4 Sheets—Sheet 1.

E. A. ADAMS & J. K. P. NOURSE.

Machinery for Pegging Boots and Shoes.

No. 215,258. Patented May 13, 1879.

Fig. 3.

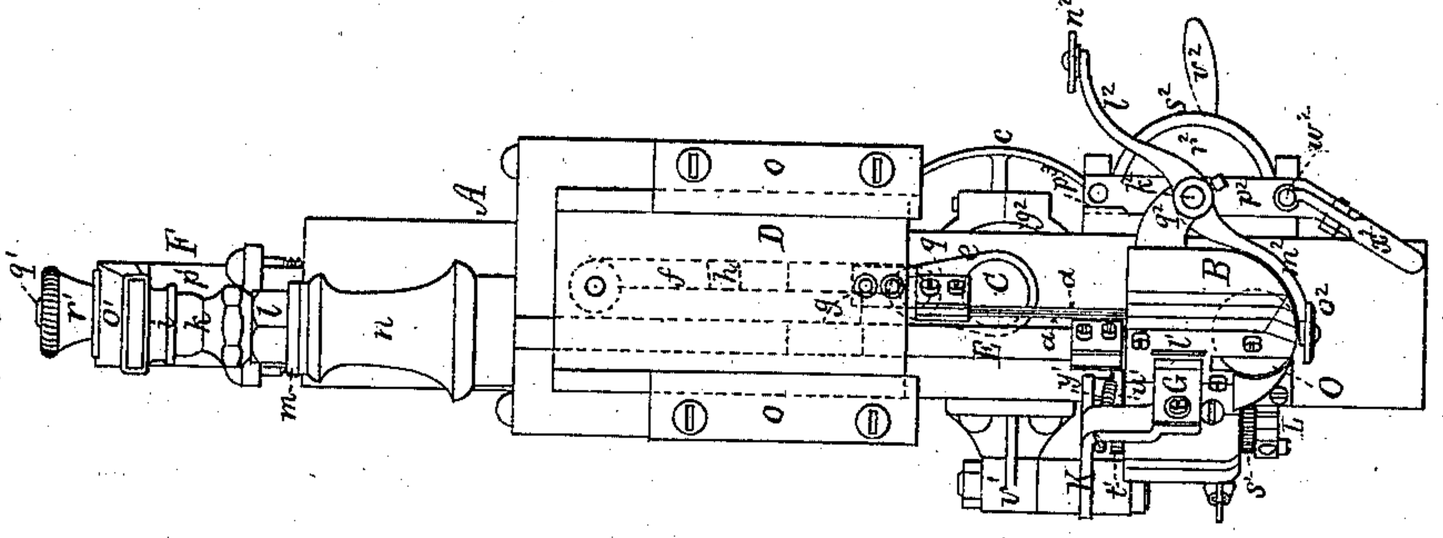
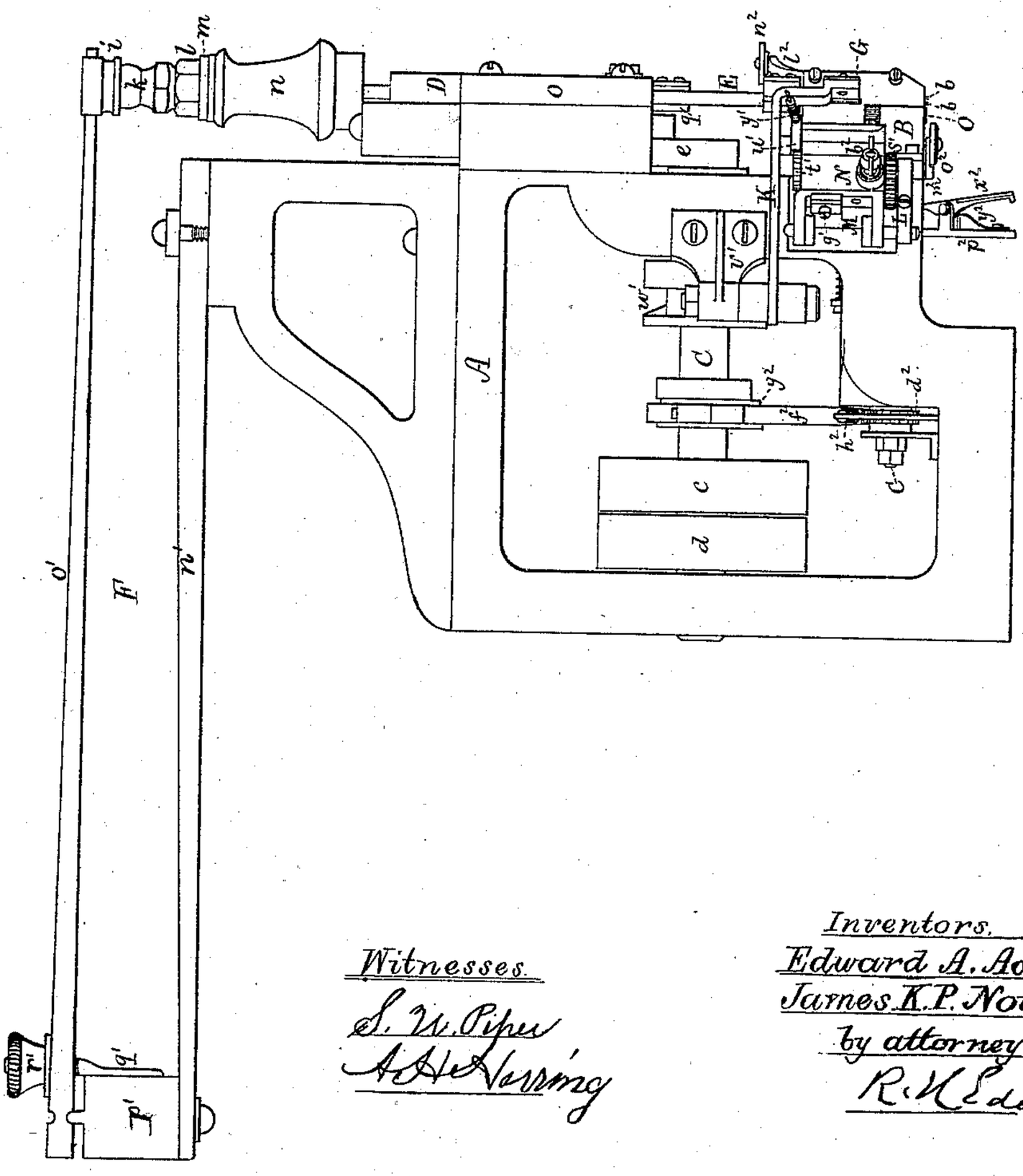


Fig. 1.



