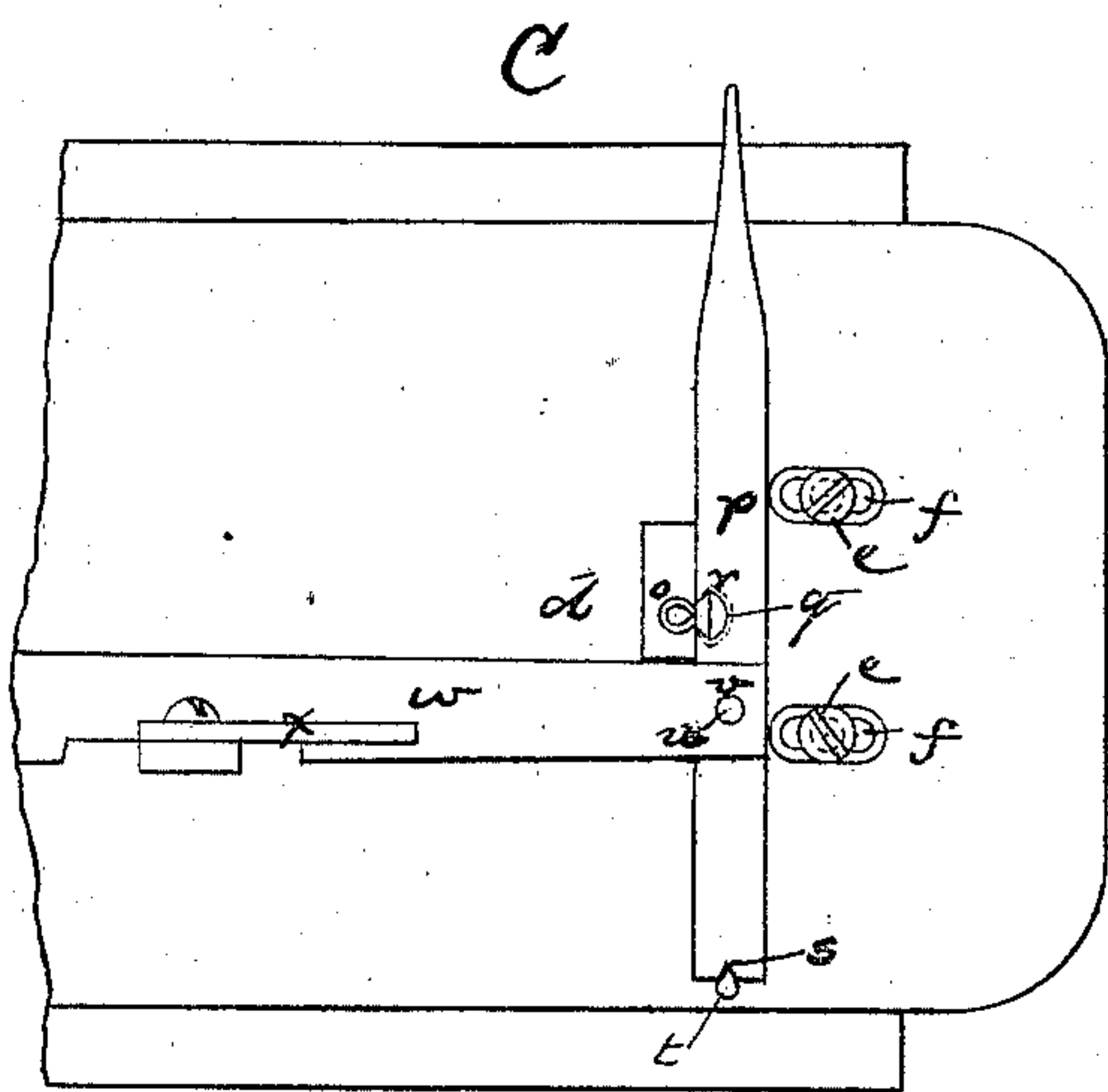
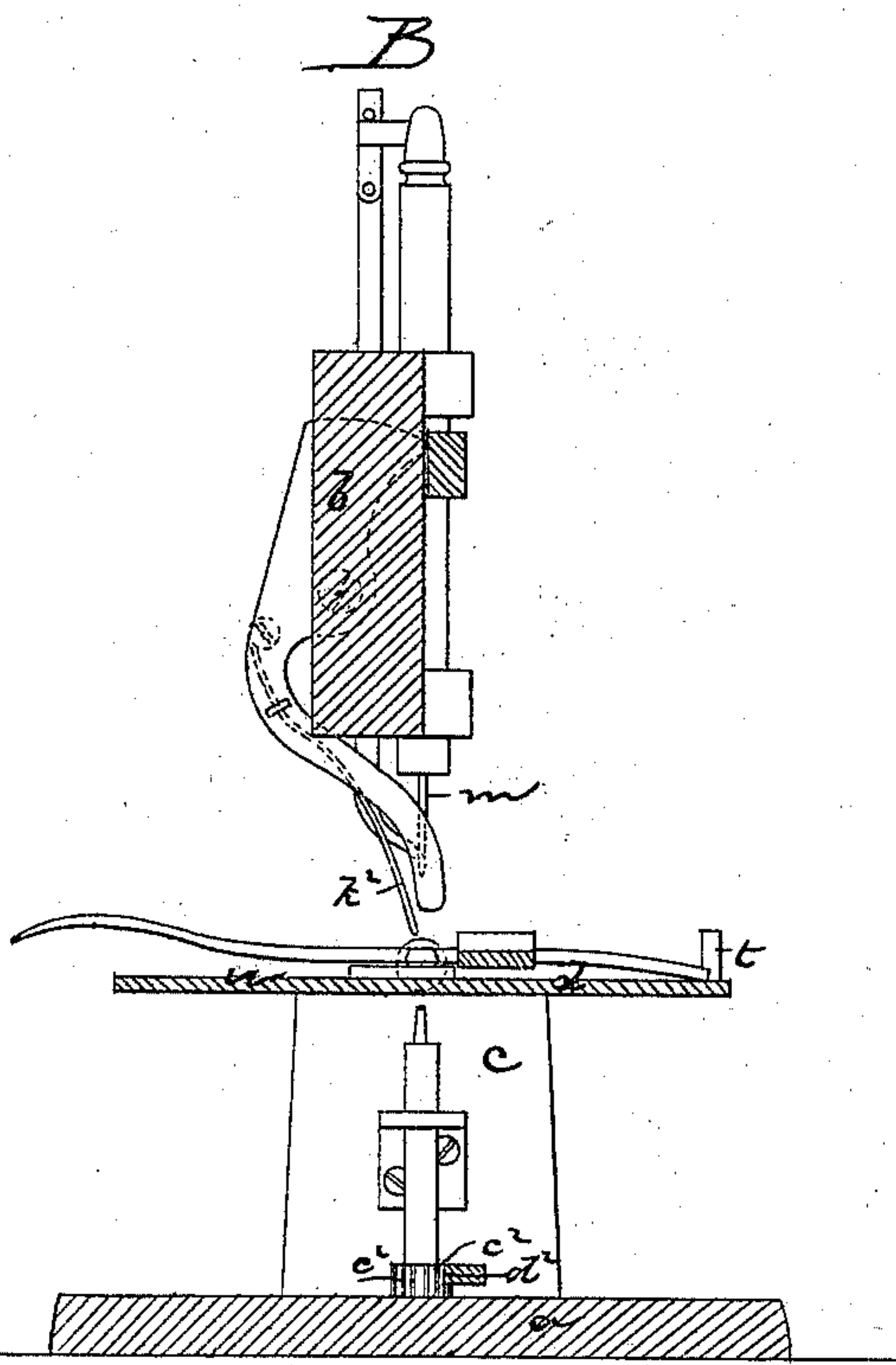
