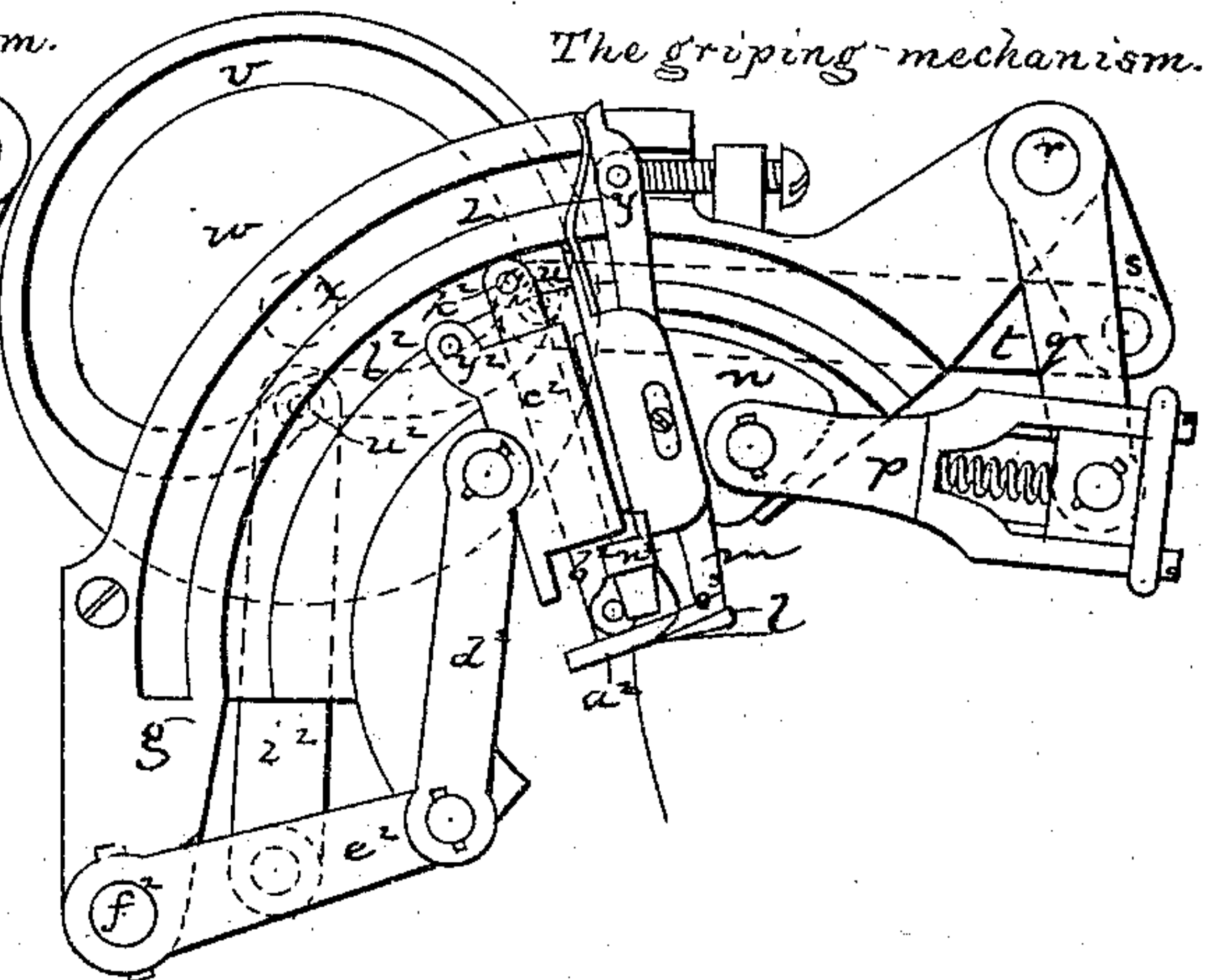
