

(No Model.)

J. L. LORD.

HEEL FINISHING MACHINE.

No. 303,577.

Patented Aug. 12, 1884.

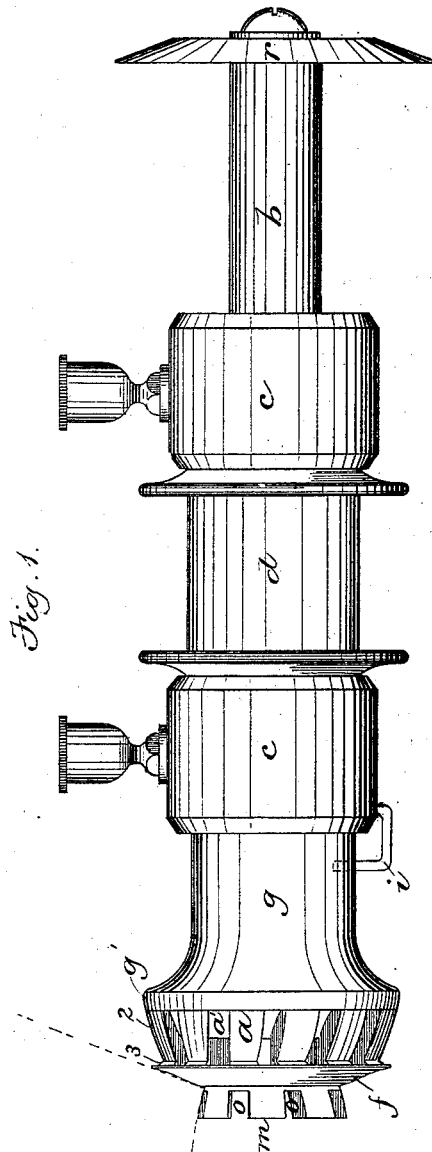


Fig. 1.

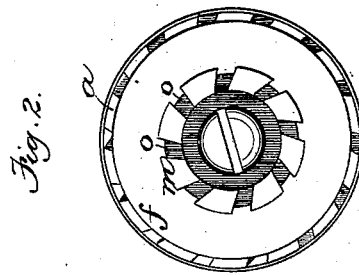


Fig. 2.

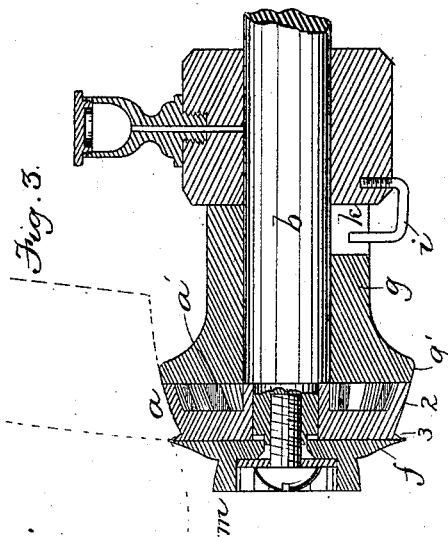


Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES L. LORD, OF LYNN, MASSACHUSETTS.

HEEL-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 303,577, dated August 12, 1884.

Application filed May 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. LORD, of Lynn, in the county of Essex and State of Massachusetts, have invented certain Improvements in Heel-Finishing Machines, of which the following is a specification.

This invention has for its object to provide an improved heel-finishing device adapted to be operated by power, and to act as a substitute for the usual hand-tools used for finishing the heel-seat and top piece of boot and shoe heels after such heels have been trimmed by a trimming-machine. Many heel-trimming machines now in use, particularly those employing rotary cutter-heads, do not finish the heel-seat, but leave some surplus stock thereat, and leave the edge of the top lift in an uneven or burred condition. It is customary for a workman to finish the heel by hand-tools after the trimming-machine has done its work, to remove the surplus stock from the heel-seat, and form or mold the same, and to remove the burr from the edge of the top lift.

My invention consists in the improved trimmer hereinafter described, whereby the finishing operations may be effected much more rapidly than heretofore, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of my improved trimmer. Fig. 2 represents an end elevation of the same. Fig. 3 represents a longitudinal section.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I provide a rotary cutter, *a*, composed of a body which is circular in a plane at right angles to its axis, and is molded on its periphery to form the parts 2 3, the part 2 conforming to the curvature of the sides of a heel at its upper portion, while the part 3 projects over the heel-seat. The cutting edges or teeth of the cutter are formed by slotting the body thereof across its molded periphery, the latter being thus divided into segments. One side of each slot constitutes the cutting-edge, and the intermediate portions of the molded periphery constitute the backs of the teeth, which are preferably backed off to make the cutting-edges slightly higher than the rear edges of the teeth, and thus afford the proper clearance, except-

ing at the angle formed by the parts 2 and 3, where the backs are of the same height at the front or cutting edges as at the rear edges, no clearance or decrease in height from cutting-edge to rear edge being required at this point, because the amount of material which the cutter has to remove is so small that no clearance is required beyond that afforded by the width of the slots. It will be seen that the molded form of the backs of the teeth enables them to impart the same form to the upper portion of the heel and the heel-seat. The cutter *a* is affixed to an arbor, *b*, which is journaled in fixed bearings *c c*, and is provided with a pulley, *d*, which receives a driving-belt. Said bearings may be supported by the frame or standard of the heel-trimming machine proper, or by an independent frame or standard.

