

(No Model.)

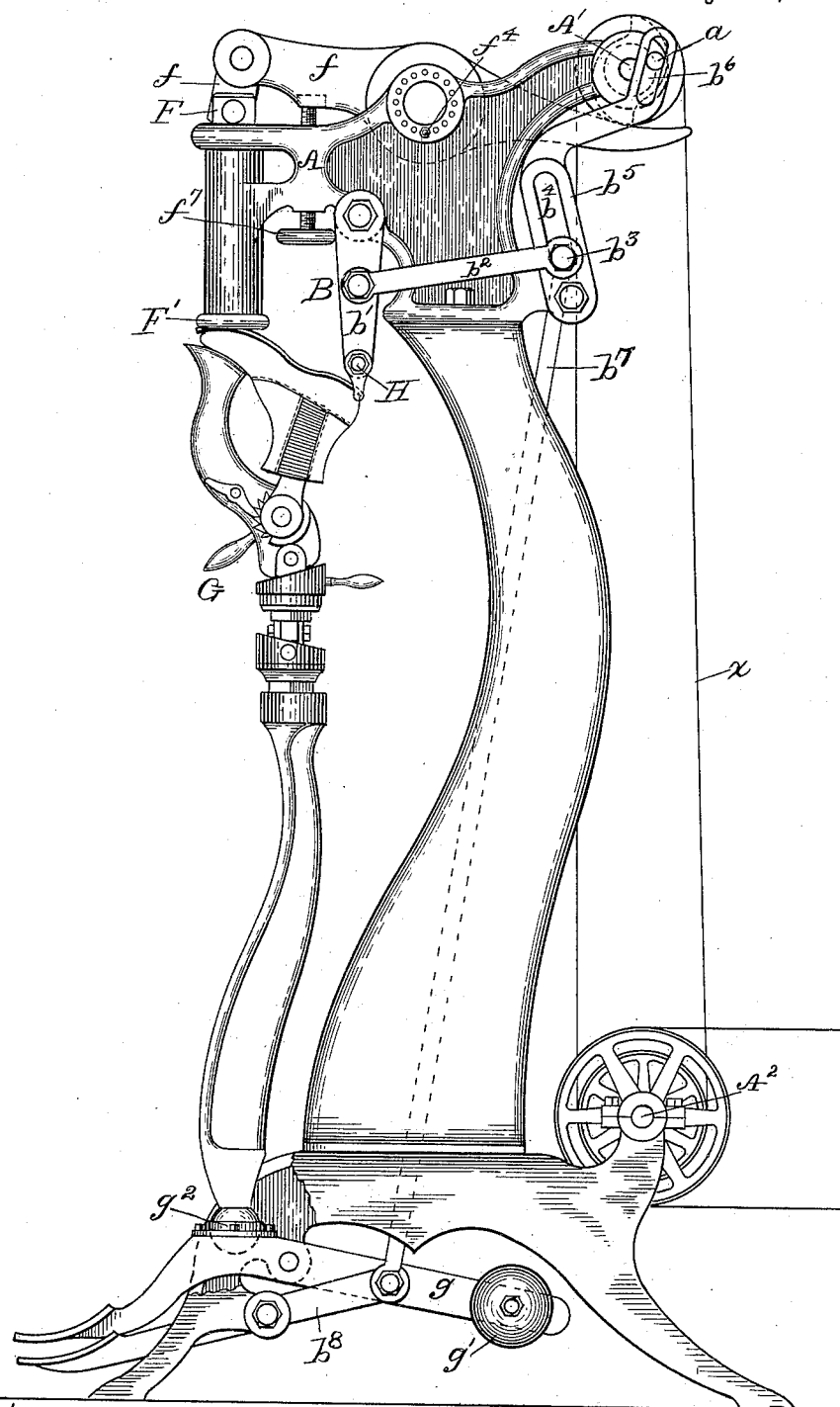
2 Sheets—Sheet 1.

E. S. ABBOTT.

SOLE MACHINE.

No. 383,266.

Patented May 22, 1888.



WITNESSES.
Edward S. Beach.
John R. Snow.

FIG. 1.

INVENTOR.

E. S. Abbott.

2 Sheets—Sheet 2.

Patented May 22, 1888.

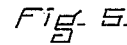
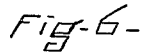


Fig. 3.

Edw. S. Beach.
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UNITED STATES PATENT OFFICE.

ESSEX S. ABBOTT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BRADFORD MANUFACTURING COMPANY, OF SAME PLACE.

SOLE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,266, dated May 22, 1888.

Application filed June 25, 1887. Serial No. 242 475. (No model.)

To all whom it may concern:

Be it known that I, ESSEX S. ABBOTT, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Sole Beating and Finishing Machine, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of one form of a machine embodying my invention, showing the shoe presented to the beater. Fig. 2 is a partial elevation of the machine, showing the shoe presented to the horse-stick, partly in section. Fig. 3 is a partial rear elevation of the same. Fig. 4 is a section on line 4 4 of Fig. 2. Fig. 5 is a detail of cam and lever. Fig. 6 is a sectional detail of jack.

My invention consists mainly in the combination of a vibratory leveler (or beater out) with a rest for the face of the sole, between portions of which the beater-out is vibrated and which prevents the face of the sole from being brought so near the leveler as to be dented by the leveler's blows. Other features of my invention are set forth and claimed below.

