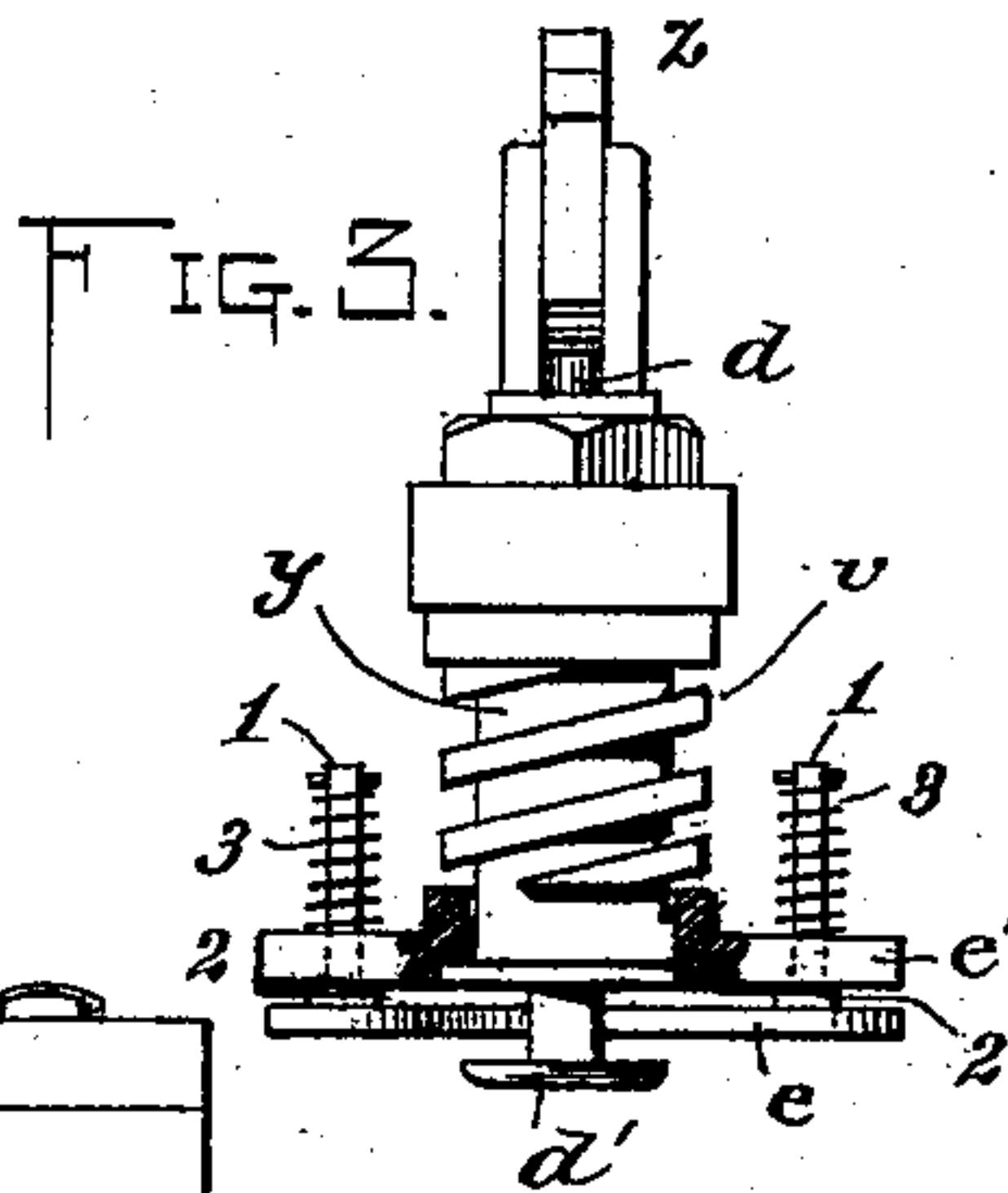
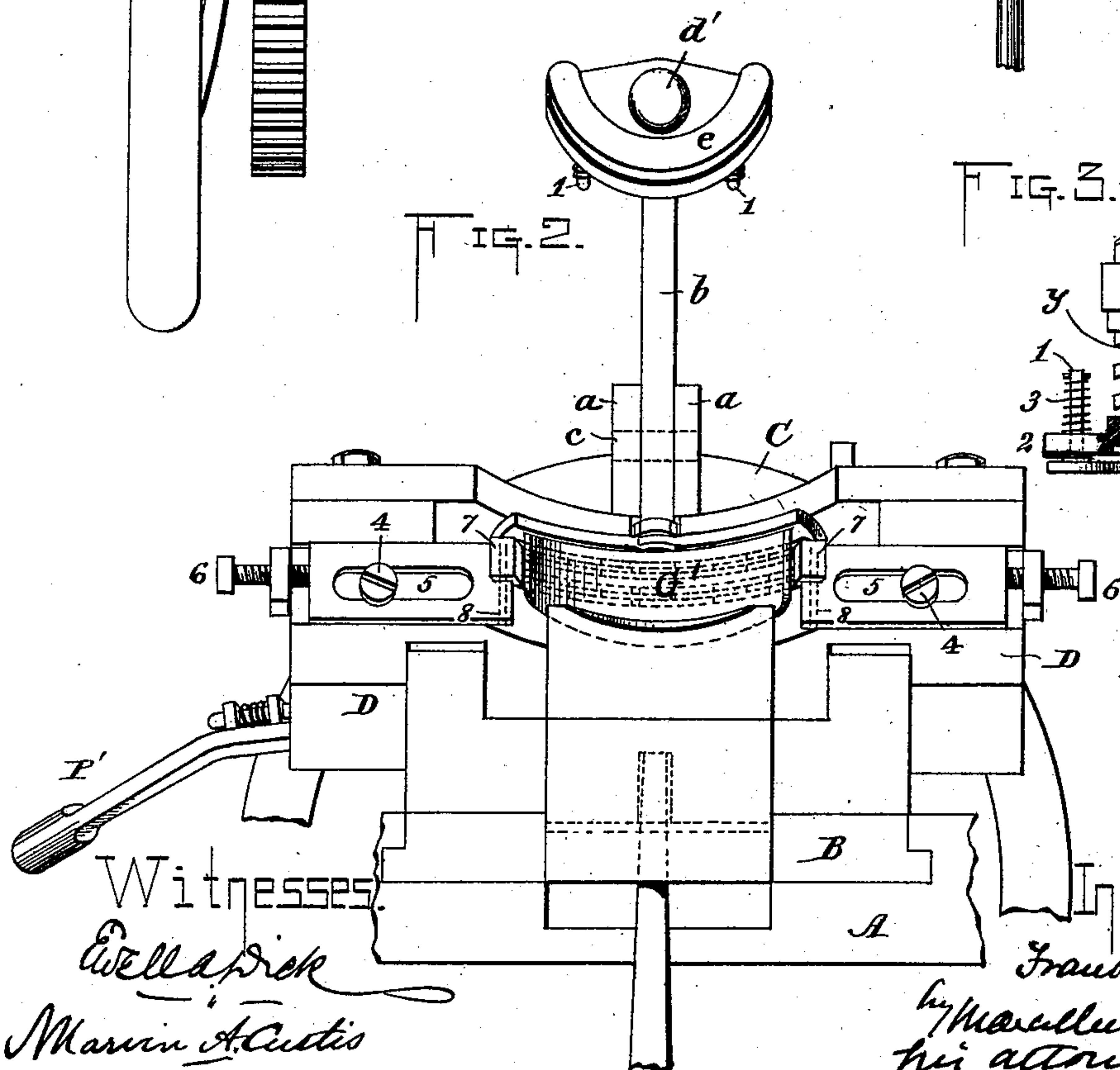