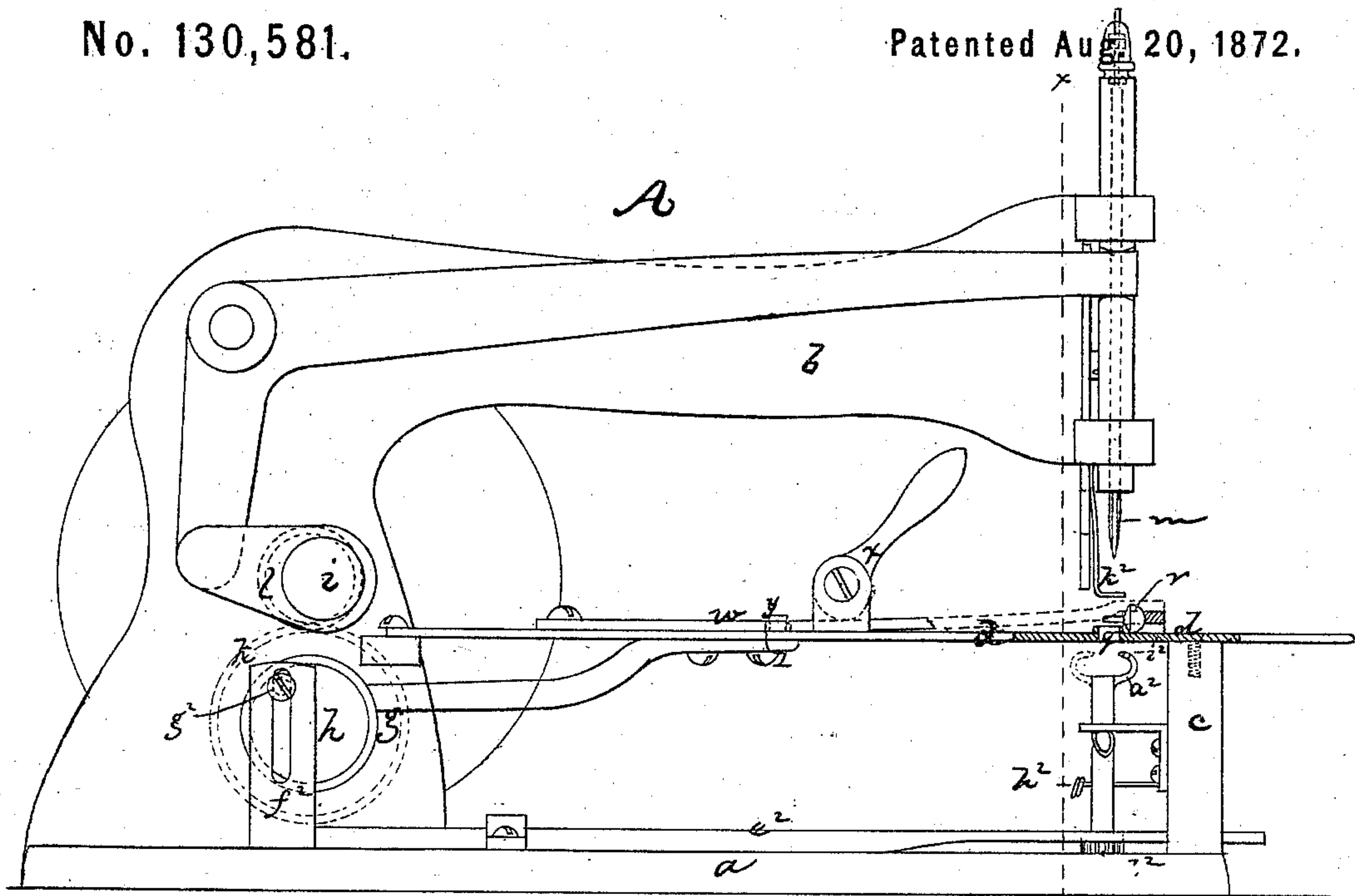


