(No Model.)

W. AVERY.

SOLE FITTING MACHINE FOR BOOTS OR SHOES.

No. 382,631. Patented May 8, 1888.

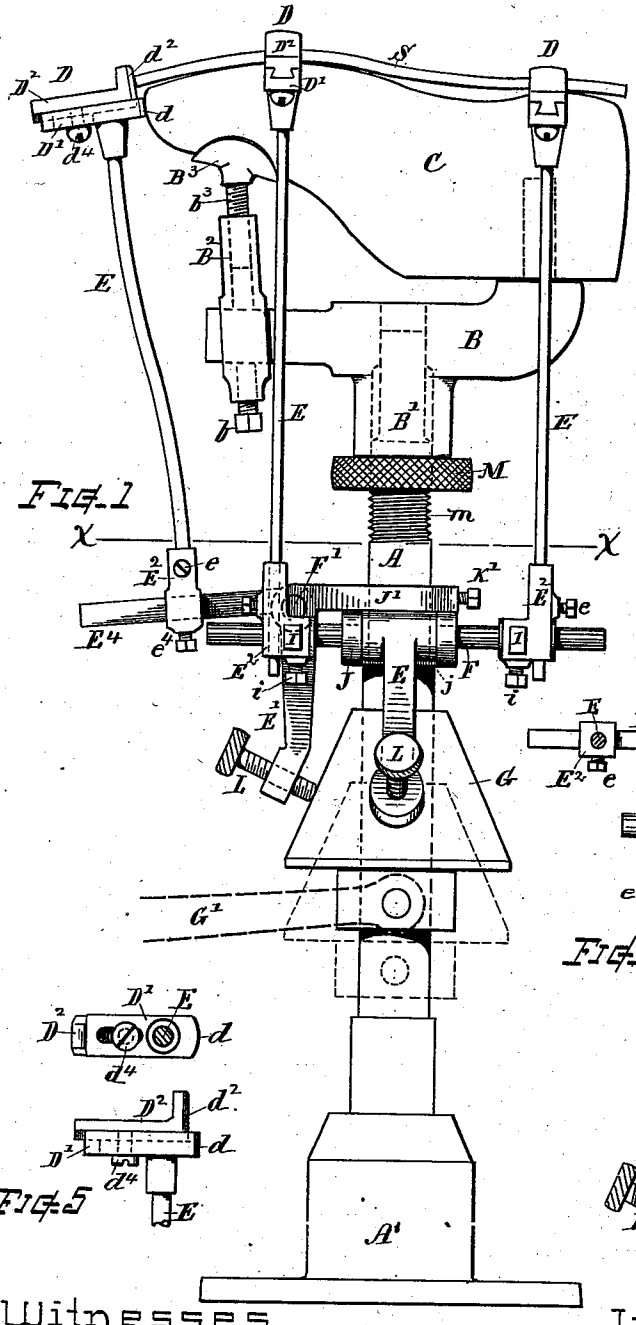


Fig. 1

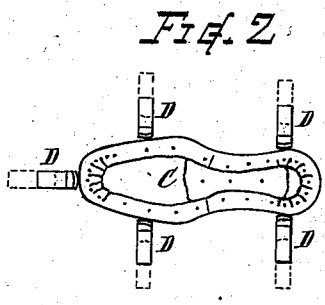


Fig. 2

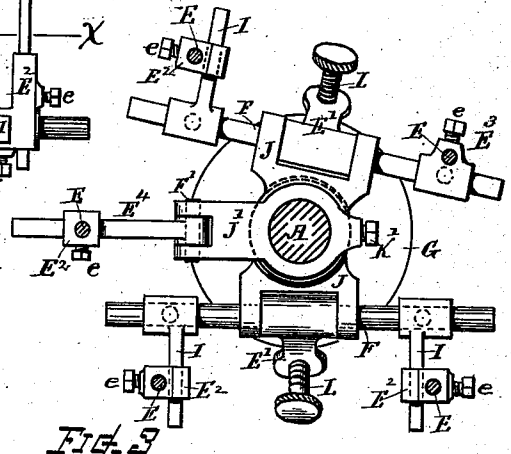


Fig. 3

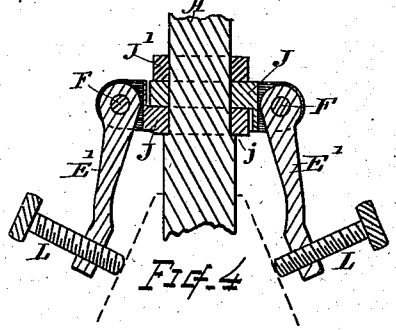


Fig. 4

Fig. 5

Witnesses.

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SOLE-FITTING MACHINE FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 382,631, dated May 8, 1888.

Application filed March 5, 1888. Serial No. 266,134. (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 Sole-Fitting Machines for 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 a practical and efficient machine for fitting on outsoles to boots or shoes after they have been lasted, in order that soles may be fitted correctly with uniform projection at the toe and evenly at both sides of the shoe, and the work done with facility and dispatch.

Another object is to provide in a machine of this class means for adjusting the several parts to accommodate different sizes and styles of boots or shoes.

These objects I attain by mechanism the nature, construction, and operation of which are hereinafter set forth, the particular subject-matter claimed being definitely specified.

In the drawings, Figure 1 is a side view of my mechanism for fitting soles on boots or shoes. Fig. 2 is a plan view showing the bottom of a lasted shoe and the relative positions of the gages for adjusting the sole thereon. Fig. 3 is a horizontal section at line x x on Fig. 1. Fig. 4 is a vertical section through the standard and fulcrum-bearings of the gage-operating levers, and Fig. 5 shows a bottom and side view of one of the sole-gages.

My improved apparatus consists, essentially, of a jack or support on which the boot or shoe is held, a series of reciprocating fingers or gages having movement toward and from the edge of the sole of a boot or shoe held on said jack, and mechanism for operating said gages to advance them against the upper of the lasted shoe, to be there held as guides for facilitating the fitting on of the outsole in a uniform and proper manner by simply placing it against or between the guides which gage the degree of projection for the sole at the toe and sides, and retains it while it is tacked to the lasted shoe, as more fully hereinafter explained.

