(No Model.) 2 Sheets—Sheet 1.

W. AVERY.

MACHINE FOR FITTING SOLES ONTO BOOTS OR SHOES.

No. 426,752. Patented Apr. 29, 1890.

Fig. 1.

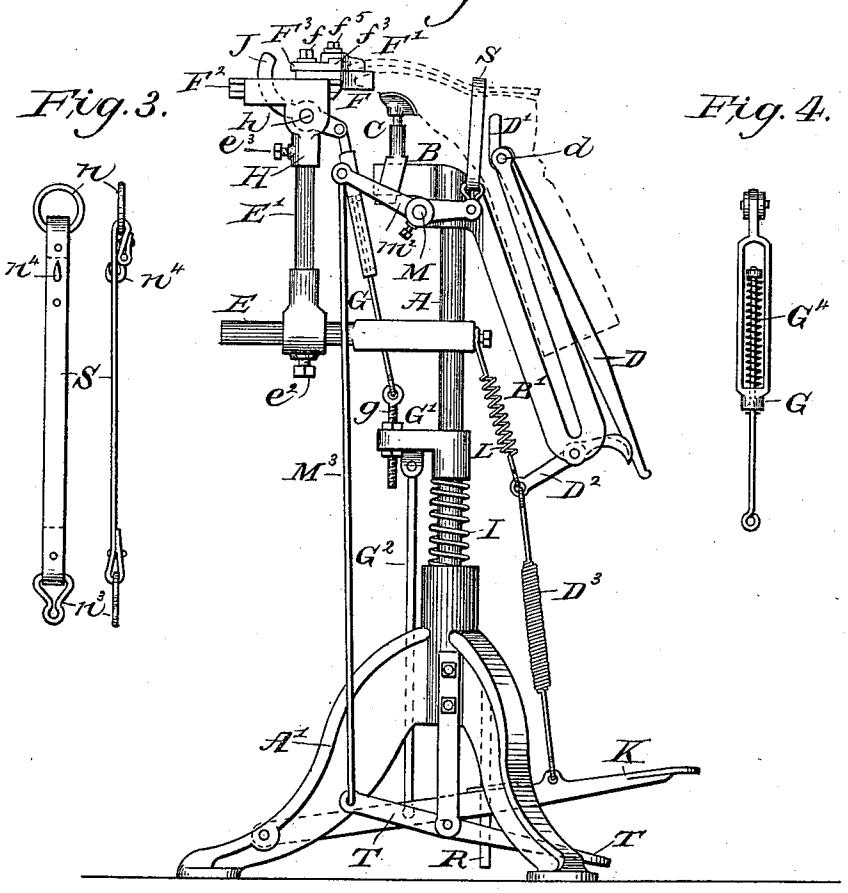
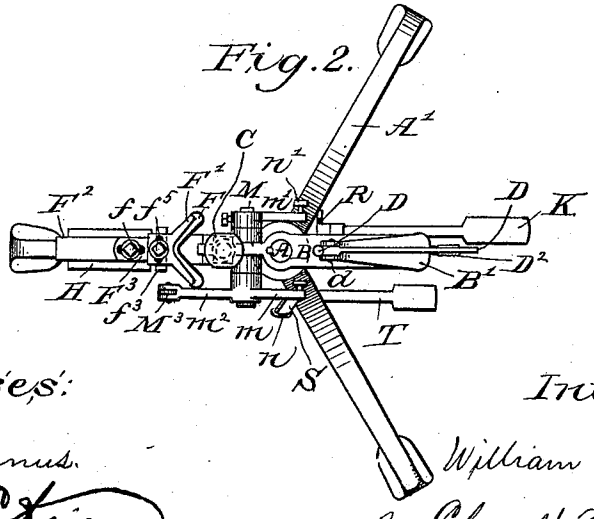


Fig. 3.

Fig. 4.

