

M. A. TYLER.
Machine for Trimming Boot and Shoe Heels.
No. 203,510
Patented May 7, 1878.

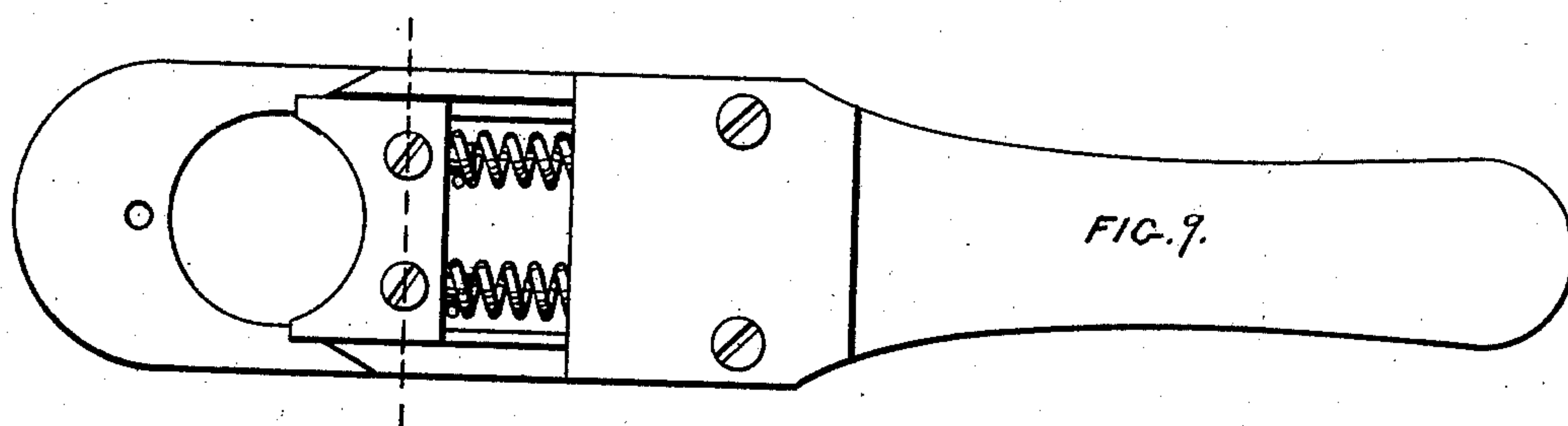
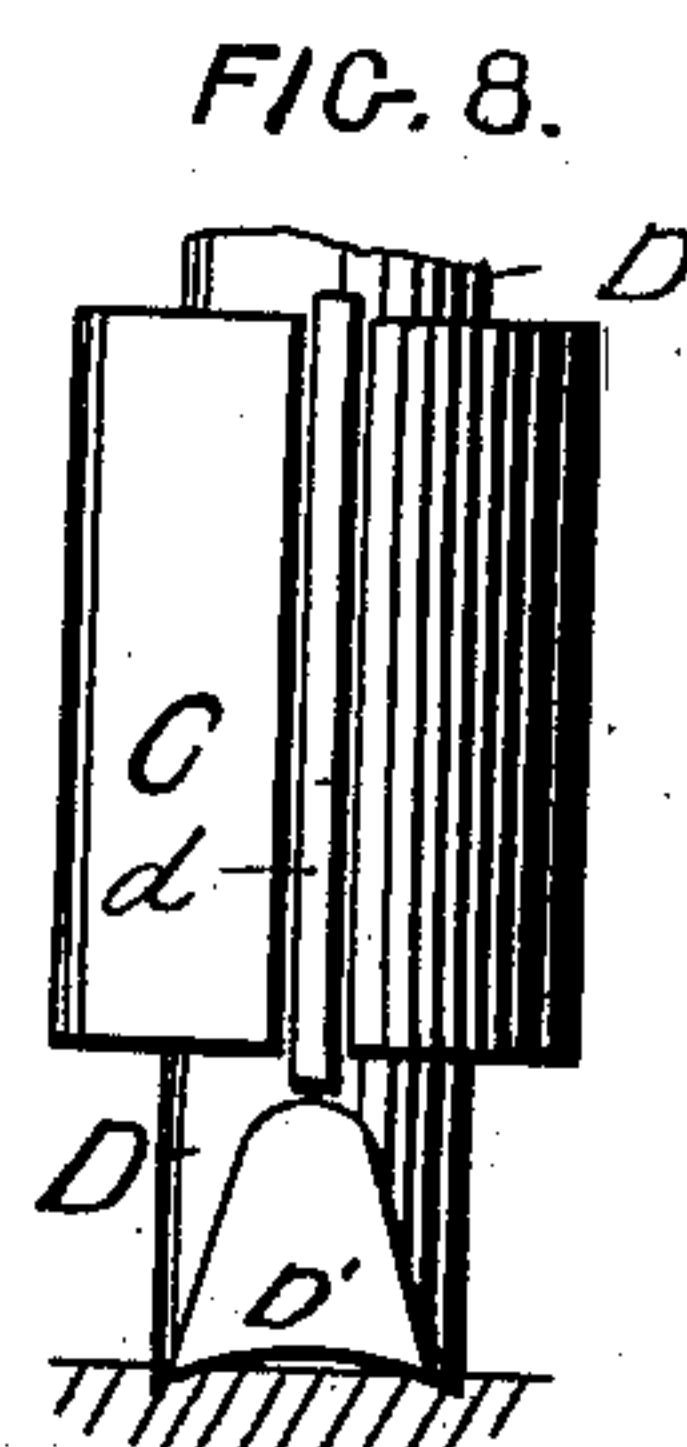
