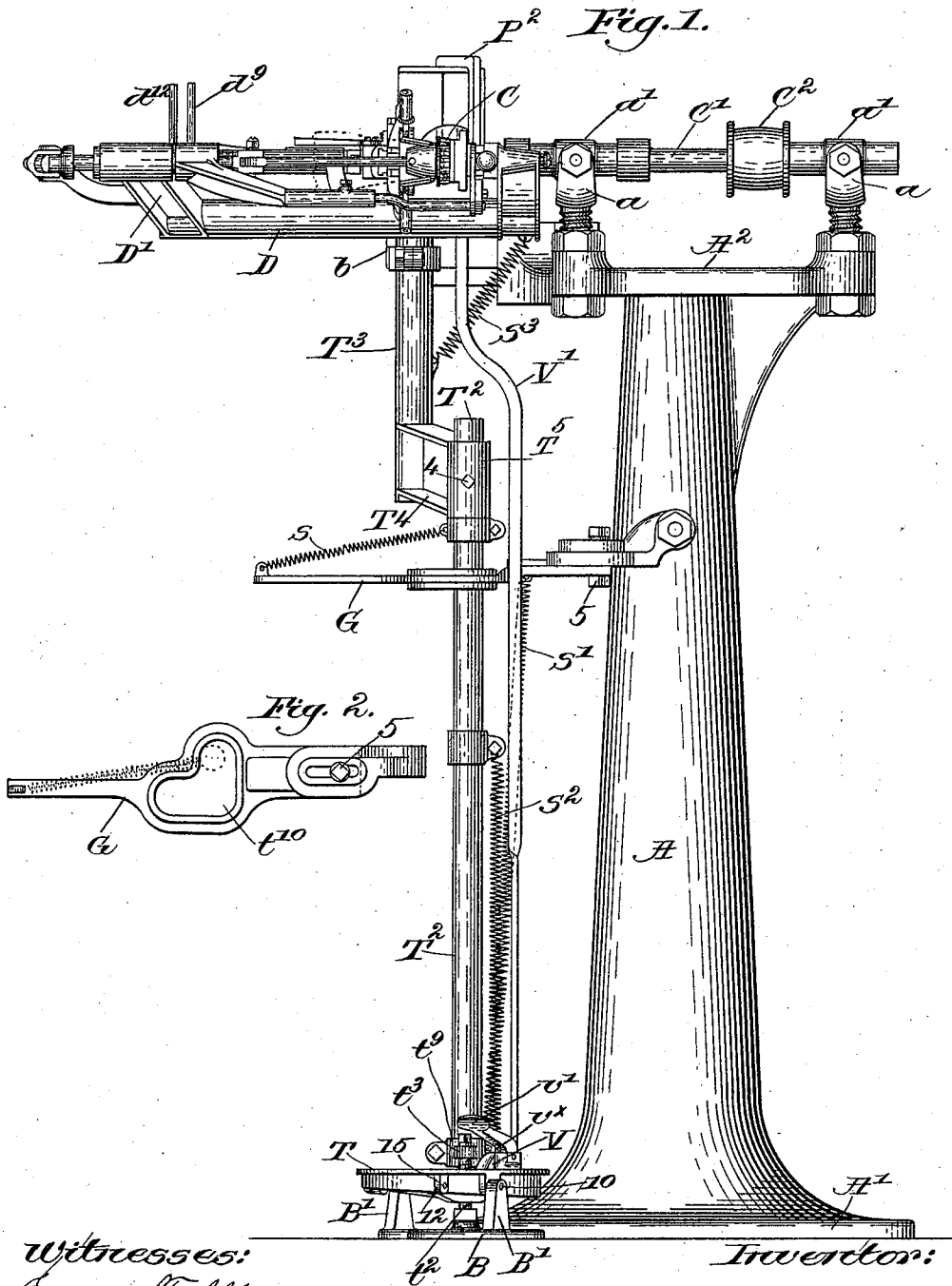


B. F. MAYO.
HEEL TRIMMING MACHINE.

No. 574,618.

Patented Jan. 5, 1897.



Witnesses:
Edward F. Allen.
Thomas Drummond.

Inventor:
Benjamin F. Mayo.
by Kirby Gregory, atty.