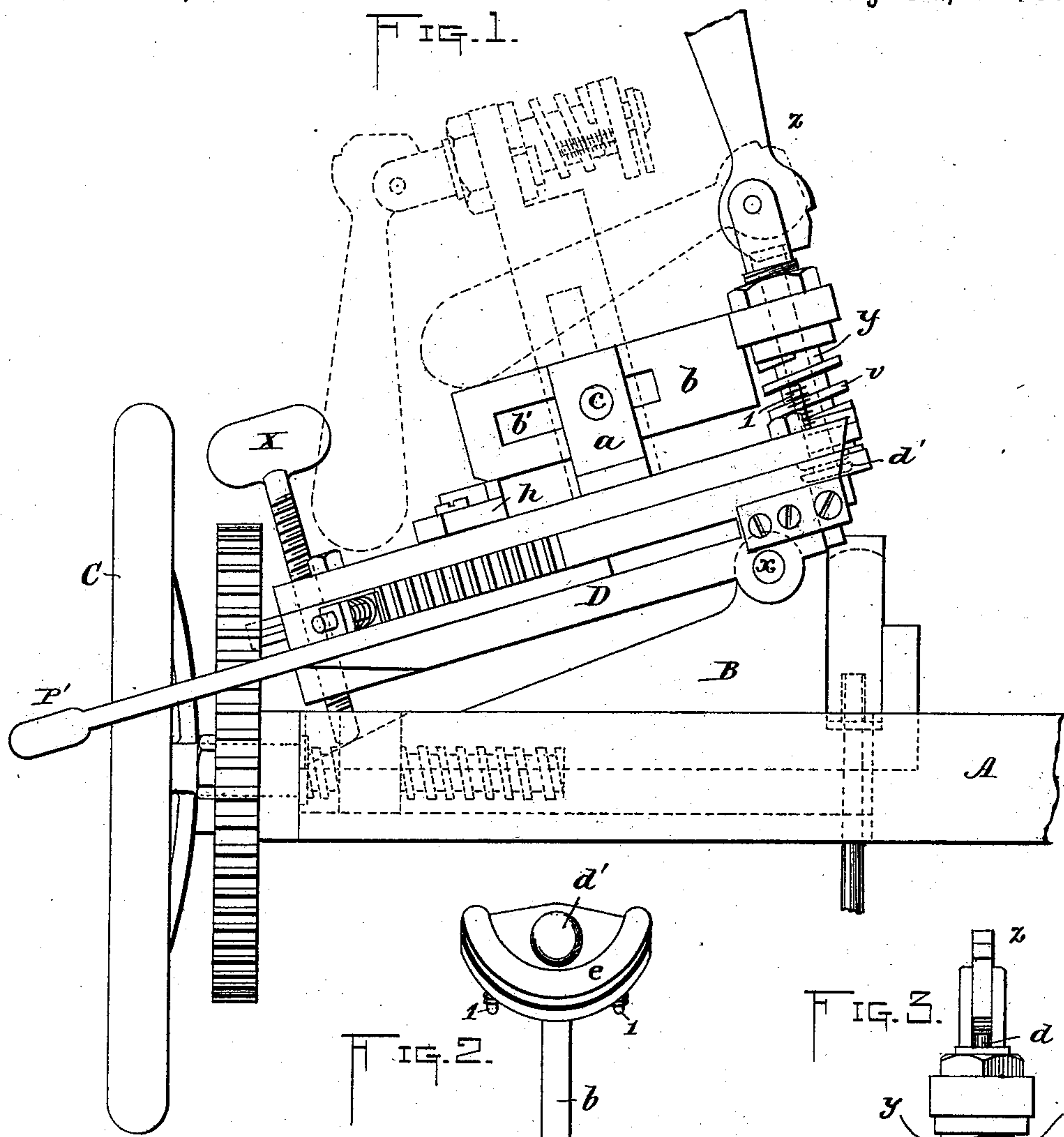