Witnesses.
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4 Sheets—Sheet 2.

E. A. ADAMS & J. K. P. NOURSE.

Machinery for Pegging Boots and Shoes.

No. 215,258. **Patented May 13, 1879.**

Fig. 27.

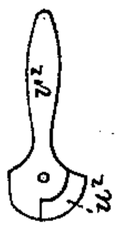


Fig. 28.

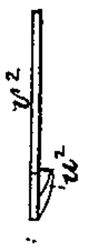


Fig. 29.

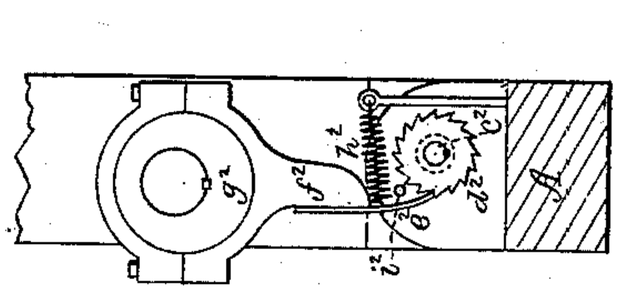


Fig. 4.

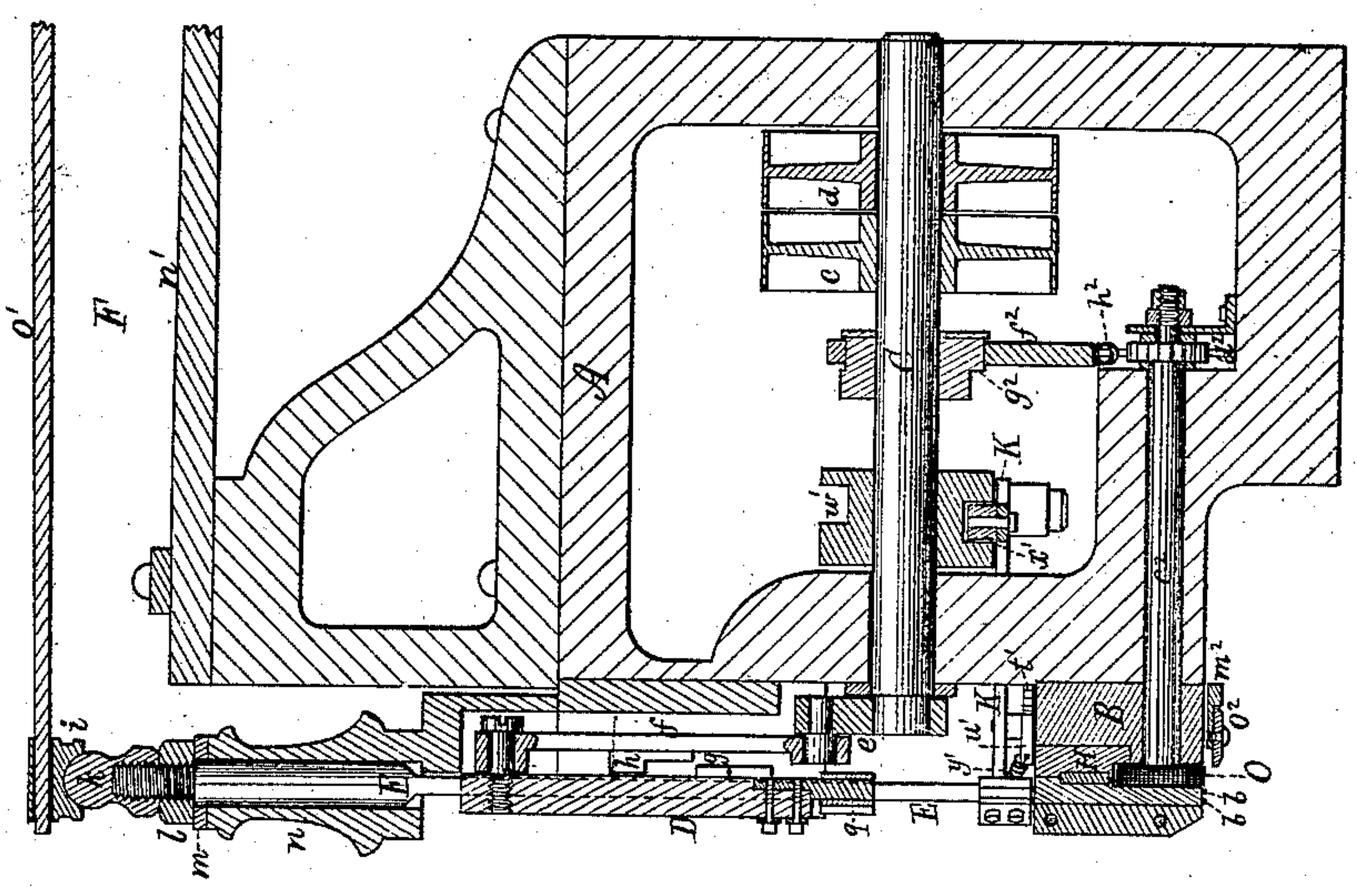
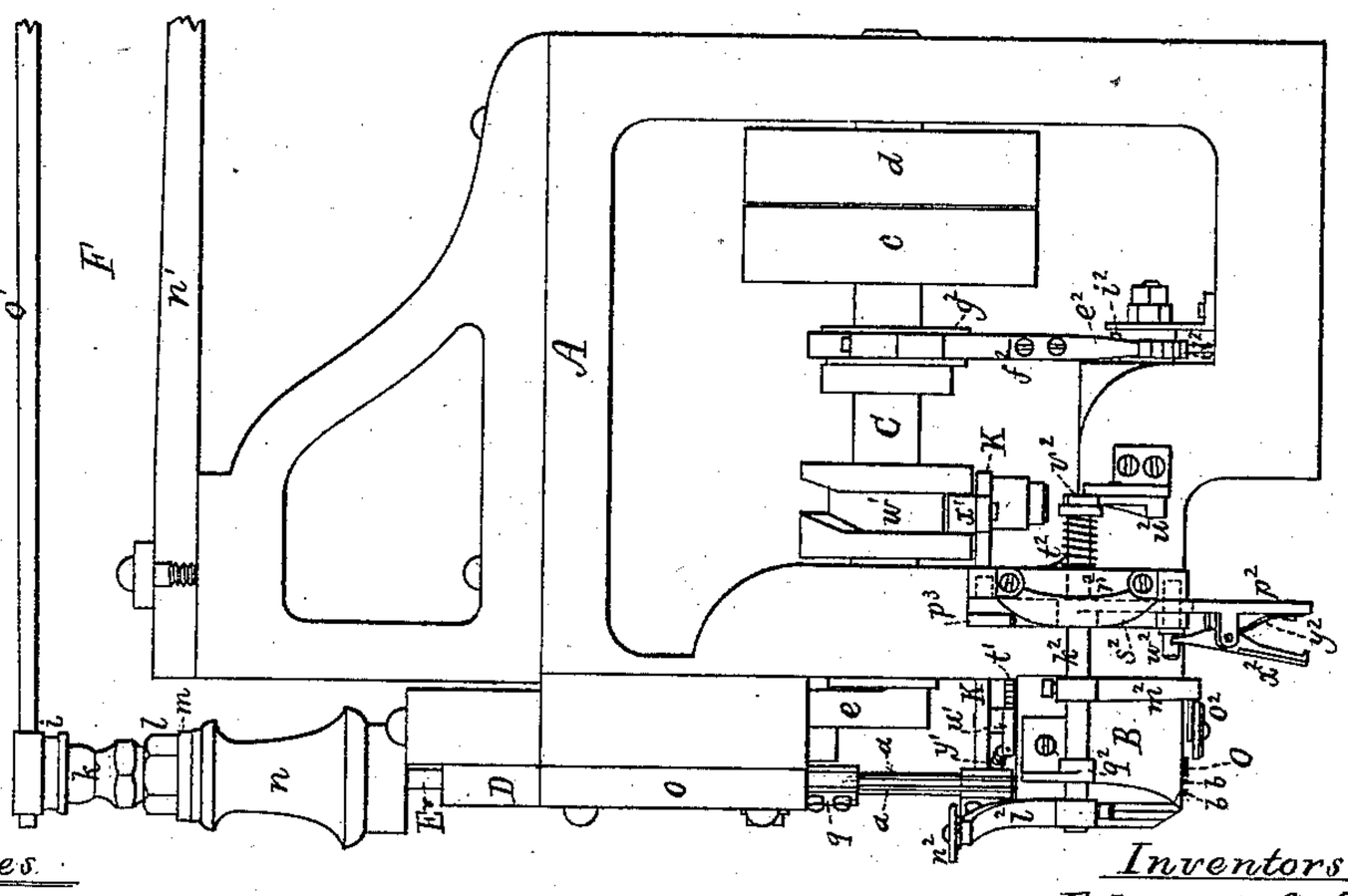