In reference to parts, A denotes the supporting column or standard, provided with a suitable base, A′, to stand upon the floor, or on a bench, as preferred. At the top of said standard is a jack, B, having a suitable heel-spindle and toe-piece for supporting the boot or shoe C in proper position for receiving the outsole. At positions corresponding with the sides and toe of a boot or shoe on said jack are movable gages D, carried by fingers or levers E, fulcrumed on pivots or axles F F′ in connection with bearings J J′, supported on the main standard A. Said levers E are operated by actuating-arms E′, in combination with a movable expander wedge or cone, G, that slides up and down on the standard A, movement being imparted thereto by means of treadle mechanism, which may be arranged in any convenient manner in connection with the lifting-fork G′, by which the wedge G is moved. This treadle mechanism is not shown in the present drawings, since it can be of any convenient construction.

The sole-gages D are each preferably made in two parts, the lower part, D′, being attached to or made integral with the lever, bar, or finger E, and the upper part, D^2, fitted to be adjustable thereon. The adjustment of the part D^2 is in the present instance effected by the screw d^4, which works in a slot and binds the two parts together, the parts being fitted together with a tongue and groove. A slide feed-screw or other means of effecting equivalent adjustment between the parts D′ and D^2 can be employed when desired. The gages D are disposed in such relation to the jack B that when brought in contact with a shoe supported on said jack the end surface, d, of the lower part, D′, of the gage will strike against the shoe-upper, while the end surface d^2 of the top or adjustable part D^2 will stand in position to receive and guide the edge of the outsole S when it is placed upon the sole of the lasted shoe. The adjustment of the end d^2 in relation to the end d gives the proper degree of projection for the edge of the sole beyond the surface of the upper around the bottom of the last.