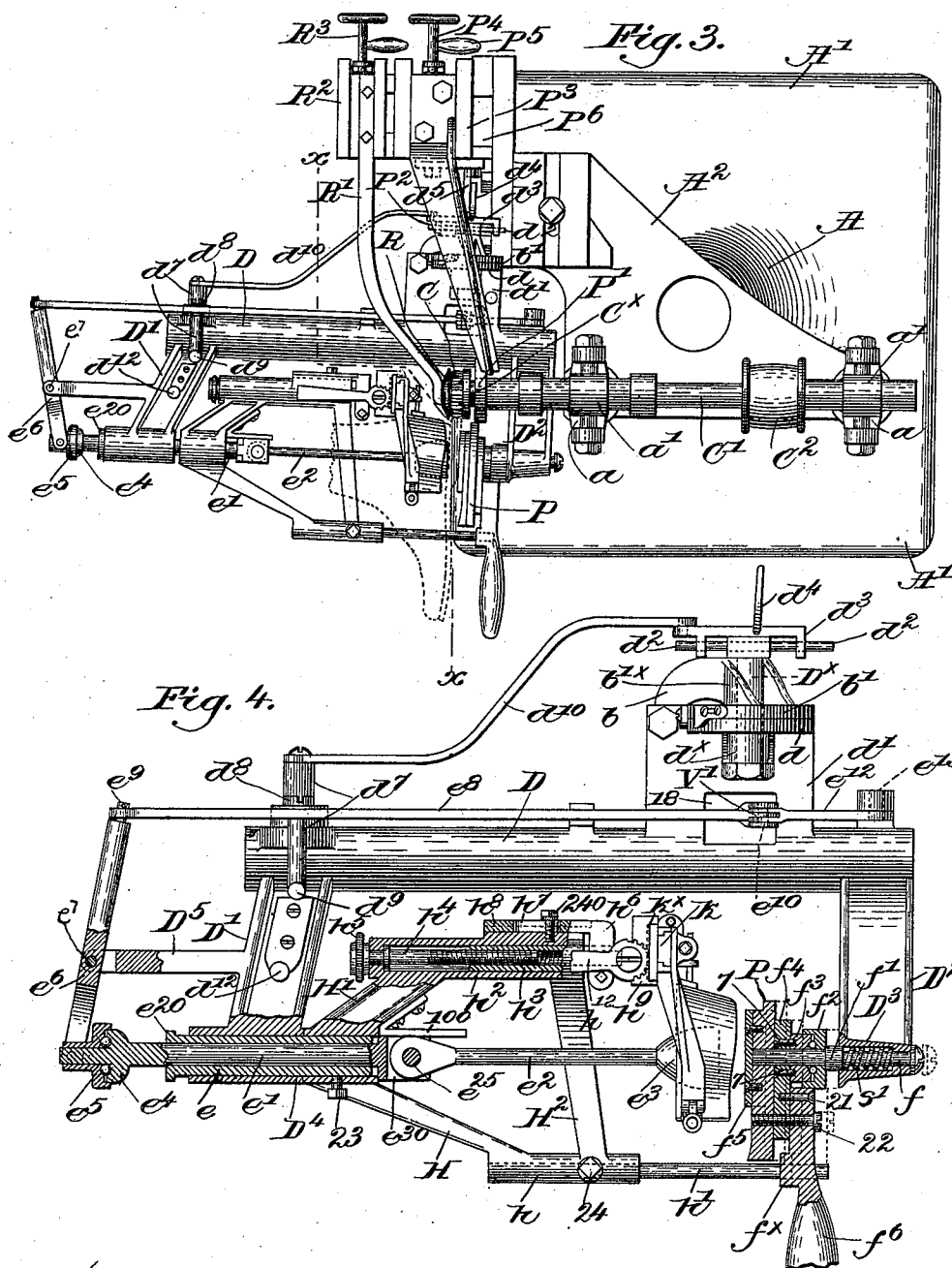
(No Model.)

