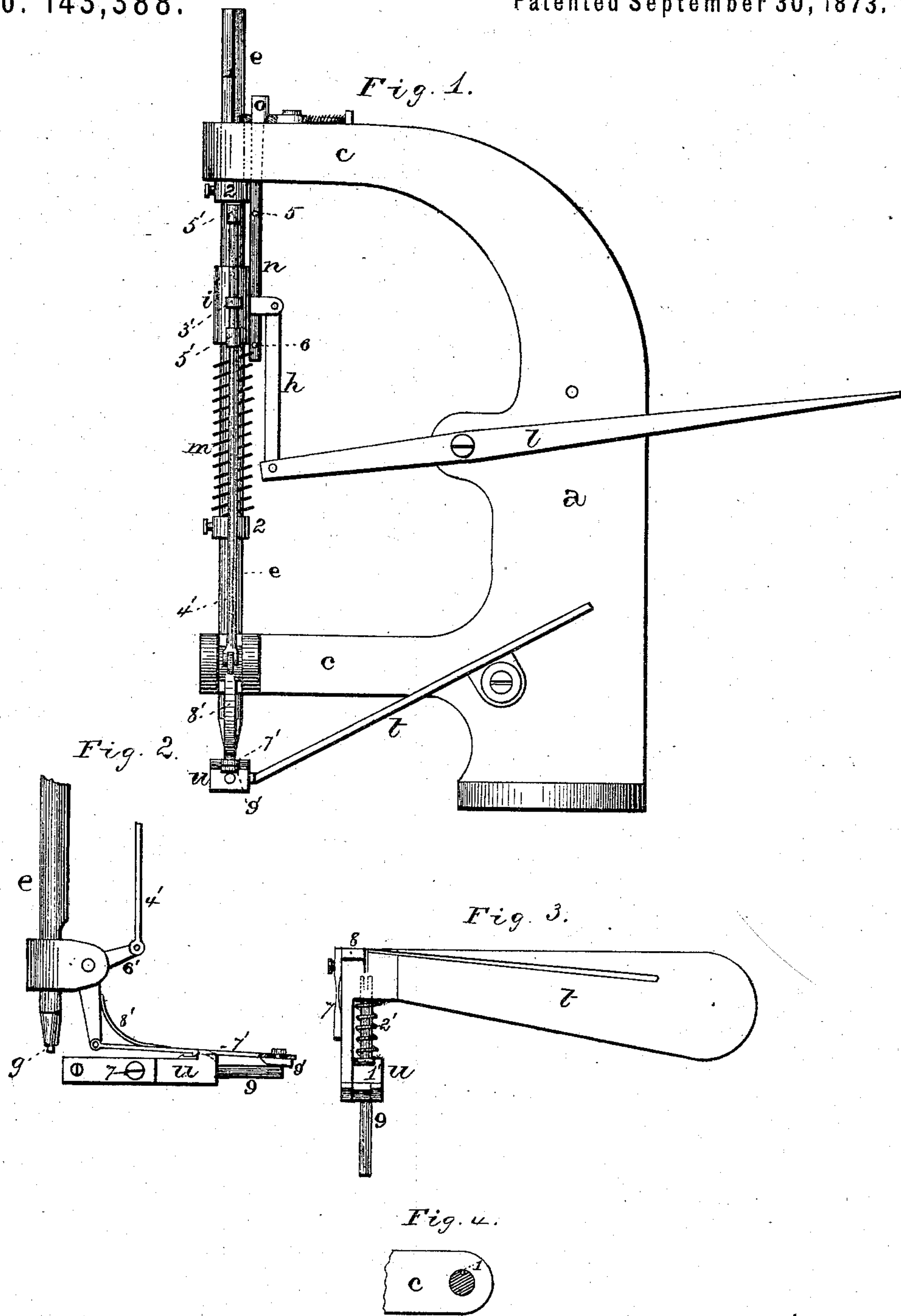


D. M. SMYTH.
Tacking Machines for Boots and Shoes.
 No. 143,388. Patented September 30, 1873.



WITNESSES:
W. K. Duhamel
Alex Davidson

INVENTOR.
David M. Smyth
Per H. J. Abbot
Attorney.

UNITED STATES PATENT OFFICE.

DAVID M. SMYTH, OF LYNN, MASSACHUSETTS, ASSIGNOR TO HENRY G. THOMPSON, OF MILFORD, CONNECTICUT.

IMPROVEMENT IN TACKING-MACHINES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. 143,388, dated September 30, 1873; application filed June 27, 1873.

To all whom it may concern:

Be it known that I, DAVID M. SMYTH, of Lynn, county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Tacking-Machines for Boots and Shoes, of which the following is a specification:

The nature of my invention relates to the method of securing the uppers to the inner soles of boots and shoes by means of an electric automatic hammer; and it consists in the arrangement and combination of devices, which will be more fully set forth hereafter, by which a magnetic hammer is used for driving the tacks, in combination with an automatic feeding device.

