No. 666,278. Patented Jan. 22, 1901.

# A. G. LEONARD, A. GRAFFAM & B. R. WOLCOTT

## SHOE PEGGING MACHINE.

(No Model.) (Application filed Oct. 28, 1896.)

3 Sheets—Sheet 1.

Fig. 1.

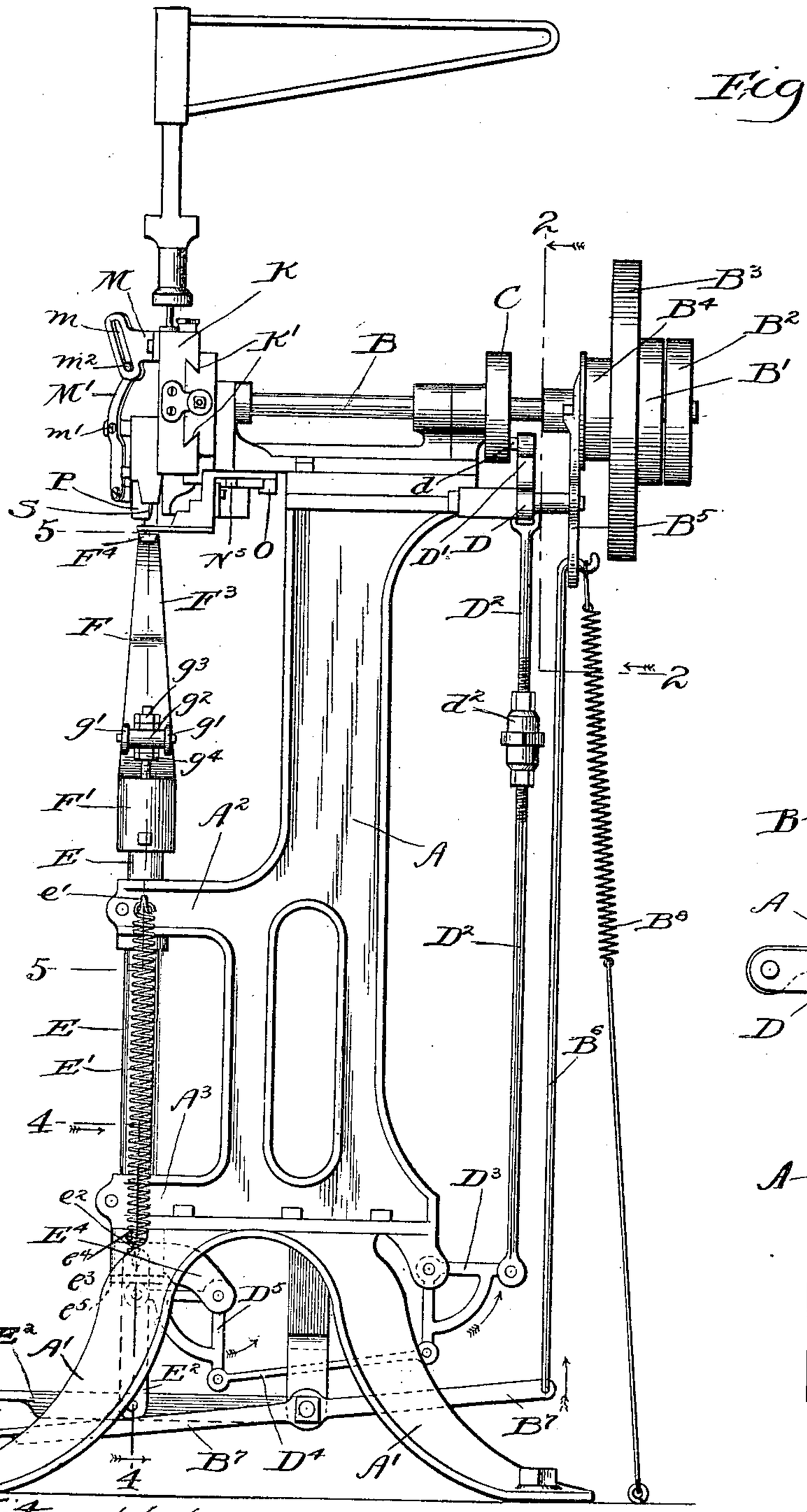
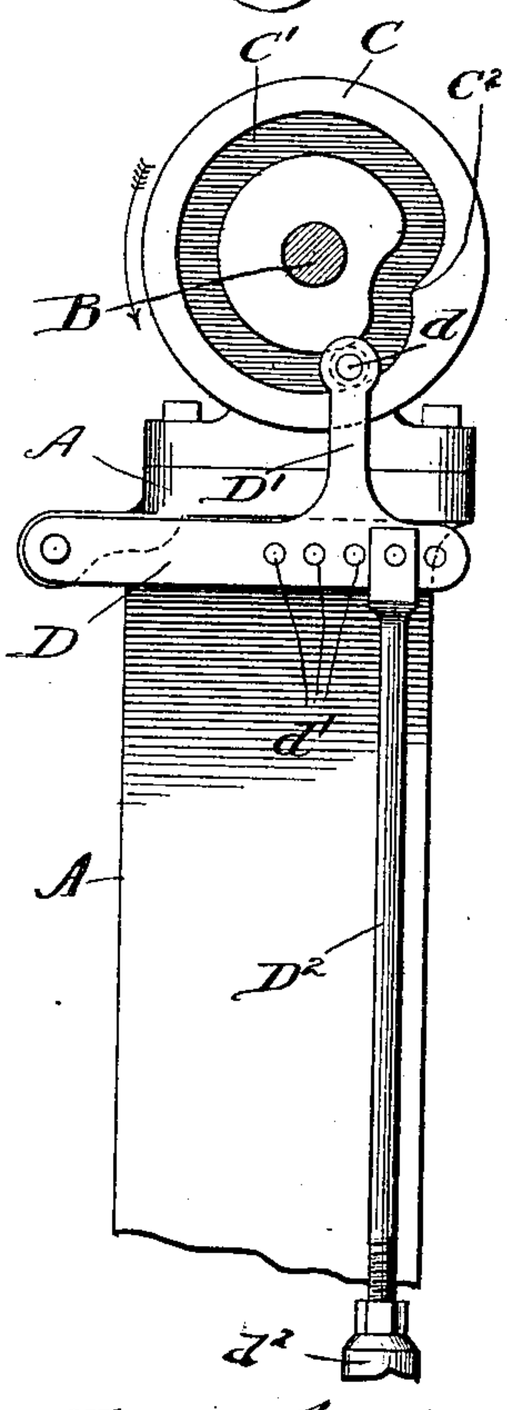