Fig. 2.



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4 Sheets—Sheet 3.

E. A. ADAMS & J. K. P. NOURSE.

Machinery for Pegging Boots and Shoes.

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Fig. 5.

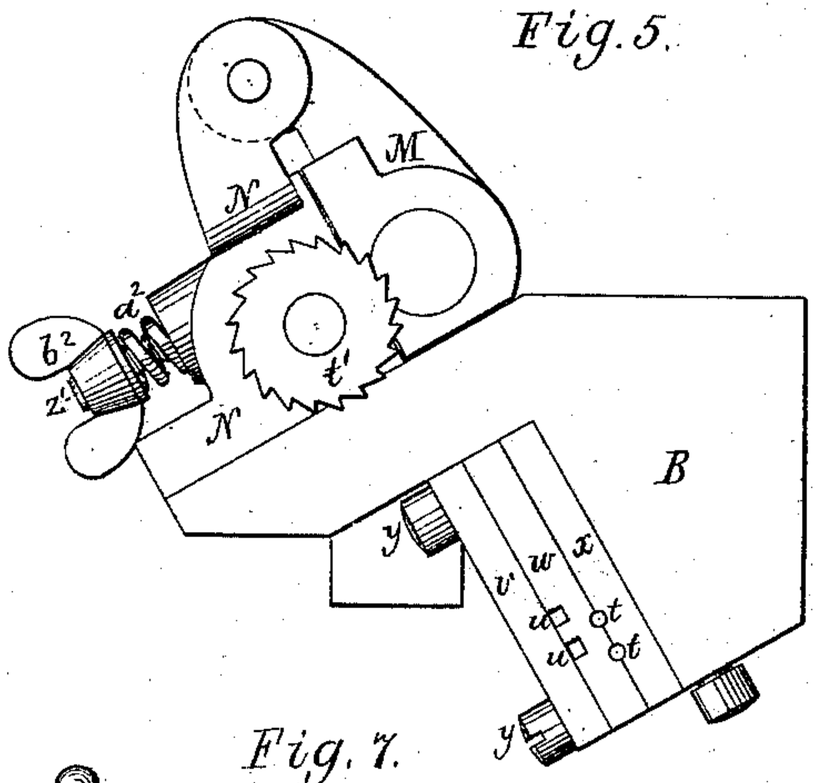


Fig. 6.