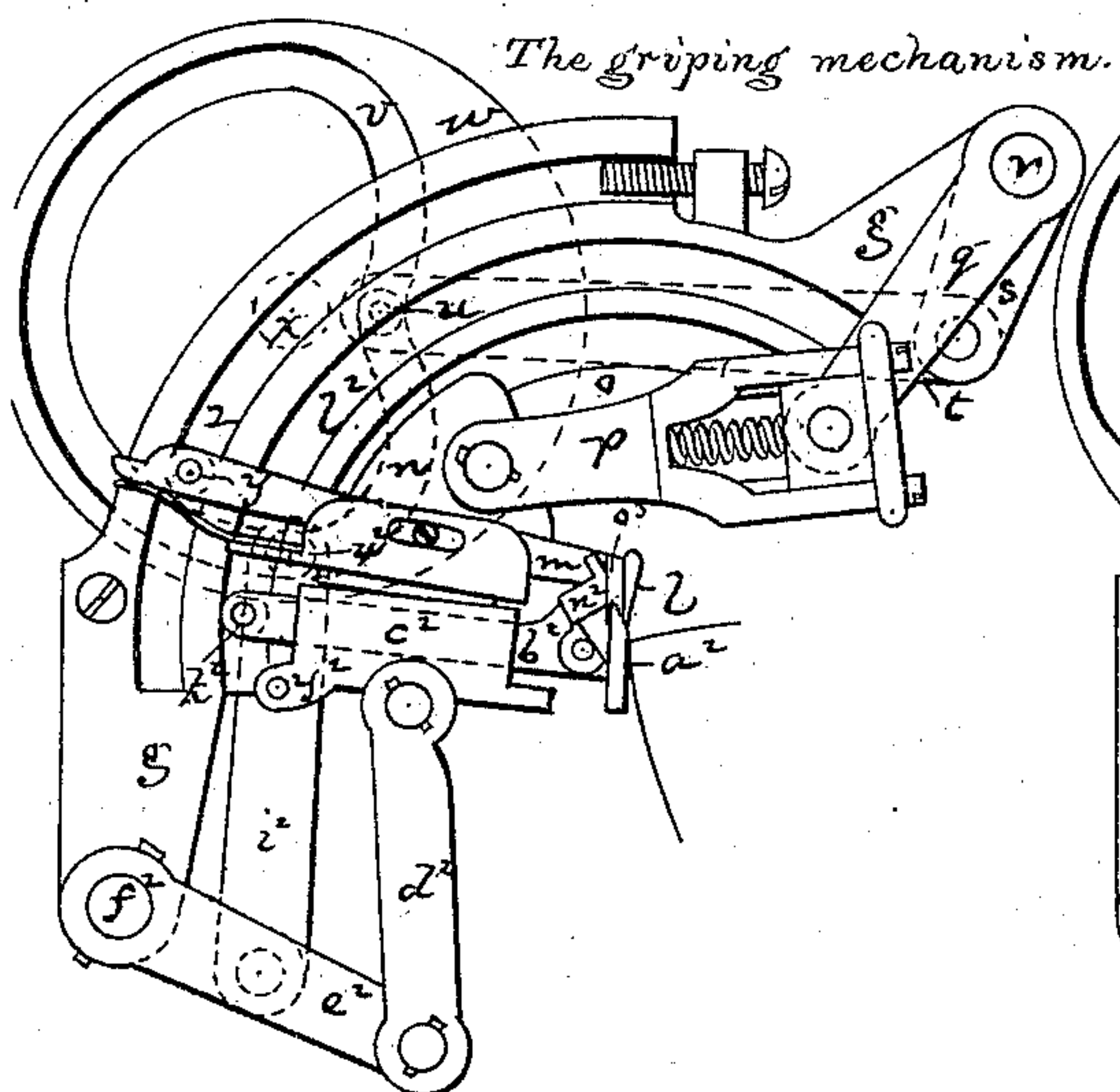
