

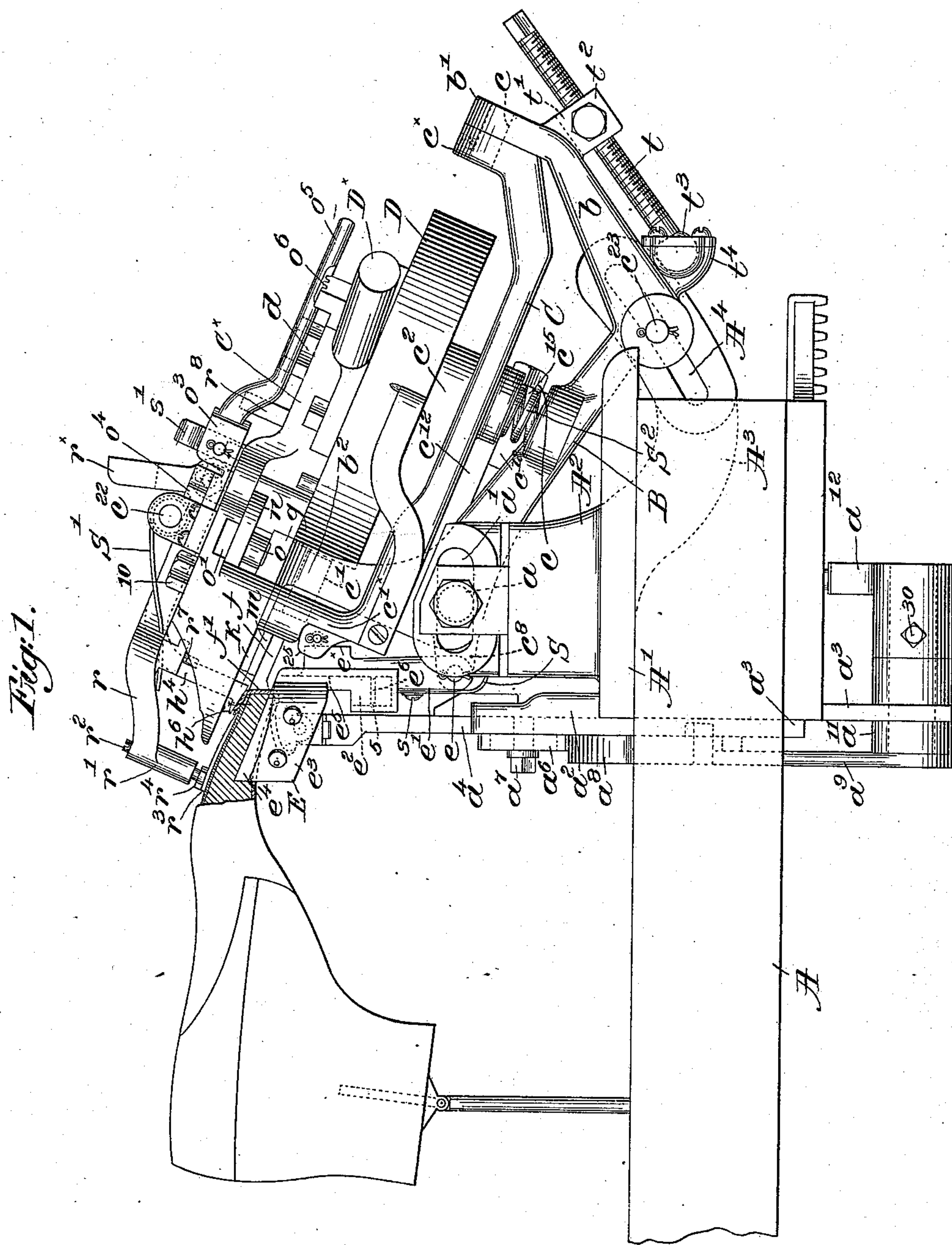
(No Model.)

3 Sheets—Sheet 1.

M. BROCK.
LASTING MACHINE.

No. 548,862.

Patented Oct. 29, 1895.



Witnesses.
Edward J. Allen.
Thomas J. Hammond.

Inventor:
Matthias Brock,
by Crosby & Gregory
Attys.

(No Model.)