Fig. 2.




Witnesses
W. C. Curtis
Martin A. Olsen

Inventors
Arthur G. Leonard
Alonzo Graffam
Byron R. Wolcott
By, Coburn & Strong attys.

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# A. G. LEONARD, A. GRAFFAM & B. R. WOLCOTT.

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Fig. 3.

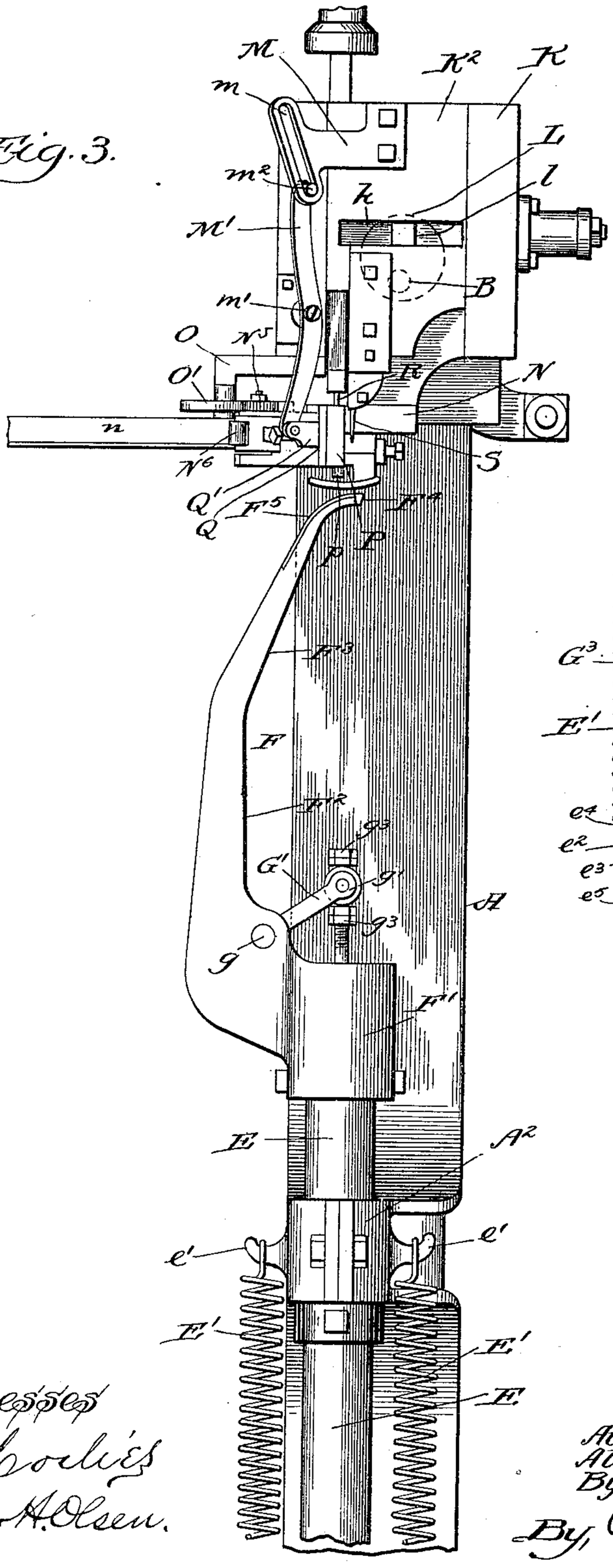
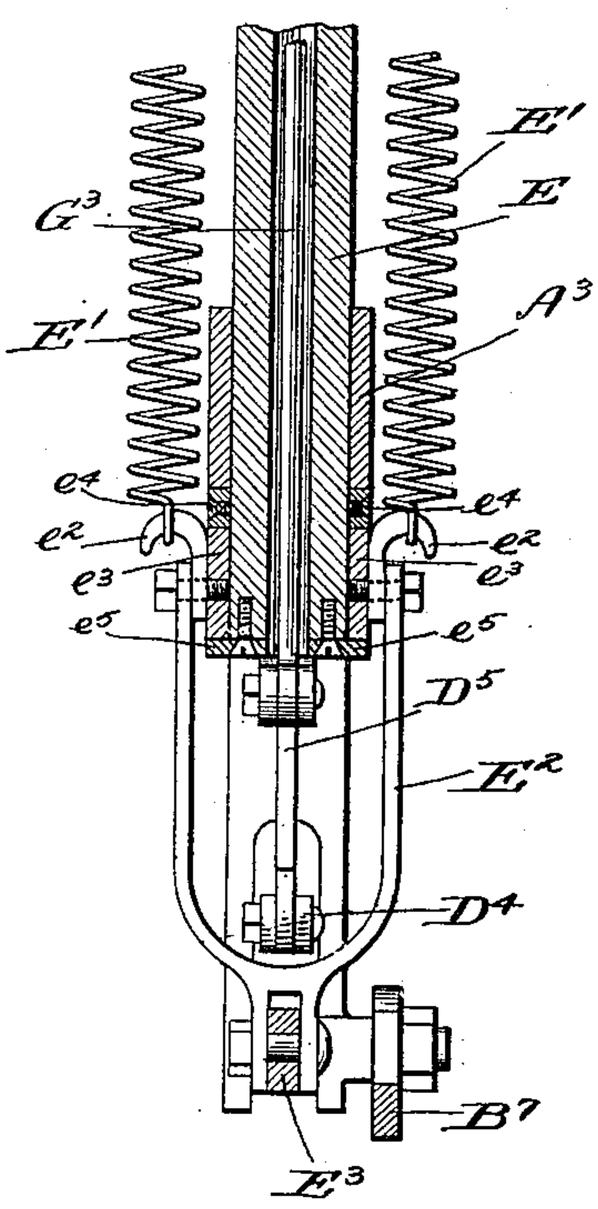



Fig. 4.