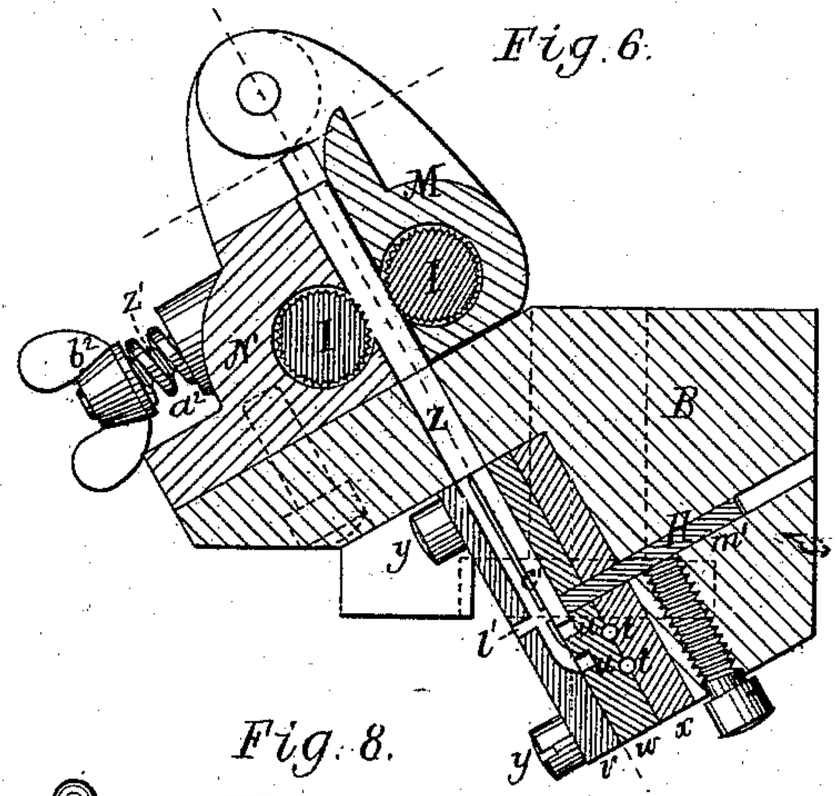


Fig. 7.

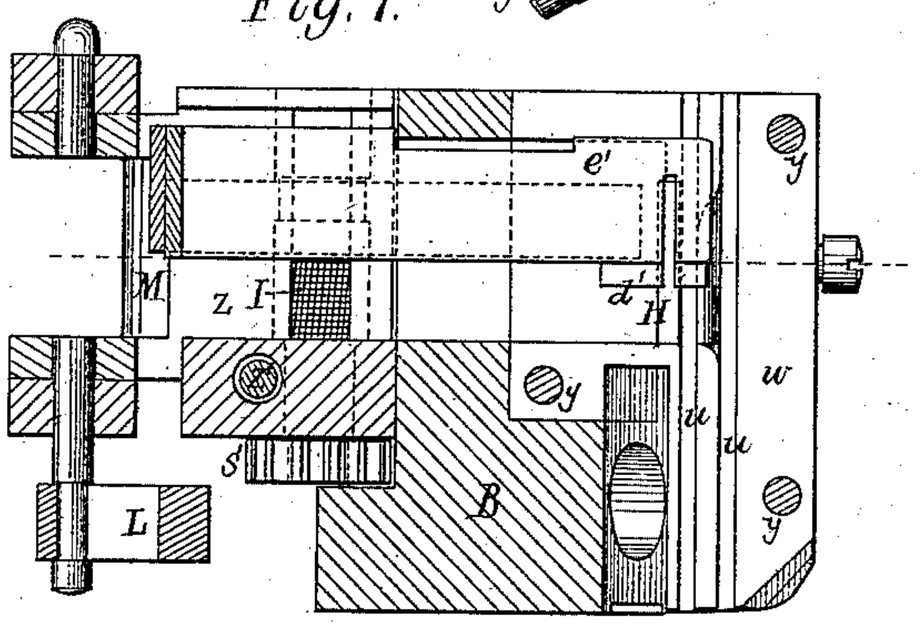


Fig. 8.

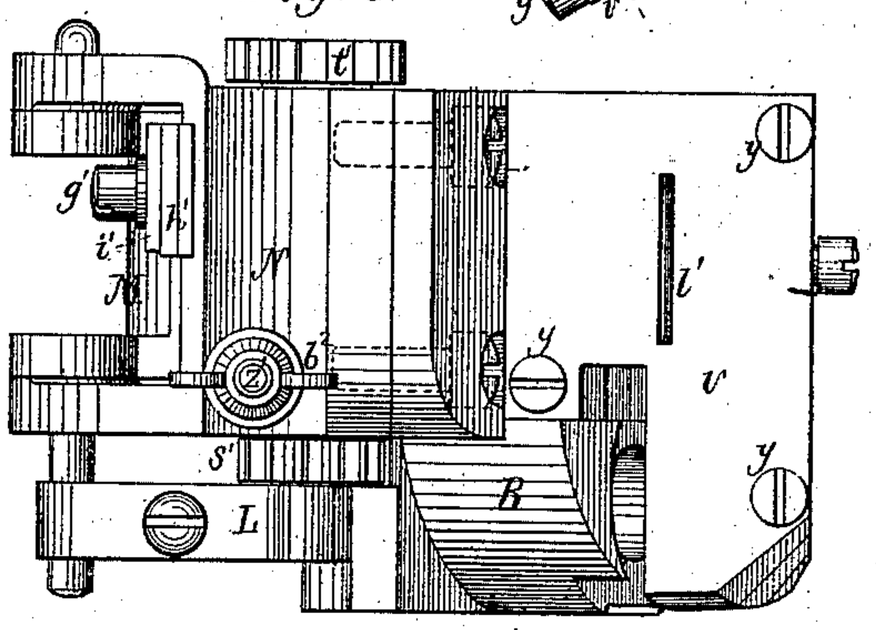


Fig. 9.

