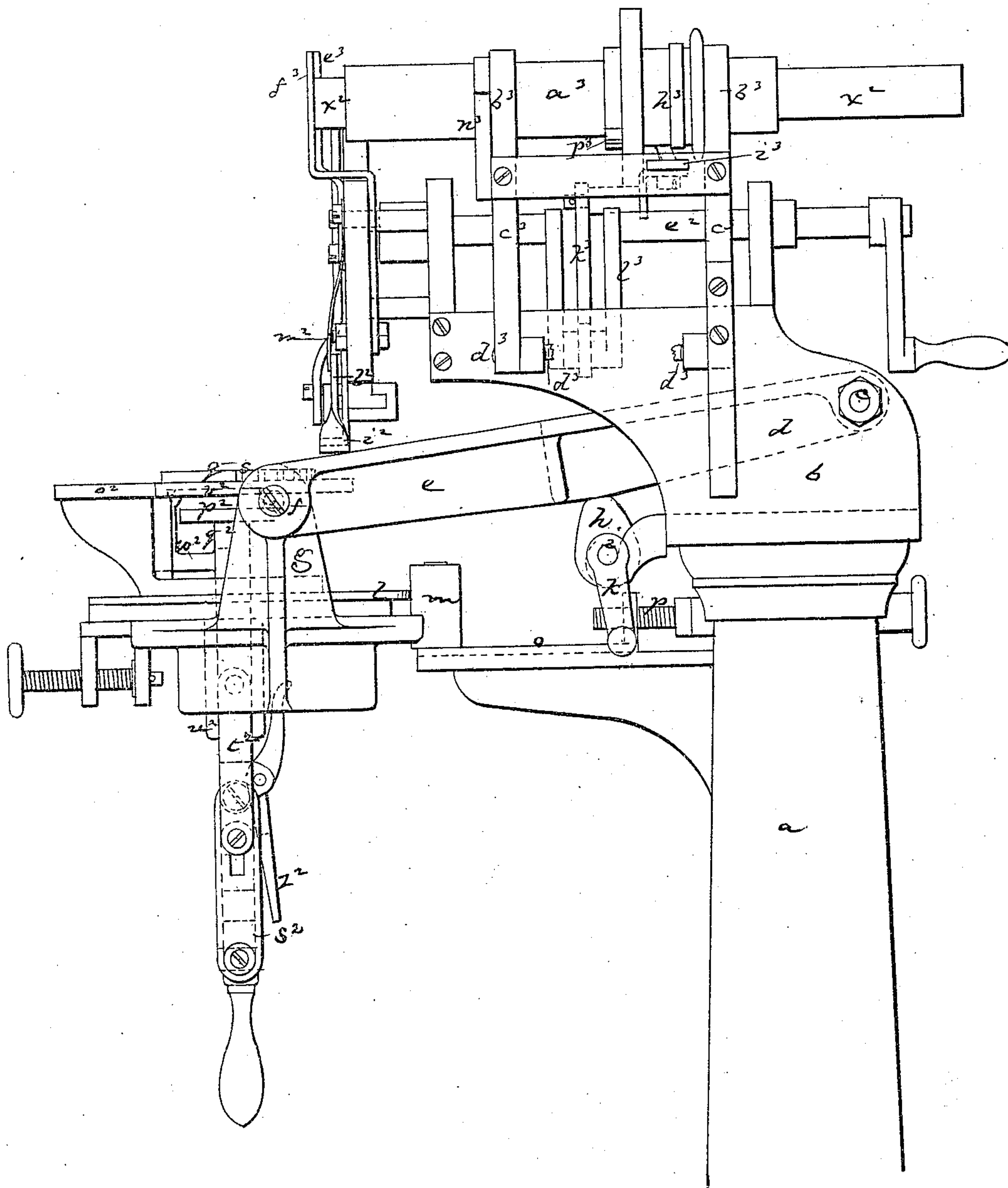


C. W. GLIDDEN.
Machines for Pricking and Nail-Loading Boot and
Shoe Heels.

No. 136,503.

Patented March 4, 1873.

Fig 1.