Witnesses
W. C. Corliss
Martin A. Olsen.

Inventors
Arthur G. Leonard
Alonzo Graffam
Byron R. Wolcott
By, Coburn & Strong
Atty's

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# A. G. LEONARD, A. GRAFFAM & B. R. WOLCOTT.

## SHOE PEGGING MACHINE.

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(No Model.) 3 Sheets—Sheet 3.

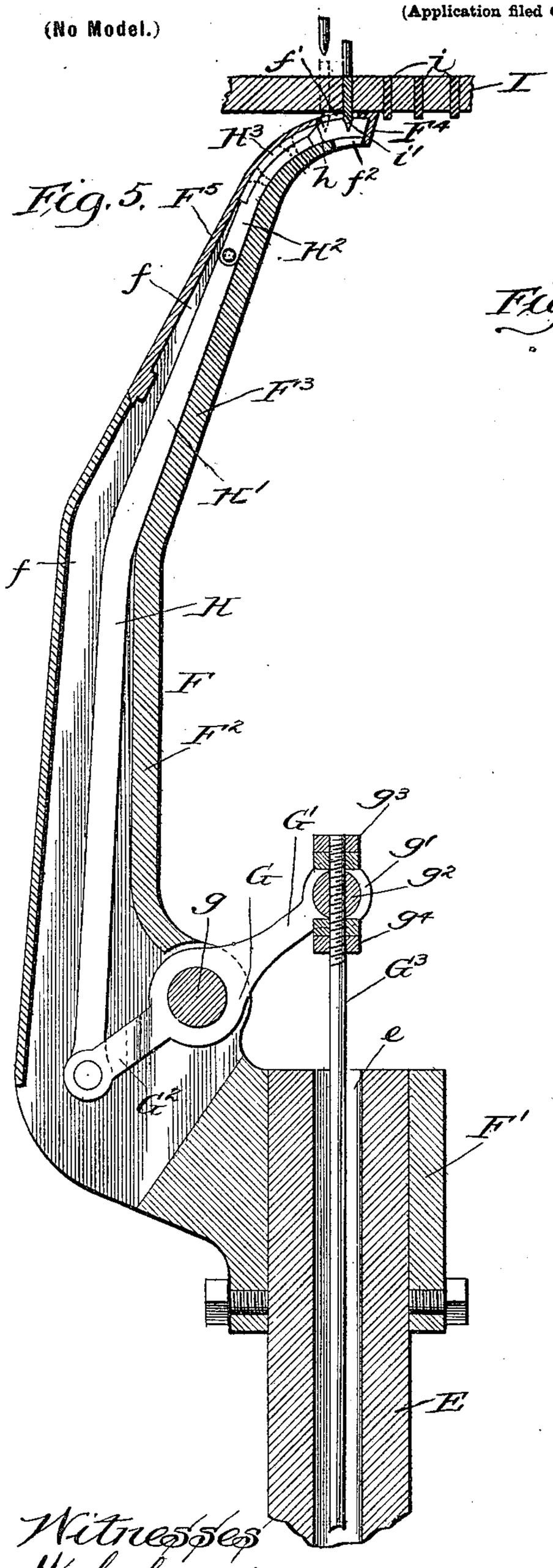


Fig. 5.

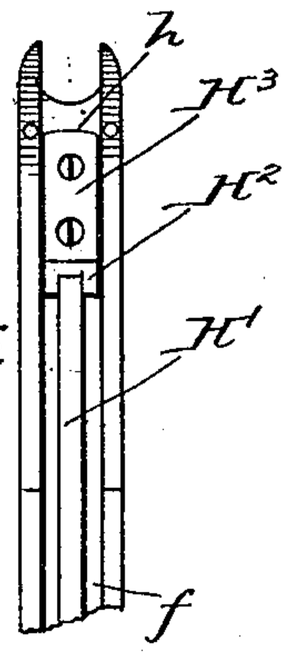


Fig. 6.