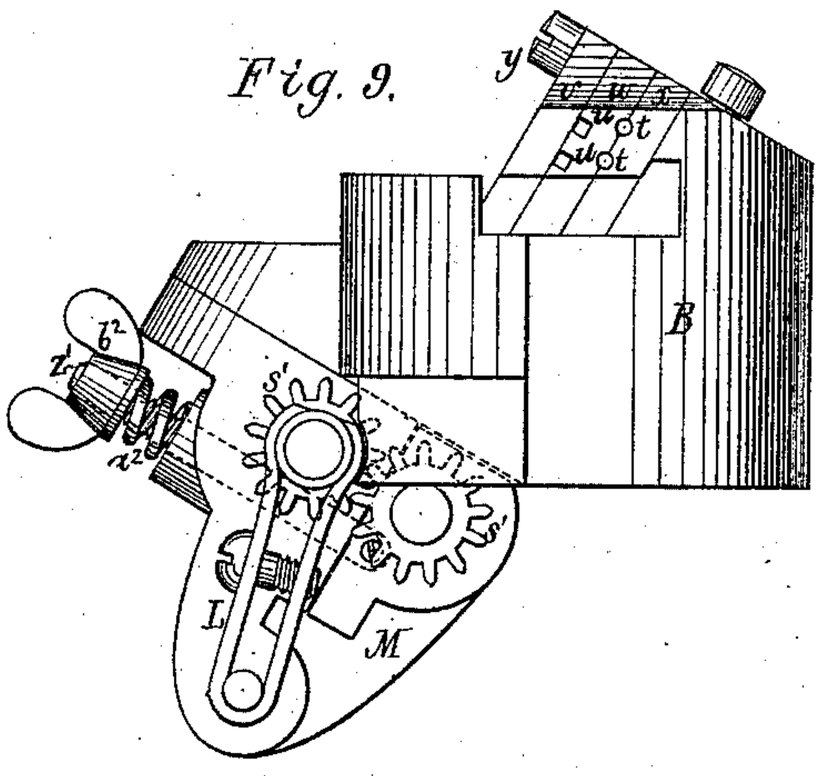
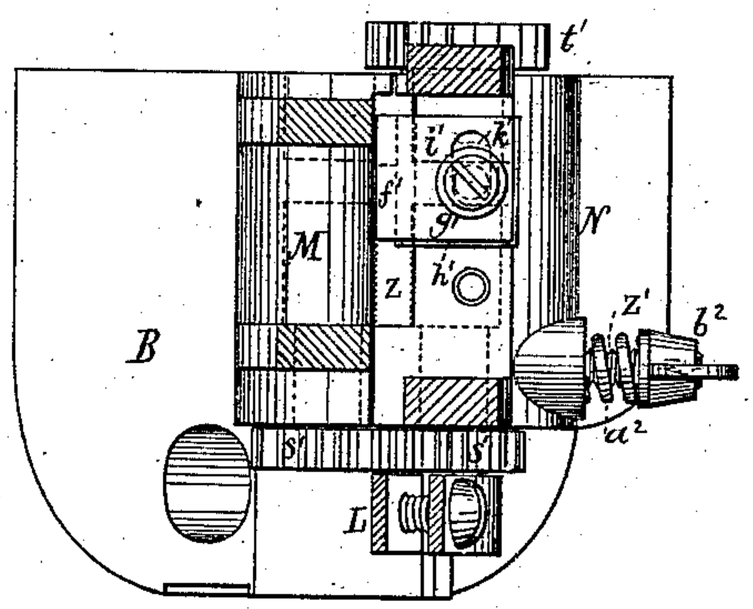


Fig. 10.



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Machinery for Pegging Boots and Shoes.

No. 215,258. **Patented May 13, 1879.**

Fig. 14. *Fig. 15.* *Fig. 16.* *Fig. 17.* *Fig. 18.*

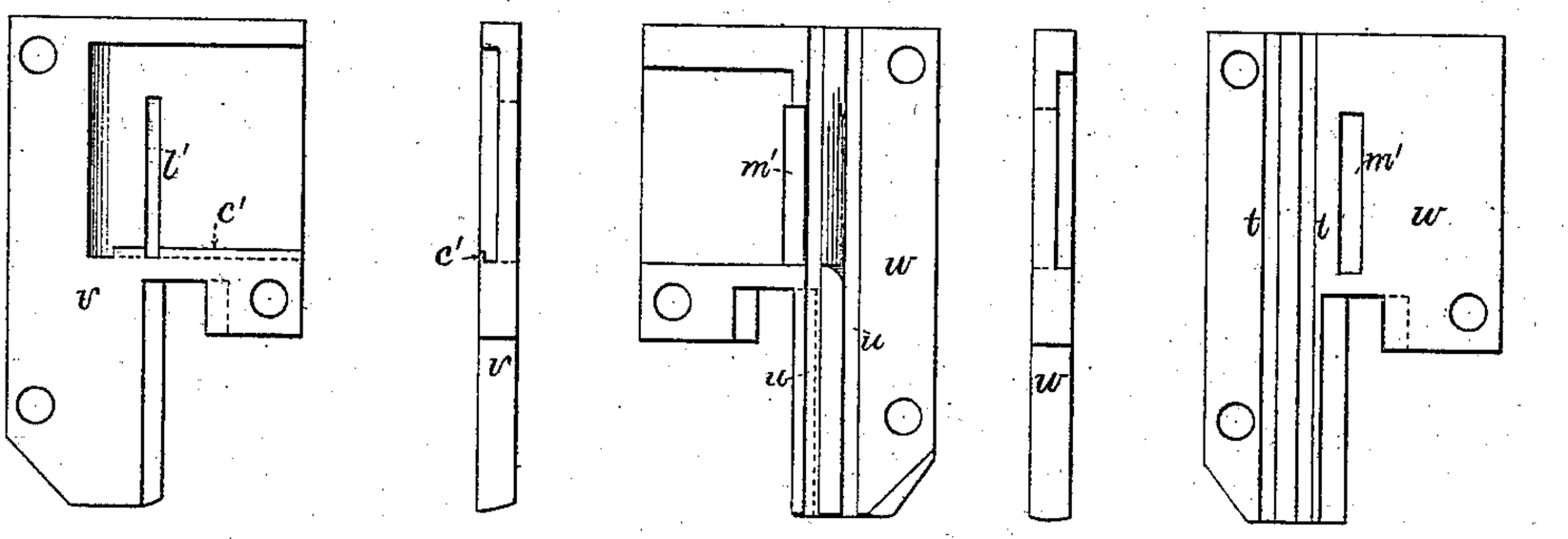


Fig. 12.

Fig. 19.

Fig. 20.

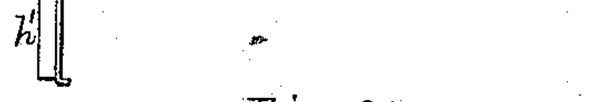


Fig. 21.