Figure 1 is a side elevation of my invention. Fig. 2 is a side view of the devices for operating the push-bar. Fig. 3 is a plan view of the push-bar and table for holding the tacks. Fig. 4 is a detail view.

a represents an iron frame, having two arms, *c*, which form guides for the hammer *e*. I prefer to use a magnetized hammer, surrounding the sides or lower part with a brass ferrule of about two inches; but in the model the hammer is made of brass or any non-magnetic metal, so as to not become magnetized by the magnet *g*, which it carries in its end, and is prevented from turning in its bearings by a feather formed on the inside of the upper bearing, which catches in a groove, 1, formed in the side of the hammer. Upon the hammer are secured two adjustable collars, 2, the upper one of which serves to raise the hammer upward, by means of a sliding collar, *i*, attached by means of a connecting-rod, *h*, to the operating-lever *l*. By depressing the end of the lever, the handle is raised upward until the spring-catch 4 catches in the notch formed in the side of the hammer, and holds it in this elevated position. At the same time that the collar raises the hammer, the arm projecting from its side, to which the connecting-rod is secured, catches under a pin, 5, on the side of the rod *n*, having a cam, *o*, formed upon its upper end, and raises the rod upward so as to lift the cam up above the slot in the catch, and let the spring throw the catch forward so as to engage with the hammer. When the end

of the lever *l* is elevated, the sliding collar moves downward upon the hammer, compressing the spring *m* against the lower collar 2, so as to give force to the blow of the hammer, and at the same time the arm, catching against a second pin, 6, on the rod *n*, draws the cam downward into the slot in the catch, so as to move it backward out of the recess in the hammer, and let the hammer fall. Secured to the side of the frame is an inclined slotted brass table, *t*, having an arm or extension, *u*, upon its front end. To the front of this extension is secured the spring 7, having its tension regulated by a set-screw, and having secured to its front end a magnet, 8, of any desired shape or power, to attract the tacks one by one as they slide down the inclined table. Passing through the extension *u*, and moving back and forth, is a push-rod, 9, having its front end recessed so as to pass over or around the shanks of the tacks as it carries them forward to the magnet on the hammer. Over this rod is slipped a square nut, 1', which can be adjusted back and forth, so as to regulate the distance which the rod is to move, and which compresses the spring 2', so as to throw the rod back after having been moved forward, and which has a catch formed upon its top. Extending outward from the sliding collar *i* is an arm, 3', which passes over a rod, 4', provided with the stops 5'. As the sliding collar is depressed by the lever *l* to operate the hammer, this arm strikes against the lower stop and forces the rod downward, which operates the bell-crank 6' pivoted to its lower end, so as to draw the slide-bar 7' forward. This bar is hinged to the lower end of the bell-crank, and has a spring, 8', secured to its top, so as to move it back into position after having been drawn forward to operate the push-rod. On the under side of this bar is a projection for engaging with the catch on the top of the nut, and upon its rear end, on the same side, is secured an adjustable stop, 9', adjusted back and forth by a set-screw in a slot, so as to regulate the distance this bar is to move the push-rod. As the bar is moved forward, this adjustable stop, having its front end beveled, comes in contact with the raised beveled surface of the extension *u*, which lifts the bar upward, so that, as soon as it has moved

the push-bar far enough, the projection on its lower side is raised upward so as to release the catch and let the push-rod fly back before the hammer falls. The tacks are fed into the slot in the inclined table by any suitable devices, and slide down by their own gravity toward the bottom, where each one is attracted in its turn by the spring-magnet. Just before the hammer descends, the forked push-rod takes the tack just in front of it and pushes it outward from the spring-magnet to the magnet on the hammer, to which it sticks, and then, as it falls, it drives the tack through both upper and sole, with sufficient regularity as to line and space to answer fully for this class of work.

All of the parts which constitute the feed mechanism are made of non-magnetic metal or substance.

This machine is designed to be used for tacks alone, and not brads without heads.

Having thus described my invention, I claim—

1. A magnetic hammer for the purpose of receiving, holding, and driving a tack through the upper of boots and shoes into the inner soles thereof, combined with automatic machinery constructed for operating and feeding the same, for the purpose set forth.

2. A magnetic hammer, in combination with the non-magnetic feeding devices, substantially as described.

3. The combination of the spring push-bar, provided with the nut and catch, with the sliding bar, having a projection and adjustable stop, and the mechanism for operating the same, substantially as shown.

D. M. SMYTH.

Witnesses:

HENRY G. THOMPSON,
DOUGLAS SMYTH.