The levers or gage-carrying fingers may in some instances, if desired, be integrally attached to their actuating-arms E′, or to their

fulcrum-axles F; but are preferably connected therewith by attaching parts which afford adjustment, or in the manner shown. The pivots or fulcrum-axles F are fixed in the hubs of the actuating-arms E′ and are supported in the ears of bearing-pieces J, connected with the standard. On the extended ends of the fulcrum-axles F are supported outwardly-extending arms I, the hubs of which are adjustable on said axles F. Upon these outwardly-extending arms are slides E^2, in which the bars or levers E are mounted, said levers being preferably secured therein in a manner to be adjustable up or down, and rotatively, if desired. Each of the adjustable parts I and E^2 is furnished with suitable clamping devices or binding-screws, *i* and *e*, for holding the parts at their several positions of adjustment. By shifting the arms I on the fulcrum-axles F the side gages can be adjusted nearer to or farther from each other; and by moving the slides E^2 on the arms I the gages can be adjusted nearer to or farther from the central line of the jack, thus changing the position of the gages D for large or small boots or shoes. If in any instance it is preferred, the bars or fingers E may be connected directly with the fulcrum-axles F without using the arms I, or substantially as indicated at E^3, Fig. 3.

The bearing-pieces J and J′ are supported on the standard A in a manner that will permit of their swinging to incline position, as shown in the upper part of Fig. 3. Said bearing-pieces are preferably halved together and provided with an opening that fits over the standard loosely, the bearings being supported on a shoulder, *j*, (see Fig. 4,) so that they can swing laterally with freedom of action. The bearing J′, that supports the toe-gage, is slipped onto the standard above the bearings J, and is rigidly secured by a set-screw, K′, or other means, whereby it is held firmly in place, so as to confine the bearings J from lifting without interfering with their lateral swinging action.

The actuating-arm for the toe-gage is preferably made as an angle-lever fulcrumed in the bearings J′ at F′, and having an outwardly-extending arm, E^4, upon which the slide E^2, that carries the gage-supporting bar, is adjustably secured by the clamping-screw e^4, so that said bar is adjustable outwardly and inwardly along said arm E^3 for accommodating the toe-gage to large or small shoes. The lower ends of the levers or actuating-arms E′ are best provided with adjusting thumb-screws L, the ends of which work against the surface of the expander-cone G. Said screw serves for giving slight adjustment to correspond to different sizes of boots or shoes, or for adjusting the several gages into proper relation with each other. If desired, the screws L can in some instances be omitted, the ends of the arms being made to bear directly on the wedge G, or to be furnished with anti-friction rolls that bear on said wedge. I prefer, however, to use said adjusting-screws, as by their use adjustments can be conveniently effected without moving the bars E upon their fulcrum-supports.

The jack B is made with a socket, B′, which fits over the end of the standard A and supports it in upright position, while its lower end rests upon a rotating nut, M, fitted upon a screw-thread, *m*, formed on the standard. By rotating the nut M the jack is adjusted up or down for bringing the soles of large or small size shoes to correspond with the position of the gages D. The toe-piece B^2 of the jack is provided with a bearing-pad, B^3, having a screw-threaded shank, b^3, fitted to a threaded opening in its upper end. By rotating the pad it can be raised or lowered as required. The toe-piece B^2 is adjustable outward or inward on the front end of the jack-body, and retained thereon by the set-screw *b* in well-known manner. In the present instance the jack B is shown as made for low shoes; but it will be understood that for supporting long-legged boots the jack would be constructed with a long heel-reach or goose-neck, which would allow sufficient space for the leg of the boot.

If it is desired to use a gage at the heel, such gage may be employed, arranged in the same manner as the toe gage and operated by equivalent means.

