

(No Model.)

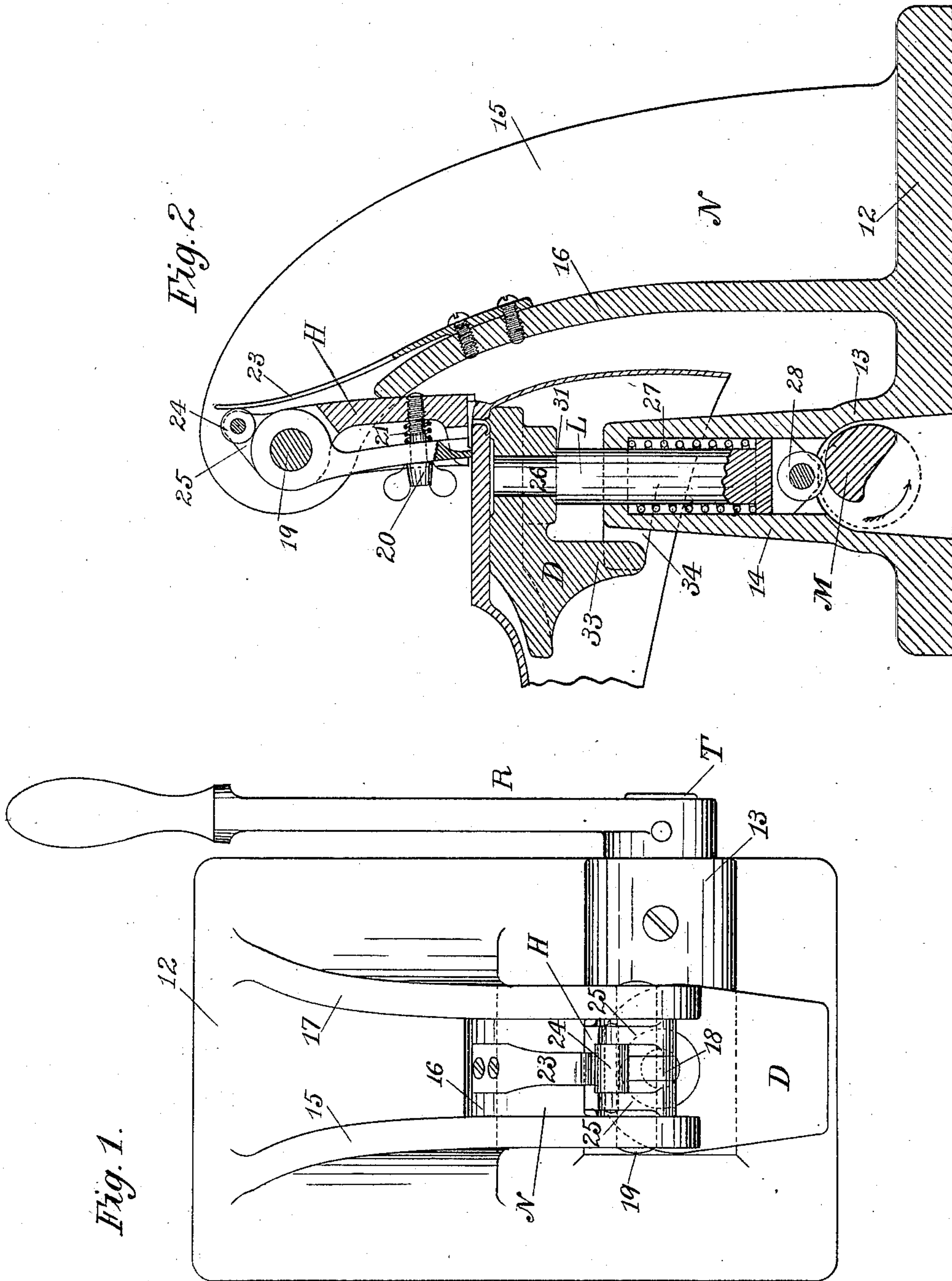
3 Sheets—Sheet 1.

F. H. RICHARDS.

MACHINE FOR ATTACHING HEEL PLATES.

No. 369,554.