Fig. 2.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

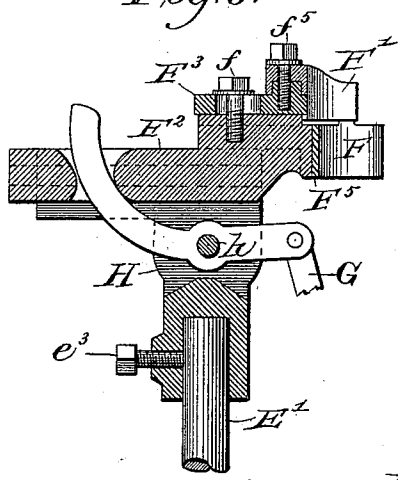


Fig. 6.

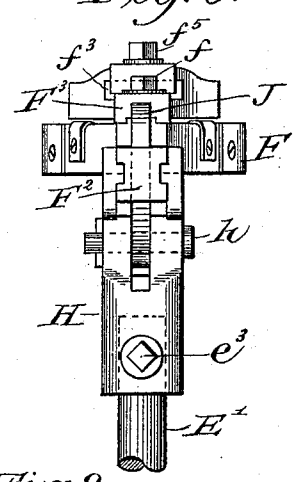


Fig. 8.

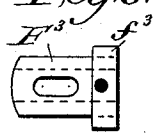


Fig. 9.

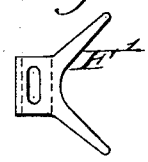
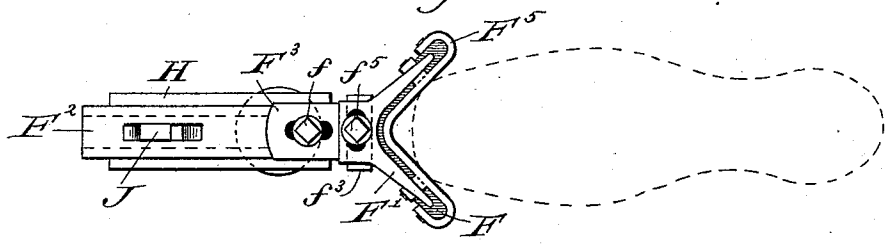


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM AVERY, OF SPENCER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JONAS R. PROUTY, OF SAME PLACE.

MACHINE FOR FITTING SOLES ONTO BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 426,752, dated April 29, 1890.

Application filed September 23, 1889. Serial No. 324,852. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM AVERY, a citizen of the United States, residing at Spencer, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machines for Fitting Soles onto Boots or Shoes, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide an efficient and convenient mechanism for assisting and expediting the operation of fitting outer soles upon boots and shoes; also, to afford in a machine for the purpose specified means for the convenient and ready adjustment of the guides, whereby the sole is gaged in proper relation to the foot or last.

Another object is to provide convenient mechanism for simultaneously jacking the boot and bringing the gaging devices to proper position to guide the laying of the sole.

Another object is to afford in a mechanism of the kind specified a shank-strap and means for the convenient operation of said shank-strap for holding the sole at the hollow of the shank.

These objects I attain by mechanism the nature and operation of which is explained in the following description, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a side view of my improved sole-fitting machine. Fig. 2 is a plan view of the same. Fig. 3 shows the construction of the shank-strap. Fig. 4 is a view of the connecting-link whereby the gage devices are operated. Fig. 5 is a vertical section of the gaging devices, drawn to a somewhat larger scale. Fig. 6 is a rear view of the same. Fig. 7 is a plan view of the same, and Figs. 8 and 9 are plan views of the sole-gage and its adjustable block separate from other parts.

My improved sole-fitting machine comprises a jack or support for the lasted boot or shoe; also, a double guide or gaging device of angular form, one part of which is adapted for resting against the upper at opposite points on the toe of the boot, while the other part serves as a gage on the sole. Said guides are movable to and from working position, and a suitable treadle and connections are provided for jacking the lasted boot upon the support and for moving the gages into contact with the toe of the boot, preferably at simultaneous operation and by the same treadle.