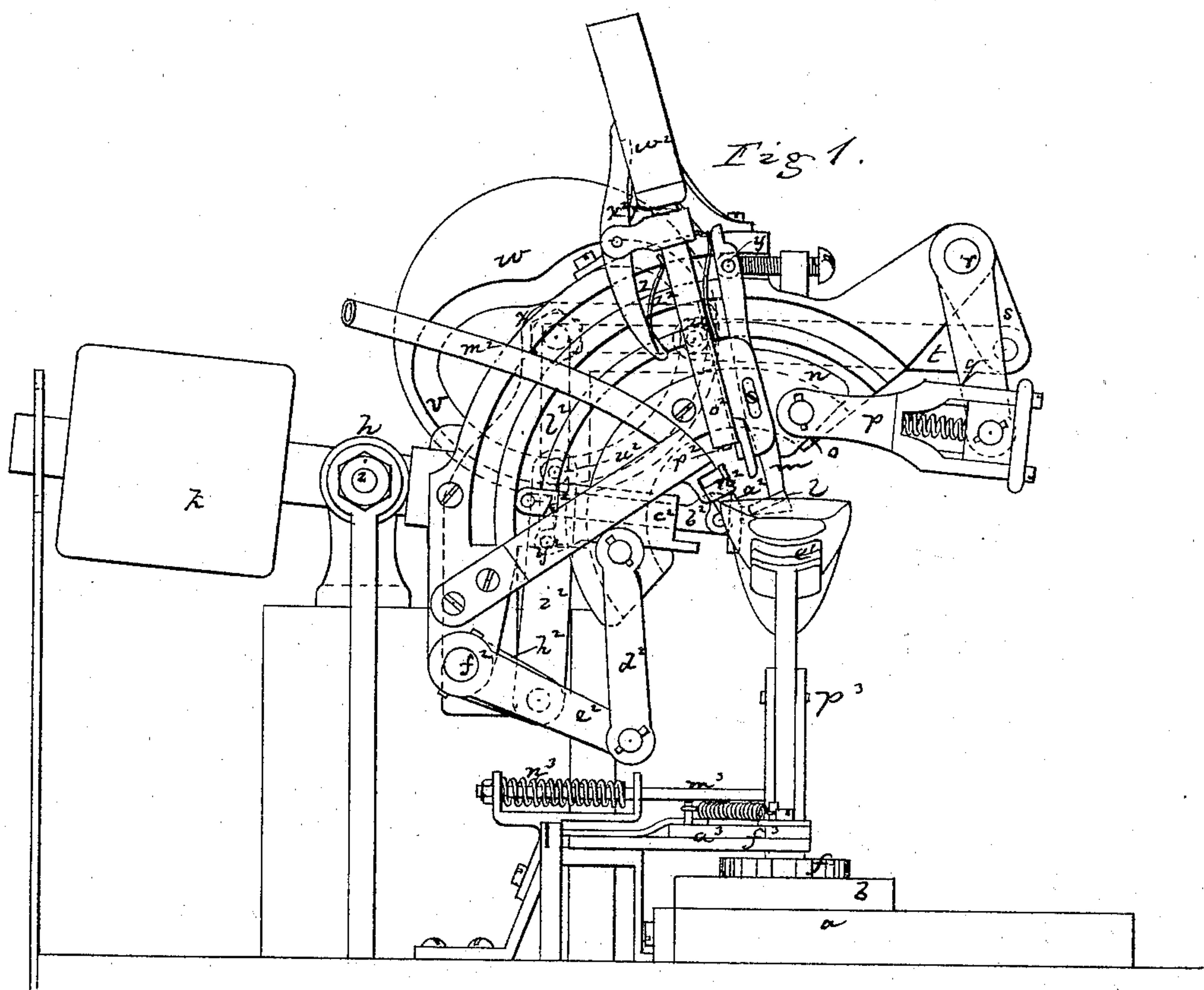