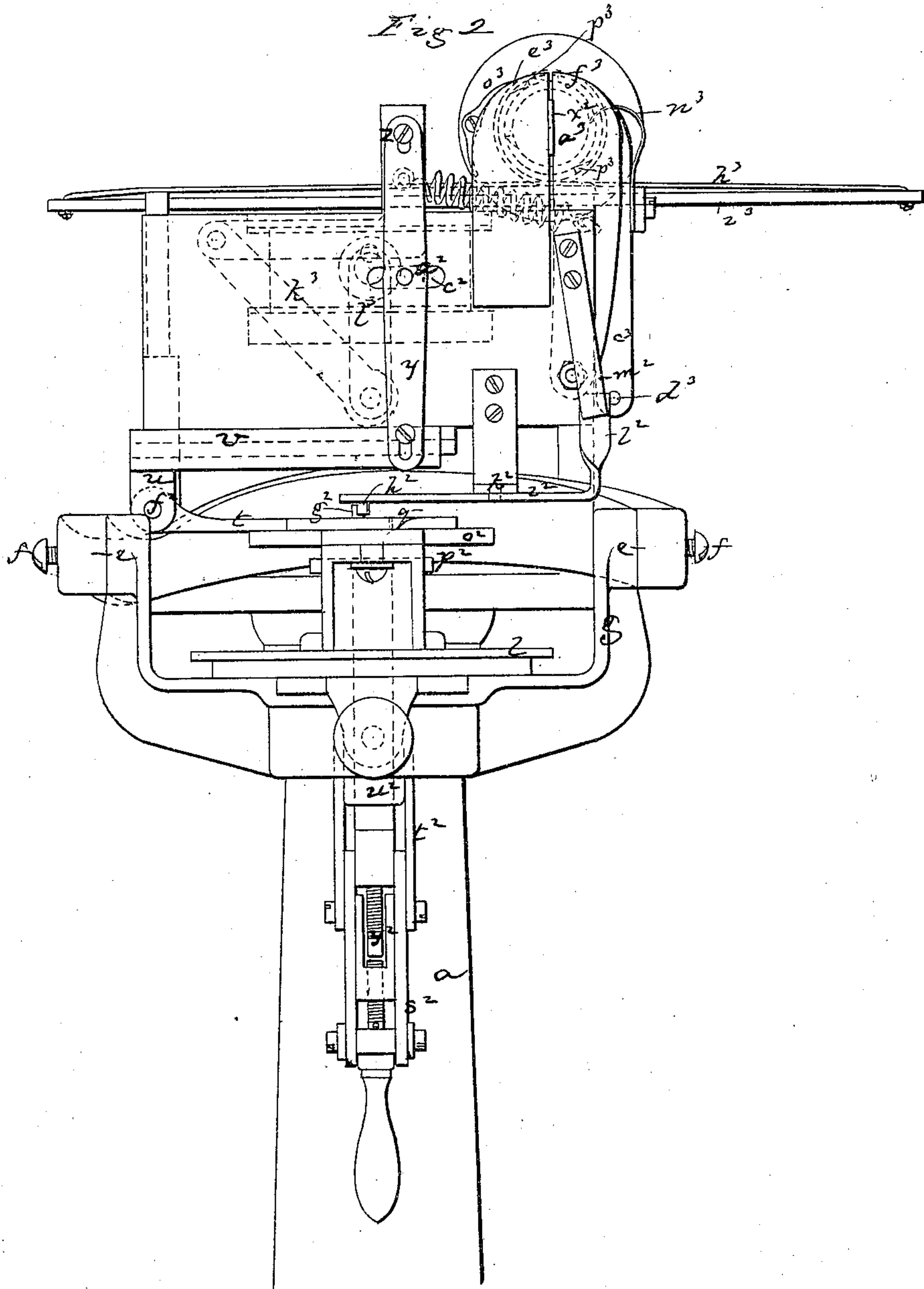
Witnesses.
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Charles W. Glidden,
By his Atty.
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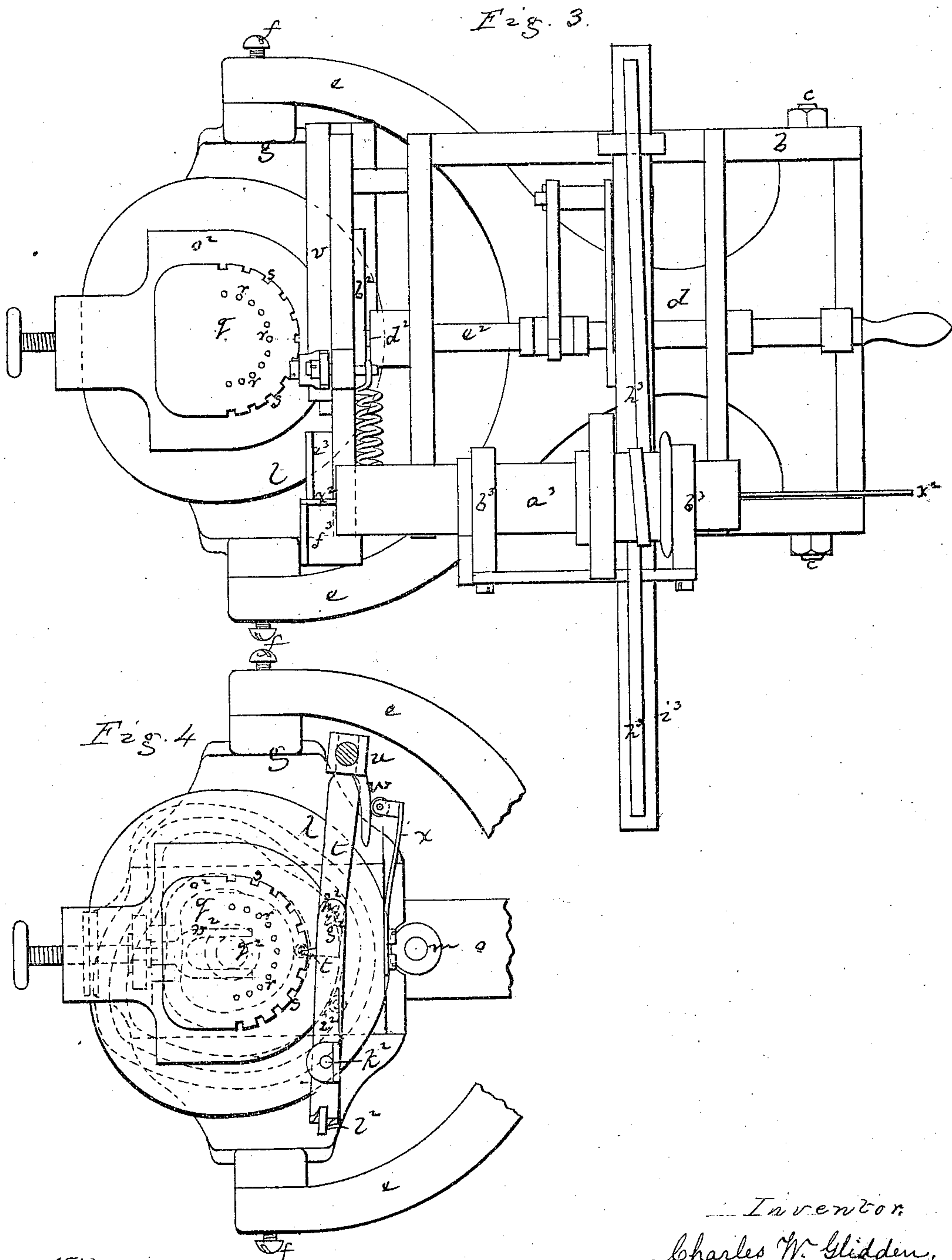
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UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE,
OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR PRICKING AND NAIL-LOADING BOOT AND SHOE HEELS.