4 Sheets—Sheet 2,

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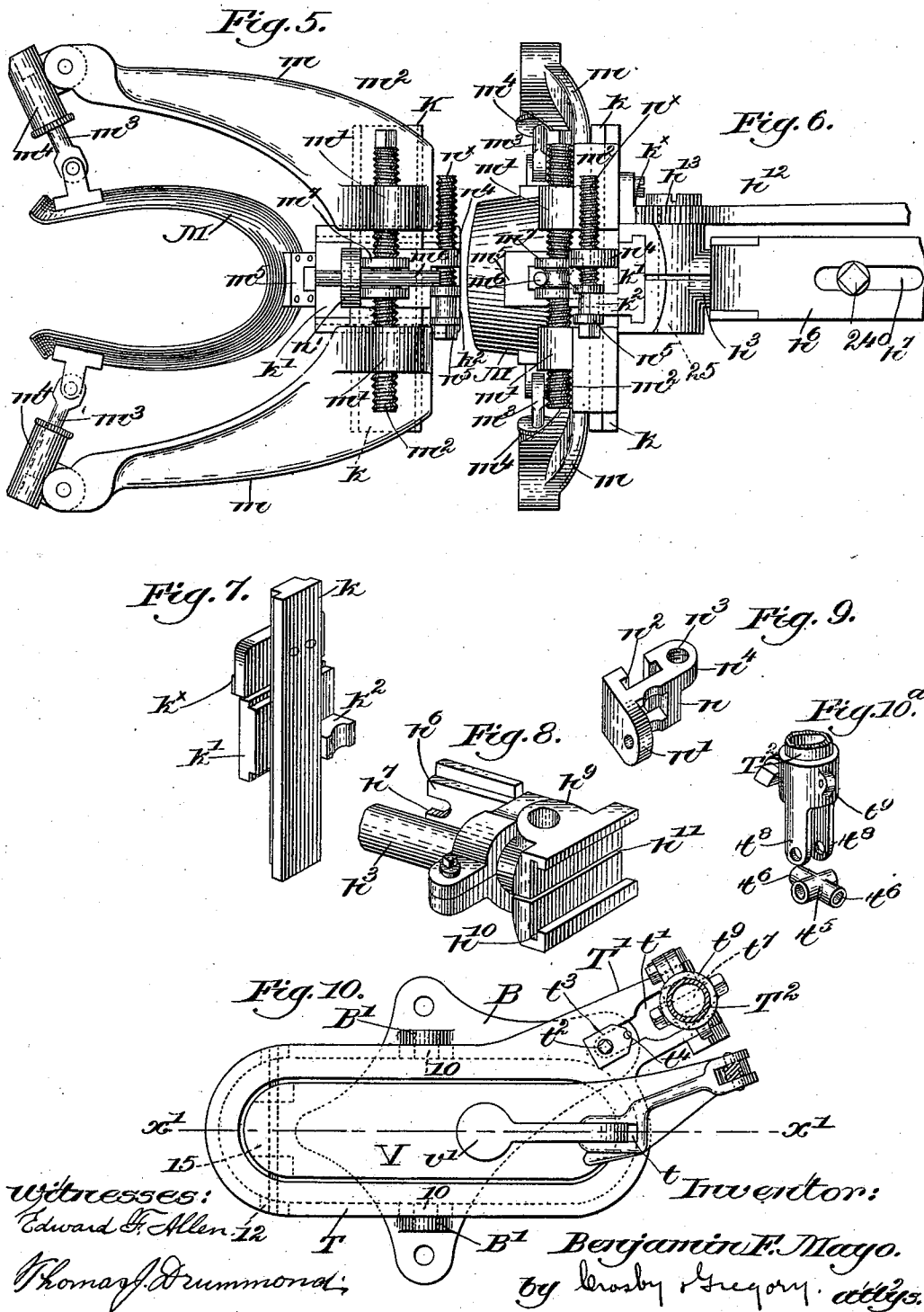
Inventor:

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by Crosby Gregory, attys.

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4 Sheets—Sheet 4.

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Fig. 12.

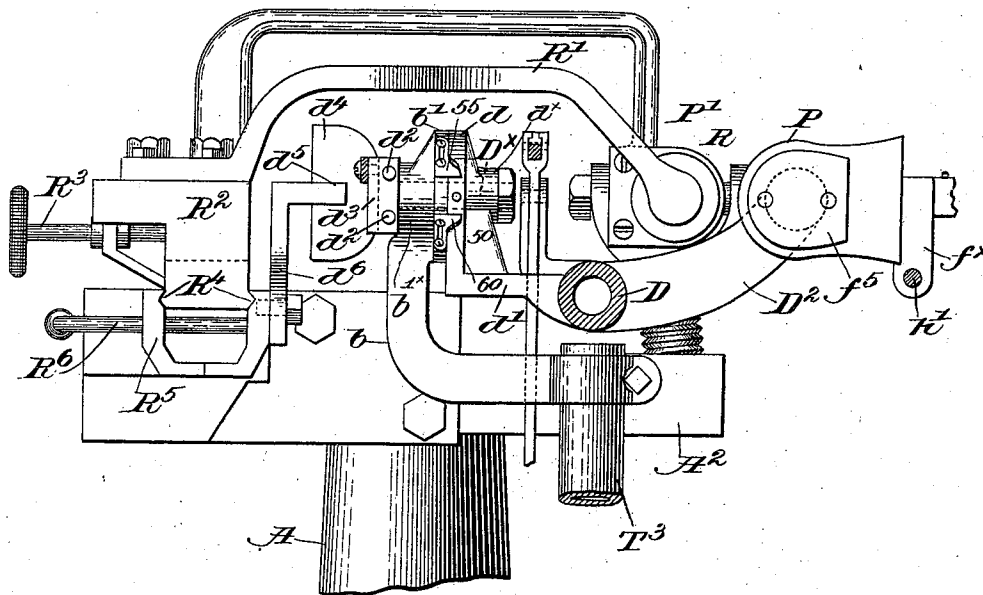
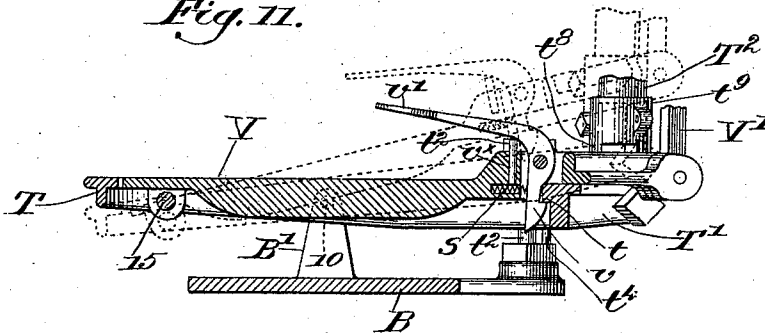


Fig. 11.