C. W. GLIDDEN.

Machines for Lasting Boots and Shoes.

No. 135,540.

Patented Feb. 4, 1873.



Witnesses.
M. W. Frothingham.
L. H. Cramer.

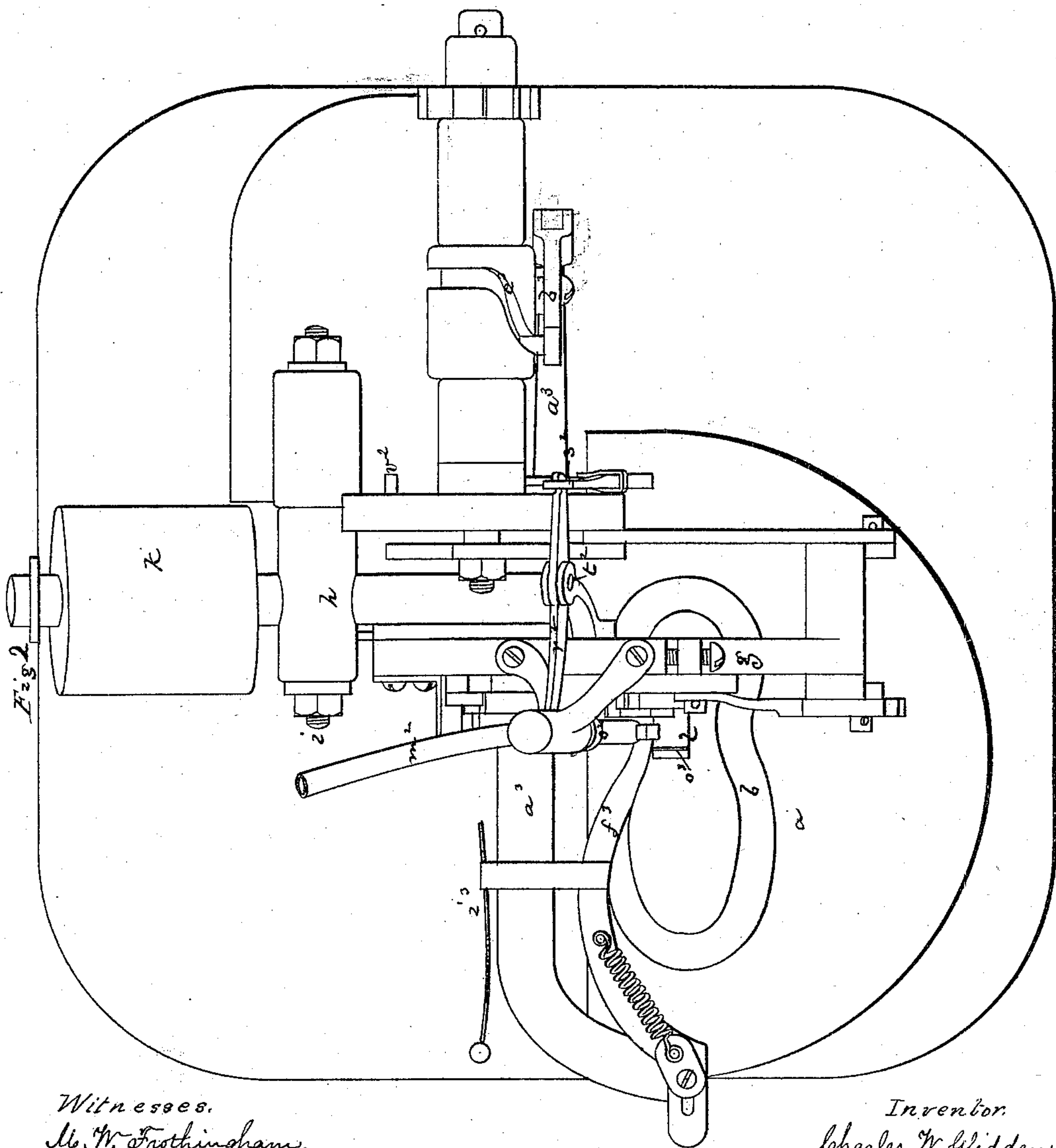
Inventor:
Charles W. Glidden.
By his Attys.
Crosby & Gould