Specification forming part of Letters Patent No. 136,503, dated March 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 certain Improvements in Machines for Pricking and Nail-Loading Boot and Shoe Heels; 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 details of construction and arrangement of mechanism for pricking nail-holes in heels for boots and shoes and inserting nails therein.

In United States Letters Patent No. 129,811, granted to me, I show an organization by which holes are successively punched or pricked in the heel, and nails are successively driven, in contradistinction to simultaneously pricking the series of holes, and in contradistinction, also, to simultaneously supplying or driving a series of nails.

My present invention has particular reference to a machine of the same general character as that shown in my said patent, the present invention relating more particularly to inserting nails in nail-blanks and to the manner of feeding the jack for the successive action of the pricking mechanism and nail supplying and driving mechanism, and also to a method of cutting the nails in the machine that supplies them to, or drives them into, the heel.

As the arrangement or construction of the pricking mechanism and nail supplying and driving mechanism forms no direct part of my present invention, and need not differ at all from what is shown in my patent No. 129,811, it will not be necessary for me to here describe them, and I have not shown them in the drawing forming part of this specification, their absence enabling my present improvements to be the more readily shown and understood.

The drawing represents a machine embodying my invention.

Figure 1 shows the machine in side elevation. Fig. 2 is a front view of it. Fig. 3 is a plan of the machine. Fig. 4 is a plan of the feeding mechanism.

a denotes a post, upon which the mechan-

ism is mounted. *b* denotes a stationary frame; *c*, a shaft or rod, upon which is pivoted a yoke, *d*, having two arms, *e*, to which is hung by pins *f* the vertically-swiveling jack-frame *g*. The yoke-frame *d* with the jack mechanism tips down upon the shaft *c* for placing the boot or shoe heel in position and removing it from position, and the frame is raised to bring the jack into position for the action of the feed mechanism, and of the pricking or driving mechanism, by a lifter-cam, *h*, on a shaft, *i*, which is turned by a winch, *k*, the jack being held in position as to height by turning the cam into upright position, and being allowed to fall by turning the cam into horizontal position. The angle of presentation of the boot or shoe heel for the action of the pricking and nail-inserting mechanism is controlled by a pattern-plate, *l*, the edge of which rests and runs against a pin or roll, *m*; and to vary the inclination the pin or roll extends from a slide, *o*, that is made adjustable in position by a screw, *p*, the jack-frame tipping upon the pins *f*, and varying the angle of the heel face or tread to the extent to which it is tipped by the position of the roll against which the plate rides. At the top of the jack-frame is the nail-plate *q*, perforated with holes *r* at the points where holes are to be pricked and nails inserted, and upon the edge of this plate are teeth *s*, with which the feed mechanism engages to turn the jack.

This mechanism is constructed as follows: *t* denotes a pawl, jointed to a bearing, *u*, that turns horizontally on a pin extending down from a slide, *v*, an arm, *w*, extending from this bearing, being thrown forward by a spring, *x*, to hold the pawl up to or toward the nail-plate *q*. The slide *v* is connected to and slides under the frame, and jointed to the slide is a lever, *y*, fulcrumed at *z*. Into this lever extends a pin, *a*², projecting from a slide, *b*², (through a slot, *c*²,) this slide being reciprocated by a crank-pin, *d*², extending from a crank-wheel on a shaft, *e*², the rotation of the shaft effecting the reciprocation of the pawl-slide, and the consequent feed and back movement of the pawl. As the position of the nail-plate varies under different angles of presentation, the pawl is hung so as to be capable of vertical movement upon its joint-

pin f^2 ; and to turn the pawl out of engagement with the notches of the nail-plate it is made with a pin, g^2 , that acts against a pin, h^2 , to throw it back, said pin h^2 extending from a lever, i^2 , fulcrumed at k^2 , and having an arm, l^2 , pressed back by a spring, m^2 . These pins have inclined faces, and when the pin, g^2 , advances it strikes the inner side of the pin h^2 , and slips by it without being affected by the latter pin, which yields to let the pawl-pin pass; but when the pawl starts back its pin strikes the inclined face of the pin h^2 , back of the point of such pin, and as the pin g^2 cannot yield forward it throws the pawl-pin back, thereby releasing the pawl from the nail-plate notch with which it may be engaged. When the pawl-pin has passed the pin h^2 , the spring m^2 throws the pawl forward, in position to engage with the next notch of the nail-plate.