J. KEITH.

Machine for Sewing Buttons on Shoes.

No. 130,581.

Patented Aug 20, 1872.



Witnesses.
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UNITED STATES PATENT OFFICE.

JEREMIAH KEITH, OF CHARLTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR SEWING BUTTONS ON SHOES, &c.

Specification forming part of Letters Patent No. 130,581, dated August 20, 1872.

To all whom it may concern:

Be it known that I, JEREMIAH KEITH, of Charlton, in the county of Worcester and State of Massachusetts, have invented an Improvement in Sewing on Buttons; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to a method of fastening metal or metal-eyed buttons to boot-uppers by mechanism, in effecting which I hold the button in position over the leather or upper by a suitable guide and clamp bar, the upper being supported upon a suitable sewing-machine plate or work-supporting surface and the button standing with its eye in such position that it can be brought under the needle and clamped in position for the passage of the needle-point through it. The parts being in this position or having this relation, the needle-point passes down through the eye and through the work-plate with or to receive the thread, and after its rise from the plate and eye, the work-plate, or the needle, has a lateral movement previous to the next descent of the needle-point, in which descent the point passes outside of the eye with or to receive the thread, so that the thread is successively and intermittently carried through the eye and outside of the eye, thus making a series of stitches which fasten the eye to the upper. It is in this method of fastening a button that my invention primarily consists, and the drawing represents a machine for practicing the invention.

