C. W. CHASE.

Burnishing Tool for Boots and Shoes.

No. 212,190. Patented Feb. 11, 1879.

Fig: 2

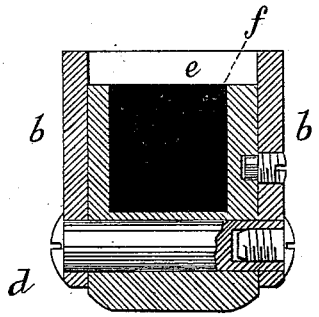


Fig: 1.

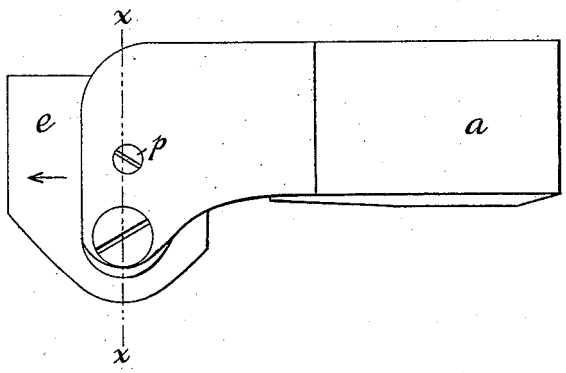


Fig: 3

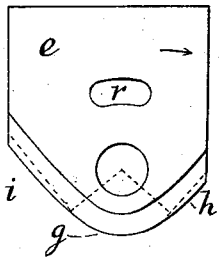
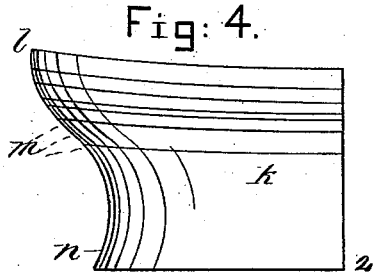


Fig: 4.



Witnesses.

Jos. P. Livermore

H. E. Whitney

Inventor.

Charles W. Chase.

by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

CHARLES W. CHASE, OF LYNN, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN BURNISHING-TOOLS FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **212,190**, dated February 11, 1879; application filed January 9, 1879.

To all whom it may concern:

Be it known that I, CHARLES W. CHASE, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Burnishing-Tools, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to burnishing-machines, and has reference to an improved tool or iron to be used in burnishing heels, specially the so-called "ogee" or French heel, which is very much concaved, and which up to the present time, so far as I am aware, has never been successfully and practically burnished by other than a hand-tool, and I accomplish this desired object by means of a single tool carried at the end of the usual arm or by a rigid and eared extension thereof. This my improved tool, which alone comes in contact with the surface of the heel to be burnished, is made as a block, chambered at its top for the reception of gas or steam by which to heat it, and the tool is so pivoted between the ears of the arm or its extension as to readily tip or rock, to easily throw either the front or toe part or rear or heel part of the tool upon the surfaces of the heel each side of its most concaved portion, according to the direction of movement of the nose of the tool over the heel, said movement usually commencing at the top-lift, the iron as it is moved about the heel following along the heel from the top-lift to the heel-seat, after which the shoe is so moved as to permit the iron to work over the surface of the heel from the seat back to the top-lift, and during this backward movement, with an iron pivoted as herein described, the iron readily adapts itself to the conformation of the heel and imparts an additional finish.

I have found by experiment that the iron should be pivoted at a point below the center of its height, that the curve of the nose should be described from the center of the pivot-pin about which the iron rocks, and that the tangential or substantially tangential surfaces of the said iron continuous with the nose, should leave or start from the arc of the said nose at a point which should not be distant from the center of oscillation of the said nose less than the distance of the center of the nose-surface from its center of motion. This distance from which the tangential or heel and toe surfaces of the tool are started may, it is obvious, be a very little less than just stated; but any such change will act to deter rather than assist the tool in automatically and freely rocking to conform to the heel-surface.