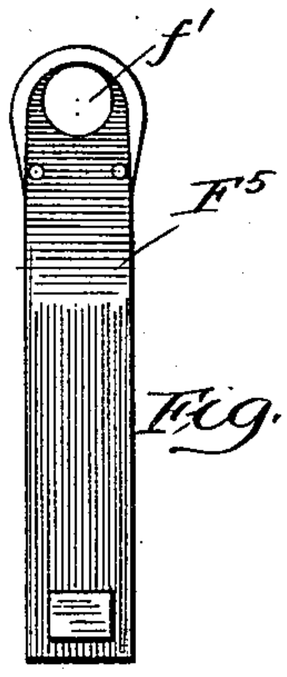


Fig. 7.

Witnesses
W. C. Curtis
Martin A. Olsen.

Inventors
Arthur G. Leonard
Alonzo Graffam
Byron R. Wolcott
By Coburn & Strong
attys

# UNITED STATES PATENT OFFICE.

ARTHUR G. LEONARD, OF CHICAGO, AND ALONZO GRAFFAM AND BYRON R. WOLCOTT, OF DE KALB, ILLINOIS, ASSIGNORS TO ARTHUR G. LEONARD, TRUSTEE, OF CHICAGO, ILLINOIS.

## SHOE-PEGGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 666,278, dated January 22, 1901.

Application filed October 28, 1896. Serial No. 610,323. (No model.)

*To all whom it may concern.*

Be it known that we, ARTHUR G. LEONARD, residing at Chicago, in the county of Cook, and ALONZO GRAFFAM and BYRON R. WOLCOTT, residing at De Kalb, in the county of De Kalb, State of Illinois, have invented a certain new and useful Improvement in Shoe-Pegging Machines, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a machine with our improvements attached. Fig. 2 is a vertical section on the line 2 2 of Fig. 1. Fig. 3 is a front elevation of the upper portion of the machine. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a plan view of the horn-tip with the horn-cap removed, and Fig. 7 is a detail plan view of the horn-cap.

Our invention relates to shoe-pegging machines, and more particularly to mechanism adapted to cut off the projecting points of the pegs as fast as the said pegs are driven through the sole.

Referring to the drawings by letter, A represents the general framework of the machine, consisting particularly of a standard mounted upon the legs A′ and provided with the projecting brackets $A^2$ and $A^3$, one above the other. In suitable bearings in the upper part of the frame is journaled the main driving-shaft B. Upon the rear end of the said shaft are loosely mounted the pulleys B′ and $B^2$, the one being a driving-pulley and the other free to revolve on the shaft at all times. The said shaft further carries a fly-wheel $B^3$ and a clutch mechanism $B^4$, adapted to throw the shaft in clutch with the driving-pulley B′. The clutch $B^4$ is operated by the lever $B^5$, to the lower end of which is attached the connecting-rod $B^6$, connecting the said lever with the treadle $B^7$. A spring $B^8$, connected with the clutch-lever $B^5$, normally holds the clutch out of operation. By depressing the treadle $B^7$ the clutch is actuated and the shaft B revolves.

Upon the shaft B, preferably between the driving mechanism in the rear and the pegging mechanism in the front of the machine, there is keyed a cam-wheel C, provided upon one of its side surfaces with a cam-groove C′, which is circular throughout except at one point of offset $C^2$. Below the said cam-wheel there is pivoted to the framework of the machine at one end a short lever D. Near its free end the said lever carries an upwardly-extending arm D′, provided with a horizontal pin *d*, which projects within the cam-groove C′. The said lever D is further provided near its free end with a series of perforations *d*′. A connecting-rod $D^2$, which is preferably adjustable in length, as at $d^2$, is at one end pivoted to the lever D by one of the said perforations *d*′. At its lower end the said connecting-rod is pivoted to one arm of a bell-crank lever $D^3$. To the other arm of the said lever, which is pivotally mounted in the framework of the machine, is pivoted one end of a connecting-rod $D^4$. The remaining end of the said rod is pivoted to one arm of a second bell-crank lever $D^5$, which is mounted as hereinafter described.