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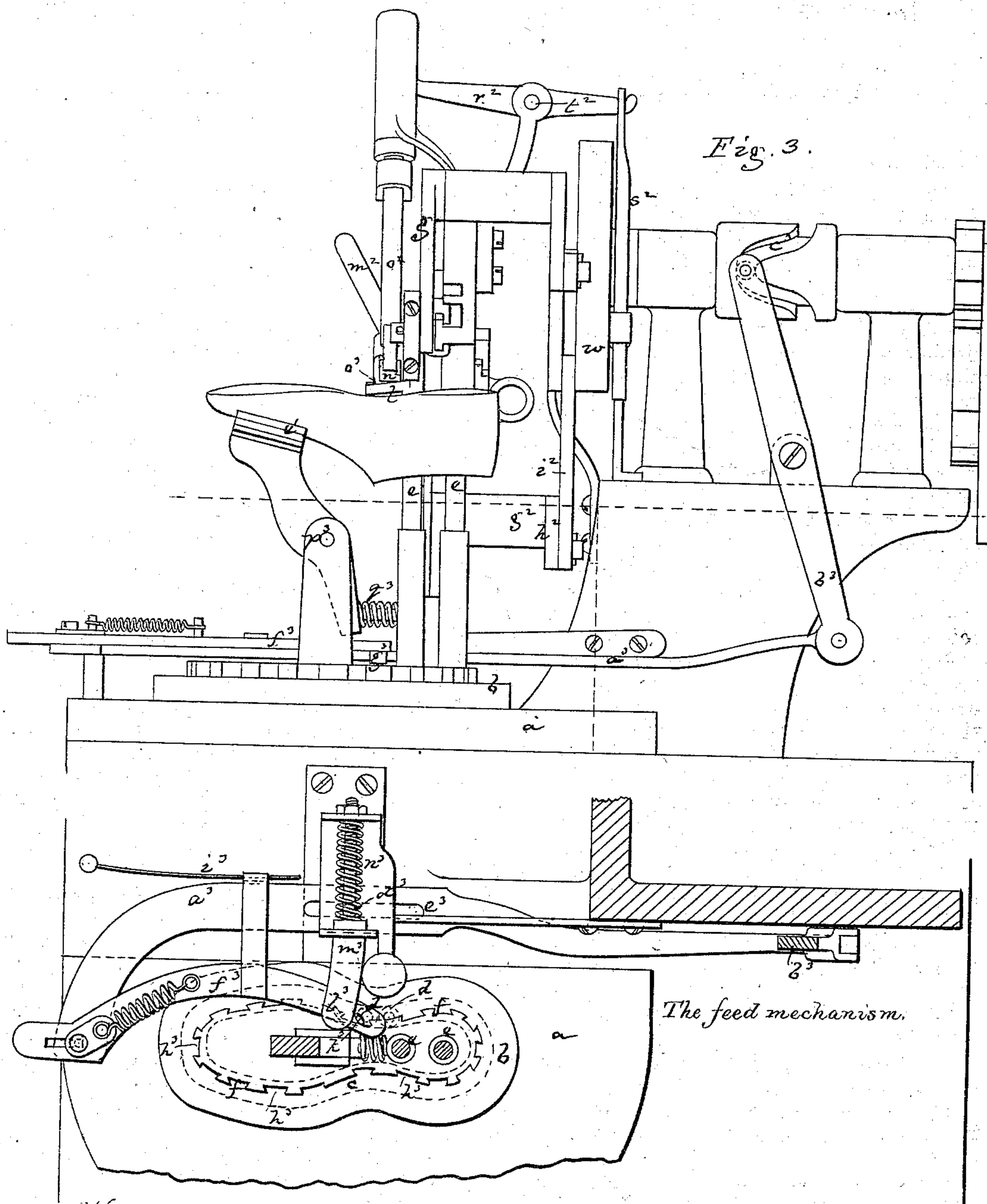
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UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR LASTING BOOTS AND SHOES.

Specification forming part of Letters Patent No. 135,540, dated February 4, 1873.

To all whom it may concern:

Be it known that I, CHARLES W. GLIDDEN, of Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Machines for Lasting Boots and Shoes; 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.

The invention relates to a method of lasting by machine, closely imitative of hand-lasting, in which the workman seizes the edge of the upper with his pinchers and draws it over the inner sole and secures it with a lasting-tack, or by a stitch, gradually going around the shoe until the whole edge is thus lasted.

