

(No Model.)

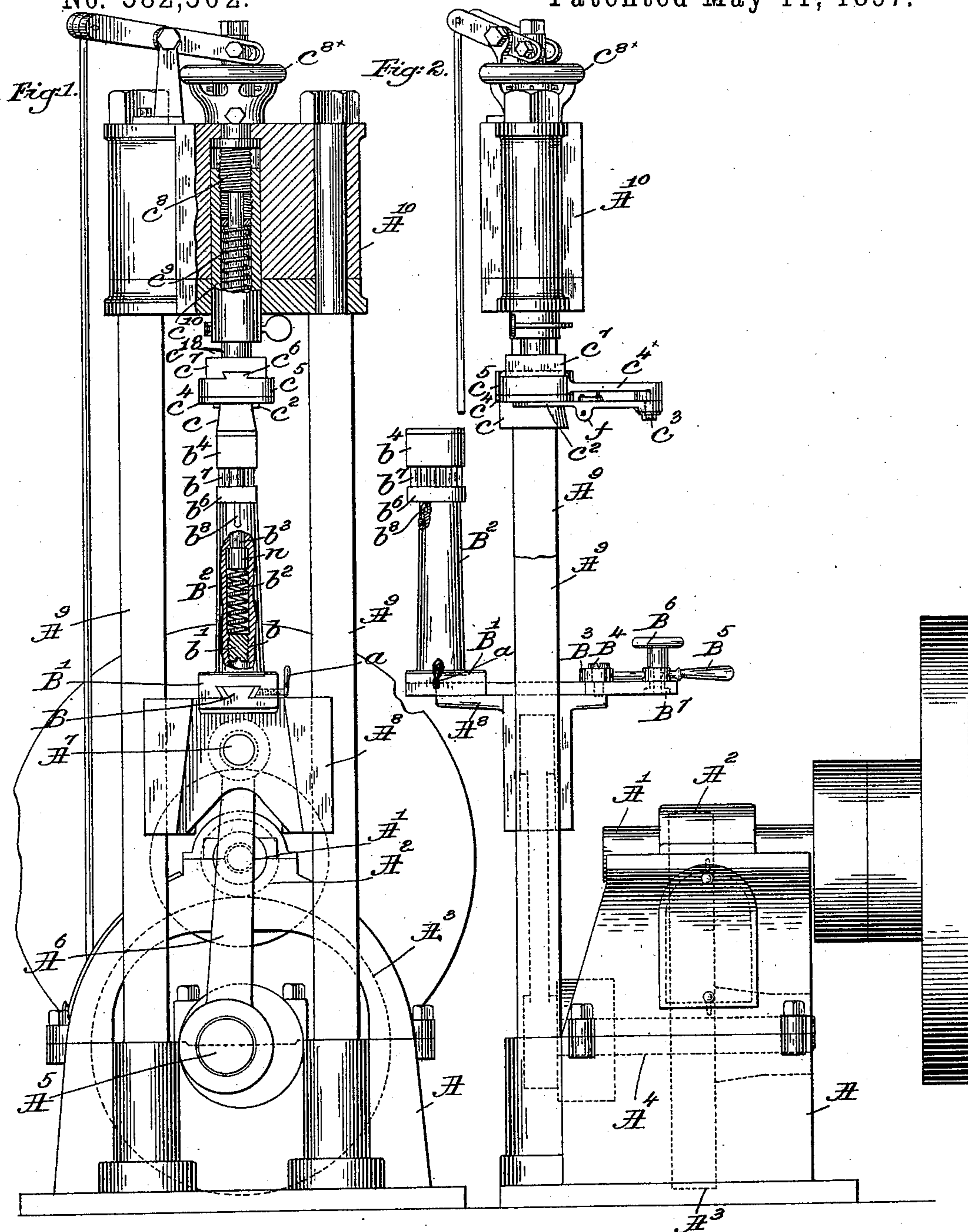
3 Sheets—Sheet 1.

H. B. INGRAHAM.

MACHINE FOR ATTACHING HEELS TO BOOTS OR SHOES.

No. 582,502.

Patented May 11, 1897.