Patented Sept. 6, 1887.



Witnesses:

Geo. W. Drake

Charles Kempshall

Inventor:

Francis H. Richards

(No Model.)

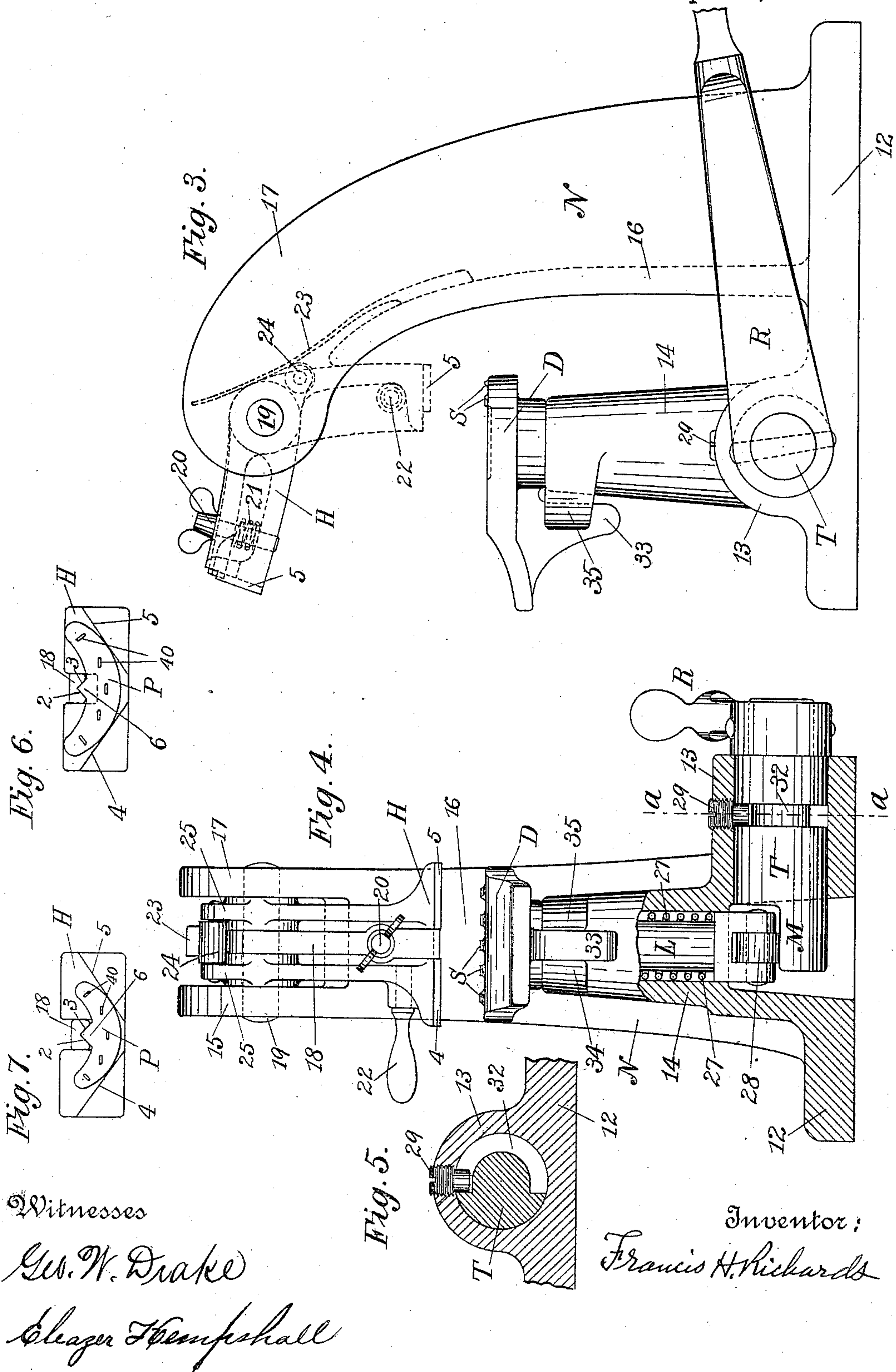
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Fig. 10.