In suitable bearings formed in the brackets $A^2$ and $A^3$ is mounted a vertical horn-post E, which is hollow throughout its length, as at *e*, and is free both to reciprocate vertically and to rotate in its said bearings. The bracket $A^2$ upon each side carries a hook or projection *e*′, to which is attached the upper end of a coiled contracting-spring E′. The lower end of each spring is attached to a second hook $e^2$, carried by a sleeve $e^3$, which surrounds the lower end of the horn-post and bears against the collar $e^4$, rigidly secured to the horn-post. The actions of the springs E′ are thus normally to hold the horn-post up, with the collar $e^4$ abutting against the bracket $A^3$. The horn is at the same time free to rotate in its bearings. A yoke $E^2$ is pivotally attached at its upper bifurcated end to the sleeve $e^3$. The lower end of the said yoke is pivoted to the treadle $E^3$. A perforated cap $e^5$ is secured to the lower end of the horn-post. The sleeve $e^3$ bears against the said cap when the sleeve is depressed. The operation of the springs E′ is to hold the horn-post, and through it the work, against the presser-foot of the machine. By actuation of the treadle

E³ the horn-post is depressed. To the sleeve $e^3$ finally there is secured or formed integral therewith the bracket E⁴, in which is pivotally mounted the bell-crank lever D⁵, hereinabove referred to.

Upon the upper end of the horn-post is mounted the horn F. This horn comprises a collar F′, adapted to be secured to the upper end of the post, an upright portion F², and a diagonally-disposed portion F³, curved and terminating in an approximately horizontal tip F⁴, the three parts F², F³, and F⁴ being hollow. The upper surface of the horn is provided with a longitudinal aperture *f* to permit access to the interior of the horn. This aperture is closed by the horn-cap F⁵, which is curved to fit the tip of the horn and is provided with a small circular aperture *f′* at its extreme upper end. In the under surface of the tip of the horn F⁴ there is provided a second aperture $f^2$, directly underlying *f′*. On the inner wall of the horn and near the attachment thereof to the horn-post a lever G, comprising the two arms G′ and G², is pivotally mounted upon the pin *g*. The arm G′ of the lever projects over the central aperture *e* of the horn-post and is provided with two perforated ears *g′*, which inclose and are pivotally connected to the ends of a cylindrical cross-pin $g^2$. The said cross-pin is mounted so as to revolve in a horizontal plane upon the upper end of the vertical connecting-rod G³, but is prevented from vertical movement upon the said connecting-rod by the nuts $g^3$ above and $g^4$ below, by which the position of the cross-pin can be adjusted up and down on the said rod. The connecting-rod G³ extends down through the longitudinal aperture *e* of the horn-post and is pivotally connected at its lower end to the remaining arm of the bell-crank lever D⁵.

The arm G² of the lever G extends within the hollow of the horn. Within this hollow is mounted an upright rod H, bent diagonally at H′ to follow the direction of the horn, but terminating short of the horn-tip. To the upper end of the rod H′ is pivoted the end of a shank H², to the upper end of which is secured a knife-blade H³. This blade is upon its upper surface curved to correspond with the lower surface of the horn-cap and is provided with the cutting edge *h*, terminating just short of the aperture *f′* of the horn-cap.

The construction just described, in which a removable horn-cap is employed in connection with a knife shaped to coöperate therewith and mounted on a shank pivotally connected to the reciprocating operating-rod H, is one of much importance in the practical operation of these peg-cutting devices, inasmuch as thereby the knife can be readily gotten out for sharpening by simply removing the horn-cap and swinging the knife and shank outward, with the aperture normally covered by the horn-cap. This feature of construction can of course be applied to any shape of horn and is not limited to the particular form shown and described.

I represents a portion of a boot-sole in the process of being pegged, *i* the pegs already driven, and *i′* the projecting point which it is desired to cut from the inside of the sole.

As the cam-wheel C revolves in the operation of the machine at determined intervals, a short reciprocating movement is communicated to the connecting-rod D², and through the said rod the bell-crank levers D³ and D⁵ and the connecting-rod D⁴ to the rod G³. The lever G is thus actuated, and through the rod H the knife-blade H³ is at the said determined intervals thrust forward across the under side of the aperture *f′* of the horn-cap, severing off the downwardly-projecting peg-point *i′*, the said point dropping out through the aperture $f^2$. As the bracket E⁴ is mounted upon and moves up and down with the horn-post when the same is depressed and released, the knife and its connections are little, if at all, affected by the vertical movements of the horn-post and the horn. By pivoting the connecting-rod D² at a different perforation *d′* by altering the length of the said connecting-rod, as at $d^2$, or by adjusting the cross-pin $g^2$ through the nuts $g^3$ and $g^4$ the extent and the limits of the movement of the knife may be adjusted with great nicety. Finally, from the connection of the lever G with the rod G³ it is obvious that the operation of the knife-actuating mechanism will not be affected by the rotation of the horn and the horn-post.