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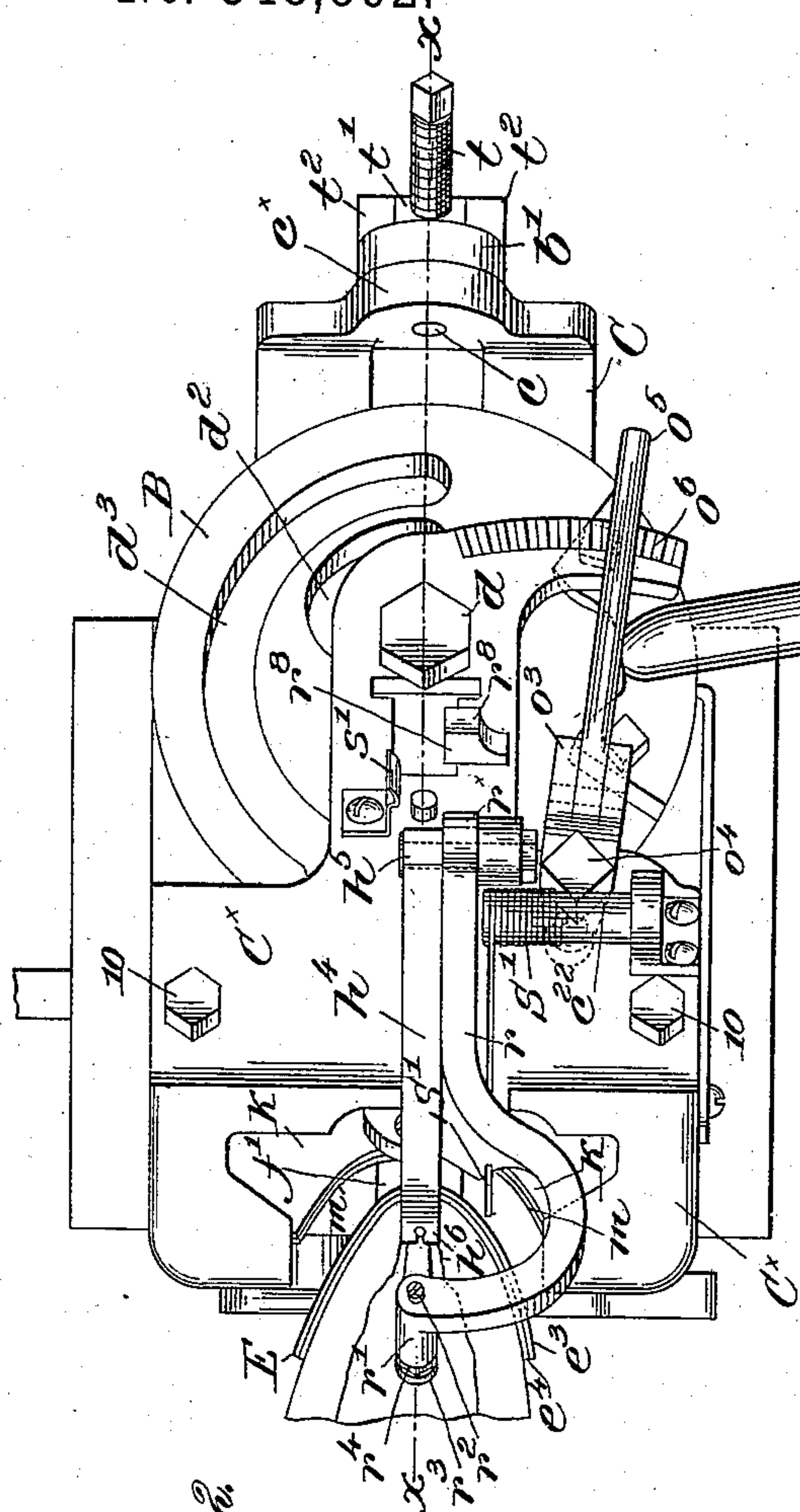


Fig. 6.