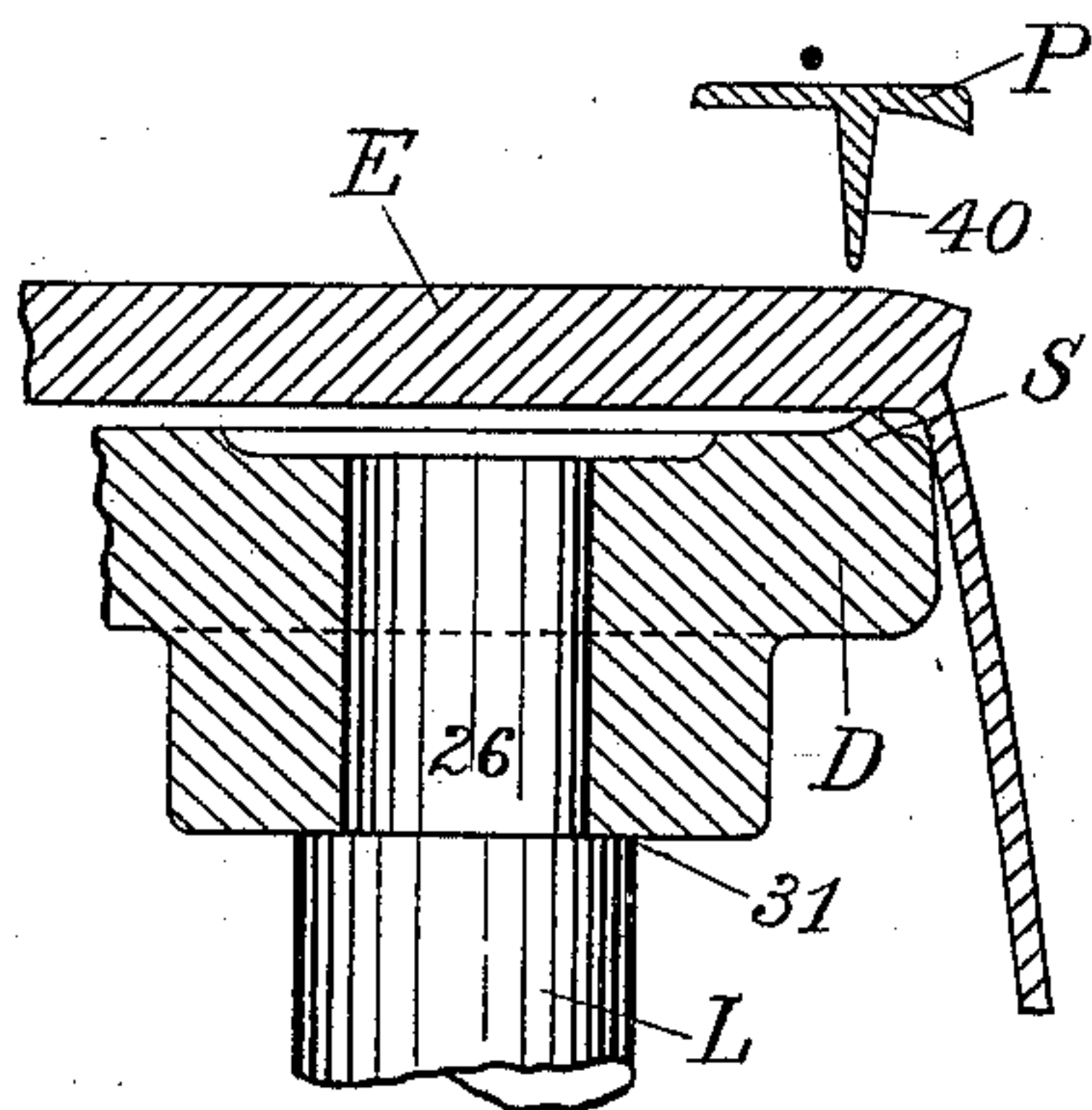


Fig. 9.