In the drawings, which show my invention embodied in the best way now known to me, the leveler or beater-out F is carried by lever *f*, fulcrumed in head A, and this lever is moved in one direction by the force of spring *f'*, which surrounds fulcrum-pin *f*², and is secured at one end to lever *f*, fast on pin *f*², and at the other end in one of the holes in movable disk *f*³, mounted on pin *f*² and set in any desired position to regulate the tension of the spring by means of screw *f*⁴. Leveler F is moved in the other direction against the force of spring *f'* by cam *f*⁵ on shaft A', mounted in head A, as will be plain without further description. Leveler F is thus reciprocated within the rest F' for the face of the sole, which is preferably formed, as shown, of one end of the cylinder which guides the beater-out in its reciprocation. While it is desirable that the rest for the face of the sole should entirely surround the end of the leveler F in its lowest position, it is yet necessary that it should be so, the essential point being that there should be a portion of the rest for the face of the sole on di-

ametrically-opposite sides of the face of the leveler in order that the face of the sole may not be brought so close to the leveler as to be dented or bruised. The rest for the face of the sole and the beater-out should be so arranged in relation to each other for most varieties of stock that the leveler does not move beyond the rest for the face of the sole, but in its lowest position is substantially flush with the face of the rest for the face of the sole. This enables me to beat out an ordinary sole by a succession of delicate blows hard enough for the purpose, but not hard enough to indent the face of the sole. In order, however, to regulate the length of the beater's stroke for soles varying in thickness and in different states of temper I use a screw, *f*⁷, to arrest the lever *f* in giving the beater-out the down-strokes, and in order to give the leveler's blow a quality approximating that of hand-work I use a spring, preferably formed of a block of rubber, *f*⁸, as shown, the screw *f*⁷ and the block *f*⁸ together forming a stop to regulate the length of the beater's blow.

Another feature of my invention consists in a novel combination of operative parts for varying the stroke of the vibratory tool-carrier B, which is made up of the rock-shaft *b* and arms *b'*, rigidly secured to the rock-shaft, which has its bearings in head A of the machine.

Tool-holder B is vibrated by means of rods *b*², connecting arms *b'* to cross-head *b*³ and slots *b*⁴ of levers *b*⁵, which are fulcrumed at one end to the head A and are actuated at the other end by crank-pins *a* from shaft A', mounted in head A, crank-pin *a* moving in slots *b*⁶ in levers *b*⁵, so as to oscillate the levers *b*⁵ on their fulcra. The tool-carrier is given a longer or shorter swing, as required, by moving cross-head *b*³ in slots *b*⁴, the cross-head being moved by rod *b*⁷ from treadle *b*⁸.

Tool-carrier B is shown with a horse-stick, H, in it and with a channel-flap turner, D, attached to it.

For some kinds of work it is desirable that the shoe to be operated upon should be mounted upon a jack, and I have consequently shown it in my new machine, which is provided with a universal motion of the jack G, too well known

to all skilled in the art to require further description. This jack is mounted on treadle *g*, fulcrumed in the standard of the machine and provided with a weight, *g'*, whereby the jack-screw is forced against and held up to the tool in the head of the machine.

The operation of my new sole-leveler and finishing-machine is as follows: The tool-carrier being set in motion, channel-flap is rubbed into place under the vibratory flap-turner *D*, and those made ready for the operation of the beating-out, horse-sticking, and shank burnishing and horning. The shoe is now jacked and the face of its sole brought against the rest *F'*, (or the sole may be presented by hand,) and the leveler *F* being set in motion, the sole is rapidly beaten out by a succession of rapid and gentle blows, having a quality approximating the blows of hand-workmen, the shoe being turned under rest *F'*, so as to present all parts of the sole to the action of the leveler *F*. The sole being beaten out is now ready to be horse-sticked, and jack *G* is swung on its point *g''* to bring the sole of the jacked shoe into position for the operation of the horse-stick *H*, the weight *g'* serving to hold the shoe up to the operation of the horse-stick. Just before the horse-stick moves over the face of the sole the jack is manipulated to bring all parts of the face of the sole into contact with the horse-stick, the stroke of which is regulated by moving the cross-head *b''* in slots *b'*, the swing of the tool-holder being greatest when cross-head *b''* is at the upper end and least when at the lower end in slots *b'*, and the stroke of the horse-

stick being short in the shank and near the heel of the shoe and extending from the forward end of the shank to the toe of the shoe for the rest of the sole.

It will be plain to all skilled in the art that the jack may be dispensed with, if desired, though it will be found useful when heavy soles are to be operated upon.

What I claim as my invention is—

1. In a machine substantially such as described, leveler *F*, in combination with rest *F'* for the face of the sole and means, substantially such as described, for vibrating the leveler *F* within the rest for the face of the sole, substantially such as described.

2. Leveler *F*, cylindrical rest *F'* for the face of the sole, and means, substantially such as described, for reciprocating the leveler within the rest for the face of the sole, in combination with a stop, *f' f''*, for breaking the force of the leveler's blow, substantially as and for the purpose set forth.

3. In combination, spring tool-carrier *B*, one or more levers, *b''*, fulcrumed to the head *A* and slotted at *b'* to receive a cross-head, *b''*, sliding in the slot and secured to the treadle-rod *b'*, the tool-carrier being connected to lever *b''* by rod *b''*, and lever *b''* being oscillated on its fulcrum, all substantially as set forth.

ESSEX S. ABBOTT.

Witnesses:

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JOHN R. SNOW.