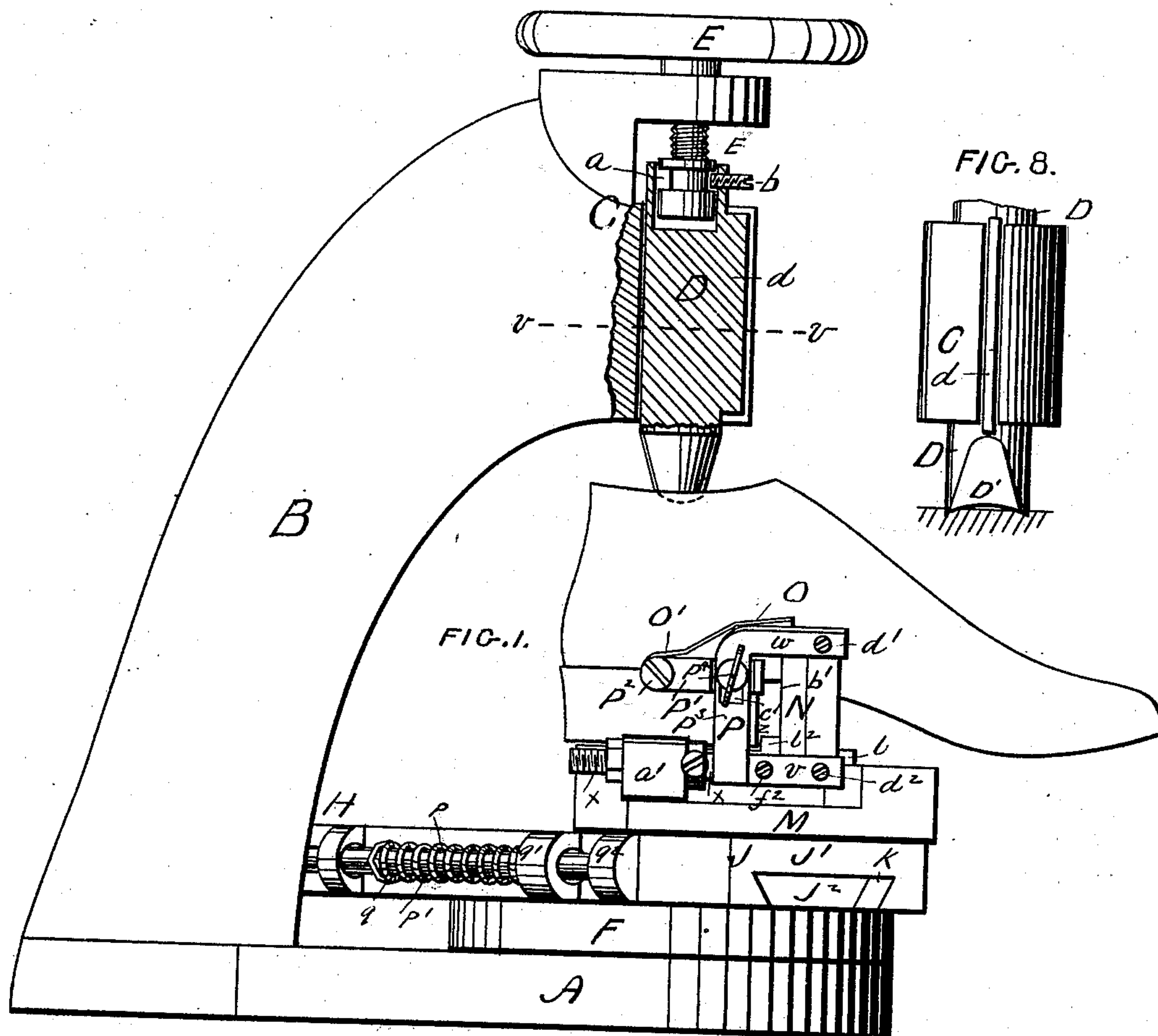
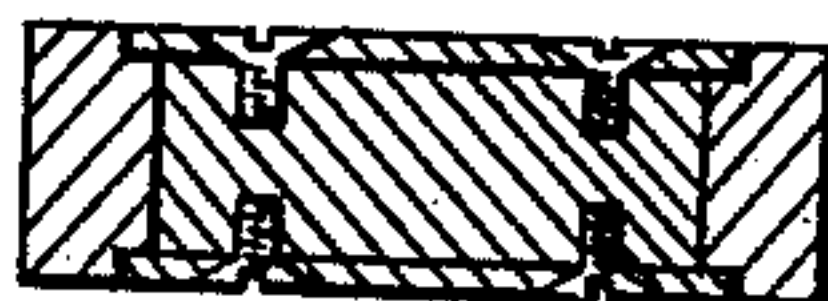