In the operation of this mechanism the head K slides from right to left, as shown in Figs. 3 and 8 of the drawings, the plate K² then rises, the head K slides from left to right, and the plate K² again descends, this customary cycle of movements being effected by the mechanism shown, which is of the ordinary construction. As the awl S, which is rigidly adjusted in the head K, descends it penetrates the outsole, upper, and insole immediately adjacent the edge of the aperture *f′*, the particular portion of the edge being determined by the angle at which the horn stands. The head then moves in the feeding direction from right to left, and the awl S, moving diametrically across the aperture *f′*, carries with it the work until the awl is adjacent to the opposite portion of the edge of the aperture, which is of a width equal to the length of the feed desired plus the diameter of the awl or peg. The head K now rising carries with it the awl S, leaving the work with the puncture adjacent to the edge of the aperture *f′*. The head now moving from left to right carries the awl S back to the starting position and brings the hammer R and the perforation *p′* of the peg-box cap directly over the puncture. As the head K now starts to descend the hammer R, which has been putting the driving-spring under tension as the head ascended, is released, and it descends quickly in advance of the head K and the awl S and drives the

peg through the hole punched in the work. Immediately after the peg has been driven and before the awl S has completed its descent the knife $H^3$ is shot across the under side of the aperture $f'$, severing the projecting end of the peg, after which the cycle of operations is repeated.

It will be apparent that by punching the hole for the peg adjacent the edge of the aperture $f'$ and then feeding it across to the opposite edge of the aperture and driving the peg in that position the work is quite thoroughly supported, on one side at least, during both the punching and driving operations, which if they occurred in the center of the aperture or at any distance from the edge thereof would tend to depress the insole and upper, especially if the aperture were large enough to permit of the awl moving therein to feed the work, as is the case with our construction and which is the most satisfactory feed. By our construction permitting the punching of the hole and the driving of the peg adjacent to the edge of the aperture $f'$ and feeding the work by moving the awl diametrically across the aperture we are enabled to not only reduce the size of the aperture as compared with a similar one in which the awl-feed is radial—*i. e.*, from edge to center—but we are enabled to secure the support of the edge of the aperture not only for the punching of the hole, but for the driving of the peg, which was not possible with the radial feed. Moreover, the same advantage can be secured with the same sized aperture when shorter feeds are used, inasmuch as when such feeds are employed all that is necessary is to adjust the mechanism so that the feed instead of being strictly across the diameter of the circular aperture will be on a secant which of course will be equal to the length of the feed plus the diameter of the peg, by this adjustment securing the same support as for the strictly diametrical feed. By the use of this construction we are enabled to employ the best form of an awl-feed without increasing the size of the horn tip or aperture therein so as to render the device impractical.

While we have shown our invention as embodied in the form which we at present consider best adapted to carry out its purposes, it will be understood that it is capable of some modifications and that we do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the art.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. In a shoe-pegging machine, the horn F having the removable horn-cap $F^5$ mounted upon the upper end thereof and provided with the aperture $f'$; with the knife $H^3$ mounted upon the shank $H^2$, shaped to fit the horn-cap, and adapted to reciprocate beneath the opening $f'$; the rod H adapted in shape to the horn F and pivotally connected at its upper end to the shank $H^2$; and means adapted to reciprocate the rod H.

2. In a pegging-machine, a vertically-movable horn or work-support capable of complete rotation and having a tip or cover provided with a central perforation concentric with the axis of rotation of the horn, in combination with a cutting device supported in said horn and operating below said perforation in the tip thereof, and peg-driving mechanism, and connecting mechanism comprising the rod H reciprocating in said horn, the rod $G^3$ reciprocating through the horn-post, the lever G connecting said rods, the substantially horizontal rod $D^4$, connecting mechanism between the rods $G^3$ and $D^4$ carried by the horn-post, and connections between the said rod $D^4$ and the operating-shaft of the peg-driving mechanism, whereby the cutting device is operated at each peg-driving operation unaffected by the vertical and rotary movement of the horn, substantially as described.