In referring to parts, A denotes an upright standard supported by a suitable base A′ and carrying at its upper end a boot support or jack B, which is preferably made with a U-shaped arm B′, of suitable length to accommodate the legs of boots, as indicated. The jack-spindle D, on which the heel of the last is supported, is pivoted to the end of the arm B′, as at *d*, and is extended downward along said U-shaped arm to a position where its lower end engages with a curved actuating-lever D^2, fulcrumed upon the lower part of the U. The adjustable toe-support C is mounted loose upon a forwardly-projecting arm B^2 of the jack-head, so that it can be moved in and out by simply sliding it along the forwardly-projecting arm.

E denotes an arm rigidly sustained upon the standard A and having adjustably fixed thereon an upright auxiliary standard E′, which carries at its upper end the gage-supporting head H with the gaging mechanism.

The mechanism for gaging the position of the sole in relation to the toe of the lasted boot or shoe is constructed substantially as shown in Figs. 5 to 9, inclusive, and consists of angular gages or bifurcated guides F F′, adapted to embrace or rest against the toe at opposite sides thereof. The lower or foot gage F is mounted on a movable support F^2, fitted to slide back and forth in the supporting-head H, and actuated by a lever or finger J, in connection with a treadle, whereby the gage F is advanced and retracted to and from the toe of the last. The finger or actuating-lever J is pivoted in the head H, as at *h*, and engages an opening in the slide F^2, so as to move it back and forth as the lever is operated.

The sole-gage F′ is made of angular shape, similar to the foot-gage F, and is mounted

thereon, preferably in a manner to be adjustable both longitudinally and laterally in relation to said foot-gage and slide, in the present instance by means of a slotted slide-block F^3, that is adjustable longitudinally on the slide or gage-carrier F^2, and which in turn carries a laterally-disposed guideway f^3, on which the sole-gage F′ is adjustable in lateral direction. The parts F^3 and F′ are respectively retained in position by the set-screws f and f^5, as indicated. The sole-gage F′ is adjusted and disposed in relation to the foot-guide F sufficiently far back to correspond with the required projection of the edge of the sole beyond the upper at the sides or corners of the toe, so that when the foot-guide F is in contact with the upper (see dotted line, Fig. 7) the placing of the outsole against the front of the sole-gage F′ will bring the toe of the outsole into proper relation with the toe of the boot. The foot-guide F is best provided with a facing F^5, of rawhide, leather, or similar material, where it strikes the upper of the boot, to prevent injury thereto by the stroke or contact when quickly operated.

G indicates the connection which joins the gage-operating finger J with an upwardly and downwardly movable slide G′, supported and guided on the main standard A and connected by a rod G^2 with a treadle K, that is fulcrumed at its rear end on the base A′.

I indicates a spring for lifting the slide G′, treadle K, and connections G, for throwing back the gage-operating finger J and gaging devices.

The connection G is preferably made, as indicated in Fig. 4, with a slide-link and spring G^4, which allows the connection to yield when the foot-gage F strikes the toe of the boot. This affords variation in the gage movement to accommodate different sizes of boots without making any special adjustment other than that given by the yielding of the springs. The jack-actuating lever D^2 is connected with the treadle by a spring or yielding link D^3, so that both the jack and the gaging devices are operated simultaneously by depression of the treadle K. A notched ratchet R is provided for latching the treadle when down.

L indicates a spring for lifting the jack-actuating lever D^2 when the treadle is released. The link G can be connected directly with the treadle or slide G′, or to a joint-stud g, fixed therein and having a threaded shank with adjusting-nuts, as shown, for giving adjustment thereof up and down, as required.

M indicates a rocker-shaft supported at the head of the standard A, and having forwardly-projecting arms m and m' at either side of the jack, and at one side a backwardly-projecting arm m^2, which latter is connected by a rod M^3 with a suitable foot-treadle T, fulcrumed on a depending part of the frame, as indicated. A shank-strap S is connected with one of the arms m, and is provided with a ring n, which loops onto a stud n' at the end of the opposite arm m', so that said strap can be laid over the shank of the boot, its ring looped onto the stud n', and the strap then drawn down tight by pressure on the foot-treadle. The strap can be made as indicated in Fig. 3, having at one end a link n^3, whereby it is permanently attached to the arm m at the left-hand side of the machine, and at its other end the ring n to be looped over the stud n' at the right-hand side of the machine. A series of holes and a hook n^4 are best provided for adjusting the length of the strap.