FIG. 10.



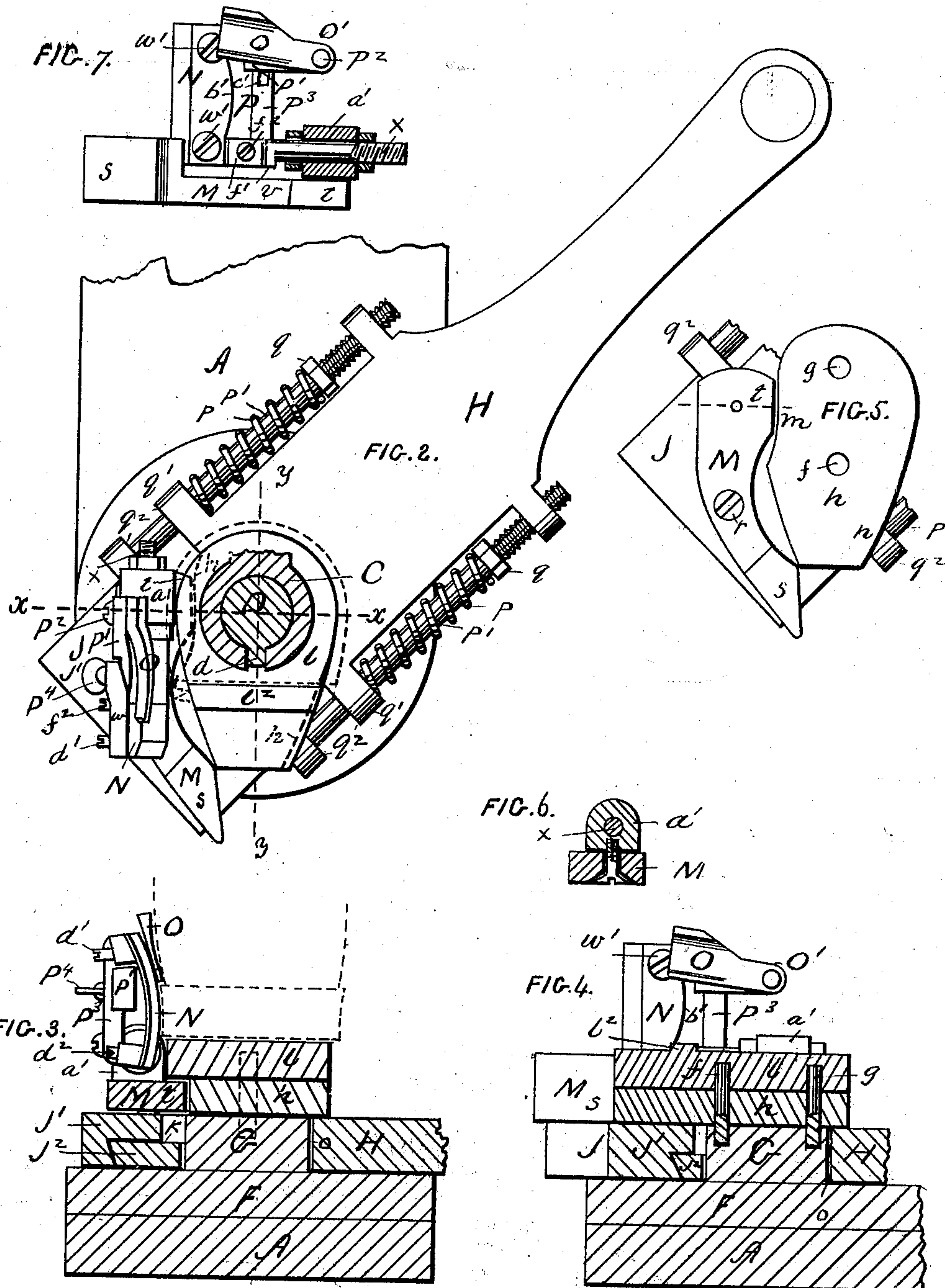
WITNESSES.

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UNITED STATES PATENT OFFICE.

MERRILL A. TYLER, OF NEW DURHAM, NEW HAMPSHIRE.

IMPROVEMENT IN MACHINES FOR TRIMMING BOOT AND SHOE HEELS.

Specification forming part of Letters Patent No. **203,510**, dated May 7, 1878; application filed January 31, 1878.

To all whom it may concern:

Be it known that I, MERRILL A. TYLER, of New Durham, county of Stafford, State of New Hampshire, have invented certain new and useful Improvements in Machines for Trimming Boot and Shoe Heels, of which the following is a specification:

This machine is constructed and arranged for the boot or shoe the heel of which is to be trimmed to be held stationary, and the trimming-knife to be carried about the outer edge of the heel; and the invention consists in the construction and arrangement of the several parts, all substantially as hereinafter described, reference being had to the accompanying plates of drawings, in which—

Figure 1 is a side elevation; Fig. 2, a horizontal section on line *v v*, Fig. 1; Fig. 3, a vertical section on line *x x*, Fig. 2; Fig. 4, a vertical section on line *y y*, Fig. 2; Figs. 5, 6, 7, 8, 9, and 10, views in detail.