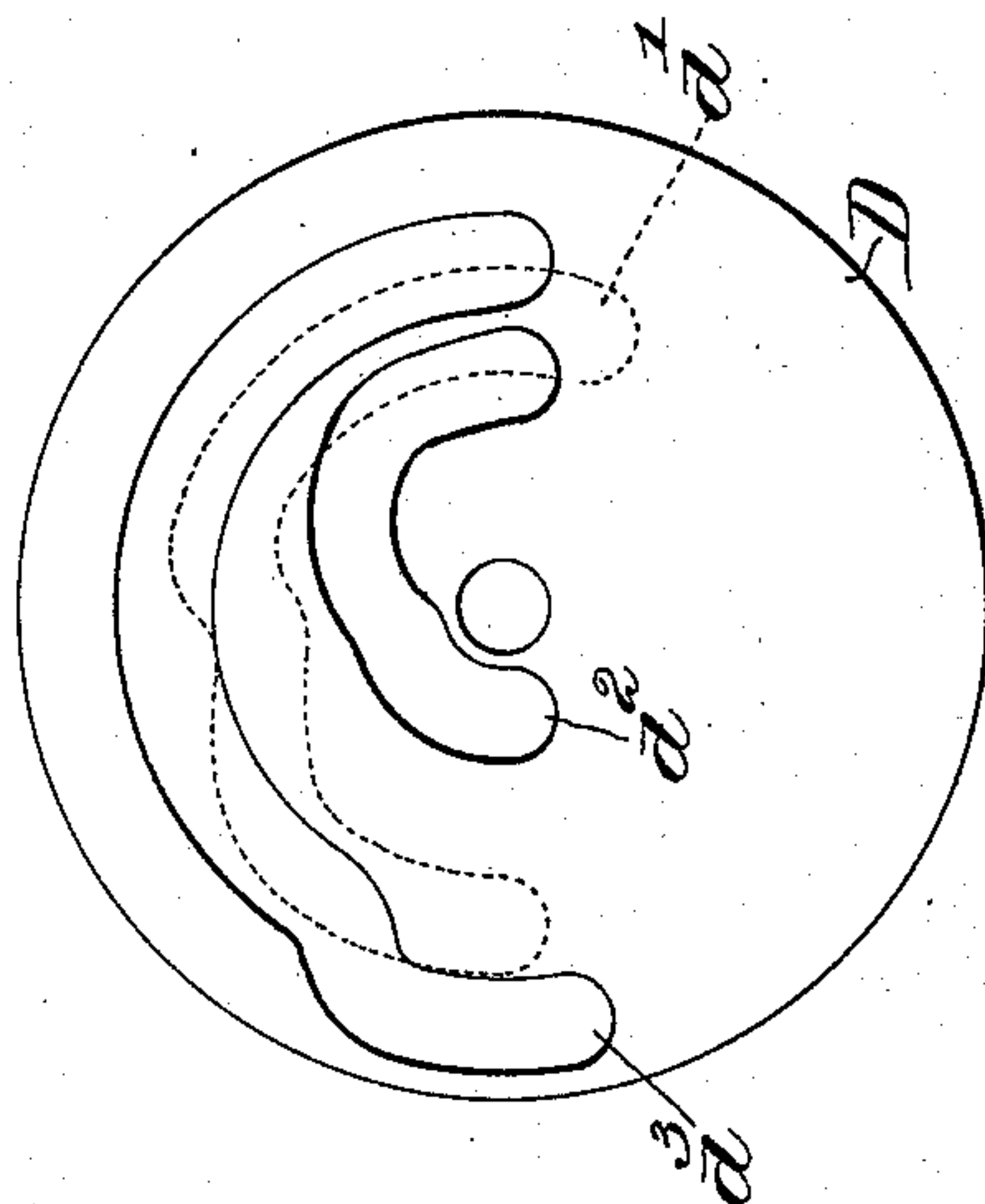


Fig. 5.

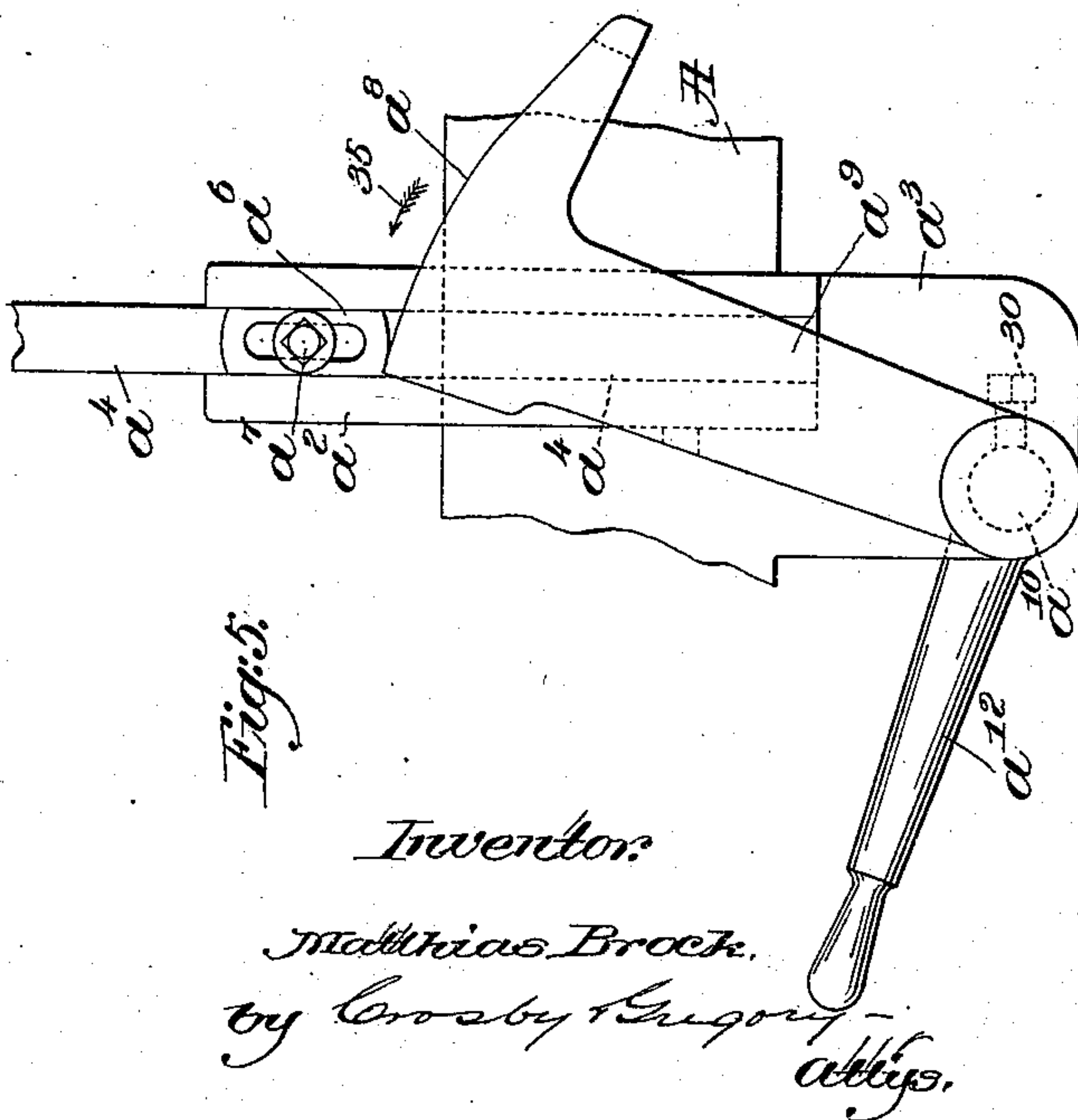


Fig. 4.