Witnesses.

Fred L. Grunhof.

Thomas J. Drummond

Inventor.

Harry B. Ingraham.

by Crosby Gregory,  
attys.

(No Model.)

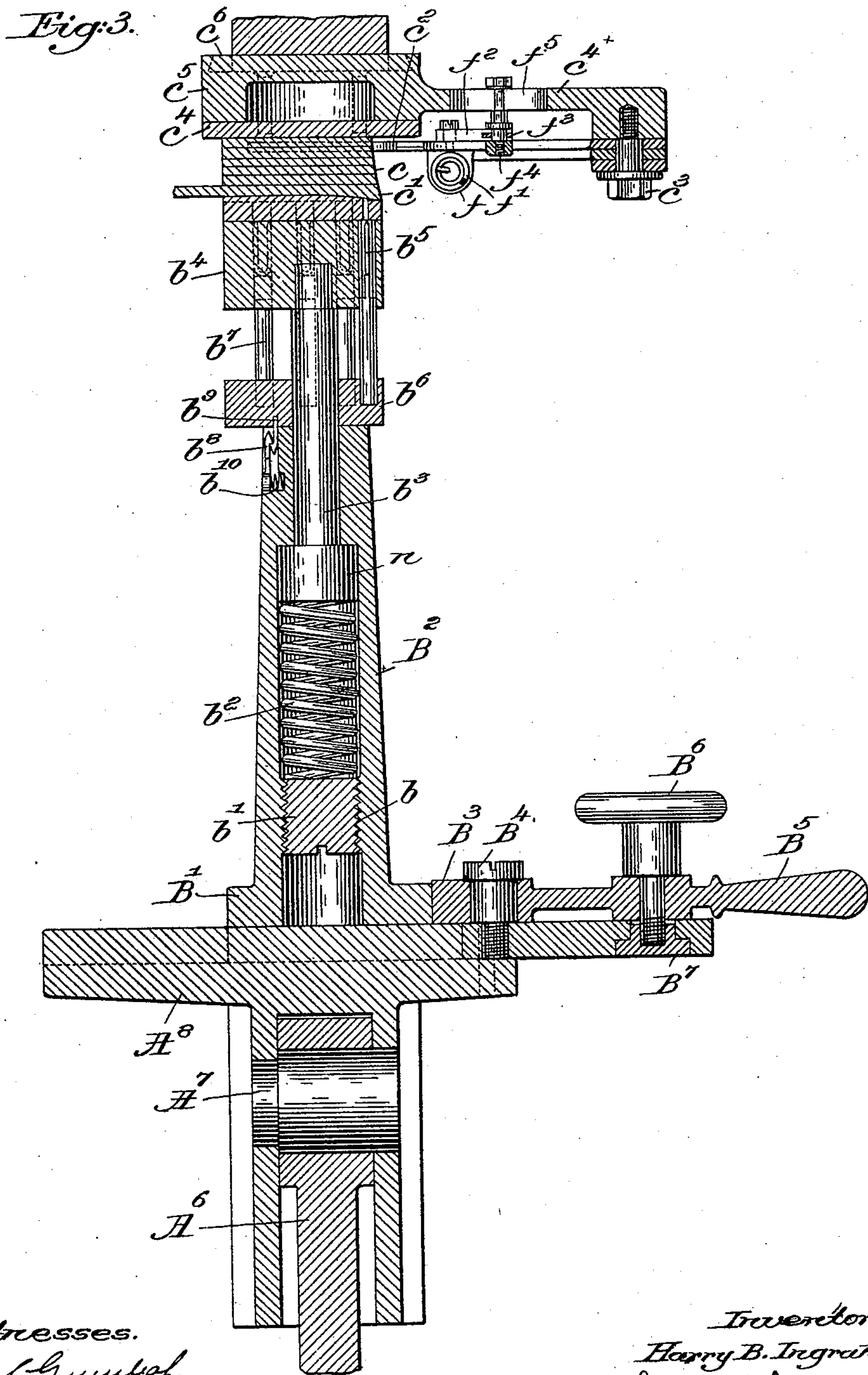
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Fried. L. Gumbel.