In the drawings, A represents a base-plate, from one end of which runs a standard, B, having a vertical tubular head, C; D, a vertical plug, moving through the tubular head C, and acted upon by the turning of a screw-shaft, E, which screw-shaft E has its lower end connected to the upper end of the plug by a circumferential groove, *a*, of the screw-shaft E, and a set-screw, *b*, of the plug, so that the plug will follow the screw and not turn with it, and this movement of the plug is still further insured by a vertical spline-joint, *d*, between it and its bearing in the tubular head C; F, a plate, fastened to bed-plate A, so that the center of the circular raised block G will be coincident with the vertical axis of the vertical moving plug D.

This circular raised portion G has two vertical pins, *f g*, over which sit two plates, *h l*, which plates rest one upon another, and the lower one, *h*, which has two cam-surfaces, *m n*, to be hereinafter described. The upper plate, *l*, of these two plates corresponds in outline to the circumferential outline of a boot or shoe heel.

The boot or shoe lasted—the heel of which is to be trimmed—is placed by its heel on the plate *l*, and its front edge brought against the

raised cross-ridge *p*, and otherwise the heel centered thereon, when the plug D is brought down upon the last, which binds and secures the heel in its said position, to be trimmed about its outer circular edge by the trimming-knife, which is arranged and operated as will be now described.

H, an arm, hung by its yoke portion J about the raised circular block G, so as to be swung horizontally about it as a center, and in its said swing it rests on the plate F below the block G. This arm-yoke J, at its bearing *o* about the raised block G, is diametrically divided into two parts, *J¹* and *J²*, arranged to slide upon each other, as at K, and are held together by the spiral springs *p*, which are confined on stems *p'* of the part, *J¹*, between a screw-nut, *q*, on each of said stems, and one ear-piece, *q¹*, of the two ear-pieces on the part *J²*, and through which said stems play. The said two-part bearing is kept closed by these spiral springs; but, obviously, can be opened against said springs *p* by a power applied to either one or the other of the said two parts in the proper direction therefor.

M, an arm, pivoted at *r* to the upper surface of the part *J'* of the two-part bearing-yoke J. This arm M, at one end, *s*, bears upon the periphery of the upper plate *l* of the two plates *h l* upon the raised circular block G, about which the yoke J swings, and at the other end, *t*, it bears only upon the periphery of the lower and cam plate *h* of said two plates, and between its said two bearing ends it carries a knife-blade, N, and a guard, O, each constructed and arranged together as follows: The knife-blade N is convex from end to end, and it extends across the opening between the two arms *u v* of a frame, P, and it is secured to each arm by a set-screw, *w'*. The frame P, by its stem *x*, a continuation of one, *v*, of its arms *u v*, swivels in an ear-piece, *a'*, which in turn swivels in the carrying-arm M, and thus the knife-blade can swivel upon the carrying-arm M in two directions—first, vertically, and, second, horizontally. The knife-blade stands vertically against the boot or shoe heel, secured on the plates *h l*, and in this position its cutting-edge *b'* is convex rel-

atively to the outline of the heel from the treading-face of the heel to the upper of the boot or shoe.

The guard or gage O for the knife-blade N is carried by the knife-frame P, and by one end, O', it is hung by a screw-pivot, P², to an arm, P¹, so that it can be swung thereon and yet be fastened against turning. This arm P¹, to which the guard-arm O is hung, is arranged to be slid along the cross-piece P³ of the knife-frame P, and it is fastened thereon in the position desired by tightening up a thumb-screw, P⁴, which passes through a slot, c', in the length of the said cross-piece P³, and enters and screws into said arm P¹.

The guard or gage O, applied as above described, obviously can be adjusted on the knife-frame P in a vertical direction in relation to the cutting-edge of the knife, and to act, not only as a guard to the knife against cutting the upper of the boot or shoe in its cutting of the heel to trim it, but also as a guard to the knife against its trimming the heel beyond its position of bearing thereon, all as will hereinafter fully appear.

d¹ d², two set-screws arranged in knife-frame P to bear upon the knife-blade, so that by turning them the cutting-edge of the knife can be put at a greater or less degree of start relative to the edge of the heel it is to trim, the fastening-screws w' being first loosened for this purpose, and then after such adjustment tightened, to fix the knife against movement.

f¹, a block fastened to screw knife-frame P, and f² an adjusting-screw for said block. This block f¹ is at the lower end of the cutting-edge b' of the knife when the knife is in its working position on the heel, and by setting its adjusting-screw f² in or out the cut of the lower end of the cutting-edge of the knife-blade can be regulated at pleasure, as is obvious, to secure a smaller or larger heel at or near the treading-face of the heel.