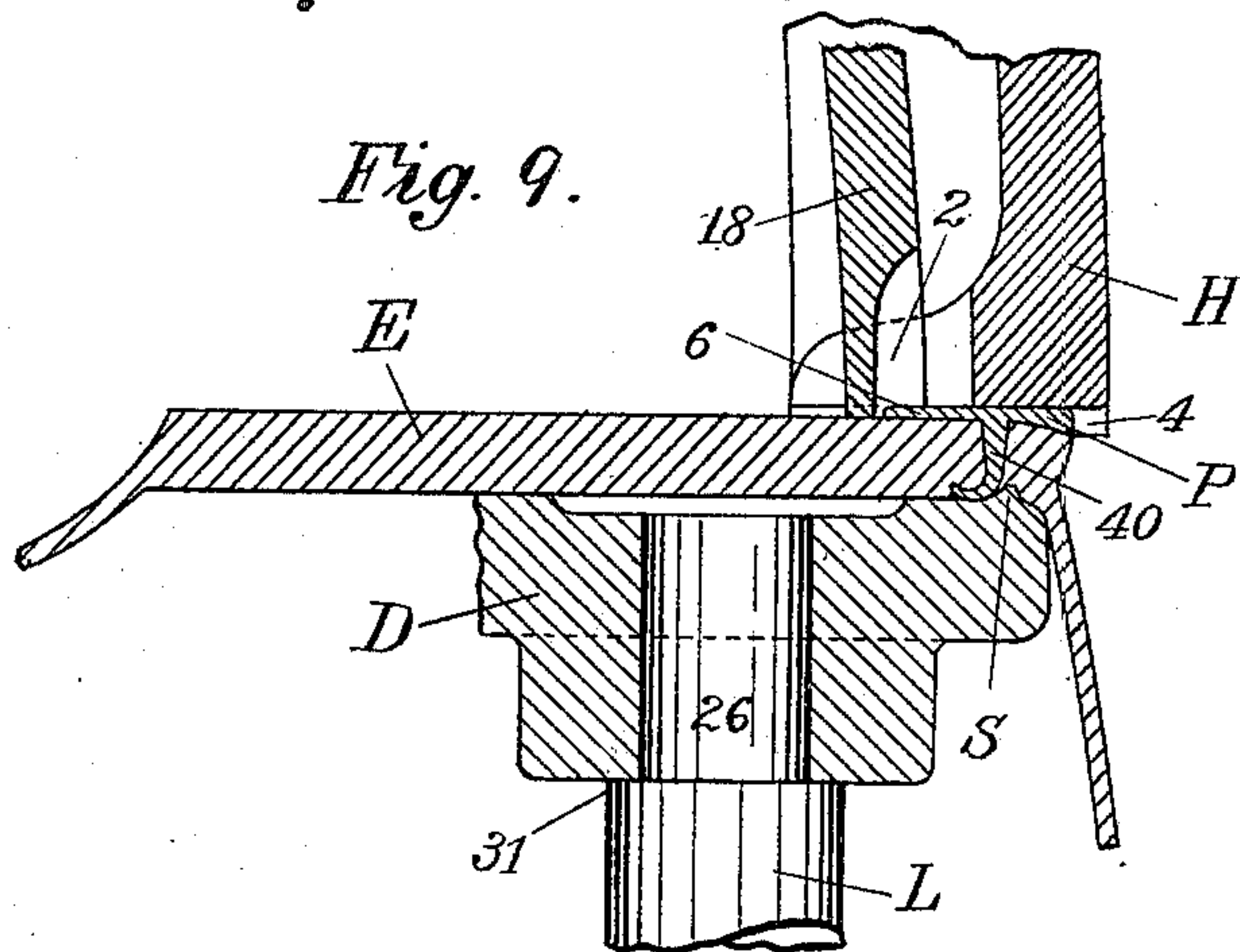


Fig. 8.