Witnesses:
Edward F. Allen.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR TO JAMES W. BROOKS, OF PETERSHAM, PRINCIPAL TRUSTEE, AND JOHN BROOKS, OF CAMBRIDGE, MASSACHUSETTS, ASSOCIATE TRUSTEE.

HEEL-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 574,618, dated January 5, 1897.

Application filed March 16, 1893. Serial No. 583,302. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. MAYO, of Salem, county of Essex, State of Massachusetts, have invented an Improvement in Heel-Trimming Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to machines for trimming boot and shoe heels, and more especially to what are known as "spring-heels;" and my present invention has for its object the production of a novel jack for holding the boot or shoe the heel of which is to be trimmed. Means are provided for positioning the boot or shoe on the jack in order to present the heel properly to the rotary cutter, to be trimmed thereby, the holding and clamping devices for the shoe having a rotative movement relatively to the jack in order that the cutter may act upon the side of the heel throughout its extent from one to the other breast corner. The jack as a whole has also a pivotal movement in line with the center of the cutter in order that the heel may be trimmed to the proper slope or inclination, and I have provided means for retaining the rand-guide in the rand-crease as the heel is trimmed.

The construction and arrangement of the machine embodying my invention will be fully described hereinafter in the specification and particularly pointed out in the claims.

Figure 1, in front elevation, represents a heel-trimming machine embodying my invention, the boot or shoe being partially indicated by dotted lines to avoid confusion of the drawings. Fig. 2 is a top or plan view of a guide for the jack support or spindle to be referred to. Fig. 3 is a top or plan view of the machine shown in Fig. 1, the parts being in position to trim the back of the heel, the shoe being shown in dotted lines. Fig. 4 is a plan view, partially in section and enlarged, of the jack, the parts being in position to receive a boot or shoe. Fig. 5, on an enlarged scale, is an outer end view of the

boot or shoe holder. Fig. 6 is a rear side view thereof, also enlarged. Figs. 7, 8, and 9 are perspective detail views, enlarged, of the adjusting or positioning devices for the holder. Fig. 10 is a top or plan view of the compound treadle. Fig. 10^a is a perspective detail of the connection or joint between the jack-spindle and treadle. Fig. 11 is a longitudinal sectional view of the treadle on the line *x' x'*, Fig. 10; and Fig. 12 is an end elevation, partially in section, of the mechanism at the right of the irregular line *xx*, Fig. 3.

I have herein shown the apparatus as mounted upon a column or standard A, having an enlarged base A' to rest firmly upon the floor, said standard having a laterally-extended head A², provided with upturned yokes *a a*, in which are pivoted suitable bearings *a' a'* for the cutter-shaft C', having fast thereon a belt or other pulley C², by means of which rotation is imparted to the cutter-shaft from any suitable source of power. (Not shown.) At the inner end of the cutter-shaft is secured a cutter C, of suitable construction, adapted to trim the sides of the heel and also the edge portion of the sole adjacent the heel-base, the cutter C being provided with a portion C^x for that purpose.

A stationary rand-guide or shield R is held outside of and at the end of the cutter, to enter the rand-crease and prevent injury to the upper, the guard also serving as a guide for the operator in turning the heel as it is presented to the cutter.

The guard R is secured to an arm R', Figs. 3 and 12, extended from the rear of the head A² and adjustable toward and from the front of the machine in a recessed block R² by means of an adjusting-screw R³, the block itself, as shown in Fig. 12, having ribs R⁴, parallel to the cutter-shaft, to fit into a split clamp R⁵, controlled by a clamping-screw R⁶. By these two adjustments the shield or rand-guard can be moved toward or away from the cutter, and also transversely to its axis, according to circumstances.

In trimming the heel its shape from edge to edge of the breast is determined by a pattern, (shown as plate P,) which is held by the

operator against a stationary coöperating abutment or rest P' , through which the cutter-shaft C' is loosely extended. To support this rest P' so that it will be out of the way of the jack and other parts of the machine, I have shown it secured to an overhanging arm P^2 , fitting at its rear end in a block P^3 , recessed at right angles to the cutter-shaft to receive it and adjustable in said block by means of a regulating-screw P^4 . (See Fig. 3.) The block P^3 , with the arm and rest, may be adjusted parallel to the cutter-shaft by loosening the clamp-screw P^5 of a clamp P^6 for the block, though other forms of adjusting and clamping mechanism may be used, if desired, the adjustments being necessary for different shapes and sizes of shoes.

Adjacent the base of the standard A is secured a treadle-stand B , Figs. 1, 10, and 11, having ears B' to receive the trunnions 10 of a treadle T , shown as an open casting, and provided at its outer end with bearings 12 for the fulcrum-pin 15 of a second treadle V , which has pivotally mounted therein a latch v to at times engage a lip t on the treadle T , as shown in full lines, Fig. 11, the latch being normally acted upon by a suitable spring s . The outer end of the latch is extended to form a toe-piece v' , whereby the latch can be operated by the foot of the operator. A stop-pin v^x underneath the toe-piece v' prevents undue depression thereof, so that the operator can always place his toe beneath the part v' in order to release or unlock the treadle V .