Witnesses.

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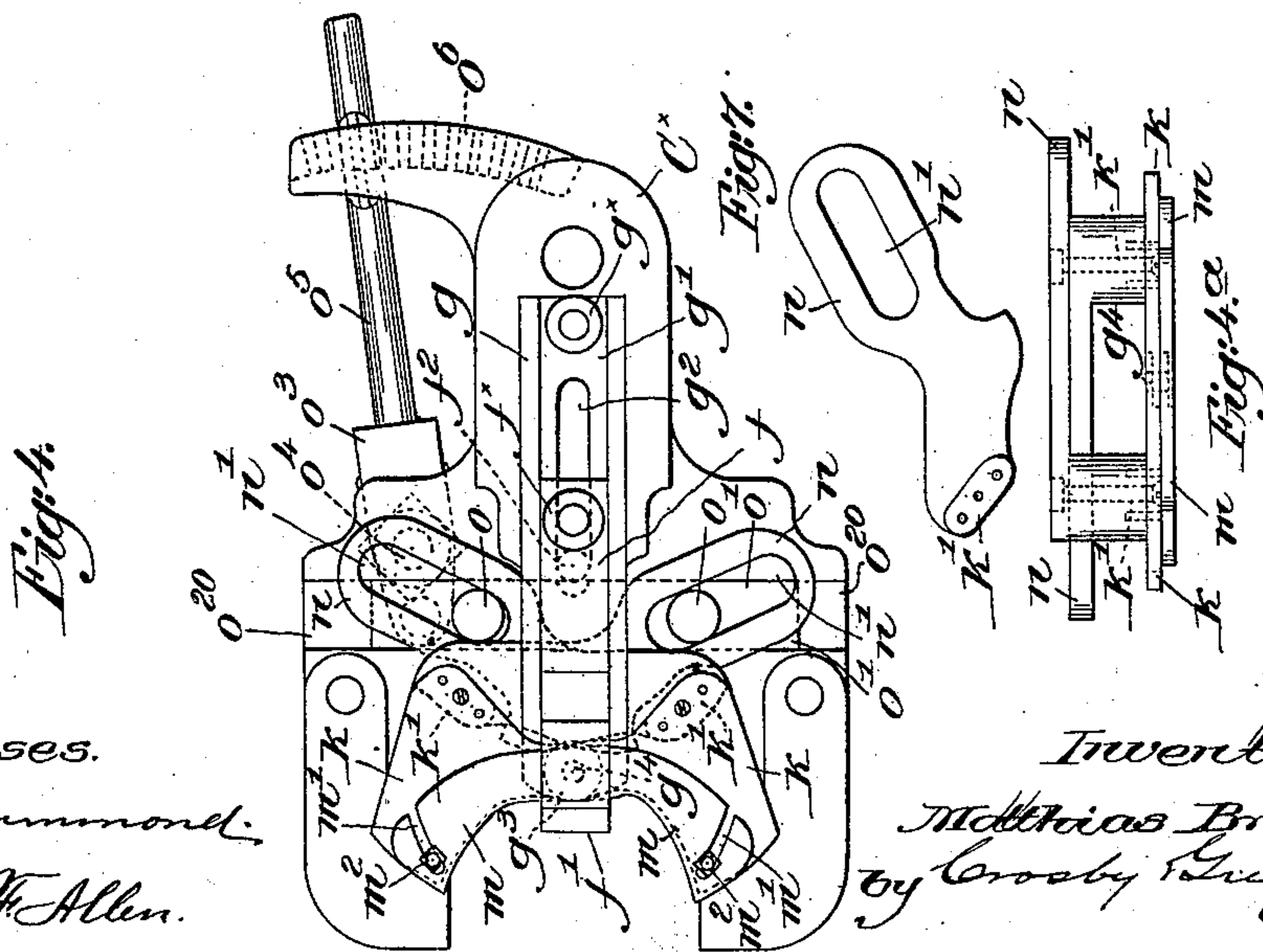
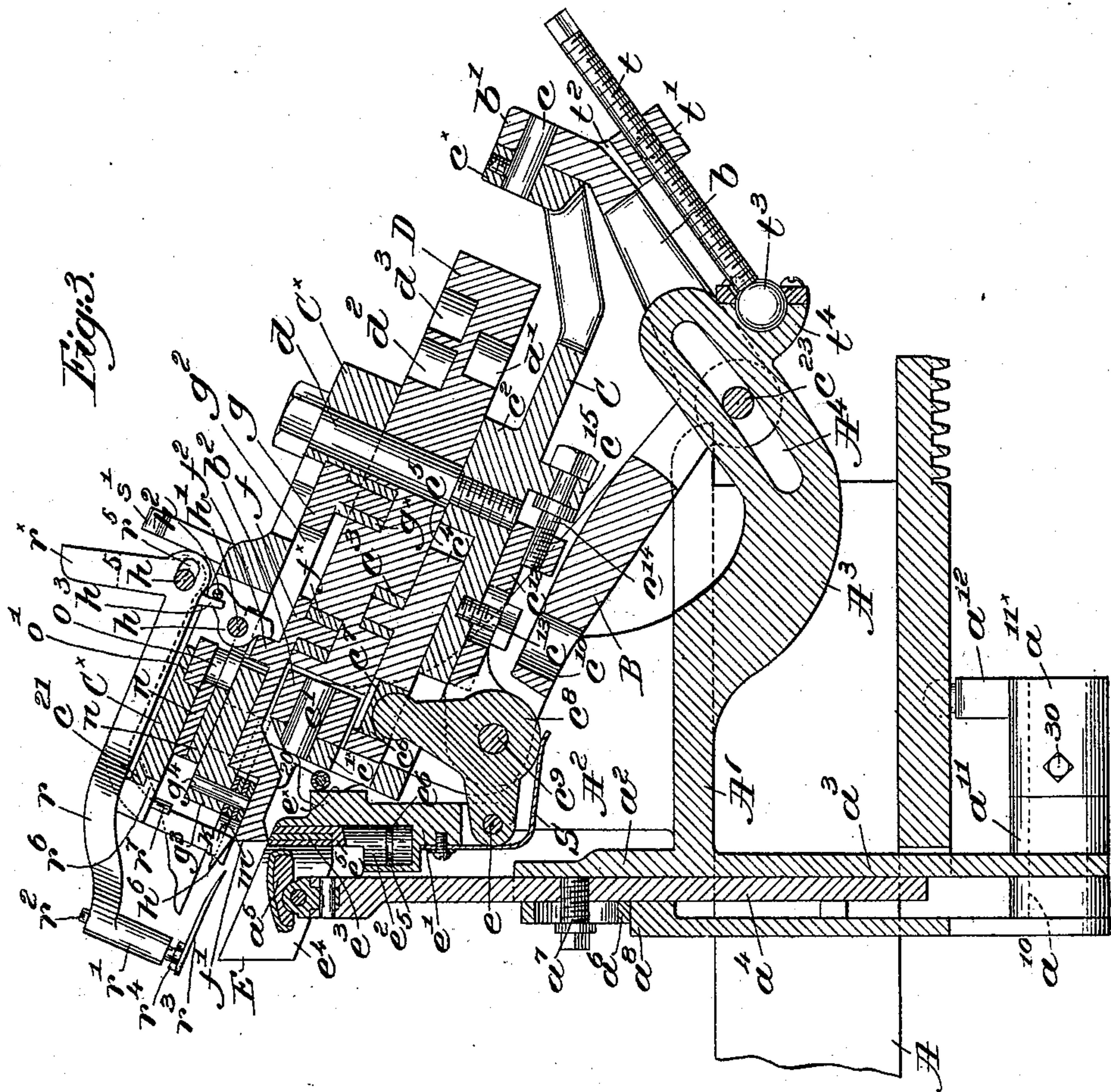
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witnesses.
Thomas J. Hammond.
Edward F. Allen.