In my method I combine a feed mechanism that intermittently moves the last, (upon the sole-face of which the inner sole is laid, and over the sole-face of which the edge of the upper, in which the last is jacked, is to be drawn,) with a gripping mechanism that seizes the edge of the upper and draws it over the inner sole after each feed movement, and also with a nailing or stitch-forming mechanism that secures the upper at each point as it is thus intermittently drawn over the inner sole.

My invention consists, primarily, in the combination of the jack or last-feeding mechanism and the intermittently-acting gripping devices. The invention also consists in the combination, with the feeding and gripping devices, of a nailing or stitching mechanism, and in certain details of construction and arrangement of mechanism pertaining to these combinations.

The drawing represents a machine embodying the invention.

Figure 1 shows the machine in front elevation. Fig. 2 is a plan of it. Fig. 3 is an end view.

a denotes a base-plate, upon which rests and moves a jack-plate, *b*, having in its under surface a pattern or guide groove, *c*, into which extend two guide-pins, *d d*, the groove and pins determining the position of the last as the plate is moved, the last being jacked or supported upon pins *e*, extending up from the plate, and a toe-piece, *e*¹. The jack-plate *b* is

made or provided with teeth *f*, with which a pawl mechanism engages to feed the plate, as will be hereafter described. Over the last is the lasting mechanism. This mechanism is connected with a head or plate, *g*, extending from a sleeve, *h*, hung upon a shaft, *i*, the weight of the mechanism being nearly counterbalanced by a weight, *k*, but the mechanism being held by gravity down to or toward the jack. *l* denotes a griper-jaw that extends from a lever, *m*, pivoted to a slide, *n*, that slides upon a curved guide, *o*, at the front of the plate *g*. The slide *n* is connected by a link, *p*, with an arm, *q*, extending from one end of a shaft, *r*, which shaft has at its opposite end another arm, *s*, to which is jointed a slide or link, *t*, said slide having a pin, *u*, extending into a cam-groove, *v*, of a cam-wheel, *w*, on the driving-shaft *x*, each rotation of the cam-wheel effecting the reciprocation of the slide *t*, and of the slide *n*, to which the jaw-lever is pivoted. The lever *m* has a pin, *y*, extending into a circular groove, *z*, and as the lever is pressed forward the jaw *l* passes under the edge of the upper, and then turns up the edge, bringing it into contact with the inner face of a jaw, *a*², extending from a lever, *b*², fixed to a slide, *c*², sliding upon the guide *o*. The slide *c*² is jointed by a link, *d*², to an arm, *e*², extending from a rocker-shaft, *f*², journaled in a bearing, *g*², an arm, *h*², at the opposite end of the shaft being connected by a slide-link, *i*², with the cam-wheel *w*, a pin, *u*², extending from the slide into the cam-groove. The lever *b*² has a pin, *k*², extending into the circular groove *l*², and as the lever is drawn down or thrown up, this groove controls, or partially controls, the position and movement of the lever, and of the jaw at its inner end. When the griper-jaw *l* moves forward, it is in nearly horizontal position, and the jaw *a*² stands in nearly vertical position, and the griper-jaw *l*, having pressed the upper against the serrated face of the jaw *a*², then assumes a vertical position, still holding the leather against the jaw *a*². Then the two move together with the edge of the upper gripped between them, from a vertical position at the side of the top of the last, to a horizontal position over the last, thereby stretching or drawing the edge of the leather over the edge

of the inner sole in position to be secured or lasted to the inner sole, and in this position it is fastened by a tack or stitch.