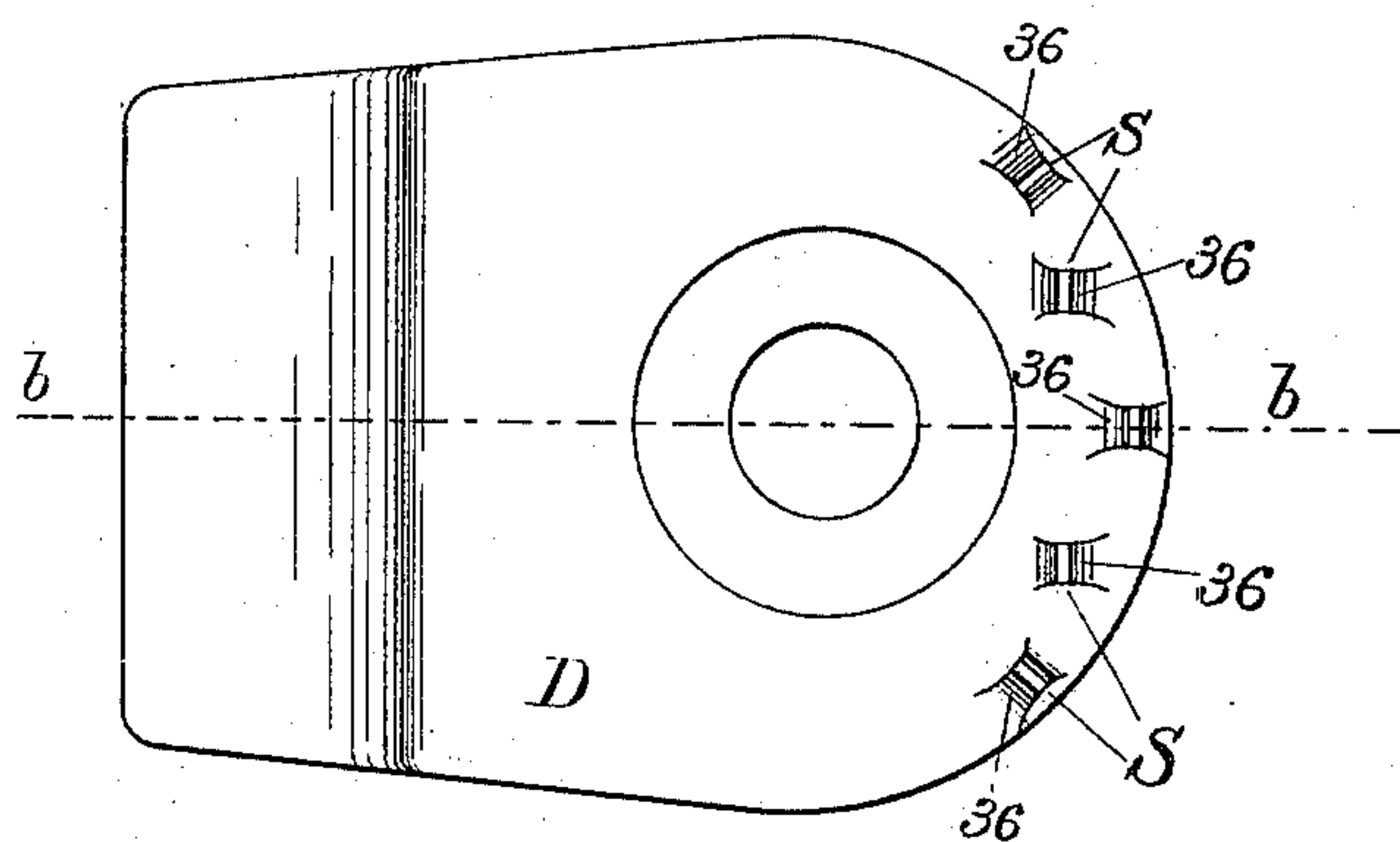