F. CHASE.

MACHINE FOR LASTING BOOTS OR SHOES.

No. 364,088.

Patented May 31, 1887.



Witnesses:

Willard

Martin A. Curtis

Inventor.

Frank Chase
by Maxwell Bailey
his attorney

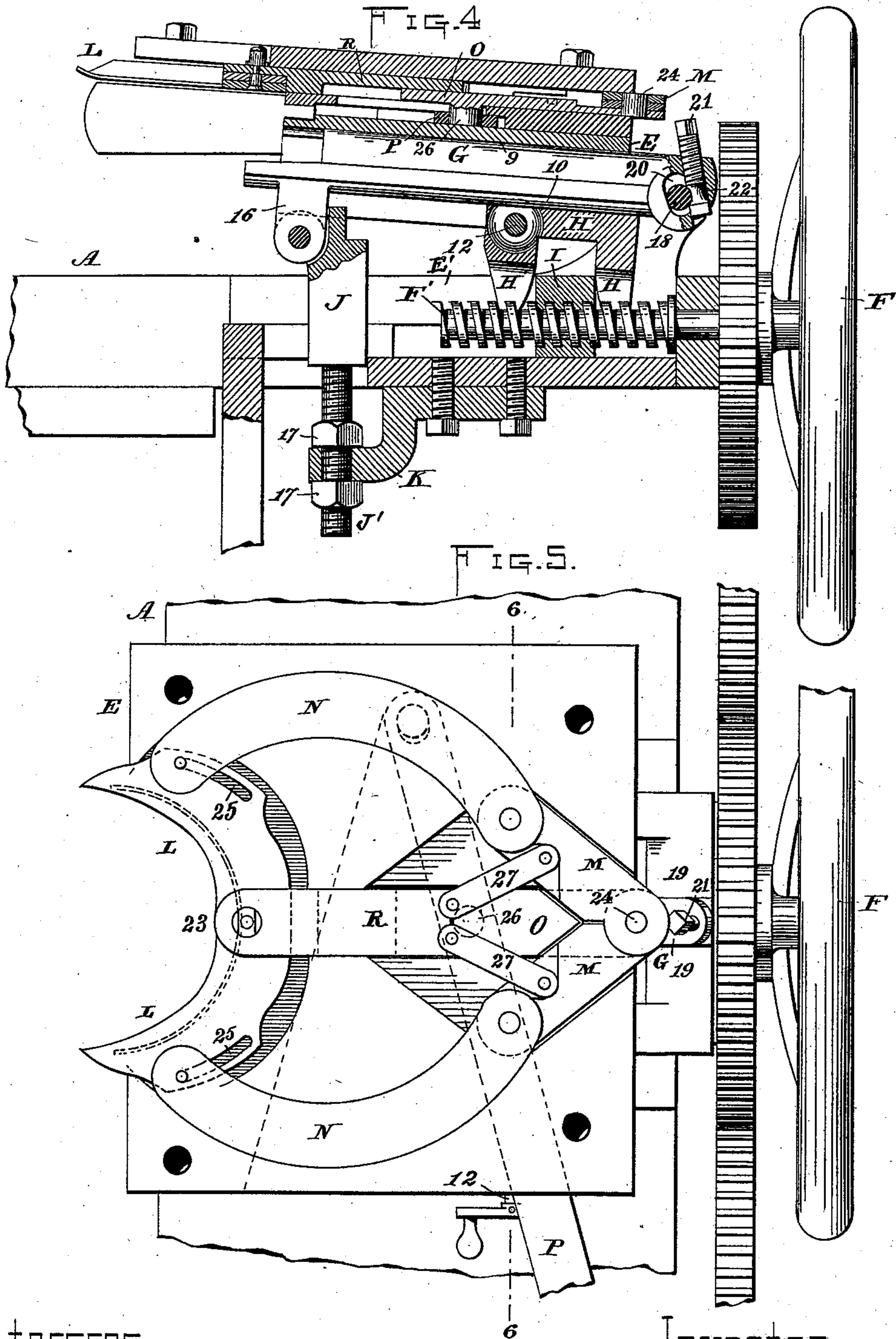
(No Model.)