The treadle T has an offset portion T' , slotted at t' , and an adjusting-bolt t^2 is rotatably mounted in the base B , extending up through the slot t' and through a plate t^3 above, the offset T' serving to limit upward movement of the treadle. The plate t^3 is notched to engage an upright stud t^4 on the base, preventing rotative movement of the plate on the bolt t^2 and maintaining it in the position shown in Fig. 10. By rotating the bolt t^2 the plate t^3 is raised or lowered, to thereby regulate the extreme upward movement of the inner end of the treadle T and thereby of the jack, to be described.

A frame t^5 is provided with trunnions t^6 , Fig. 10^a, to take bearing in the bifurcated end of the extension T' , said frame having at right angles to the trunnions bearings for a pivot-bolt t^7 , which is extended through ears t^8 on a collar t^9 , clamped on the jack-spindle T^2 , whereby the latter is connected to the treadle by a universal joint.

The spindle T^2 is extended upward through an L-shaped slot t^{10} of a guide G , (see Fig. 2,) adjustably secured by a bolt 5 to and laterally extended from the standard A , a spring S , attached at its ends to the spindle and outer end of the guide G , respectively, normally tending to draw the spindle to the left, Figs. 1 and 2, from the positions therein indicated. Such range of movement of the jack is necessary to move the boot or shoe into position to have its heel trimmed by the rotary cutter.

A spring S' is shown attached to the guide at one end and at its other to the spindle T^2 , serving to counterbalance to some extent the weight of the jack and the parts carried thereby, while a spring S^2 , attached at its lower end to the treadle V , is secured at its upper end to a collar or band 3 on the jack-spindle, said spring normally tending to lift the inner end of treadle V .

In order to swing horizontally and adjust the jack upon the spindle, I have interposed between it and the jack an upright support T^3 , provided at its lower end with an offset foot T^4 , terminating in a boss or hub T^5 to receive the spindle and to which it is rigidly secured in adjusted position by a suitable set-screw 4 to give the proper slant to the heel. A bent arm b , Fig. 12, is rigidly secured to the support T^3 and is provided at its upper end with a disk-like bearing b' , against which bears the bearing-surface d of the jack-frame, comprising a substantially horizontal member D and forwardly-extended arms D' D^2 , (see Figs. 3 and 4,) the bearing d forming part of an upturned bracket-like portion d' of the jack. The adjacent bearing portions b' d are provided, respectively, with hubs b^x d^x to receive a headed fulcrum pin or bolt D^x , upon which the jack is usually tipped, said fulcrum being normally in the horizontal plane of the cutter-axis. The head of the pin D^x has therein one or more laterally-extended guide-rods d^2 , which pass through the ends of a yoke d^3 , rigidly secured to or forming part of a rearwardly-extended upright wing d^4 , bearing against the centering-arm d^5 of a bracket d^6 , fixed to some rigid part of the head A^2 , the object of these devices being hereinafter described.

A bent lever d^7 is pivoted at d^8 on the jack (herein shown as near the left-hand end of the member D , Figs. 3 and 4) and provided with an upturned handle d^9 , the lower arm of the lever being pivotally connected by a stiff link d^{10} to the yoke d^3 , so that by swinging the handpiece d^9 to the right or left the jack will be moved in the same direction, the wing d^4 resting against the arm d^5 .

To assist the operator in moving the jack laterally, which movement enables the edge or lip of the rand guide or guard R to remain in the rand-crease as the heel is being trimmed, I prefer to secure a rigid handpiece d^{12} on the arm D' adjacent the movable handle d^9 , so that the hand can grasp both handles while controlling the movement of the jack.

The arm D^2 has a boss D^3 , recessed, as shown in Fig. 4, to receive a plunger f , provided with an enlargement f' , and normally pressed outwardly by a spring s' within the boss between the end of the recess and the enlargement f' , one member f^2 of a ball-bearing, as herein shown, being secured to the plunger at the opposite side of the enlargement, the coöperating member f^3 of the antifriction-bearing being rotatable on the plunger. As herein shown, an enlarged plate f^4 is attached by

screws 7 to the member f^3 to form a support for the pattern P, which latter has an opening to receive the plunger f' loosely, said pattern by its shape and size determining the shape and size of the trimmed heel, it being understood that during the trimming operation the operator holds the pattern against the rest P'.