3. In a pegging-machine, a vertically-movable horn or work-support capable of complete rotation and having a tip or cover provided with a central perforation concentric with the axis of rotation of the horn, in combination with a cutting device supported in said horn and operating below said perforation in the tip thereof, and peg-driving mechanism, and connecting mechanism comprising the rod H reciprocating in said horn, the rod $G^3$ reciprocating through the horn-post, the lever G connecting said rods, the substantially horizontal rod $D^4$, connecting mechanism between the rods $G^3$ and $D^4$ carried by the horn-post, the rod $D^2$, the bell-crank $D^3$ connecting the said rods $D^2$ and $D^4$, a cam on the operating-shaft of the peg-driving mechanism for reciprocating said rod $D^2$, whereby the cutting device is operated at each peg-driving operation unaffected by the vertical and rotary movement of the horn.

4. In a shoe-pegging machine, the horn-post E hollow as at *e;* the vertical rod $G^3$ mounted within the hollow *e*, screw-threaded at its upper end, and provided with nuts $g^3$ and $g^4$; the pin $g^2$ pivoted in a horizontal plane between the said nuts, and thereby longitudinally adjustable upon the rod $G^3$; a horn mounted upon and adapted to rotate with the upper end of the horn-post; a lever G mounted upon the horn and pivoted at one end in a vertical plane upon the pin $g^2$; mechanism adapted to reciprocate vertically the rod $G^3$; a knife $H^3$; and connections between the lever G and the said knife.

5. In a shoe-pegging machine, a hollow horn-post E, adapted to be moved vertically, and provided with a bracket $E^4$ carrying a bell-crank $D^5$; connections between the said bell-crank and the driving-shaft of the machine adapted to reciprocate intermittently the said bell-crank; a rod $G^3$ mounted within the hollow of the horn-post, and pivoted at its lower end to the bell-crank $D^5$; a horn F mounted

upon and adapted to rotate with the horn-post; a lever G mounted in the horn, pivoted at one end to the cross-pin $g^2$; the cross-pin $g^2$ pivotally mounted upon the rod $G^3$; a knife H mounted in the horn; and connections between the said knife and the lever G adapted to reciprocate the former.

6. In a shoe-pegging machine, the cam-wheel C; the lever D actuated by the said cam-wheel; the connecting-rod $D^2$; the bell-crank $D^3$; the connecting-rod $D^4$; the bell-crank $D^5$; the hollow horn-post E; the bracket $E^4$ mounted thereon and carrying the bell-crank $D^5$; the rod $G^3$ mounted within the horn-post, and pivoted at its lower end to the bell-crank $D^5$; the knife $H^3$ mounted in the horn; and connections between the said knife and the upper end of the connecting-rod $G^3$ adapted to actuate the former.

7. In a shoe-pegging machine, the cam C, provided with the cam-slot C′; the lever D provided with the pin *d* traveling in the said cam-slot; the connecting-rod $D^2$ adjustably pivoted to the lever D; the bell-crank $D^3$; the connecting-rod $D^4$; the hollow horn-post E provided with the bracket $E^4$ in which is mounted the bell-crank $D^5$; the connecting-rod $G^3$ mounted within the horn-post and pivoted at its lower end to the bell-crank $D^5$; the horn F; the knife $H^3$; and mechanism connecting the said knife with the upper end of the connecting-rod $G^3$.

8. The combination of the completely-rotatable horn and a non-rotating member comprising a supporting-bearing for the horn and a horn-depressing link connected to said bearing, a cutter in said horn and actuating connections therefor comprising a rod passing through the shank of the horn, and an actuator for said rod having a bearing-support upon said non-rotating member, substantially as described.

ARTHUR G. LEONARD.
ALONZO GRAFFAM.
BYRON R. WOLCOTT.

Witnesses:
L. B. MERRIAM,
G. W. SHOOP.