3 Sheets—Sheet 2.

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Witnesses.

Edw. A. Dick

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Inventor.

Frank Chase

by Marcus Bailey
his attorney

(No Model.)

3 Sheets—Sheet 3.

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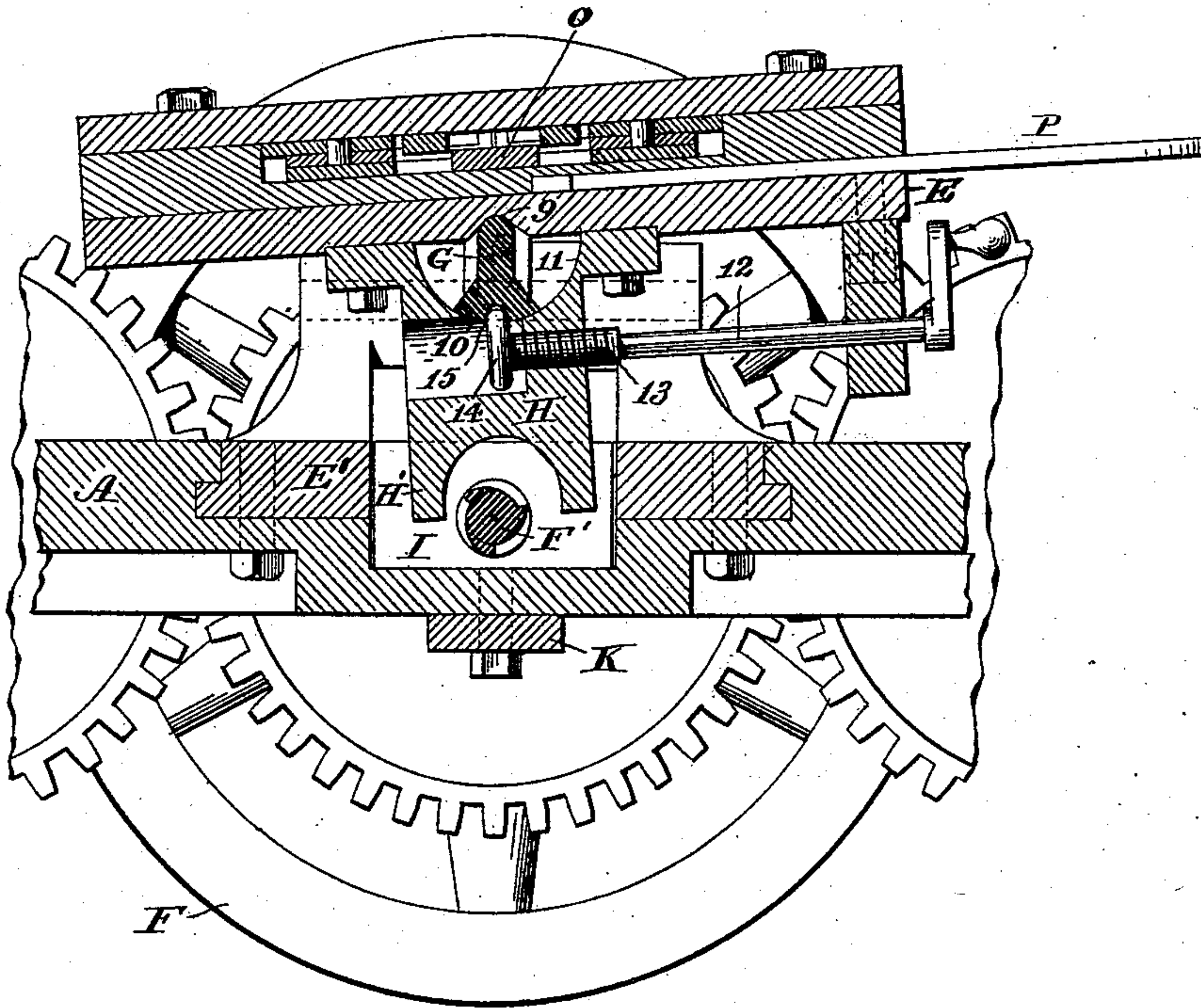