A shows, in side and sectional elevation, the front end of the work-supporting plate or table, the sewing-machine arm, and the stitch-forming mechanism. B is a section on the line $x\ x$ looking toward the front of the machine. C is a plan of the work-plate, button-holding guide, &c.

a denotes the stationary frame or bed; b , the stationary arm. c is a post or stationary upright, upon which is placed the front end of the work-plate d , the rear end of said plate being suitably supported, so that the front end of the plate is kept in horizontal position, the plate having a short reciprocating horizontal slide movement upon the top of the post c for

guiding which movement pins e may pass through slots f in the plate into the top of the post. The reciprocating movement of the plate may be effected by a cam-wheel, g , on a shaft, h , connected to the driving-shaft i by gears k l , a pin or roll on an arm projecting from the plate, extending into the cam-groove of said wheel. m denotes an ordinary hook-needle, fixed in a needle-bar, which reciprocates vertically in bearings at the front end of the arm b , said needle being shown as provided with an ordinary cast-off, and having its movements imparted to it by any suitable mechanism. The needle has only vertical movement and plays through a slot, o , in the work-plate, the plate being so moved that at one descent of the needle it passes through one end of the slot and at the next descent it passes through the other end of the slot, the work-plate moving in one or the opposite direction at each rise of the needle and preparatory to its next descent. Upon the table is laid a bar or plate, p , having in it a slot, q , which is shaped to receive and hold the button r to be fastened to the upper, and this plate is made with provision for locating and retaining it in such position upon the table that the needle-point in one downward movement passes through the eye, and in its next downward movement passes outside of the eye. For this purpose the bar is shown as made with a notch, s , at one end, which notch extends over a pin, t , extending up from the table, and with a pin, u , which pin enters a hole, v , in the end of a clamp-bar, w , said bar being a spring fastened at its inner end to the work-plate and forced down to clamp the guide-bar by an eccentric lever, x , a pin, y , and hole z , guiding the spring. By these means the position of the button-holding guide-bar in the machine is always the same, and always such as to insure the movement of the needle-point first through the upper and eye, and next through the upper outside of the eye. Beneath the plate is a rotatively-reciprocating thread-guide, a^2 , for laying the thread into the needle-hook, said guide being turned in one direction and laying the thread across the needle and so that the hook catches the thread in one descent of the needle; and in the opposite direction to again lay the thread across the needle and in position for the hook to catch it in the next de-

scent of the needle; for which purpose the vertical shaft or spindle, upon the top of which is the guide, is provided with a gear-pinion, e^2 , meshing into and driven by a gear-rack, d^2 , on the front end of a slide-bar, e^2 , having a slotted arm, f^2 , into which slot extends a crank-pin, g^2 , extending from the cam-shaft h , the shaft first imparting forward movement to the work-plate and to the rack-bar; and next a rear movement to the work-plate and to the rack-bar, so that the plate is moved forward and the thread-guide turned and the needle then descends; and (after the rise of the needle) the plate moves back and the thread-guide turns back, and the needle again descends, the needle having the two complete reciprocations at each single complete reciprocation of the work-plate and thread-guide.

The operation of the machine is as follows: The boot-upper is laid upon the work-plate in position for attachment of the button. The guide-bar p is then laid over the upper, the notch s against the pin t , and the clamp-bar w is thrown down upon it so that the pin u passes through the hole v , the button being in its slot q , in the position shown at C, the thread passing under a tension-spring, h^2 , and through the eye i^2 of the thread-guide a^2 , and the button is ready to be fastened. As the main shaft i is turned the needle descends and passes through the button-eye, and the thread-guide laying the thread across the needle-shank, the hook of the needle, as the needle rises, catches the thread and draws it up in the form of a loop through the eye and before the needle completes its ascent a loop-bender, k^2 , is pressed forward and bends the loop in a direction opposite to the hook, so that as the needle starts down its point is sure to go through the loop. Before the completion of the ascent, the table is moved forward, and the needle-point in descending passes down outside of the eye, its hook again taking the thread, which has been again laid in its path, and the needle draw-

ing up a loop, which is bent as before, so that the needle-point passes through it, and in its descent again passes through the eye, (the table having been moved); these operations being continued until the button is securely fastened, when, without breaking the thread, the clamp is released, the button-bar removed, the work moved forward, another button placed in the slot and the bar again clamped and the new button fastened as was the last; the whole row of buttons being fastened, if desirable, without breaking the thread.

I claim—

1. The improvement in fastening buttons, consisting in holding each button in a clamped bar, beneath which the work is placed, and passing the needle-point and thread alternately through and outside of the eye, the needle or work-plate having a lateral movement between each two successive movements of the needle through the work.

2. The button receiving and holding bar p , having provision for its location and locking in position, substantially as shown and described.

3. In combination with the work-plate, button-holding bar, hook-needle and thread-guide, the loop-bender k^2 , operating substantially as shown and described.

4. In combination with the needle and laterally-reciprocating work-plate, the thread-guide having a rotative movement in one direction as the work-plate moves forward, and a rotative movement in the opposite direction when the work-plate moves back, substantially as shown and described.

5. The combination of the reciprocating needle, the rotatively-reciprocating thread-guide, the vibrating loop-presser and the reciprocating table, relatively arranged and operating substantially as shown and described.

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Witnesses:

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