The heel-blank to be pricked or provided with nails, or both, is inserted between the plate l and clamp-plate p^2 , the plate p^2 being on the top of a slide-rod, q^2 , that is jointed to a hand-lever, s^2 , connected by links t^2 with the sleeve w^2 , through which the slide moves, lateral outward movement of the lever drawing down the clamp-plate for insertion of the blank, and said plate being thrown up to clamp the heel by bringing the lever to or toward a vertical position. Above the clamp-plate p^2 is an arm, v^2 , connected to a slide, w^2 , that extends through the rod q^2 . When the heel-blank is placed in the jack, it is inserted between the clamp-plate p^2 and the arm v^2 , and when the clamp-plate is thrown up to clamp the heel blank the arm v^2 extends up into a recess in the bottom surface of the plate o^2 , so that the top lift comes against the under surface of the plate o^2 . The blank being clamped, the nails are driven or inserted, but their heads are left protruding, said heads being in the nail-holes of the plates q and o^2 , which are in reality, or may be, but one plate. The vertical position of the link t^2 and lever s^2 locks the clamp in position, and to free the nail-charged heel the lever s^2 is swung outward, thereby drawing down the clamp-plate. As the clamp-plate descends it draws down the arm v^2 with it, and this arm draws down the heel-blank, with the nails which protrude through the nail-holes, the slide w^2 and rod q^2 being locked together (so that they descend together) by a fork, z^2 , the crotch of which extends over a shoulder, y^2 , of a screw-pin extending from the slide. When the blank has descended so that the nails are below the plate o^2 , the fork z^2 is thrown out, so as to release the slide q^2 , and then the clamp-plate descends from the arm v^2 , and the heel-blank is removed.

To enable the machine to form and furnish the nails as well as to insert them, I combine with the mechanism a nail-cutting mechanism, by which the nails are severed from a wire or from a nail-plate, the severed nails dropping into or being transferred to any suitable mech-

anism, by which nails are separated or selected and properly fed and presented to the nail-inserting mechanism.

Such cutting mechanism may be constructed and arranged as follows: a^2 denotes the nail plate or strip, from which nails or sprigs are to be cut, "heads and points," one nail being cut with its head at one edge of the plate and the next nail with its head at the opposite edge, as in ordinary nail-plate cutting. The nail-plate extends through a diametric passage cut through a cylinder, a^3 . This cylinder is mounted and rotates in bearings b^3 upon a frame, c^3 , that is mounted and swings upon a pin or rod, d^3 . The end of the nail-plate to be severed extends between and beyond two cutters, $e^3 f^3$, set to cut on an angle, one of said cutters, e^3 , being stationary and the other movable. To turn the plate after each nail is severed, the cylinder is made with a wheel, g^3 , around which extends a cord or strap, h^3 , the opposite ends of which are connected to a slide, i^3 , that is connected by a link, k^3 , with a crank, l^3 , on the shaft e^2 . The wheel slips rotatively on the shaft in one direction, the shaft being held by a detainer-pawl, n^3 , but in the opposite direction a pawl, o^3 , engages with one of two ratchet-teeth, p^3 , on the cylinder, and imparts to said cylinder and the nail-plate extending through it a half-rotation, each reciprocation of the slide or rotation of the shaft e^2 thus turning the plate so as to reverse its position. As the plate turns the movable cutter yields to permit it to turn, and, when turned, the cutter is driven forward by any suitable mechanism to sever the nail, the mechanism thus severing a nail at each feed movement of the jack mechanism, and cutting the nails, heads and points, to impart the necessary tapering form.

I claim—

1. For feeding the jack, the reciprocating pawl, substantially as shown and described, having a lateral movement and a vertical movement, and carrying an inclined pin, g^2 , operated upon by a pin, h^2 , to retract the pawl.

2. In a machine for driving or inserting nails, and in combination with mechanism for feeding the jack, the nail-cutting mechanism, substantially as described, for forming the nails to be driven or inserted.

3. A heel-clamping jack having a clamp-plate, p^2 , connected to and operated by the lever s^2 and link t^2 , the lever and link, when both brought into a vertical position, operating to lock the clamp, substantially as described.

4. In combination with the nail-hole plate and clamp-plate, the arm v^2 for releasing the nails from the nail-hole plate, substantially as described.

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

C. W. GLIDDEN.

Witnesses:

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M. W. FROTHINGHAM.