Inventor
Matthias Brock
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UNITED STATES PATENT OFFICE.

MATTHIAS BROCK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE MCKAY-COPELAND LASTING MACHINE COMPANY, OF PORTLAND, MAINE.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,862, dated October 29, 1895.

Application filed April 22, 1895. Serial No. 546,601. (No model.)

To all whom it may concern:

Be it known that I, MATTHIAS BROCK, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Lasting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

10 This invention has for its object the production of a machine for lasting the toe of a boot or shoe in such manner that the upper will be drawn about the toe of the last in a smooth and even manner, no matter what the shape of the last, and whether a "right" or
15 "left," means being provided for wiping the upper over the extreme toe portion of the last in accordance with the shape of the latter, the toe-wiper adapting itself automatically to the
20 last, whether a right or a left.

In the preparation of boots or shoes for lasting, prior to their treatment by the machine to be hereinafter described, the upper is held in place immediately adjacent the toe
25 temporarily by a tack or nail, which is only partially driven in and located at the middle of the bottom of the toe, and means have been provided herein for automatically removing such temporary fastening prior to the
30 action of the end-wiper. The upper is drawn over the sides of the last about the toe by side-wiper plates, which are so mounted and adjustable as to exert an equal draft upon the upper, whether the last be a right or a left.
35 Unless the material of the insole is very firm it will be pushed back away from the toe of the last during the operation of lasting, and to prevent this crowding back of the insole I have provided a holddown to act upon the
40 inner sole and hold it in place at the toe of the last against the tendency of the side-wiper plates to push it back.

Other features of my invention will be more fully described hereinafter, and particularly
45 pointed out in the claims.

Figure 1 in side elevation represents a toe-lasting machine embodying my invention, with a shoe in position to be operated upon. Fig. 2 is a top or plan view of the machine
50 shown in Fig. 1, a portion of the bed being

omitted. Fig. 3 is a vertical longitudinal section taken on the line *xx*, Fig. 2, the shoe being omitted. Fig. 4 is an under side view of the wiper-plates, their carriers, and the adjusting and actuating devices for the wiper-plates. Fig. 4^a is a front view of the wiper-plates and their carriers. Fig. 5, in elevation and partly broken out, shows the adjusting mechanism for the toe-support of the last. Fig. 6 is a plan view of the controlling-cam to be described; and Fig. 7 is a detail of one of the cam-plates.

