C. H. SOUTHALL.

BOOT AND SHOE EDGE BURNISHING MACHINE.

No. 193,622. Patented July 31, 1877.

Fig. 1

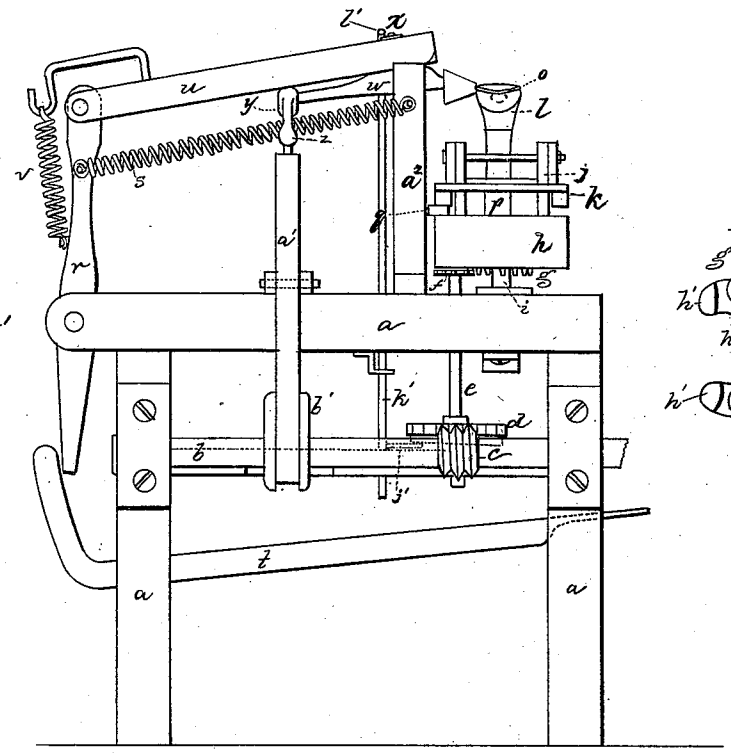


Fig. 3.

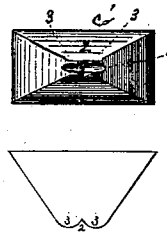


Fig. 4.

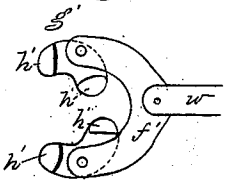


Fig. 5.



Fig. 2.

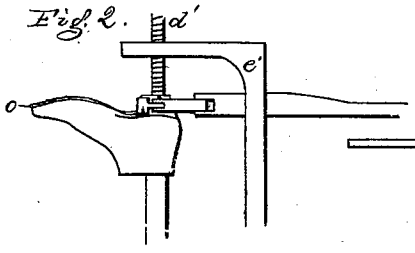
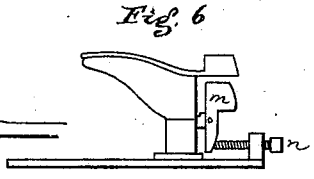


Fig. 6



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES H. SOUTHALL, OF LEEDS, ENGLAND.

IMPROVEMENT IN BOOT AND SHOE EDGE BURNISHING MACHINES.

Specification forming part of Letters Patent No. **193,622**, dated July 31, 1877; application filed June 6, 1877.

To all whom it may concern:

Be it known that I, CHARLES HENRY SOUTHALL, of Leeds, in the county of York, England, have invented an Improved Burnishing Mechanism for Boots and Shoes, of which the following is a specification:

This invention relates to mechanism for burnishing or polishing the edges of soles and heels of boots and shoes.

It consists in devices for imparting to the burnishing device a rapid reciprocating motion; also, in combination with the devices for operating the burnishers, a mechanism for moving the jack-carriage; also, in the special construction of the burnishing-tools, substantially as hereinafter set forth.

Figure 1 represents, in side view, a machine embodying this invention; Fig. 2, a modification, showing how the shoe may be held when burnishing the heel without using the jack and movable carriage; Fig. 3, a front and top view of the sole-edge burnisher; Fig. 4, a top view of the heel-burnisher; Fig. 5, a modified form of wheel; and Fig. 6 is a side view of the last or jack.

