming part of Letters Patent No. **135,786**, dated February 11, 1873.

To all whom it may concern:

Be it known that we, EBEN H. DOWNING and WILLIAM JOINT, both of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Heel-Burnishing Machines, of which the following is a specification:

Our invention is an improvement upon the machine patented to Gardiner C. Hawkins, Albert G. Mead, and Vivian K. Spear, April 11, 1871, and numbered 113,658, and has for its object the obviating of certain objections or defects in the operation of said machine. It has been found in practice that when said machine is used upon an oval heel, or one shaped as shown in Fig. 2 of the drawing, the increased tension of the spring upon the burnishing-tool, when said tool is passing over the rear portion of the heel, so increases the pressure upon each separate lift or thickness of the heel as to jam it out of shape and crack the heel; or, if the tension is so regulated as to give the proper pressure upon the rear of the heel, the tool will not touch the sides of the heel, the jack which holds the shoe bearing upon an unyielding rest at its lower end.

Our invention relates to the manner of hanging the jack; and it consists in fitting the lower end of the jack-stock to a hole in a rocking guide-block having suitable bearings in stands projecting from the frame, and applying to said jack-stock a spring to support said jack, all arranged in such a manner that while the jack is free to vibrate to and from the burnishing-tool in a horizontal direction it may be moved in a vertical direction by the operator or by the pressure of the burnishing-tool as it passes over the rear end of the heel, so as to equalize the pressure on the heel. It also consists in the application to the lower end of the rod of the jack of a screw and nut to adjust and limit the upward movement of the jack.

In the drawing, Figure 1 is a side elevation of so much of a machine as is necessary to show our invention; and Fig. 2 is a plan of a heel illustrating the difference between the shape of the heel and the path which the burnishing-tool should travel in order to burnish the heel alike in all its parts when done on the machines now in use. The dotted circle represents the path in which the tool should travel to give an equal pressure.

A is the column or supporting-frame, B the burnishing-tool, C the tool-arm, D the burnisher-shaft, and E the pressure-spring, all of which are arranged in the same manner as in the patent above cited, and operated by the same or any other suitable mechanism to give the necessary and desired circular vibratory motion to the burnishing-tool, all of which is no part of our invention. The jack, consisting of two separated arms, F and F^1, and provided with the rod F^2 projecting downward therefrom, is provided with the clamping-spindle G having thereon a spring, *a*, and operated by a wedge, *b*, or other suitable device to clamp the heel H and hold it in position, all of which is constructed in a well-known manner, and guided in its movements by the slotted guide I in precisely the same manner as in the patent above cited, and is no part of our invention.

We come now to that part of the machine which constitutes our invention. The rod F^2 passes freely through a hole in the block J, which is provided with a trunnion, *c*, on either side thereof, which rests in suitable bearings in the stand K attached to the column A. The lower end of the rod F^2 has a screw-thread cut thereon, and is provided with a nut, *d*, by which the height to which the jack can rise may be adjusted, said nut striking against the lower side of the block J to limit the upward movement of the jack. Immediately above the block J, and one end resting thereon, is the spiral spring *e* surrounding the rod F^2, and its upper end pressing against the pin *f* or a shoulder formed on said rod, so that the weight of the jack rests upon and is supported by said spring in an obvious manner. The two springs E and *e* are each made of such a strength and so adjusted that the two combined shall give the necessary pressure to properly burnish a heel, the action and reaction of the two springs tending to equalize the pressure on all parts of the heel. When the burnisher is passing over the rear portion of the heel and the tool is lifted, increasing the pressure of the spring E till it is greater than the spring *e*, the jack is depressed thereby, and as the tool passes

onto the side of the heel the jack rises again to its upper position. L is a lug or stop to limit the downward motion of the jack.

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

1. In a machine for burnishing the heels of boots and shoes, the combination and arrangement, as herein set forth, of a burnishing-tool, B, provided with a spring, E, to press said tool onto the heel, and a jack for holding the shoe so mounted upon a spring, *e*, that it will yield to the increased pressure of the spring E when the burnishing-tool is passing over the higher parts of the heel, and rise again when the tool is passing over the sides of the heel, substantially as described.

2. The combination of the rocking block J with the rod F^2 of a jack passing freely through said block, and the spring *e* for controlling the position of the jack, substantially as described.

3. The combination of the rod F^2, the block J, the spring *e*, and the adjustable nut *d*, all arranged and operating substantially as described, for the purpose specified.

Executed at Boston this 30th day of November, 1872.

EBEN H. DOWNING.
WILLIAM JOINT.

Witnesses:
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N. C. LOMBARD.