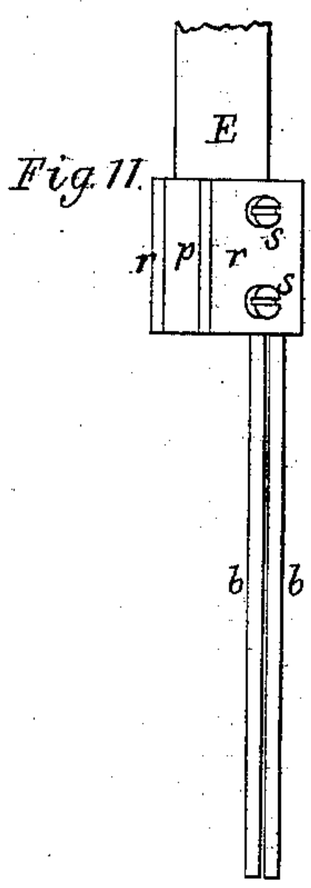


Fig. 11.

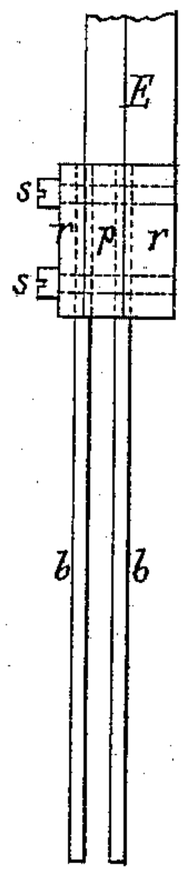
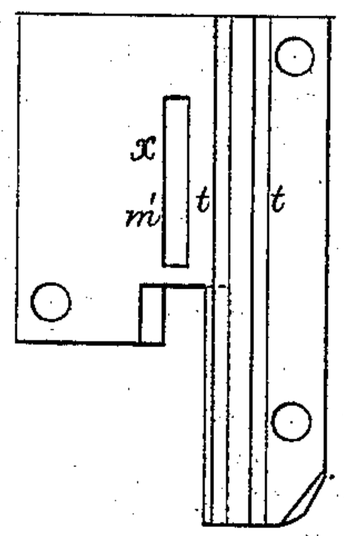


Fig. 13.



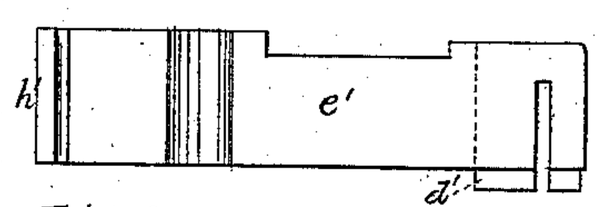
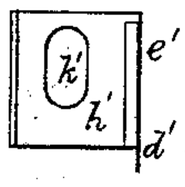


Fig. 23.

Fig. 22.



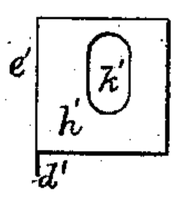


Fig. 24.

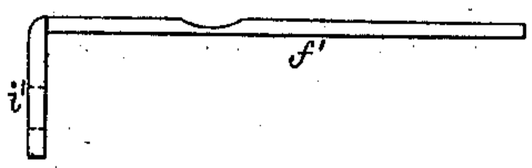


Fig. 26.

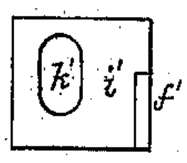
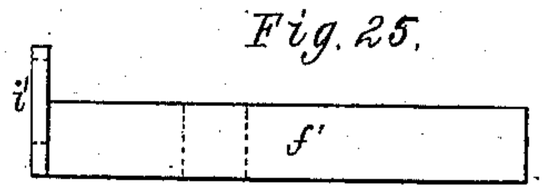


Fig. 25.



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A. H. Deming

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by attorney
R. K. Eddy

UNITED STATES PATENT OFFICE.

EDWARD A. ADAMS AND JAMES K. P. NOURSE, OF WEST MEDWAY, MASS.

IMPROVEMENT IN MACHINERY FOR PEGGING BOOTS AND SHOES.

Specification forming part of Letters Patent No. **215,258**, dated May 13, 1879; application filed October 3, 1878.

To all whom it may concern:

Be it known that we, EDWARD A. ADAMS and JAMES K. P. NOURSE, of West Medway, of the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Pegging Boots or Shoes; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figures 1 and 2 are opposite side elevations, Fig. 3 a front view, and Fig. 4 a longitudinal section, of a machine embodying our invention. Fig. 5 is a top view; Fig. 6, a horizontal section; Fig. 7, a vertical section; Fig. 8, a side view; Fig. 9, a bottom view; and Fig. 10 is a transverse section of the head, to be described. The remaining figures are hereinafter referred to or explained.

The said machine is designed to insert in a sole simultaneously two pegs of two separate rows of pegs, and it may be used also for inserting the pegs of a single row. It can also be employed for pegging a tap-sole across it, and close to its rear end.

The principal elements or instrumentalities of such machine are two awls to puncture the sole, two peg-drivers, a sole or work feeder, a knife to cut through and separate pegs from two strips of wood, rollers for feeding the strips, and guides for such strips, and for reception of the pegs and their devices, all being arranged substantially in manner and provided with operative mechanism as hereinafter explained.

In the drawings, A denotes the frame, B the head, and C the driving-shaft, of the machine. D is the carrier for the awls *a a*, and E that for the peg-drivers *b b*, there being two awls and two peg-drivers, all of which slide vertically in the head B, and are arranged therein in manner as represented.

The driving-shaft is provided with one fast pulley, *c*, and one loose pulley, *d*, and there is fixed on such shaft at its front end a crank, *e*, to whose wrist and to the awl-carrier D a connecting-rod, *f*, (shown in dotted lines in Fig. 3, also shown in Fig. 4,) is pivoted, such crank and connecting-rod during each revolution of the shaft serving to produce a reciprocating vertical motion of the said carrier D, and to cause the awls to simultaneously puncture and be withdrawn from the sole preparatory to each advance of it to receive two pegs to be driven in separate rows.