Figure 1 represents in side elevation a tool carried by an extension or eared arm adapted to be applied to the arm of a regular Tapley burnishing-machine, such machine being well known in market; Fig. 2, a vertical section taken through the tool on the line *x x;* Fig. 3, a side elevation of the tool removed from the arm; and Fig. 4 represents one form of heel, such as is desired to be burnished automatically.

The extension *a*, made as a separate piece, or being a projection of the arm of the Tapley machine, has ears *b b* to receive the fulcrum-pin *d*, upon which is pivoted and turns the tool *e*, it having at its upper surface a suitable chamber, *f*, to receive gas or steam heat.

The tool has a nose portion, *g*, which is curved in the arc of a circle struck from the center of the fulcrum-pin *d*, which supports the tool, and the nose-surface is that part of the tool which is included between the dotted radial lines in Fig. 3; but such nose may be of greater or less width along the arc of the circle described from the center of oscillation of the tool.

The heel-surface *h* of the tool is at its rear, and the toe-surface *i* at its front, and the said surfaces are prolongations of the nose-surface; but instead of being in the arc of the same circle as the nose they are made to extend tangential, or nearly so, to the arc of the nose, the point at which the heel and toe surfaces depart from the said nose-surface being preferably started at a distance from the center of oscillation of the tool equal to the radius of the curve or circle in which the nose of the tool rocks on its pivotal point.

When this my improved tool is operated to burnish a heel, say, of the shape shown in Fig. 4, a part of the nose and heel first operates upon the heel *k*, commencing at its top-lift end 2, and as the arm with the tool is vibrated about the heel from breast corner to breast corner the sur-

faces of the heel from the top-lift end to the heel-seat are gradually brought under the tool. As the nose of the tool descends into the most curved portion of the heel the tool is automatically placed in a more nearly upright position than it occupied when the tool was started upon the top-lift, and as the nose passes from the most concaved portion of the heel toward the heel-seat *l* the tool automatically and quickly turns in the direction of the arrow, Fig. 1, and part of the nose and the toe-surface *i* then acts upon the portion *m* of the heel, finishing it perfectly, and bearing so evenly thereon, owing to the easy and ready turning motion of the tool on the pivot *d*, as not to injuriously change the original contour or shape of the heel.

When the tool is operated upon the heel from the heel-seat end toward the top-lift end the ready and easy turning motion of the tool, shaped substantially as described, permits it to work over in the direction of the arrow in Fig. 3, the tool then burnishing completely the portion *n* of the heel, but not bearing thereon with sufficient force to change the shape of the top-lift. This tool will, preferably, be limited in its rocking motion by means of a stop, *p*, (shown as a screw,) in the ear *b*, one end of the screw entering a slot, *r*, at the side of the tool. This stop is desirable and valuable in connection with the tool, for the stop renders it unnecessary for the operator, when jacking the boot or shoe, to thereafter lift or right up the tool, as would be necessary if permitted to fall over.

I have described this tool as applicable to the arm of a Tapley machine; but it may be used with a similarly-moving arm of any other well-known machine, and the tool herein described has been found equally well adapted to burnish heels of more or less curvature than the heel shown in the drawings, which universal adaptation of tool to heels of various shapes, as tools in this class of machine have been heretofore made, is not possible, for different tools have been required for heels of different shapes.

With a tool shaped as described and made readily movable upon its pivotal point by the pressure of the tool against the contour of the heel, it is possible to present to the action of the heel a more extended burnishing-surface than is possible with a rigid tool.

I claim—

1. In a burnishing-machine having an arm to hold a tool while the tool acts from heel-breast corner toward heel-breast corner, a tool, *e*, having a nose and heel and toe surfaces, substantially as described, the tool being pivoted as and substantially at the point set forth to readily and quickly turn and adapt itself to the contour of the heel, substantially as described.

2. The combination, with the ears of a burnishing-machine arm, of a tool having a slot and a stop therein to limit the range of vibration of the tool about the axis of the tool, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES W. CHASE.

Witnesses:
G. W. GREGORY,
N. E. WHITNEY.