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*Inventor:*

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3 Sheets—Sheet 3.

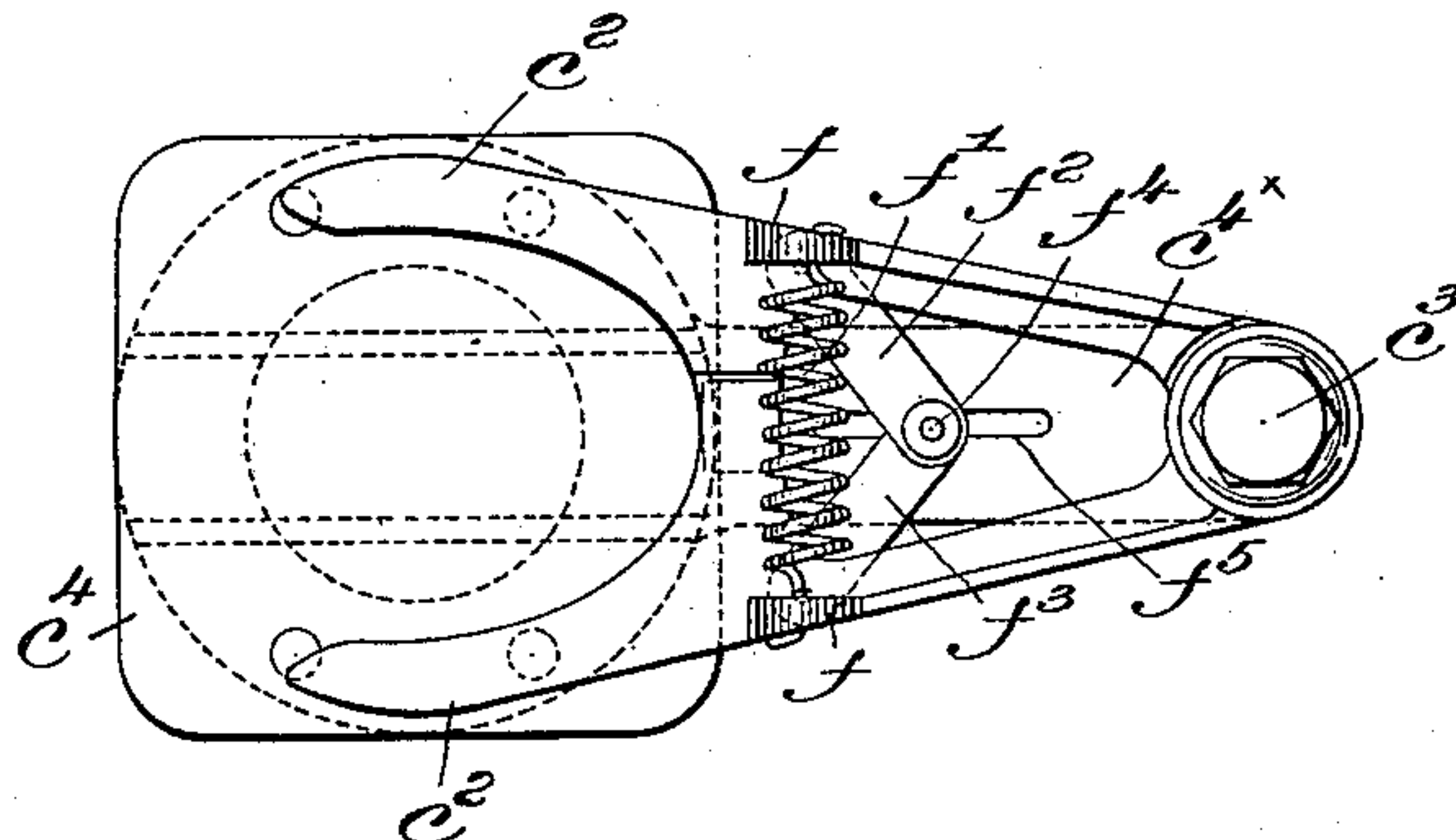