The pattern P forms a rest for the tread of the heel, as shown in Fig. 3, and to prevent any slip of the heel when clamped I preferably secure a piece of rubber f^5 or other suitable material to the face of the pattern. A handle f^6 is secured by screws 21 22 to the plate f^4 , the screw 22 being long enough to extend into the pattern P, as shown in Fig. 4, securing the latter in place. The pattern must be changed for various shapes and sizes of heel, and this forms a convenient construction for securing the pattern quickly and easily in place. When the parts are in normal position, (shown in full lines, Fig. 4,) the shoe is unclamped; but when the shoe is clamped in its holder, the parts carried by the plunger f' forming one member of the holder, said parts will be moved into dotted-line position, the end of the boss D^3 forming a rigid support for the bearing member f^2 . The arm D' has an elongated hub D^4 to loosely receive a sleeve e , through which is extended a slide-rod e' in alinement with the plunger f , said rod having pivoted thereto a link e^2 , enlarged at its inner end at e^3 to enter and bear against the sole of the boot or shoe. Said rod has formed thereon one member e^4 of a ball-bearing, the other member e^5 being pivotally mounted in a yoke e^6 , fulcrumed at e^7 on a bracket D^5 , extended from the arm D', and a toggle-arm e^8 is suitably connected at e^9 to the yoke and jointed at e^{10} to a second toggle-arm e^{12} , pivoted at e^{13} on the opposite end of the member D. Normally the toggle is bent, as in Fig. 4, in condition to permit insertion or removal of a boot or shoe, the clamping of the latter being effected by depression of the treadle V, which is connected by a link V' with the toggle-joint e^{10} , the link passing through an opening 18 in the extension d' . The spring S^2 tends to break the toggle whenever the treadle V is unlocked from treadle T, as shown in dotted lines, Fig. 11.

A spring S^3 , Fig. 1, connected at its ends to the part T³ of the jack-support and to the shorter arm of the jack, tends to balance the latter and maintain it in equilibrium.

A substantially triangular frame, having arms H H H², is secured by a set-screw 23 to the sleeve e , to move therewith the cylindrical end h of arm H, having held therein, preferably by a set-screw 24, a rod h' , extended freely through a depending arm f^x on the handle f^6 , so that when the latter is moved on $e' f$ as centers the frame H H' will be moved thereby. The arm H' has secured to or forming part of it a hollow hub h^2 , parallel to the axis of the frame, to receive therein an internally-threaded sleeve h^3 , Fig. 4, in engagement with a threaded adjusting-rod h^4 ,

rotatable but not longitudinally movable in the hub h^2 and provided with a suitable head or nut h^5 .

A guide-arm h^6 is secured to the inner end of the sleeve h^3 , and has a longitudinal slot h^7 to receive a set-screw extended into the hub h^2 , whereby the sleeve is rigidly secured in position after adjustment by the rod h^4 and prevented from rotation by engagement of the guide-arm h^6 with the outer flattened portion h^8 of the hub h^2 , the guide-arm being shown enlarged in Figs. 6 and 8.

As best shown in Figs. 4, 6, and 8, the sleeve h^3 is enlarged at h^9 and provided with a transverse undercut groove h^{10} , the head being split at h^{11} and held adjusted by a screw 25, which also forms a fulcrum for a lever h^{12} , having a segment-gear h^{13} thereon, the teeth of which are in mesh with a rack k^x , secured to or forming part of a T-shaped guide k , Fig. 7. This guide k is rigidly secured to a block k' , shaped to enter the groove h^{10} in the head of the sleeve, so that by swinging the lever h^{12} the block k' and the guide k will be moved bodily transversely to and in the head of the sleeve h^3 . Two like arms $m m$ are recessed to slide longitudinally on the guide k , and have threaded ears m' , through which a right and left hand screw m^2 is extended, whereby by rotation of said screw the arms m will be separated or drawn together, said arms forming an adjustable carrier for a spring-clamp, (shown as a band M,) preferably of spring metal, adapted to snugly embrace the heel portion of the boot or shoe.

In order that the clamp may readily adapt itself to the boot or shoe, its free ends are provided with pivoted guide-rods m^3 , which extend loosely into pivoted socket-pieces m^4 , as clearly shown in Fig. 5, permitting the clamp to adjust itself to right and left shoes or to variations in the shape of their heel portions.

The central portion of the clamp M is rigidly attached to a block m^5 , provided with a pin m^6 , which passes loosely through an ear n on a casting n , (shown separately in Fig. 9,) said casting having an undercut groove n^2 to embrace the guide k .

As shown in Figs. 5 and 6, the screw m^2 has an annularly-grooved enlargement m^7 , which is engaged by the pin m^6 , permitting rotation of the screw, but preventing its longitudinal movement relative to the casting n , which latter is adjustable on the guide k by means of a screw n^x , extended through a threaded opening n^3 in an ear n^4 of the casting, the annularly-grooved head n^5 of the screw being rotatably held in a grooved lug k^2 on the block k' .

By means of the adjusting-screw n^x the clamp M and its carrier-arms m will be moved bodily in a direction transverse to the axis of the holding mechanism in order to properly center the boot or shoe relatively to the center of rotation f of the heel-support, such adjustment being at right angles to that effected by the rack-and-pinion device $k^x h^{13}$.

described. This latter adjustment is for the purpose of accommodating the clamp-band M to different lengths and sizes of soles in order that the heel to be trimmed will rest properly on the face of the pattern P or on the cushion f^5 thereon.