To effect the upward motion of the peg-driver carrier E, there extends from it a projection, *g*, and there also extends from the connecting-rod *f* a projection, *h*, such projections being represented in dotted lines in Fig. 3. Just previous to a rise of the awl-carrier D the connecting-rod will move the projection *h* underneath the projection *g*, whereby, on the connecting-rod being moved upward by its crank, the peg-drivers carrier will be forced upward, and will continue to rise until the projection *h* may be moved by the connecting-rod from under the projection *g*. On this latter taking place, the peg-drivers carrier, with the peg-drivers, will be set free, and be smartly depressed by the reactive force of the compound spring F, fixed to the top of the frame A, and provided with a cup, *i*, to bear on the adjustable spherical head *k* of the carrier E, which head screws upon the upper part of the said carrier, which is provided with a set-nut, *l*, to maintain the head in place. At the termination of the downward movement of the peg-drivers carrier, the set-nut brings up against a leather washer or cushion, *m*, placed on top of a stationary tubular column, *n*, through and in which the said carrier slides and is guided, it being further guided by the awl-carrier D, whose guides are shown at *o o*.

The pair of peg-drivers *b b* are short rods, which are fixed to a head, *p*, of the carrier E by means of two clamp-plates, *r r*, and screws *s s*, all being formed and arranged as shown in detail in Figs. 11, 12, and 13, the first of such figures being a front view, the second a horizontal and transverse section, and the third an inner side view of the peg-drivers and lower portion of their carrier. The head *p* and the clamp-plates are provided with vertical grooves or recesses for receiving the two drivers *b b*. The awls are fixed to the head *q* of their carrier by like clamp-plates and screws.

The awls *a a* and peg-drivers *b b*, arranged as shown, play vertically in grooves or guide

channels *t t u u*, made in two of three plates, *v w x*, arranged as shown, and fastened by screws *y* to the head.

In the plates *v* and *w* and the head B is a channel, Z, for the introduction and guiding of two strips of peg-wood to and into the channels *u u*, such channel Z being arranged as shown in Figs. 6 and 7. Within the channel Z, and extending across the rear peg-driver channel, *u*, is a low lip, c^1, which serves to aid in separating the strips of peg-wood, and directing the pegs cut from them into the channels *u u*.

Fig. 14 is an inner side view, and Fig. 15 is an inner edge elevation, of the outer plate, *v*, Fig. 16 being a side view, and Fig. 17 a rear edge view, of the plate *w*. Fig. 18 is the other or opposite side view of the plate *w*, showing its grooves for reception of the awls. Fig. 19 is a side view of the plate *x*, showing its grooves for reception of the awls.

Besides the lip c^1, to separate and guide the peg-wood strips, as described, there is above it another lip or spring, d^1, which extends down from one of two guides, e^1 f^1, whose lower edges bear against the upper edges of the strips of peg-wood, in order to guide them and to keep the strips down upon the lower edge of the channel Z. The lip d^1 projects down between the two strips of peg-wood. The guides e^1 f^1 are arranged side by side in the upper part of the channel Z, and are fastened to the head B, or a projection therefrom, by a screw, g^1, going through holes or slots in ears h^1 i^1, projecting from the said guides.

Fig. 20 is a top view, Fig. 21 a side elevation, Fig. 22 an outer end view, and Fig. 23 an inner end view, of the larger of such guides—viz., that marked e^1. Fig. 24 is a top view, Fig. 25 a side view, and Fig. 26 an inner end view, of the other or lesser of the guides, or that marked f^1.

Each guide has a vertical slot, k^1, in its ear. The shank of the fastening-screw g^1 goes through these slots, and they enable the guides to be set at or adjusted to different altitudes above the bottom of the channel Z, as the depths of the strips of peg-wood may require, whether the two strips may be of the same or different depths, it being sometimes desirable to have the pegs of one row longer than those of the other.

When the machine is to be used for driving but one row of pegs, there should first be inserted in the channel Z, and fastened to the head, a strip of metal of the thickness of one strip of peg-wood, such strip of metal being extended into the passage to a cross-passage, l^1, (see Figs. 6 and 14,) for reception of the peg-cutter G, which, at proper times, cuts through the strips of peg-wood and brings up against or nearly against the inner edge of a stop-plate, H, inserted in a passage, m^1, (see Fig. 6,) in continuation of and a little wider than the passage l^1.

The compound spring F is composed of two springs, n^1 o^1, the upper of which is pivoted at its outer end upon a block, p^1, extending up from the lower spring. A screw, q^1, fastened to the inner side of the block, goes up through the upper spring, and has screwed upon it a nut, r^1, such screw and nut being to vary the pressure of the compound spring on the peg-driver carrier as occasion may require, to cause it to perform to advantage.

The mechanism for intermittently feeding the two strips of peg-wood along in the channel Z is thus described: I I are two feed-rollers, arranged with respect to the said channel Z in manner as shown in Fig. 6, one of them being exhibited in Fig. 7. Their lower journals are provided with connecting-gears s^1 s^1. (See Figs. 1, 3, 7, 8, and 9.) One of such rollers has a ratchet-wheel, t^1, fixed on its upper journal, such wheel being turned by an impelling-pawl, u^1, pivoted to the outer arm of an angular lever, K, to which the peg-cutter G is fastened, and by which it is worked. Such lever, arranged as shown in Figs. 1 and 3, and pivoted to an arm, v^1, projecting from the frame, has a friction-roller, x^1, applied to its inner arm and projected into the groove of a cam, w^1, fixed on the driving-shaft. There is also attached to the pawl and the lever a spring, y^1, to keep the pawl up to the periphery of the ratchet-wheel.

In each revolution of the cam, not only will the feed-rollers be put in operation, but the knife will be moved at the proper periods, the whole being in a manner to feed the two strips forward, and to separate from them two pegs at once, which, being fed into the channels of the peg-drivers, will be driven down through them into the sole, when the drivers may be forced downward.

A friction clamp or brake, as shown at L, is applied to the frame and one journal of one of the feed-wheels, such being to keep such feed-wheels from turning too readily. One of the feed-rollers is carried by an arm, M, hinged, as shown, to the part N, which carries the other.