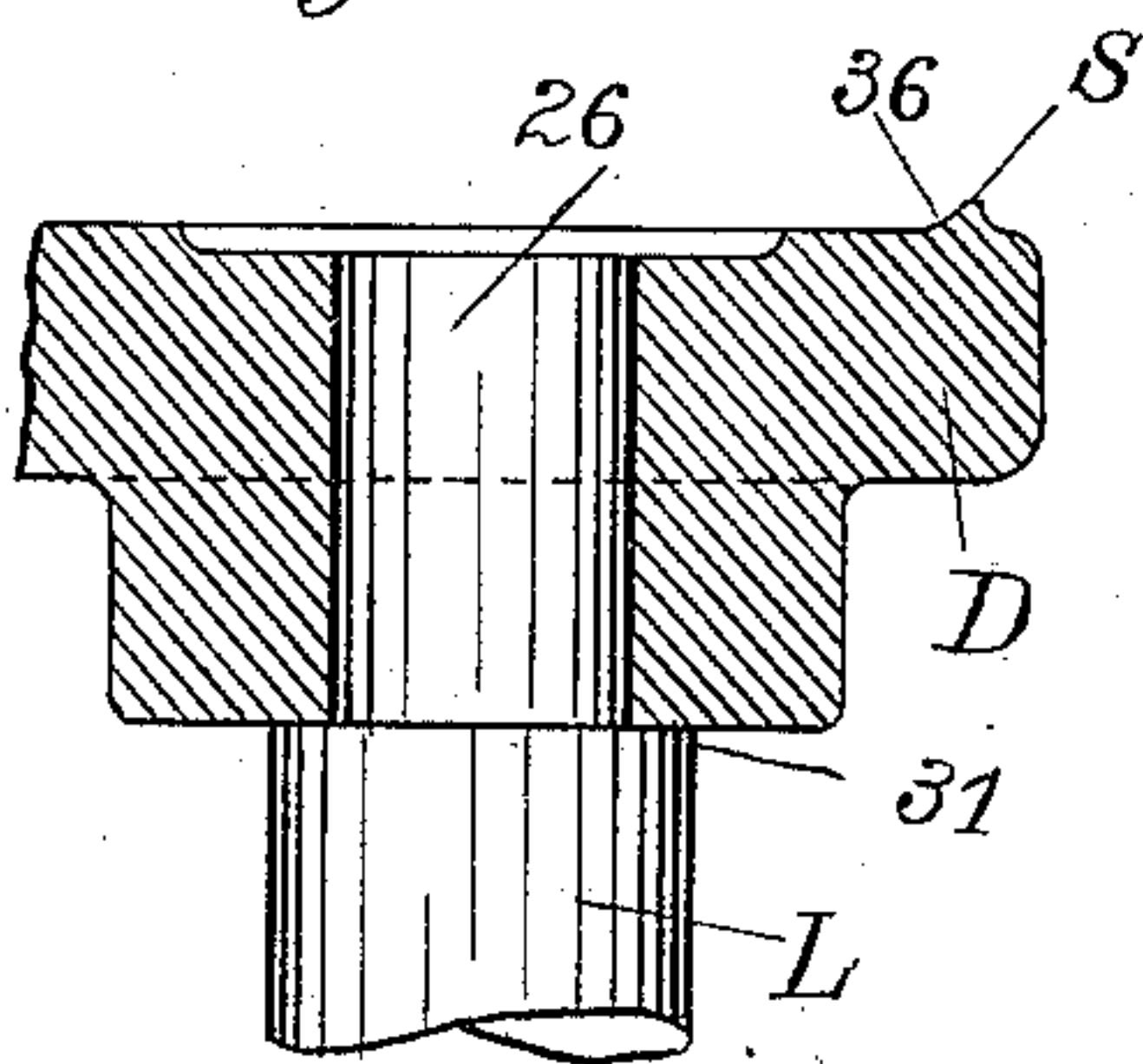