The operation of the apparatus is as follows: The parts of the jack and boot or shoe holder being in the position shown in Fig. 4, the treadle V at such time being unlocked from T and raised, with the toggle e^8 e^{12} bent, the end e^3 of the link e^2 is inserted in the boot or shoe, and the latter is then pushed into the embrace of the clamp-band M, which has been properly adjusted in accordance with the shape and size of shoe. The operator then depresses treadle V, locking it and straightening the toggle, thereby forcing the slide-rod e' to the right, Fig. 4, carrying with it the sleeve e and the frame supporting the clamp-band M, until the tread of the heel rests firmly upon its support f^5 . By this time the annular flange e^{20} on the sleeve stops its movement, but the slide-rod e' continues its movement, forcing the shoe through the band M to sufficiently expose the sole, the pressure of the heel upon the support f^5 at the same time moving the plunger f' outwardly until the bearing member f^2 beds upon the end of the boss D^3 , firmly clamping the shoe in the holder, which is rotatable on $e' f$ as centers. The two locked treadles T V are then moved in unison by the operator, raising the jack as a whole as the heel is presented to the cutter, the pattern P being held against its rest P' during the trimming of the heel from one to the other breast corner. Rotative movement of the shoe-holder is attained by moving the handle f^6 as described, and the trimming along the side of the heel is effected by raising and lowering the jack by means of the treadles, while the lateral movement of the jack by the operator retains the lip of the guard R in the rand-crease. By adjustment of the band M in the direction of the length of the sleeve h^3 the protrusion of the shoe beyond the band when clamped will be substantially uniform whether the sole be thick or thin and leaving a space for the operation of the rand-cutter. When approaching the breast corners of the heel, the rand-crease is frequently crooked, and in order to retain the lip of the rand-guide or the lip of the cutter in the rand-crease the shoe must be tipped about a horizontal axis in alinement with the center of the cutter, and at such times the axis D^x will be moved out of alinement with the cutter center. It would be impossible to properly trim such portions of the heels without movement of the jack about a horizontal axis, and the vertical movement of the jack would move such axis out of alinement with the center of the cutter without the compensating device hereinbefore described and comprising the wing d^4 , movable with the jack, and the fulcrum or centering-arm d^5 , which normally is in alinement with the axis D^x and

the center of the cutter C. When the jack is moved in a vertical direction as the heel is being trimmed at or near its corners, the axis D^x will be moved out of alinement with the arm d^5 , above or below it, but when the jack is tipped it will not turn on D^x as a center, but on the arm d^5 , which is always in alinement with the center of the cutter, so that the heel can be accurately trimmed at any point. To unclamp the boot or shoe, the operator with his toe unlocks the treadle V, which immediately permits the toggle to break, owing to spring S^2 , and the movable parts on the jack return to normal position (shown in Fig. 4) and the jack is swung away from the cutter, the spindle T² moving out of dotted-line position, Fig. 2, to the other end of the guide-slot t^{10} .

As best shown in Figs. 4 and 12, a pin 50 on the periphery of the bearing-surface d of the jack is adapted to be engaged by adjustable stops 55 60 on the bearing b' , limiting the tipping movement of the jack about its horizontal axis D^x .

To prevent the link e^2 from rotating independently of the sleeve e , I have provided the arm H' with a bracket 100, which bears upon the forked end e^{20} of the slide-rod e' , restraining it from rotation without interfering with the swinging movement of the link on its pivot e^{25} .

My invention is not restricted to the precise construction and arrangement herein shown, for the same may be modified or rearranged in various ways without departing from the spirit and scope of my invention.

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

1. In a heel-trimming machine, a rotary cutter, a jack, movable from front to rear transversely to the cutter-axis, a vertically-movable support therefor, a holder for the boot or shoe mounted to freely rotate bodily in the jack, said holder including a pattern, and means to clamp the boot or shoe in the holder, and a fixed rest to cooperate with the pattern, whereby the shape and size of the heel are determined, substantially as described.

2. In a heel-trimming machine, a rotary cutter, a tipping jack, means to automatically maintain the fulcrum of the jack in fixed position relative to the center of the cutter, a holder for the boot or shoe rotatably mounted in the jack, a clamp to retain the boot or shoe firmly in the holder, and manually-controlled means to move the jack laterally and to tip it, substantially as described.

3. In a heel-trimming machine, a jack, a boot or shoe holder laterally and rotatably movable in said jack, said holder including a heel-rest, a cooperating clamp, and a positioning device for the boot or shoe, and means to actuate the clamp and simultaneously move the holder laterally in the jack, to its fixed bearings therein, substantially as described.