The auxiliary standard E can be adjusted out and in along the arm E to accommodate larger or smaller boots, or the standard can be swung more or less to the right or left to bring the head into line with the boot, and fixed at any adjustment by the set-screw e^2. The gage-supporting head can be rotatably adjusted on said auxiliary standard, so that the angular gaging-jaws will fit the toe of the boot or shoe, as desired, and the adjustment retained by a set-screw e^3, thus affording ample adjustment for the gaging mechanism in all desired directions.

In the operation the boot is placed upon a jack and the treadle K depressed. This jacks the boot firmly in place and throws the foot-gage F against the toe of the boot, the straight sides of the gage striking the upper and the opposite sides the toe. The outer sole is then laid with its toe against the sole-gage F′ in similar manner, thereby bringing the toe of the outsole into corresponding position with the toe of the boot. The shank-strap is then placed over the shank and its ring n looped onto the stud n' of the actuating-arm and the treadle depressed for drawing down the strap. At the same time the heel of the sole is brought into proper relation with the heel of the last, and the strap draws in the shank and retains the sole in position while it is being nailed onto the boot by the attendant.

The advantages of this machine are that it is very simple and convenient of operation, and by its use soles can be properly and accurately fitted without the exercise of great care and attention on the part of the attendant, while the work can be performed in an easy and expeditious manner.

What I claim as of my invention, to be secured by Letters Patent, is—

1. In a machine for the purpose specified, the angular foot-gage F, the angular sole-gage F′, mounted on said foot-gage and adjustable both longitudinally and laterally in relation thereto, and means for retaining the said sole-gage at position of adjustment, in combination with a boot-supporting jack and a backwardly and forwardly movable gage carrier or support, substantially as set forth.

2. The combination, with the jack or support for the boot or shoe, of the angular gages supported on a reciprocative slide, the curved lever for advancing and retracting the same to and from the toe of the boot, an actuating-treadle, and the connection provided with the

slide-link and yielding spring between said treadle and the gage-actuating lever, substantially as set forth.

3. In a machine for the purpose specified, the combination, with the boot-supporting jack, jacking-lever, sole-fitting gages, and gage-carrying slide, of the foot-treadle and two sets of actuating-connections provided with yielding springs, one set connecting said treadle with the jacking-lever and the other set connecting said treadle with the operating-lever of the gage-carrying slide, substantially as described, whereby the setting of the jack and the advance of the gage-devices are simultaneously effected, as set forth.

4. In a machine for the purpose specified, the combination, with the jack and the sole-fitting jaws or angular gages and their operating mechanism, of the rocker-shaft having the strap supporting arms, the shank-strap, the treadle, and connections for operating the rocker-shaft, as set forth.

5. The combination of the main standard carrying the jack B and projecting arm E, the auxiliary standard supported and adjustable on said arm and provided with a head or support for the gage-carrier slide, the bifurcated angular foot-gage F, and adjustable angular sole-gage F′, mounted thereon, the gage-actuating lever, the slide G′, spring I, treadle K, and connecting-links G G^2, substantially as and for the purpose set forth.

6. The jack having the U-shaped arm, the jack-spindle lever D′, pivoted at *d* and extending along said arm, the actuating-lever D^2, pivoted to the lower part of said arm and having a cam end that engages the jack-spindle lever, the connection D^3, the spring L, and the treadle K, arranged for operation as described, in combination with the standard, the sole-fitting gages, and gage-operating mechanism, substantially as set forth.

Witness my hand this 10th day of September, A. D. 1889.

WILLIAM AVERY.

Witnesses:
HENRY M. TOWER,
CHESTER T. LINLEY.