Fig. 12.



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UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO
THE HARTFORD HEEL PLATE COMPANY, OF HARTFORD, CONNECTICUT.

MACHINE FOR ATTACHING HEEL-PLATES.

SPECIFICATION forming part of Letters Patent No. 369,554, dated September 6, 1887.

Application filed July 23, 1887. Serial No. 245,077. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Machines for Attaching Heel-Plates, of which the following is a specification.

This invention relates to that class of machines designed for attaching heel-plates to rubber shoes, the object being to provide an improved machine, as hereinafter more fully set forth, for attaching the heel-plates (and others similar thereto) described in my application Serial No. 243,631.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan view of a machine embodying my improvements. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a side elevation of the machine. Fig. 4 is a front elevation partially in section. Fig. 5 is a vertical section in line *a a*, Fig. 4. Fig. 6 is a plan view of the under side of the plate-holder, showing a heel-plate held therein. Fig. 7 is a similar view showing a smaller plate held therein. Fig. 8 is a plan view of the anvil, having thereon a series of setting-dies. Fig. 9 is a vertical section in line *b b*, Fig. 8, showing a plate set onto the heel of a rubber shoe. Fig. 10 is a view the same as a part of Fig. 9, showing the position of the heel and plate before the setting operation is begun. Fig. 11 is a view similar to Fig. 10, showing a prong of the plate forced down to the setting-die ready to begin clinching. Fig. 12 is a sectional view of the die similar to Fig. 11, but with the shoe and plate not shown.

Similar characters designate like parts in all the figures.

This machine consists, in a general way, of a frame-work, a plate-holder, an anvil or die having a vertical movement, and means for actuating the anvil. The frame may be constructed in various ways, but of these the form shown in the drawings is deemed preferable. In this form said frame consists of the base-plate 12, the bearing 13 for the operating-shaft, the post 14 for the anvil-carry-

ing slide, and the column N for carrying the plate-holder. This column is conveniently constructed of the front wall, 16, and the two side walls, 15 17. In practice all parts of the frame are (or may be) cast in one piece after a well-known manner.

The plate-holder consists of a suitably-shaped piece, as H, provided with means for holding the heel-plates. For this purpose it is provided with a movable jaw, 18, the inner face of which has oppositely-disposed beveled faces, as 2 and 3, Figs. 6 and 7, fitting similar edges on the plate P. Opposite to said jaw and to each other the holder H has two inclined faces or ledges, 4 and 5, against which the curved outer edge of the plate is held by said jaw 18. By this means the plate is properly and centrally located on the holder, which is thereby made capable of holding plates of various sizes. This will be seen by comparing the large plate P in Fig. 6 with the smaller one shown in Fig. 7. It will be observed that both plates are held equally central on the holder by means of the engagement of the aforesaid faces 2 and 3 of the jaw with the inclined edges of the point 6, which is formed on the plate for that purpose.

For convenience in placing the plates, and also to permit conveniently putting the shoe on the anvil, the holder H is pivotally supported on the column N, so that it may be swung out, as in Fig. 3, to receive the plate, and then swung down to the working position, as in Figs. 1, 2, 3, and 9.

The holder is fitted between the projecting ends of walls 15 and 17, and has fitted therein the aforesaid jaw 18. A pin, 19, passing through said walls, holder, and jaw, furnishes the necessary bearing for the movable parts. For closing the jaw an ordinary thumb-screw, 20, is provided, and a spring, 21, serves to open the same in a well-known manner. A handle, 22, is usually provided, whereby to swing the holder from one position to the other. When the holder is down, as in Figs. 1, 2, and 4, it is held against the upper end of wall 16 as a stop by a stout spring, 23, which is affixed to column N and bears against the roller 24, that is carried between the two short

arms 25 on said holder. When the holder is swung up, as in Fig. 3, the said roller 24 lies below the spring, which thus acts to keep the holder lifted. In Fig. 3 the holder is shown

up by solid lines and down by dotted lines.

The anvil D is suitably shaped to fit within the heel, as E, Figs. 9, 10, and 11, of a shoe. It is provided with a series of setting-dies, S, suitably arranged for clinching the heel-plate prongs, and is carried on the upper end, 26, of a slide, L, (resting on shoulder 31,) whereby it is forced up against a heel-plate held in the holder H. Said slide is fitted to move up and down and within the post 14. It is usually held downward by a spring, as 27, against the actuating-cam. At its lower end it is or may be furnished with an ordinary anti-friction roller, 28, bearing on said cam. This actuating-cam (herein designated by M) is preferably made as small as consistent, with sufficient strength, for the purpose of obtaining great power. It is also preferably shaped substantially as shown in Fig. 2, for the purpose of obtaining the greater slide movement at the beginning and greater force toward the end of the forward cam-stroke, which stroke I make about one hundred and eighty degrees. Said cam is formed, for reasons of economy of manufacture and convenience in assembling the machine, on the end of the shaft T, which is fitted to be freely turned within bearing 13 by means of the handled lever R. Shaft T is or may be held from longitudinal movement in said bearing by means of a stop-screw, 29, whose point enters the circumferential slot 32 formed in said shaft. This slot, being formed of suitable length and position, may be used to limit the stroke of cam M to the effective arc of its movement.