The devices attached to the machine, as shown in the drawing, are designed to nail or tack the upper, and they operate as follows: m^2 denotes a nail-tube, stationary as regards the head, and provided with nails or lasting-tacks. n^2 denotes a nail-carrier, pivoted to the foot of the lever. When the lever moves outward the nail-carrier is thrown under the lower end of the nail-tube, and receives a nail therefrom, the carrier being made tubular to receive the nail. When the levers move together to carry the edge of the leather over the last the nail-carrier moves with them, and stands over a slot in the jaw a^2 and under a nail-driver tube, o^2 , and just before the gripe upon the upper leather is loosened a driver, p^2 , descends and drives the tack or nail. This driver has a projection, q^2 , under which one end of a lever, r^2 , extends, the driver being raised by the lever, and thrown down by a suitable spring. The lever is pivoted at t^2 , and to its outer arm is hung a hook, s^2 , against which a pin, v^2 , acts as the cam-wheel rotates, the pin depressing the hook and lifting the driver, the driver being caught as it ascends by a catch, w^2 , at the upper end of a lever, x^2 . As the griper-lever a^2 completes its forward movement a pin, y^2 , strikes the lower end of the catch-lever, moving it in and throwing out the catch, thereby releasing the driver, which is then thrown down to drive the nail. The nail having been thus driven the cam-wheel pin raises the driver, which is caught by the catch w^2 , pressed in by a spring, z^2 , the driver being detained by the catch until, by the next forward movement of the lever b^2 , it is again tripped to drive the next tack. When the nail material is severed from a blank in the machine, or when a stitch-forming mechanism is used, the arrangement of the mechanism for fastening the inner sole and upper will, of course, differ, but the other mechanism will remain the same.

The mechanism that effects the feed of the jack-plate is as follows: a^3 denotes a long reciprocating slide-bar, jointed at one end to a lever, b^3 , that is actuated by a cam, c^3 , on the driving-shaft, and is guided by a pin, d^3 , extending through a slot, e^3 , in the bar; the front end of the lever having jointed to it a pawl-bar, f^3 , at the inner end of which is a pawl-pin, g^3 , that engages with notches h^3 of the jack-plate, the pawl-bar being pressed toward the plate by a spring, i^3 . Each inward movement of the pawl-bar causes the pawl-pin to press forward the jack-plate, and the pin is withdrawn from each notch for the rear movement of the pawl-bar as follows: The top of

the pawl-bar has extending from it a stud, k^3 , that, as the pawl-bar moves forward, strikes a stud-pin, l^3 , extending from a slide, m^3 , which slide is pressed forward by a spring, n^3 , the slide moving in suitable guide-pieces. When the pawl-bar starts back, the stud-pin k^3 strikes the rear face of the stud-pin l^3 , which causes the pawl-bar to be thrown back, thereby releasing the pawl-pin g^3 , and permitting it to recede without imparting movement to the jack-plate.

By means of a cutter, o^3 , attached to the griper-jaw l the upper may be slit at each forward movement of the jaw, thereby forming a tongue, which is seized by the jaws to be drawn over and lasted to the inner sole.

By a machine thus organized boots and shoes may be rapidly and effectively lasted, the mechanism being entirely automatic in its operation, and the work needing but slight attention on the part of the operator.

The toe-piece e^1 is pivoted at p^3 , and is held by the stress of a spring, q^3 . It is covered with rubber or other suitable elastic compound; and when the upper and last are laid upon the toe-piece and pressed down the toe-piece slides forward, and, in sliding forward, presses forward the upper with it.

I claim—

1. In combination with a jack or shoe-supporting mechanism, the gripping mechanism, substantially as shown and described, for intermittently seizing the upper and drawing it over the edge of the inner sole.

2. The combination, with such a gripping and drawing mechanism, of the mechanism, substantially as shown and described, for fastening the edge of the upper to the inner sole.

3. In combination with the gripping-mechanism, a jack having an intermittent-feed movement, substantially as described.

4. In combination with the jack, the slide-bar a^3 , pawl-bar f^3 , pawl-pin g^3 , stud-pin k^3 , slide m^3 , and stud-pin l^3 , operating substantially as described.

5. In combination with the griper-jaw the nail-carrier n^2 and nail-driver p^2 , and the mechanism, substantially as described, for operating them.

6. In combination with the gripping mechanism and nail-driving mechanism the nail-tube m^2 , substantially as described.

7. In combination with the griper-jaw l the cutter o^3 , for slitting the upper.

Executed this 9th day of December A. D. 1872.

C. W. GLIDDEN.

Witnesses:

FRANCIS GOULD,
M. W. FROTHINGHAM.