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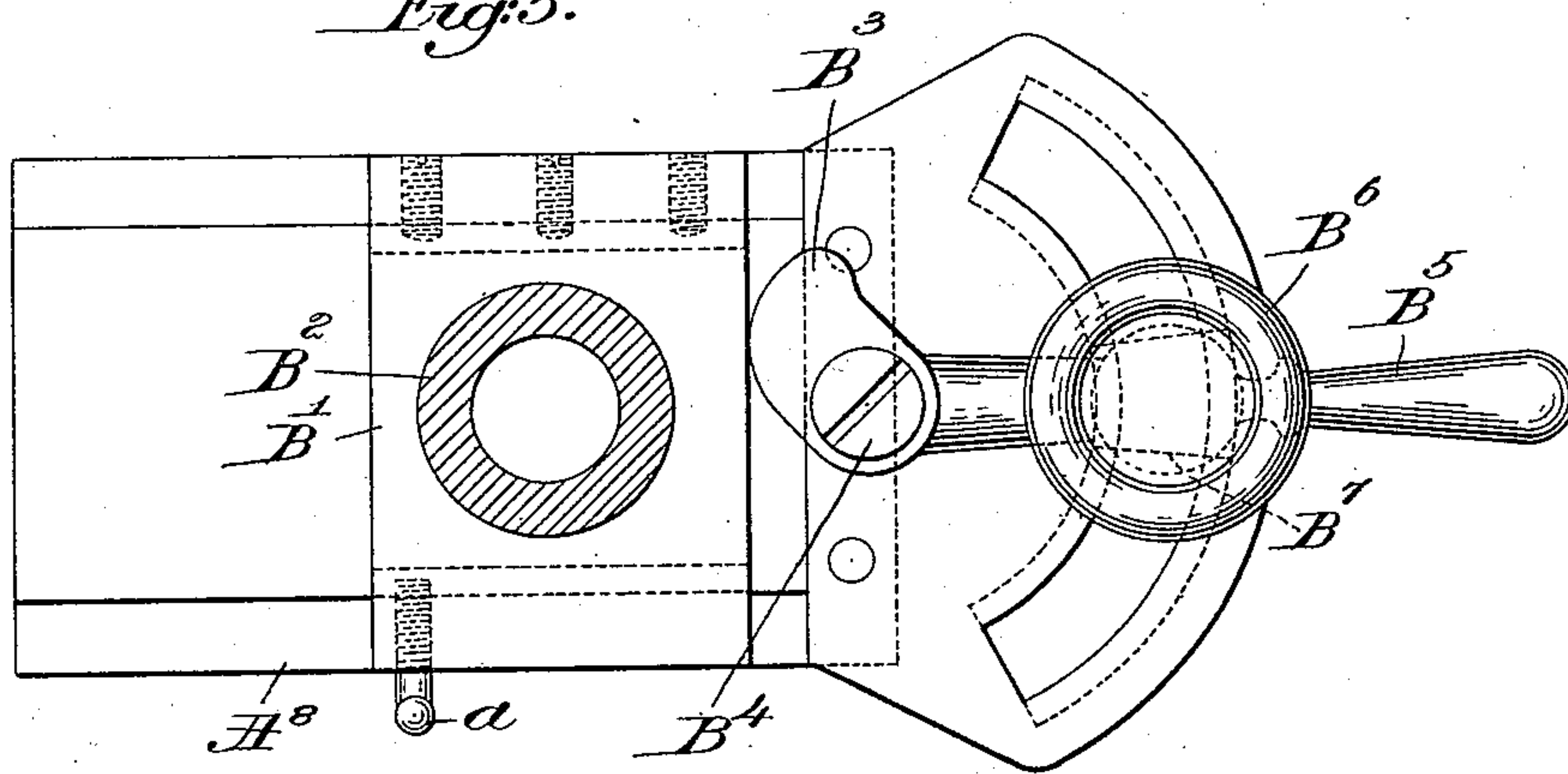
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*Fig. 4.*