The operation of my improved mechanism is as follows: The shoe or boot, after having been lasted, is placed upon the jack B. The expanded cone or wedge G is then elevated, (by depressing the treadle with the foot or otherwise,) thereby forcing outward the actuating-arms E′ and swinging inward the levers or bars E to advance the gages D and press them against the shoe at the opposite sides of the heel and ball and at the toe, so that their surfaces d^2 will embrace the edges of the outsole S, which is laid by the operation upon the sole of the lasted shoe, preferably just before the gages are brought into position. The sole is thus held with its edges against the ends d^2 of the upper portion, D^2, of the gages, while the ends *d* of their lower portions rest against the upper of the shoe. This brings the sole in proper position for being tacked on. The tacks for holding the sole in place are then driven while it is held between the gages. By this method all of the soles are fitted with equal projection at the opposite sides of the shoes, and a uniform projection at the toe is attained, while the operation can be performed with facility and dispatch by any ordinary workman, and without the necessity of exercising extreme care and precaution that is required to fit the soles, even when put on in the ordinary manner.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The machine herein described for fitting on outsoles to boots or shoes, comprising a main standard having a vertically-adjustable shoe-supporting head or jack, in combination with a series of backwardly and forwardly

movable gages that guide the edges of the outsole, a series of levers or bars respectively carrying said gages fulcrumed in bearings on said standard, and an actuating wedge or expander whereby movement is imparted to said levers for advancing said gages to embrace the soles, for the purpose set forth.

2. The combination of the jack or support for holding a boot or shoe, and a series of movable gages having surfaces *d* to bear against the upper and surfaces d^2 for gaging the projection of the outsole, and operating-supporters for carrying said gages toward and from the axis of said jack, substantially as and for the purpose set forth.

3. The combination, with the standard A and the shoe-supporting jack B, mounted thereon, of the series of movable sole-gages D, gage-supporting bars or levers E, with fulcrum-pivots F F′ and actuating-arm E′, and the expander or wedge G, movable on said standard, for operating said levers to advance the gages to their work.

4. The combination, with the gages for indicating the position of the outsole, of the shoe support or jack having its toe-pad B^3 fitted with a screw-thread, to be outwardly and inwardly adjustable on the toe-piece B^2 by rotation of said pad, substantially as set forth.

5. The standard A, having the screw-threads *m*, the shoe-supporting head or jack B, movably socketed upon said standard, and the adjusting-nut M, fitted to said screw-thread, in combination with the sole-gages and gage-supporting fingers, for the purpose set forth.

6. In a machine for fitting on outsoles, the gage D, composed of two parts, as D′ and D^2, said-part D^2 being adjustable upon the part D′, and a screw or binder for retaining the same at positions of adjustment, for the purpose set forth.

7. The lateral swinging fulcrum-bearings J, free to assume different positions, in combination with the standard A, carrying the shoe-supporting jack and the side gages and gage-operating levers, substantially as and for the purpose set forth.

8. The combination, with the sole-gage D, its fulcrum-axle F, supporting-finger E, and actuating-arm E′, of the arm I, connecting-slide E^2, and binders or set-screws *e* and *i* for clamping the parts at positions of adjustment, substantially as set forth.

9. The toe-gage having its supporting-finger provided with an adjustable joint-head, E^2, and the actuating-arm fulcrumed at F on the fixed bearing J′, and provided with an outward extension, E^4, whereon said joint-head is adjustably secured, in combination with the jack-carrying standard A and operating-wedge.

10. The actuating-arms E′, provided with adjusting thumb-screws L, in combination with the fulcrum-axles F, gage-bearings D, carrying-fingers E, and expander G, substantially as and for the purpose set forth.

Witness my hand this 28th day of February, A. D. 1888.

WILLIAM AVERY.

Witnesses:
JOHN A. HOWARD,
CHESTER T. LINLEY.