f represents a guard-plate affixed to the arbor and projecting outwardly beyond the parts 3 of the teeth of the cutter *a*, to prevent said parts from injuring the upper, the projecting margin of said plate being reduced to a thin edge, so that it can readily enter the recess between the quarter and the heel-seat.

g represents a collar placed loosely on the arbor, and provided at one end with a flange or guard, *g'*, located close to the edge of the cutter *a*, opposite to that against which the guard *f* bears. Said guard *g'* is of the same diameter as the edge of the cutter against which it bears, and therefore forms a rest or bearing for the edge of the heel below the parts on which the cutter acts, and prevents the cutter from entering the sides of the heel, so as to form a shoulder or depression therein between the top-lift and heel-seat. I prefer to fix the collar *g* so that the guard *g'* will not rotate with the cutter, and will therefore assist the operator in controlling the heel, the frictional contact of the non-rotating guard with the heel enabling the heel to better resist the movement of the cutter than if the guard moved with the collar. Any suitable means may be adopted to prevent the collar *g* from rotating. In the present instance a bent stud, *i*, is employed, said stud being affixed to one of the bearings *c* and projecting into a slot, *k*, formed in the collar *g*.

The cutter *a* preferably has an internal cavity, *a'*, as shown in Fig. 3, communicating with the tooth-forming slots. The particles

of leather formed by the action of the cutter pass into said cavity through the slots pertaining to the cutters that form them, and pass out through other slots, said particles being too fine to accumulate in the cavity. The cavity also permits a free circulation of air through the cutter, which tends to keep the latter cool.

m represents a cutter formed on the outer side of the guard-plate *f*. Said cutter is composed of an annular body molded on its periphery to conform to the curvature of the sides of the heel at the margin of the top lift, and provided with slots *o*, extending from the outer edge of said molded periphery nearly, but not entirely, across the same, a space of about a thirty-second of an inch being left between the inner end of each slot and the guard-plate *f*. One side of each slot constitutes a cutting-edge.

The operation is as follows: The operator grasps a boot or shoe the heel of which has been previously trimmed by the usual trimmer, and presses it successively against the cutter *a* and the cutter *m*, turning the heel so as to present it properly to said cutters, the heel occupying the position shown in dotted lines in Fig. 3 when presented to the cutter *a*, and the position shown in dotted lines in Fig. 1 when presented to the cutter *m*. The cutter *a*, as already stated, finishes the heel-seat and removes the surplus material left there by the trimmer, giving the heel-seat a smooth and sharply-defined angle, any injury to the upper being prevented by the thin edge of the guard-plate *f*. When the heel is presented to the cutter *m*, the face of the top-lift bears against the side of the guard-plate *f*, and the narrow uncut portion of the periphery of the cutter *m*, between the guard-plate and the inner edge of the slots *o*, prevents the cutter from entering the edge of the top lift and acts with the side of the guard-plate to burnish and compact the angle formed by the edges and face of the top lift, removing the burr left at said angle by the original trimmer.

The operation of finishing the trimming of a heel by these improved devices is very rapid and satisfactory as compared to the above-described method heretofore practiced.

The arbor *b* may be provided with an em-

ery-wheel, *r*, adapted to enter the slots in the cutters *a* *m* and sharpen the cutting-edges.

I claim—

1. The improved heel-seat-finishing trimmer, consisting of the rotary cutter *a*, having the molded part 2, adapted to finish a portion of the heel-edge below the heel-seat, and the molded part 3, adapted to co-operate with the part 2 in forming the heel-seat, the thin-edged guard *f*, adapted to protect the upper, and the guard *g'*, flush with and forming a continuation of the contour of the molded portion 2 of the cutter, and adapted to bear against the heel-edge between the heel-seat and top lift prevent the adjoining portion 2 of the cutter from entering the edge of the heel, as set forth.

2. The combination of the rotary heel-seat trimmer composed of the molded parts 2 3, the guard *g'*, mounted loosely on the arbor of the trimmer, forming a continuation of the contour of the molded part 2, and adapted to bear against the edge of the heel below the portion acted on by said part 2, and means, substantially as described, for preventing said guard from rotating with the cutter, whereby the operator is enabled to hold the heel against the movement of the rotating trimmer, as set forth.

3. The top-lift-finishing device consisting of the molded circular body having teeth adapted to trim the heel near the corner of the top lift, a narrow uninterrupted burnishing portion at the inner ends of the teeth, and the guard-plate forming a rest for the face of the top lift, and operating, in connection with said burnishing portion, to finish the corner of the top lift, as set forth.

4. The improved heel-finishing device, consisting of the molded trimmer *a*, adapted to form the heel-seat, the guards, whereby the central portion of the heel-edge and the upper are protected, and the body *m* and plate *f*, formed, as described, to trim and burnish the top lift, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 28th day of April, 1884.

JAMES L. LORD.

Witnesses:

C. F. BROWN,
H. L. WHITE.