The bed A, of suitable shape to support the operating parts, has mounted thereon a carriage A', upon the upturned standards A² of which is mounted a tipping-plate holder B on pivots or trunnions *a*, the said trunnions entering horizontal slots *a'* in the standards A² to permit movement of the plate-holder when adjusted, as will be described.

The tipping-plate holder B has an upwardly-extended arm *b* at its outer end provided with a bearing *b'*, the other end of the tipping-plate holder having a second bearing *b²* in alignment with the bearing *b'*, the said bearings receiving therein the journals *c c'* of a tipping plate C, the said plate being thus adapted to tip at right angles to the axis of movement of the tipping-plate holder B, and preferably the journals *c c'* are in line with the central line of the last, the journals of the tipping plate being respectively secured in an upturned ear *c^x* and the transverse connection *c'^x*, located, as best shown in Fig. 3, at opposite ends of the plate. The said tipping plate C has on its upper side a boss *c²*, to support an actuating or controlling cam D, (see Figs. 1 to 4, inclusive,) rotatable about a bolt or stud *d*, threaded into the boss *c²*, as shown in Fig. 3.

The cam D has in its under side a groove *d'*, (see dotted lines, Fig. 6,) which is entered by a roller or other stud *c³* (shown only in Fig. 3) on the upper side of a slide-plate *c⁴*, which is adapted to be moved back and forth in a recess *c⁵* in the bars of the tipping plate by partial rotation of the cam D.

The slide-plate *c⁴* is slotted to receive loosely therein a block *c⁶*, having a socket formed therein for the ball-like end *c⁷* of a bell-crank

lever c^8 , pivoted at c^9 in ears c^{10} of a bracket c^{12} , secured to the under side of the tipping plate by a suitable binder-screw c^{13} , extended through a slot in the bracket, the latter being longitudinally adjustable by means of a rotatable screw c^{14} in engagement with a threaded opening in the bracket and rotatable in a lug c^{15} on the tipping plate, but held from longitudinal movement therein.

10 The free end of the elbow-lever c^8 projects outwardly in front of the tipping-plate holder B and has pivotally mounted thereon at e an end-wiper holder e' , shown in Fig. 3 as socketed to receive therein the cylindrical shank e^2 of the end-wiper e^3 , consisting, as herein shown, of a curved metallic plate e^3 , having secured to its concave face a pad or covering e^4 , of leather or other suitable material, the shank of the holder being shown in Figs. 1 and 3 as cut away at e^5 to form a shoulder, upon which the pad and its metallic support e^3 rest, the end-wiper being secured to the holder by suitable fastenings.

The holder has thereon at its inner side a cam-surface e^x , held against a roll 20, mounted in ears 25 on the front of the tipping plate C by means of an L-shaped spring S, secured to the holder by a suitable screw, as s , and bent around the outer arm of the elbow-lever c^8 and to bear against its hub, as clearly shown in Fig. 3.

Partial rotation of the cam D will, by means of the roll c^3 in the groove d' , reciprocate the slide-plate c^4 and rock the elbow-lever c^8 to thereby raise or lower the end-wiper holder e' and the end-wiper E, mounted thereon. The said end-wiper can rock or swing laterally upon its shank e^2 in the holder to accommodate it to the inclination of the sides of the lasts in a right or a left, as the case may be, the shank being held in place in the holder, as herein shown, by a pin 5, extended through the wall of the holder and entering an annular groove e^6 in the shank, permitting rotation of the latter, but preventing its accidental withdrawal. The cam-surface e^x guides the end-wiper in its vertical movement, and the spring S maintains the cam pressed constantly against the roll 20.

50 The carriage A' has upon its inner end an upturned ear a^2 and a depending foot a^3 , longitudinally grooved to receive therein a slide-bar a^4 , having at its upper end a toe-rest a^5 , of any suitable or usual construction, adapted to support the toe of the last, the said slide-bar having secured thereto a slotted block a^6 , held in adjusted position by a set-screw a^7 , to be acted upon by the cam-shaped end a^8 of a rocker-arm a^9 , having at its lower end a stud a^{10} , adapted to enter a hub a^{11} on the foot a^3 , the said stud having secured thereto by a suitable set-screw 30 the hub a^{11x} of a handle a^{12} , by which the rocker-arm may be moved, movement of the latter in the direction of the arrow 35, Fig. 5, permitting the toe-rest e^5 to drop according to the amount of

movement of the arm, the slide-bar a^4 being thus moved up or down in the guide portion a^3 , as described.

The cam D has two grooves d^2 and d^3 in its upper side, (see Figs. 2, 3, and 6,) the groove d^3 being entered by a suitable roll f^x on the under side of a slide f , movable in a longitudinal groove or recess g' (see Fig. 4) in the under side of a slide-bar g , provided with a roll g^x to enter the cam-groove d^2 .