The frame *a* of the machine is of proper shape to sustain the working parts, and *b* is a driving-shaft, operated by a fast and loose pulley, or by hand. This shaft is provided with a worm, *c*, to engage a worm-gear, *d*, on a shaft, *e*, provided at top with a toothed wheel, *f*, adapted to engage teeth *g* on the under side of the carriage *h*, guided on stud *i*, so that the carriage will move horizontally to present the sole-edges of the sole to the action of the burnisher, and will then move to permit the burnishing devices to operate about the toe-edge of the sole. On lugs *j* of the carriage is pivoted a vibrating jack-plate, *k*, provided with a shoe-holding jack composed of a stationary front part, *l*, and an adjustable heel part, *m*, controlled by a screw, *n*, to expand the jack to hold the boot or shoe. The shoe to have its edge burnished is secured on this jack, and the sole of the shoe will occupy the position represented at *o*, Fig. 1; and in order to keep the edge of the sole in substantially the same horizontal plane the jack-plate is hinged near its forward end, and a spring, *p*, connected with the carriage, acting on the under side of the plate at front, keeps the heel end of the jack down. The plate, as the carriage is moved, runs against a roller, *q*, and the frame *a* is tipped, as required, to present to the burnishing-tool, and on the same level, the portions of the sole-edge to be polished.

When burnishing sole-edges it is desirable to give the sole a slow motion, and the motion of the burnishing-tool should then be one of rapid reciprocation, as practiced by hand. A lever, *r*, pivoted at the end of the frame, and connected with suitable springs *s*, draws the upper end of the lever toward the boot or shoe to be burnished, keeping the burnishing-tool pressed against the work, and a foot-lever, *t*, pivoted to the frame, if depressed, will decrease or lessen the action of the spring, or will altogether remove the tool from the work. On this lever is pivoted an arm, *u*, held up by means of a spiral spring, *v*, connected with it and with the arm, and the arm carries a jigger-lever, *w*, pivoted to it at *x*, and adapted to rock and vibrate on said pivot. The rearmost end of this jigger-lever is made as a ball to be grasped by the ball-receiving socket end of a link, *y*, provided at its other end with a ball-receiving socket, *z*, to fit a ball-like or spherical end at the upper portion of the vibrating pivoted lever a^1, forked at its lower end to embrace an eccentric, *b'*, on shaft *b*. The lever *b'* is vibrated rapidly, and the jigger-lever, through its link, is also vibrated rapidly, thereby imparting to the edge-burnisher *c'*, adjustably attached to the end of the arm *u*, a quick reciprocating movement. The forward end of the arm *u* is free to rise and fall between the posts a^2, the two being placed on the frame *a*. This edge-burnishing tool is slotted at its rear side, to fit loosely over the end of the jigger or burnisher-carrying lever, and when connected with such lever can rock thereon horizontally. The forward or working edge of the burnisher *c'* is grooved horizontally at 1, and this groove, at its central portion, is intersected by a vertical groove, 2, thereby presenting two separated rounded burnishing-surfaces, making a double-faced tool, (see edge and side views, Fig. 3, where 3 3 represent the two rounded working-faces,) and this construction enables the adjustable tool to be used about the corners, or in sharp curves at the toe or other

parts of the shoe-sole, and the spring *s* keeps the tool up closely against the sole-edge.

To burnish a heel it is not necessary to move the jack, and therefore the pinion *f* may be arranged to slide on its shaft, so as to disengage it from the teeth *g* of the carriage; or a separate jack may be used, as in Fig. 2, and the heel may be held down by means of a screw, *d'*, in a post, *e'*, connected with the frame, and adapted to be turned over the heel.

The heel-burnisher is composed of a forked link, *f'*, pivoted at the end of the jigger-lever *w*, operated as described in Fig. 1, and provided with pivoted double-faced curved-block burnishers *g'*. These two blocks *g'* have four faces, *h'*, to engage the heel, and they adapt themselves to variations in the shape and size of the heel, and as the lever *w* is vibrated the burnishing-blocks are reciprocated rapidly about the heel-edge or outside face, effectually polishing the same, and during the time that the heel-burnisher works against the heel the burnisher is raised or lowered automatically, either by depressing the arm by hand or in any other way. The spring *v* will raise the arm *u*, and to lower it automatically the under side of the wheel *d* (see Fig. 5) may be provided with a cam-rib, *i'*, to act on a projection, *j'*, on a rod, *k'*, provided with a finger, *l'*, extended across the arm *u* or lever *w*, and the burnisher will in this way engage and burnish all portions of the heel alike.

I claim—

1. The arm *u*, the burnisher, and the burnisher-carrying lever, in combination with the link and lever and eccentric.

2. The arm, burnisher-carrying lever, link, and lever a^1, and spring *s*, in combination with the carriage and shoe-supporting devices, substantially as described.

3. The edge-burnishing tool *c'*, provided with double faces 3 3, as shown and described, to operate as set forth.

4. The heel-burnisher composed of lever *w*, a forked portion, *f'*, and curved burnishers, provided with ends *h' h'*, constructed to operate substantially as described.

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

CHAS. H. SOUTHALL.

Witnesses:
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Solicitor, Leeds.
CHARLES GILLIARD.