The anvil is in practice fitted freely on the stem 26 of slide L. This is to permit the easy removal (without the use of tools) of the anvils, of which several different sizes are used with each machine, those sizes corresponding respectively to the various sizes of heel-plates to be used therein. For preventing the anvil turning out of proper position it is provided with an arm, as 33, which slides between guides or lugs 34 35 on the frame. By this means, also, the necessity for close workmanship is avoided.

The setting-dies S are of a peculiar construction, especially adapting them for setting the aforesaid heel-plates on rubber shoes and to clinch the prongs 40 thereof down close to the inner surface of the heel. To this end said die S consists of a suitably-shaped projection standing above the general surface of the anvil. One side, 36, of said projection is formed concave and serves as the working-face of the die.

When the shoe is put on the anvil, as in Fig. 10, it rests on the dies S. When the prong 40 is forced through the heel, as in Fig. 11, its point strikes the working-face of the die, and as the plate is forced down the prong

is clinched over into the heel, as in Fig. 9. At this time the said die S becomes fully embedded in the yielding material of the heel, as shown in this figure. On lowering the anvil the dies are withdrawn and the heel regains its shape. By means of this form of die the prongs are readily set by one upward movement of the die. Heretofore it has been customary to use dies requiring successive operations to clinch the prongs.

In using the machine the holder H is first swung forward and the plate inserted, and the corresponding anvil is set in place on slide L. The shoe is next placed with its heel E on the anvil, as in Fig. 9, when the operator seizes the handle of lever L and draws the same forward, thereby forcing up the anvil and setting the plate onto the heel, as hereinbefore explained.

It will be understood that this improved machine is capable of modification in various ways and degrees, after the manner of machines in general, within the scope and limits of my invention.

Having thus described my invention, I claim—

1. The improved heel-plate-attaching machine herein described, the same consisting of a frame-work, a vertically-movable anvil provided with prong-bending dies, and a laterally-movable plate-holder, all arranged and operating substantially as described.

2. In a heel-plate-attaching machine having a vertically-movable anvil, the swinging heel-plate holder pivoted to the frame above said anvil, all combined and operating substantially as set forth, and for the purpose specified.

3. The combination, in a machine for attaching heel-plates, of the plate-holder having oppositely-disposed inclined ledges and a movable jaw on said holder, and having oppositely-disposed faces for bearing against and centering the plate, substantially as described.

4. In a machine of the class specified, the plate-holder pivoted to the frame above the anvil, and a projecting part, as 24, or the like, on said holder, combined with a spring, as 23, holding said holder either up or down, substantially as set forth.

5. The combination, in a heel-plate holder, of the holder H, provided with ledges against which the plate rests, the swinging jaw 18, and means (as a screw and spring) for closing and unclosing said jaw, all substantially as set forth.

6. The combination, in a machine of the class specified, of a plate-holder, a vertical slide carrying the anvil under said holder, the cam M, and means for operating said cam, all substantially as described.

7. The combination, in a machine of the class specified, of the slide L, having stem 26, and anvil D, fitting on said stem and having the arm 33, working between guides on the frame, all substantially as described.

8. The combination, with a frame-work having the hollow post 14 and bearing 13, of slide L, adapted to slide in said post, the shaft T, adapted to turn in said bearing, and the cam
5 M, on said shaft and working against said slide, substantially as described.

9. The improved anvil herein described for attaching heel-plates to rubber shoes, the same consisting in a suitable plate or like part, as

D, provided with raised setting-dies, substantially as described, adapted to be embedded into the yielding material of the heel, substantially as set forth.

FRANCIS H. RICHARDS.

Witnesses:

GEO. A. REYNOLDS,
GEO. W. DRAKE.