The slide f is offset at its outer end and extended forwardly to form an abutment f' , movable above the end-wiper E and toward and away from the toe of the last, the shape of the cam-groove d^3 being such that the abutment is moved back and away from the path of the end-wiper E as the latter is raised to wipe the upper about the end of the toe, the abutment serving to position the toe of the last when placed in the machine. The slide f has a lug or projection f^2 extended through a slot g^2 in the slide-bar g to bear against the tail of a dog h , pivoted at h' to a cap C^x , secured to the tipping plate by suitable bolts 10 and by the head of the cam-stud d .

The dog is provided with a pin h^2 to engage an ear h^3 on the under side of an arm h^4 , pivoted to the cap at h^5 , the said arm being bent over and downwardly above the abutment f' and forked to form a claw h^6 , the said claw being adapted to engage a tack or nail partially driven into the middle of the under side of the toe of the last when the latter is placed in position against the abutment, the withdrawal of the abutment, as described, rocking the dog h , by means of the lug or projection f^2 , to thereby lift the bent arm carrying the claw and withdraw the tack or nail from the last. The pin h^2 is so located on the dog that the movement imparted thereto by the movement of the slide f will act to quickly throw the claw upward and back away from the last.

To take up the recoil of the tack or nail puller and to prevent it flying back partially, I have secured a spring-catch s' to the cap C^x at one side of the path of the arm h^4 to catch the same when thrown back, as has been described, the spring readily releasing the arm when positively moved into operative position by hand.

The slide-bar g has formed thereon at its outer end and upon its under side a boss g^3 , in which is secured a pin g^4 , upon which the side-wiper carriers k are pivoted at their inner adjacent ends, the shape of the said carriers being shown in Fig. 4, and to the under sides of the carriers I have adjustably secured the side-wiper plates m . The latter are also pivoted at their inner ends on the pin g^4 and are slotted at their outer ends at m' to receive therein binding-screws m^2 , entering the carriers k , thereby enabling me to adjust the wiper-plates upon or with relation to their carriers to accommodate them to different widths of toe of a given style or shape of last.

So far as I am aware it is broadly new to adjustably mount the wiper-plates upon their carriers, to thus adapt them for varying conditions in the sizes of the lasts.

5 Cam-plates n are secured to the carriers k in any suitable manner, herein shown as by a screw and dowel connection at k' , the said cam-plates overlapping on the upper side of the slide-bar g , and they are provided with
10 slots n' , entered by rollers or other suitable studs o on a bar o' , longitudinally movable in a transverse slot o^{20} in the under side of the cap C^x , and connected at o^2 to a casting o^3 , pivoted at o^4 on the cap, the said casting hav-
15 ing pivoted thereto an adjusting-handle o^5 , provided with a lug to enter between the teeth of a segmental rack o^6 , to thereby hold the handle and bar o' in adjusted position.

It will be obvious from an inspection of Fig.
20 4 that movement of the bar o' in the transverse groove of the cap-plate will swing the cam-plates n and the attached wiper-plates k about the pivot g^4 , the direction of movement of the bar o' to the right or to the left deter-
25 mining the direction in which the carriers will be swung, whether for a right or for a left last. After the carriers have been thus adjusted according to the last the partial rotation of the cam will, through the roll g^x , move
30 the slide-bar g outwardly, thereby moving the wiper-plates forward over the upper, the cam-plates n at such time acting to close the wiper-plates m , moving them about their piv-
otal point.

35 It will be obvious that if the proper adjustment of the wiper-plates to the sides of the last has not been made prior to the moving forward and closing of the wiper-plates the adjustment may be provided after such for-
40 ward and closing movement equally well.

The adjustment of the wiper-plates to the last according as it is a right or left enables the wiper-plates when closed to move over the upper uniformly and to wipe the same
45 over the last equally throughout the extent of the wiper-plates.

In the wiping of the upper over upon the last it is very desirable to prevent the insole from being pushed or crowded back thereby, and to obviate this I have provided a hold-
50 down, shown as an arm r , pivotally mounted on the pin h^5 and having at its outer end a downturned boss r' to receive therein a screw r^2 , having upon its lower threaded end a hold-
55 ing-down plate r^3 , adapted to bear upon the outer side of the insole and against the upturned flap frequently made in the inner sole, especially in Goodyear shoes. A check-nut r^4 on the screw r^2 , between the lower end of
60 the boss and the foot r^3 , maintains the latter in adjusted position.

The arm r is slotted at r^5 to allow slight longitudinal movement of the arm, and at its under side I have provided a locking-catch r^6
65 to engage a shoulder c^{21} in the forward end of the cap to normally prevent the lifting of

the downhold due to the action of a spring S' , mounted upon a suitable stud c^{22} and hav-
ing its free end extended beneath the arm r , as shown clearly in Figs. 1 and 2. A pin r^7 70
on the under side of the catch is located in the path of movement of the cam-plates n when they are moved forward to close the wiper-plates to positively move the arm lon-
75 gitudinally to withdraw the locking-catch r^6 from beneath the shoulder c^{21} , the spring S' immediately throwing the downhold up and back on its pivot h^5 until its upturned end r^x meets and is stopped by a block or projection
80 r^8 on the cap. This withdrawal of the downhold takes place before the complete closure of the wiper-plates.

The construction described makes the with-
drawal of the downhold automatic; but it will be obvious that if desired the pin r^7 could be
85 omitted and the downhold unlocked by hand.