*Fig. 5.*



*Witnesses.*

*Fred L. Grunkef.*

*Thomas Drummond.*

*Inventor.*

*Harry B. Ingraham.*

*by Crosby Gregory.*

*attys.*

# UNITED STATES PATENT OFFICE.

HARRY BOARDMAN INGRAHAM, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO  
THE STAPLE HEELING COMPANY, OF SAME PLACE.

## MACHINE FOR ATTACHING HEELS TO BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 582,502, dated May 11, 1897.

Application filed April 11, 1896. Serial No. 587,087. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY BOARDMAN INGRAHAM, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Machines for Attaching Heels to Boots or Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The machine to be herein described is especially adapted to drive fastenings from the interior of the sole into the heel, and my improvements are such as to enable small boots and shoes to be operated upon, the heel being held in a clamp and the post carrying the boot or shoe and the driving mechanism being reciprocated vertically to effect the insertion of the fastenings.

One part of my invention in a machine for attaching heels to boots and shoes consists in a post and a driver-plate combined with a latch to connect the said plate and post, substantially as will be described.

Other parts of my invention will be herein after described, and claimed at the end of this specification.

Figure 1, in front elevation, partially broken out, shows a machine containing my improvements; Fig. 2, a right-hand side elevation thereof; Fig. 3, an enlarged sectional detail of some of the parts with the heel clamped ready to have the fasteners driven to attach the heel to the sole, which is partially shown; Fig. 4, an under side view of the heel-holder, and Fig. 5 a detail showing the means employed for determining the operative position of the post.

The base-frame A sustains in suitable bearings a power-shaft A', provided with suitable fast and loose pulleys and a balance-wheel, said shaft having a pinion A<sup>2</sup>, which engages a gear A<sup>3</sup>, fast on a shaft A<sup>4</sup>, provided at its end with a suitable crank-pin A<sup>5</sup>, which by a link A<sup>6</sup> is connected to a stud A<sup>7</sup>, fast on and so as to reciprocate the cross-head A<sup>8</sup> up and down on the guide-rods A<sup>9</sup>, entering at their upper ends a block A<sup>10</sup>.

The cross-head A<sup>8</sup> is provided with a guide-way B, which is engaged by the foot B' of a post B<sup>2</sup>, the cross-head having mounted on it a stop B<sup>3</sup>, shown as a cam pivoted at B<sup>4</sup> and

having a handle B<sup>5</sup>, the latter being provided with a set-screw B<sup>6</sup>, which enters a block B<sup>7</sup>, located in a groove at the under side of the cross-head. (See Fig. 3.)

By turning the handle when the set-screw is loose the stop B<sup>3</sup> may be put in just the proper position to stop the post having on it a boot or shoe when pushed under the heel held by the heel-holder to be described, the tightening of the screw locking the stop in place.

When the post is pushed back into working position, it will remain there and be held frictionally by the engagement of the guide between the shims in the post, a handled screw *a*, carried by the foot, abutting against one of the shims at one side of the guide.

The post is hollow, as best shown in Fig. 3, and is threaded internally at *b* to receive an adjusting device *b'*, on which rests a spring *b*<sup>2</sup>, which sustains a block *n*, which supports the lower end of a rod *b*<sup>3</sup>, connected to the fastening-carrier *b*<sup>4</sup>, composed of a box and a top plate provided with holes for the reception of fastenings *b*<sup>5</sup>, herein shown as staples.

The rod *b*<sup>3</sup> above the post enters loosely a hole in the driver-plate *b*<sup>6</sup>, having an attached series of drivers *b*<sup>7</sup>, the said plate resting by its flat side on the small upper end of said post and being connected thereto by a suitable catch, shown as a latch *b*<sup>8</sup>, in engagement with a projection *b*<sup>9</sup>, fast on the driver-plate, the latch being shown as actuated by a spring *b*<sup>10</sup>.

Heretofore in this class of machine the driver-plate has had at its under side a hub to enter a hole in the upper end of the post, and it was fastened in place by pins passed through the post and entering grooves at the side of the hub, and owing to the great strain exerted by the machine the post has had to be quite thick, and the hub and top have required so much room for strength as to preclude the reduction of the driver-plate and post to a size small enough for small shoes.