FIG. 6.

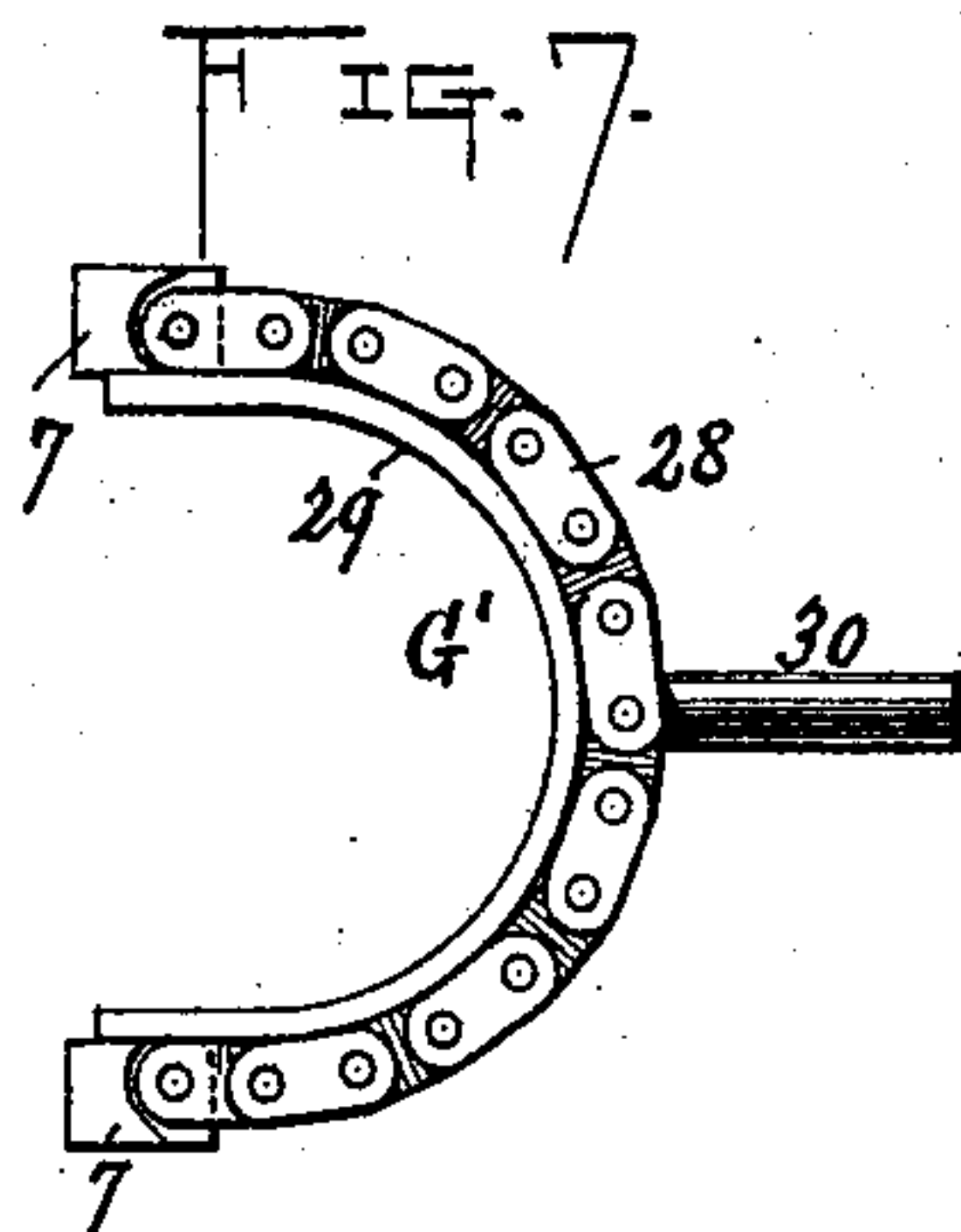


FIG. 7.

