

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN BURNISHING-MACHINES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **193,079**, dated July 17, 1877; application filed November 3, 1876.

To all whom it may concern:

Be it known that we, MARTIN V. B. ETHRIDGE and FRANK N. ETHRIDGE, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented an Improvement in Shank-Burnishing Machines, of which the following is a specification:

This invention relates to means for imparting a horizontal reciprocating motion from a counter-shaft to a swinging tool, which may be oscillated over the shank of a boot or shoe, and to means of oscillating a tool reciprocating in a plane vertical to the plane of oscillation, and to means of combining such reciprocating and oscillating motion for the purpose of burnishing the shanks of boots and shoes.

In the drawing, A is the counter-shaft. It carries driven pulley *a* and driving-pulley *a'*, and is mounted in hangers *b*, to which are attached a lug, C. A hanging frame, E, is loosely jointed to lug C at *c*, so as to allow motion in almost every direction. This hanging frame E has jointed to it at its lower end the ear B of the polishing-frame B D F G. This frame consists of a back piece, B G, side braces D, and end pieces F, which are framed together crosswise by the tie-rod *j*. It carries mounted on a shaft, revolving in bearings on the back piece B G, a pulley, *f*, which is run by belt *d* from pulley *a'*. Cranks or eccentrics on the shaft of pulley *f* reciprocate the connecting-rods *g*, which lay hold of the vertical levers *h*, pivoted on rod *j*, and laying hold at their lower ends of burnisher K, which has sliding bearings on the extension of rods D.

It will be observed that the levers *h* are provided with holes at their lower ends, and that the connection between them and the bur-

nisher K is made by means of short arms, the lower ends of which lay hold of the shaft carrying the burnisher K, and the upper ends fit into the holes in the lower ends of levers *h*, in which they play in converting the swinging movement of the lever ends into the sliding reciprocating motion of the burnisher on the rod D.

By taking hold of the end pieces F the whole frame may be guided and pressed upon the work, and the power transmitted from the counter-shaft will reciprocate the tool.

We claim—

1. The polishing-frame containing a reciprocating polishing-tool, K, a revolving pulley, cranks, or eccentrics on the pulley-shaft, connecting-rods *g*, levers *h*, pivoted on rod *j* to operate the burnisher, as described, in combination with the pivoted swinging-frame E and counter-shaft A, substantially as set forth.
2. The combination of the pulley *f*, rods *g*, levers *h*, and burnisher K, substantially as and for the purpose described.
3. The combination of the polishing-frame B G D F with the hanging frame E by means of a horizontal joint located above and behind all the moving parts of the polishing apparatus carried by the polishing-frame, substantially as described.
4. The combination of the polishing-frame and hanging frame, which suspend the polishing apparatus, with the lug C, by means of the loose joint *c*, by which a lateral adjustability is provided the polishing-frame, substantially as described.

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Witnesses:

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