The inclination of the tipping plate C from front to rear must be adjusted according to the spring of the last, and this is herein ac-
90 complished by means of an adjusting-screw t , extended through a block t' , pivoted between ears t^2 on the arm b of the tipping-plate holder, the screw terminating in a ball t^3 , held in a
95 socket t^4 on a bent arm A^3 , projecting rearwardly and upwardly from the carriage, said arm having a slot A^4 therein entered by a pin
100 c^{23} , extended through the tipping-plate holder and serving as a guide for the latter when being adjusted.

Rotation of the screw t in one or the other
100 direction will rock the tipping-plate holder B on its trunnions a to adjust the inclination of the tipping plate to the spring of the last.

The cam D is operated by means of a suit-
able hand-lever D^x in one or the other direc- 105
tion. In Figs. 1 to 4, the parts being in position to last the toe of the boot or shoe, move-
ment of the handle D^x in the direction of the arrow 75, Fig. 2, causes the various move-
110 ments of the parts, as hereinbefore described, the shapes and relative arrangement of the cam-grooves d' , d^2 , and d^3 being clearly shown in Fig. 6.

To steady the tipping plate C and its at-
tached parts in a yielding manner, I have in- 115
terposed springs, as S^2 , Fig. 1, one at each side, between the tipping plate and its holder B , said plate and holder being provided, preferably, with ears to form seats for the ends of
120 the springs.

I claim—

1. In a machine for lasting boots and shoes, a slide bar, a pair of carriers pivoted thereon, side wiper plates mounted on said carriers, and means to adjust said wiper plates rela- 125
tively to a common center, combined with actuating means for said carriers, to close and move the wiper plates over the toe of the last, to act uniformly on the upper on both sides of the toe of the boot or shoe, substantially
130 as described.

2. In a machine for lasting boots and shoes,

a slide bar, side wiper plates and wiper plate carriers mounted thereon to swing about a common center, and independent adjustable connections between said carriers and wiper plates, to adjust the latter separately about said common center, combined with actuating means to swing the carriers on their center and to move them forward over the toe of the last, and an adjusting device to control the relative movement of the wiper plates and adapt them to the inclination of the toe of the boot or shoe being lasted, to act uniformly on the upper at both sides of the toe, substantially as described.

3. In a machine for lasting boots and shoes, a slide bar, side wiper plates and wiper plate carriers mounted thereon to swing about a common center, and independent adjustable connections between said carriers and wiper plates, to adjust the latter separately, combined with a transverse slide bar, and a sliding connection between it and each carrier, to control their relative movement about the common center and thereby adapt the wiper plates to the inclination of the toe of the boot or shoe being lasted, substantially as described.

4. In a machine for lasting boots or shoes, a pair of side wiper plates, carriers therefor mounted to swing about a common center, a movable support for the carriers, and slotted cam plates rigidly attached to the said carriers, combined with an independent adjusting device having projections to engage and control the movement of the cam plates, to thereby regulate the movement of the carriers on their center, substantially as described.

5. In a machine for lasting boots and shoes, a slide bar, side wiper plates mounted thereon to swing laterally about a common center, an end wiper, an actuating cam, connections between it and the end wiper and the side wiper plates, to cause said wipers to act on the upper on both sides of and at the toe, and means to adjust the side wiper plates about their common center according to the inclination of the toe of the boot or shoe being lasted, substantially as described.

6. In a machine for lasting boots and shoes, a pivotally mounted down-hold to rest upon the insole and hold it in place, a spring to lift said down-hold and turn it on its pivot, a locking catch on said down-hold, a stationary shoulder to be at times engaged by the catch,

and means to move the down-hold longitudinally and thereby withdraw the locking catch from the shoulder, substantially as described.

7. In a lasting machine, wiper carriers made adjustable about a center located in a line drawn centrally from the extremity of the toe backward along the sole, side wiper plates on and adjustable relatively to said carriers, to place the edges of the wiper plates at like distances from the edges of the toe of the last; and means to move the carriers and their wiper plates forward to cause the latter to act simultaneously and uniformly on the upper to wipe it over the last, substantially as described.

8. In a lasting machine, an end wiper holder, means to move it vertically, and an end wiper pivotally mounted in the holder, to swing laterally and accommodate itself to the toe of the last, substantially as described.

9. In a lasting machine, an abutment to position the toe of the last, a pivotally mounted end wiper adapted to swing laterally, and means to move said end wiper to wipe the upper about the toe of the last, substantially as described.

10. In a lasting machine, an abutment to position the toe of the last, a vertically movable pivoted end wiper, and means to withdraw the abutment as the end wiper is lifted to wipe the upper about the toe of the last, substantially as described.

11. In a lasting machine, a rocking-lever, a holder pivoted thereto, and a cam to guide the holder, combined with an end wiper mounted to swing laterally in the holder, substantially as described.

12. In a lasting machine, an abutment to position the toe of the last, means to move it into and out of operative position, a pivoted tack or nail puller, and connections between it and the means for moving the abutment, to automatically lift the tack or nail puller away from the bottom of the last, to remove a tack or nail from the under side of the toe of the last as the abutment is withdrawn, substantially as described.

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

MATTHIAS BROCK.

Witnesses:

JOHN C. EDWARDS,
M. ELLEN PITMAN.