Witnesses.

Ewell A. Dick
Marvin A. Curtis

Inventor.

Frank Chase
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his attorney

UNITED STATES PATENT OFFICE.

FRANK CHASE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE CHASE
LASTING MACHINE COMPANY.

MACHINE FOR LASTING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 364,088, dated May 31, 1887.

Application filed April 5, 1887. Serial No. 233,698. (No model.)

To all whom it may concern:

Be it known that I, FRANK CHASE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Lasting Boots or Shoes, of which the following is a specification.

My improvements relate to those portions of a lasting-machine which are intended to last the heel and the toe of the boot or shoe. They have been designed with more particular reference to the needs of a lasting-machine of the general organization illustrated in my Letters Patent No. 337,925, of March 16, 1886, but are also applicable to lasting-machines of other types.

My invention comprises, mainly, first, an improved construction and arrangement of the "retarder" and "hold-down" mechanism for the toe portion of the machine, which forms the subject of my Letters Patent of April 27, 1886, No. 340,860; second, the employment of adjustable toe-clamps to resist the tendency of the toe portion of the last to move laterally when the toe-wipers are acting to last the toe. In this operation one side sometimes pulls harder than the other side, with the result of moving the toe of the last toward the side of less resistance. The clamps above referred to are intended to prevent this movement; third, an improved combination of devices whereby the heel-lasting mechanism can be tilted or inclined laterally to conform to the lateral inclination of the sole of the last; fourth, an improved combination of instrumentalities for operating the heel or toe wipers. These features, which will be described in the order in which they are above recited, can best be explained and understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the toe-lasting mechanism. Fig. 2 is a front elevation of the same. Fig. 3 is a front elevation of the retarder and hold-down mechanism. Fig. 4 is a longitudinal vertical central section of the heel-lasting mechanism. Fig. 5 is a plan of the same with the top or covering plate removed. Fig. 6 is a cross-section on line 6 6, Fig. 5. Fig. 7 is a plan of the pliable toe-clasp.

The toe wiper carriage is in two parts, B D. The lower part, B, is mounted to slide back and forth to and from the toe of the last in ways in frame A of the machine, and is adjusted, as usual, by hand-wheel C, provided with the customary adjusting-screw. (Shown in dotted lines in Fig. 1.) The upper part, D, is jointed at *x* to the lower part, B, and at its rear end is provided with an adjusting-screw, X, by which its fore-and-aft inclination can be varied, as required.

The hold-down and retarder devices are carried by an arm, *b*, hung between the ears of a bracket, *a*, on part D by a pin, *c*, which passes through a longitudinal slot, *b'*, in the arm, all as in my aforesaid Patent No. 340,860, there being also, as in said patent, a lever, *h*, to pass beneath the rear end of the arm *b* and to hold it in operative position. The general organization and mode of operation of the parts are the same, substantially, as in my said patent, so that I shall confine my present description to those points in which the construction and arrangement of the parts differ from the patented structure.

At its front or inner end the arm *b* has a bearing-sleeve, *y*, through which passes and can slide within prescribed limits the stem *d* of the hold-down *d'*. Between ears on the top of this sleeve is pivoted the cam-lever *z*, by means of which, when the arm *b* is lowered to the position indicated by full lines in Fig. 1 and locked in that position by lever *h*, the hold-down can be forced down upon the sole of the last.

The retarder-plate *e* is loosely attached to the supporting-plate *e'* by pins 1, which pass up through holes in the plate *e'* of sufficient size to permit a slight forward and back oscillation of the retarder. Collars 2, surrounding the pins 1, are interposed between the parts *e e'*. The supporting-plate itself is loosely connected to the vertical sleeve *y*, as indicated in the sectional or broken-away part of Fig. 3, so that it may be capable of slight side-wise oscillation. A spring, *v*, surrounding the sleeve *y* and bearing upon the hub of the supporting-plate *e'*, offers yielding resistance to the oscillation of the latter. The object and effect of this arrangement is to permit the retarder to adapt itself to any variations or ine-

quality in the thickness of the upper. Springs 3, surrounding the pins 1, are shown as used to hold up the retarder *e*. This, however, is not indispensable, for the pins 1, may be merely short-headed studs having play in the holes in the plate *e'*, through which they pass.

The hold-down and retarder devices are shown in their thrown-back position by dotted lines in Fig. 1 and in the same position by full lines in Fig. 2.