Having thus described the construction and arrangement of the several parts making up the present improved machine for trimming boot and shoe heels, I will proceed to describe the manner of using and operating it.

First, the boot or shoe the heel of which is to be trimmed is first lasted, and then placed by the treading-face of its heel upon the upper heel-plate l, and its front edge brought against the raised edge l² of said plate, and thereon it is centered coincident substantially with the vertical axis of the plug D and of the circular block G, and the heel and cam plates l and h, which are placed thereon. The boot or shoe is then fastened in place, as hereinbefore described, and then the yoke-arm J is swung around, so as to bring the cutting-edge b' of the trimming-knife at one corner, z, of the front face of the heel, when, having adjusted the guard O either to bear upon the upper of the boot or shoe just above the heel, or to bear upon the heel at its upper part and the lower knife-regulating block f¹, as desired,

hold with one hand the knife-edge up to the side of the heel, and then swing the yoke-arm J so as to carry the cutting-edge of the knife from the corner of the front face of the heel at which the knife-edge had been placed, as above, to the other corner of said heel-face, by doing which the heel is trimmed by the knife, and, as is obvious under a repetition of such an operation of the yoke-arm, such trimming made as perfect as desired. In this movement of the trimming-knife about the heel it is held in close contact therewith by the action of the spiral springs p, which are arranged upon the yoke-arm p', as described; and when the end of the knife-carrying arm M comes opposite to, and to a bearing on, either of the cam-faces m n of the lower plate h of said heel-plates h l, the arm m then swings on its center r, and in each case this swing of the arm M throws the cutting-edge of the knife inward and toward the center of the heel, whereby, under a location and form of cam-faces m n such as shown in the drawings, Fig. 5, the heel is trimmed at each corner of the front face of the heel to the shape desired.

The heel-plates h l, in lieu of being in two pieces, may be in one piece; and, again, they may be in various sizes and shapes, as is obvious.

The bearing end D' of plug D is hollowed out from front to rear, as shown in Fig. 8, thereby securing a square and firm bearing of the plug on the last, which is desirable, in order to rigidly hold the boot or shoe for the operation of the heel-trimming knife.

In Figs. 9, 10 is shown a modification in the elastic connection of the two-part yoke-bearing, which is obvious from the drawing without description, and, again, plain to be seen, to be and to act substantially the same as the elastic connection which has been herein particularly described.

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

1. The knife-carrying yoke J, composed of the two parts J¹ J², arranged to slide upon each other, and held together by spring-pressure, in combination with the bearing-block G and a suitable operating-handle, substantially as described.

2. The knife-blade swiveled to a carrying-arm, M, which is pivoted to a two-part yoke-bearing, J, having its parts joined together by an elastic connection, substantially as described, for the purpose specified.

3. The combination of the adjustable knife-blade N, its fastening-screws w' w', and the adjusting-screws d¹ d², substantially as and for the purpose set forth.

4. The knife gage or guard O, combined with the knife-frame P, made adjustable in relation to the cutting-edge of the knife, substantially as described.

5. The combination of the swiveling frame P, swiveling ear-piece a', and carrying-arm M,

substantially as and for the purpose set forth.

6. The combination, with the block f^1 , arranged at the lower end of the knife, of the adjusting-screw f^2 , substantially as and for the purpose set forth.

7. The heel-plate h , provided with the cam-faces m m , substantially as and for the purpose set forth.

8. The plug D , having its lower or bearing end D' hollowed out, substantially as and for the purpose specified.

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