4. In a heel-trimming machine, a jack, a rotatable boot or shoe holder mounted therein and bodily movable laterally in the jack, the holder comprising a heel-support, a cooperating clamp, and a positioning-band to embrace the boot or shoe, and means to actuate the clamp, to bring the heel firmly upon its support and thereafter move the clamped boot or shoe partially through the positioning-band, exposing the rand-crease and at the same time moving the holder into operative position, substantially as described.

5. In a heel-trimming machine, a jack, a heel-support rotatably mounted therein, a pattern-surface movable with said heel-support, a positioning device and a clamp for the boot or shoe, both rotatable in the jack in unison with the heel-support, and means to move the clamp and positioning device toward and from the heel-support, to clamp or release the boot or shoe, substantially as described.

6. A jack for heel-trimming machines, having a heel-support and pattern rotatably mounted therein, a cooperating clamp, and a positioning device to grasp the rear portion of the boot or shoe, means to adjust said device toward and from the heel-support, and also laterally, and actuating mechanism for the clamp, said clamp and positioning device being rotatable in the jack with the heel-support, substantially as described.

7. In a heel-trimming machine, a rotatable holder for the boot or shoe, comprising a heel-support, a spring-band to embrace the rear part of the boot or shoe, a clamp cooperating with the heel-support, a laterally-adjustable band-carrier, and means to support the band relatively to the center of the heel-support, to properly position the shoe, substantially as described.

8. In a heel-trimming machine, a heel-support, a cooperating clamp for the boot or shoe, an open band to embrace the rear of the boot or shoe and position the same, means to rotate said heel-support, clamp and band, about a common axis, and means to adjust the band transversely to the axis of rotation, for different shapes and sizes of shoes, substantially as described.

9. In a heel-trimming machine, a jack, a boot or shoe holder rotatably mounted therein and comprising a heel-support, a clamp, actuating means therefor and a positioning device, antifriction end-thrust bearings for said holder when in operative position, and means to rotate the holder manually, operation of the clamp-actuating means moving the holder into operative position in the jack, substantially as described.

10. In a heel-trimming machine, a heel-support, a cooperating longitudinally-movable clamp, means to operate the clamp, a positioning-band to partially embrace the boot or shoe, a friction-coupling between it and the clamp, and a stop for said device, whereby operation of the clamp moves the positioning-band into operative position, and thereafter the boot or

shoe is moved partially through the band, to expose the rand-crease, substantially as described.

11. In a heel-trimming machine, a heel-support, a cooperating-clamp, a positioning-band to partly embrace the boot or shoe adjacent the heel, and means to adjust the band toward and from the heel-support, whereby when the boot or shoe is moved into position to have its heel trimmed the rand-crease will be properly exposed, substantially as described.

12. In a heel-trimming machine, a jack, a clamp carried thereby to secure the boot or shoe in position, a spindle upon which the jack is mounted, a treadle connected by a universal joint to the spindle, an operating-treadle for the clamp, and means to lock the treadles, whereby the shoe will be held clamped during movement of the jack, substantially as described.

13. In a heel-trimming machine, a jack, a boot or shoe clamping device carried thereby; means to move the jack vertically, means to operate the clamp, and a lock to connect said jack and clamp controlling means when desired, substantially as described.

14. In a heel-trimming machine, a jack-spindle, a jack mounted on a horizontal pivot thereon, a fixed centering-arm, an upright wing on the pivot and to bear against the centering-arm, a rotary cutter mounted in fixed bearings, and means to raise and lower the jack, the movement of the wing relative to the centering-arm maintaining the horizontal fulcrum of the jack in alinement with the center of the cutter, substantially as described.

15. In a heel-trimming machine, a holder for the boot or shoe, means to clamp it in the holder, and a compound treadle, one of the members of which controls vertical movement of the holder, the other member controlling the clamping means, and a lock controlled by the operator, to connect or disconnect said treadle members, substantially as described.

16. In a heel-trimming machine, a jack, a heel-support rotatably mounted therein, a positioning device for the boot or shoe, mounted independently of and movable toward and from the heel-support, means to adjust said positioning device laterally, and sliding connections between said heel-support and positioning device, whereby they may be rotated in unison about a common axis, substantially as described.

17. In a heel-trimming machine, a jack, a fulcrum therefor about which it may be tipped in a vertical plane, a vertical support upon which the jack is pivotally mounted and about which it may be swung horizontally, and means to clamp the boot or shoe in the jack, substantially as described.

18. In a heel-trimming machine, a rotary cutter, a vertically-movable jack, a horizontal axis about which it is normally tipped, and compensating means to maintain the horizontal fulcrum of the jack in alinement

with the center of the cutter, substantially as described.

19. In a heel-trimming machine, a rotatable heel-support, a spring-band rotatable there-
5 with, means to adjust said band toward and from the support and laterally relatively to the length of the shoe, to properly center the heel to be trimmed, and means movable toward and from the face of the support, to

clamp the boot or shoe upon said heel-sup- 10
port, substantially as described.

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

BENJAMIN F. MAYO.

Witnesses:

JOHN C. EDWARDS,

AUGUSTA E. DEAN.