The side clamps are shown plainly in Fig. 2. They are attached to the front of the toe-wiper carriage—to the part D of said carriage—and they are placed one on each side of the recess in said carriage which receives the toe of the last. They are supported in guideways, in which they can move to and from each other; are held in said guideways by retaining-screws 4, which enter longitudinal slots 5 in them, and are pushed forward or toward each other by pressure or clamping screws 6 on the part D, which bear or push against the rear ends of said clamps. Each clamp at its inner end has a pad, 7, vertically swiveled, as indicated by dotted lines 8, so that it may conform to different shapes of lasts, and made of proper size and shape so as not to indent the upper.

After the toe-wiper carriage has been advanced to the proper point to act on the toe of the last, and the retarder and hold-down have been properly adjusted, the clamps, by their screws 6, are caused to advance until they bear firmly against the last from opposite sides. In this way, no matter how unevenly the toe-wipers may pull upon the upper, the toe of the last will be restrained from any lateral movement.

I come now to the devices for laterally tilting the heel-lasting mechanism. I describe the devices with particular reference to the heel-lasting mechanism. They may, however, be applied also for the same purpose to the toe-lasting mechanism, and I desire to be understood as intending this in those of my claims which are directed to said devices.

E is the longitudinally-movable heel-lasting carriage, moved by the hand-wheel and screw F F'. The carriage is mounted upon a longitudinal bar or rail, G, having preferably a cross-section of the shape shown in Fig. 6, with a rounded upper edge, 9, which enters a like groove in the under plate of the carriage and an enlarged under or bottom edge, 10, transversely curved in the arc of a circle of which the center is the axis of lateral oscillation of the carriage. The carriage is held to this bar or rail by a bracket, H, attached to it and extending beneath and fitting against the curved under edge, 10, of the rail, being formed for this purpose with a longitudinal recess, 11, of semi-cylindrical cross-section. In this way the carriage, while supported by and capable of sliding lengthwise of the bar G, may also oscillate laterally thereon to an extent sufficient for all practical purposes. Its lateral tilt can be effected in various ways—as, for in-

stance, by a rod, 12, supported in bearings in the carriage, and having at its inner end a screw, 13, which engages the bracket H, and an annular flange or bead, 14, which enters a longitudinal groove, 15, in the bottom of the part 10 of the rail or bar G. By rotating the rod 12 the screw 13 will act to move the bracket in one direction or the other, according to the direction of rotation, and will thus tilt the carriage. The longitudinal movement of the carriage is effected, as before stated, by the screw F, which passes through and engages a nut, I, mounted and adapted to slide in longitudinal ways E' in the frame A of the machine, and interposed between ears H' H' on the rear end of the bracket H.

The bar or rail G can be raised or lowered at either or both of its ends whenever desired. The means which I prefer to employ for this purpose are shown plainly in Fig. 4. The bar is pivoted or hinged at its rear end on a horizontal transverse pivot or hinge. At its front end it is provided with a downward extension, 16, which is hung between the ears of a block or stem, J, which is vertically movable in guides, and has on its lower end a screw-threaded extension, J', which passes through a supporting-bracket, K, on the frame, in which it is held in adjusted position by the two adjusting and locking nuts 17.

The pivot-pin of the rear end of the bar G is shown at 18 in Fig. 4. This pin has its bearings in ears 19, Fig. 5, fixed to the frame A, and it passes through an oblong hole, 20, in the bar. A screw, 21, is provided, which is carried by and passes down through the bar in such position that the pin 18 will enter an annular groove, 22, in said screw. By turning this screw in one direction or the other the rear end of the bar will be correspondingly raised or lowered, this movement being permitted by reason of the oblong hole 20.

The wiper-operating instrumentalities are the same for the heel and the toe. I have therefore shown them in conjunction with the heel-wipers only.

The heel-wipers are shown at L, having a common pivot or joint, 23. They are operated to open and close by means of arms M, having a common pivot, 24, and connecting-links N, pinned at one end to the arms M and at the other end provided with pins which enter slots 25 in the wipers. The arms M are pivoted to the slide-bar O, mounted in longitudinal ways in the wiper-carriage, and engaging by a stud, 26, on its under side a slot in the pivoted lever P. By moving the lever forward the slide O will be correspondingly advanced, and this movement of the slide will, through the arms M and links N, cause the closing of the jaws. It is desirable that the wipers should advance bodily at the same time that they close; and it is also at times necessary that for the same range of opening and closing movement of the wipers their advance movement should vary. A convenient arrangement for giving the advance movement,

and which will permit the variation in that advance movement to be conveniently obtained, is represented in Figs. 4 and 5.