A screw, Z′, going through a helical spring, a^2, and the part N, and pivoted to the arm M, is provided with a nut, b^2, which, with the spring, serves to regulate the distance of one feed-roller from the other.

The next part of the machine to be described is the mechanism for intermittently feeding the boot or shoe along.

On the outer end of a horizontal shaft, c^2, arranged as shown, is a feed-wheel, O, such shaft being provided, near its inner end, with a ratchet-wheel, d^2, with which an impelling-pawl, e^2, engages. This pawl projects from an arm, f^2, encompassing an eccentric, g^2, fixed on the driving-shaft. The pawl is borne up to the wheel by a spring, h^2, and while rising is forced off the wheel by a pin, i^2, all being arranged and formed as shown in Fig. 29, which is a side view of such parts. The pawl inclines inward, and in rising bears against the pin, in

consequence of which the pawl will be estopped by the pin from falling back too far on the wheel.

The eccentric, in revolving with the driving-shaft, will cause the pawl to operate the ratchet-wheel intermittently, so as to cause the feed-wheel to intermittently move the shoe, which is to be borne up against it by a jack or other suitable means.

The mechanism next to be described is that for guiding the sole and gaging the distance of the rows of pegs from the edge thereof.

A rocker-shaft, k^2, arranged as shown, carries two arms, l^2 m^2, which are provided at their outer ends with gage-rollers n^2 o^2. The arms are projected in opposite directions from the shaft. There is also to the shaft another arm or handle, p^2, for revolving it. The shaft turns and slides freely in brackets q^2 r^2, the rear one of which is provided with a cam, s^2, for the arm p^2 to bear against while being raised up or down. While the said arm is being moved upward it will be borne against the cam, whereby the shaft will not only be partially revolved, but will be slid forward, so as to cause the outer gage-roller and its arm to move clear of the head B and be drawn to place. A lip, p^3, by acting against the arm p^2, serves to retain the outer gage-roller in position. A helical spring, t^2, applied to the shaft, operates to retract it against an inclined plane or cam, u^2, projecting from a bent lever, v^2. A side view of the lever and inclined plane is given in Fig. 27, a top view of them being shown in Fig. 28.

Furthermore, there is to the arm p^2 a slide-bolt, w^2, and a lever, x^2, and spring y^2, to operate such bolt, the bracket r^2 next the arm being provided with two holes to receive the bolt, and thereby lock the arm at either of its terminal positions.

The inclined plane u^2 serves, when the machine is used in pegging one row only at a time, to vary the distance of retraction of the shaft, to adjust the gage-rollers, to cause the pegs of the second or inner row while next being made to be inserted at a proper distance from the first row.

By means of the two gage-rollers the edge of the sole may be guided from either side of the feed-wheel, the outer gage-roller being intended to be used when pegging is being carried on across the rear portion of a tap-sole, in which case the rear end of the sole is borne against the outer roller, the upper roller being out of the way of the work in its path of movement.

We do not claim a pegging-machine having a single awl and a single peg-driver, a peg-cutter, and mechanism for feeding the work to be pegged, and a single strip of peg-wood to the cutting-knife and peg-driver, such being old and well known.

What we claim as our invention is as follows, viz:

1. A pegging-machine constructed substantially as described—viz., with two awls to puncture the sole, two peg-drivers, a feeder for the work to be pegged, a knife laterally operating to separate by one stroke two pegs from the strips, guides for the two strips of peg-wood, and for the reception of the pegs and their drivers, and for guiding the pegs to the sole, and, lastly, rollers for feeding the strips of peg-wood, relatively to the knife, along the divided passage Z, having the form and location shown, all being arranged essentially in manner and having the specified mechanism for actuating the said awls, peg-drivers, and knife, and work and peg-strip feeders, as described and shown.

2. The combination of the three plates v w x, grooved, channeled, and slotted, substantially as described, for reception of the awls and drivers, and the peg-wood and its cutter, and for discharge of the pegs, as set forth.

3. The combination of the peg-wood-receiving and guide channel Z, and the lips c^1 d^1 thereof, for separating the two peg-strips and guiding them to the peg-drivers channels u u, with such channels and the cutting-knife G, arranged and to operate with the said channel Z, and on the peg-wood, substantially as specified.

4. The means for operating the ratchet-wheel of the shaft of the feed-wheel O, consisting of the bent pawl e^2 and its eccentric g^2, the spring h^2, and the pin or stud i^2, all arranged and applied as set forth.

5. The means for operating the peg-wood-feeding rolls I I and the knife G, for cutting the peg-strips, consisting of the gears s^1 s^1, grooved cam w^1, angular lever K, ratchet-wheel t^1, and pawl u^1, all being arranged and applied substantially as set forth.

6. The combination of the separate guides or gages e^1 f^1, for holding the strips of peg-wood down, with the peg-strip-receiving channel Z, and the passages u u, to receive the pegs and their drivers.

7. The compound spring F, consisting of the two springs and their adjusting-screw, applied to each other and to the frame and peg-drivers carrier, all being substantially as set forth.

8. The combination of the movable gages n^2 o^2, provided with mechanism for operating them, substantially as described, with mechanism for intermittently feeding and pegging a boot or shoe, essentially as explained.

9. The combination of mechanism for supporting the gages n^2 o^2 and moving them so as to bring either of them into its proper position to operate with the feed-wheel O, consisting of the rock-shaft k^2, the arms l^2 m^2, the spring t^2, and the cam s^2, all being arranged and applied substantially as set forth.

10. The combination of the arm or handle p^2, and the locking-bolt and its operative lever and spring applied thereto, with the perforated or recessed bracket r^2, and with the mechanism for supporting the gages n^2 o^2 and

moving them so as to bring either of them into its proper position to operate with the feed-wheel O.

11. The bent lever v^2 and its inclined plane u^2, in combination with the rock-shaft k^2, spring t^2, and the arms l^2 m^2, provided with the gages n^2 o^2, to operate with the feed-wheel O, as described.

12. The combination of the projections g h with the peg-drivers carrier E, and the connecting-rod f and crank e, for operating the awl-carrier, such projections serving, as described, to aid in effecting the raising of the said carrier E.

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