In the drawings I have shown a large-sized driver-plate applied to the top of the post, but for small shoes the driver-plate used may and will at times be as small as the top of the post, and if the post had to be of sufficient diameter to receive a hub at the lower side of the



driver-plate, as heretofore, it will be obvious that a post having a wall at its top of sufficient thickness to properly hold the driver-plate hub could not be made nearly as small as when a catch is used to hold the driver-plate on the post. Heretofore the fastening-carrier has been mounted loosely on the end of a stud inserted in a hole in the post and surrounded by an adjustable collar and a spring.

The heel  $c$ , to be attached to the sole  $c'$  of the shoe, (partially shown in Fig. 3,) is held between jaws  $c^2$  of a heel-holder, said holder being composed of two jaws pivoted on a stud  $c^3$  depending from an arm  $c^4$  of a plate  $c^5$ , having a guide  $c^6$ , adapted to enter a guideway in the head  $c^7$  of a rod  $c^{18}$ , entering a vertically-adjustable sleeve  $c^{10}$  and surrounded by a spiral spring  $c^9$ , one end of which abuts against an adjusting-nut  $c^8$ . The jaws have ears  $f$ , to which are connected the ends of a suitable spring  $f'$ , to normally close the jaws onto the heel. The jaws have pivoted to them two radius-bars  $f^2 f^3$ , jointed to each other by a pin  $f^4$ , the pin entering a slot  $f^5$  in the arm  $c^4$  and sliding therein and acting as a guide for said jaws to enable them to open and close uniformly from a common center. The tread end of the heel bears against the bottom or under face of the plate  $c^5$ .

The nut  $c^8$  has a hand-wheel  $c^{8x}$ , by which it may be turned, the said nut, rod, &c., being substantially the same as in my former patent, No. 486,288, dated November 15, 1892.

In the use of the machine herein described the operator will put suitable fastenings into the fastening-carrier, the post being drawn out from under the plate  $c^5$ , and will apply the shoe to the post with the sole uppermost. The heel will be placed in the heel-holder, and the operator will then push the post and shoe into its operative position and start the machine, and the cross-head will be lifted, raising the shoe against the heel, and thereafter further upward movement of the cross-head will cause the drivers acting on the fastenings to drive them from the carrier through the sole and into the heel.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for attaching heels to boots and shoes, the combination with the post, fastening-carrier, and usual connections, of a driver-plate between the post and fastening-carrier, and means to instantly throw said plate and post into or out of rigid engage-

ment, said means comprising a latch and a projection carried respectively by said parts and arranged to interlock, substantially as described.

2. In a machine for attaching heels to boots and shoes, a post, a spring therein, a screw to support and adjust said spring, and a fastening-carrier having an attached rod inserted in said post and supported by said spring, combined with a driver-plate, a series of drivers carried thereby and entering said fastening-carrier, and a catch to connect said post and driver-plate, substantially as described.

3. In a machine for attaching heels to boots and shoes, a hollow post threaded internally, a screw inserted in said hollow post, a spring supported by said screw, a block resting on said spring, and a rod sustained by said block and having attached to it a fastening-carrier, combined with a driver-plate surrounding said rod at the top of said post and containing a series of drivers, said driver-plate and rod being removably secured together by means of a recess formed in one, a projection on the other to enter said recess, and a catch to engage and hold said projection in said recess, substantially as described.

4. In a machine for attaching heels to boots and shoes, the head  $c^7$ , its attached plate having an arm, and a pair of heel-holding jaws pivoted on said arm, combined with a spring to close said jaws, and a toggle-joint having a pin to cooperate with said arms to insure equal movement of said arms in opening and closing, substantially as described.

5. In a machine for uniting heels to boots and shoes, a post, a spring therein, a fastening-carrier having an attached rod entering said post and sustained by said spring, a driver-plate resting with its flat side on the top of said post, a catch to confine said driver-plate to said post, a series of drivers, and a head  $c^7$ , combined with a heel-holder composed of two pivoted arms, a connected spring, and devices connected to said arms to insure the equal movement of said jaws in closing and opening, to adapt themselves to heels of different sizes, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY BOARDMAN INGRAHAM.

Witnesses:

GEO. W. GREGORY,  
MARGARET A. DUNN.