The wiper-jaws L are pivoted to a slide-bar, 5 R, mounted in longitudinal ways in the carriage. This slide-bar is separate from the slide-bar O, but is indirectly connected therewith through the intermediary of links 27, pinned at one end to the slide-bar R and at the 10 other end one to each of the arms M on opposite sides of and at equal distances from the pivot 24 of said arms. Under this arrangement the slide R will move forward with, but at less speed than, the slide O. The farther 15 from the pivot 24 the links 27 are joined to the arm M the slower will be the movement of slide R relatively to that of slide O; and the contrary effect is produced by approaching these joints to the pivot 24. Thus, by varying the 20 distance from the pivot 24 of the points of attachment of the links 27 to the arms M, the forward movement of the wipers can be varied at pleasure, while maintaining the same opening and closing movement.

25 P', Fig. 1, is the lever by which the toe-wipers are actuated.

G', Figs. 2 and 7, is a toe-clasp, intended to take the place of the like lettered clasp in my Letters Patent No. 337,925. It is my object 30 to give it strength and at the same time to enable it to automatically conform to different shapes and sizes of toes. To this end it consists of one or more sprocket-chains, 28, faced with leather 29. (See Fig. 7.) From the rear 35 center of this clasp extends a horizontal stem, 30, which fits and is adapted to move in a suitable socket in the part D of the toe-wiper carriage, and is intended to centrally uphold the clasp. The clasp thus made is both strong 40 and pliable, and will conform automatically to the shape of the toe of the last. It can be attached to any suitable part of the toe-wiper carriage. In this instance it is jointed at its ends to the two side toe-clamps 7. When two 45 sprocket-chains enter into the composition of the clasp, as is usually the case, they are placed vertically one above the other, as seen in dotted lines in Fig. 2, thus giving the needed width to the device. I have shown and de- 50 scribed the clasp as applied to the toe-wiper carriage. It can, however, with equally good effect be applied to and be used with the heel-wiper carriage for the purpose of clasp- ing the heel.

55 Having now described my improvements and the manner in which the same are or may be carried into effect, what I claim herein as new and of my own invention is as follows:

60 1. The combination of the toe-wipers, the retarder capable of oscillatory movement to adapt itself to inequalities in the upper, and the hold-down, vertically movable independently of said retarder, substantially as and for the purpose hereinbefore set forth.

65 2. The combination of the retarder, its movable supporting-frame, the hold-down, verti-

cally movable in said frame independently of the retarder, and means, substantially as described, for forcing down the hold-down, substantially as and for the purposes hereinbefore 70 set forth.

3. The combination, with the toe-wipers, of the adjustable side toe-clamps, arranged and adapted to bear from opposite sides against the toe end of the last, substantially as and for 75 the purposes hereinbefore set forth.

4. The combination, substantially as hereinbefore set forth, of the toe-wipers, the hold-down and retarder mechanism, and the adjustable side toe-clamps. 80

5. The longitudinally-movable and laterally-tilting lasting-carriage E, in combination with means, substantially as described, for adjust- ing said carriage both longitudinally and lat- 85 erally, as hereinbefore set forth.

6. The combination of the bar G, the wiper-carriage adapted to slide and turn thereon, the carriage advancing and retracting mech- anism, and means, substantially as described, whereby the carriage may be laterally tilted 90 and held in such tilted position upon the bar, as and for the purposes hereinbefore set forth.

7. The bar or rail G, pivoted at its rear end, and the wiper-carriage mounted and adapted both to slide and to turn on said rail, in com- 95 bination with means, substantially as described, for lifting or lowering the front end of said rail.

8. The combination of the bar or rail G, the wiper-carriage mounted and adapted both to 100 slide and to turn thereon, and mechanism, substantially as described, whereby each end of the bar or rail may be raised or lowered independently of the other, substantially as and for the purposes hereinbefore set forth. 105

9. The combination, with the wiper-carriage and the two independent slide-bars O R, of the wipers carried by the slide R, the arms M, and links N, connecting slide O with the wipers, for the purpose of opening and closing 110 the latter, and the links connecting the pivoted arms M of slide O with slide R, for the purpose of advancing and retracting the latter, substantially as and for the purposes hereinbefore set forth. 115

10. The pliable clasp G', composed of one or more chains jointed at the ends to their supporting-carriage, faced with leather or other smooth pliable material, and provided with a central guide or supporting stem, sub- 120 stantially as and for the purposes hereinbefore set forth.

11. The adjustable side toe clamps provided with pivoted or swiveled pressure-pads, as and for the purposes hereinbefore set forth. 125

In testimony whereof I have hereunto set my hand this 18th day of March, A. D. 1887.

FRANK CHASE.

Witnesses:

EWELL A. DICK,
MARVIN A. CUSTIS.