2 Sheets--Sheet 1.

T. T. PROSSER.

Machine for Pegging Boots and Shoes.

No. 165,613. Patented July 13, 1875.

Fig. 1.

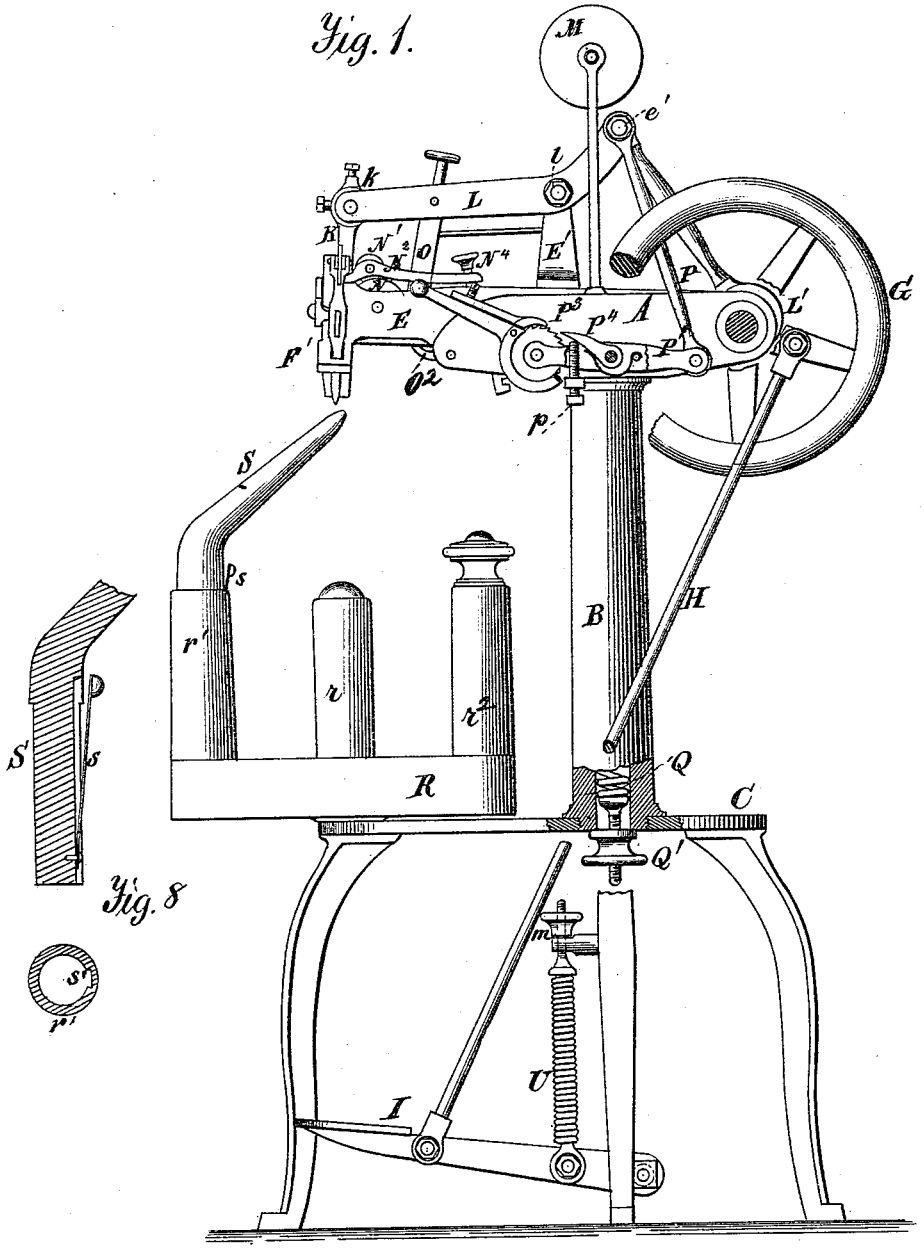

Fig. 8

Witnesses.
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2 Sheets--Sheet 2.

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Machine for Pegging Boots and Shoes.

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Fig. 2.

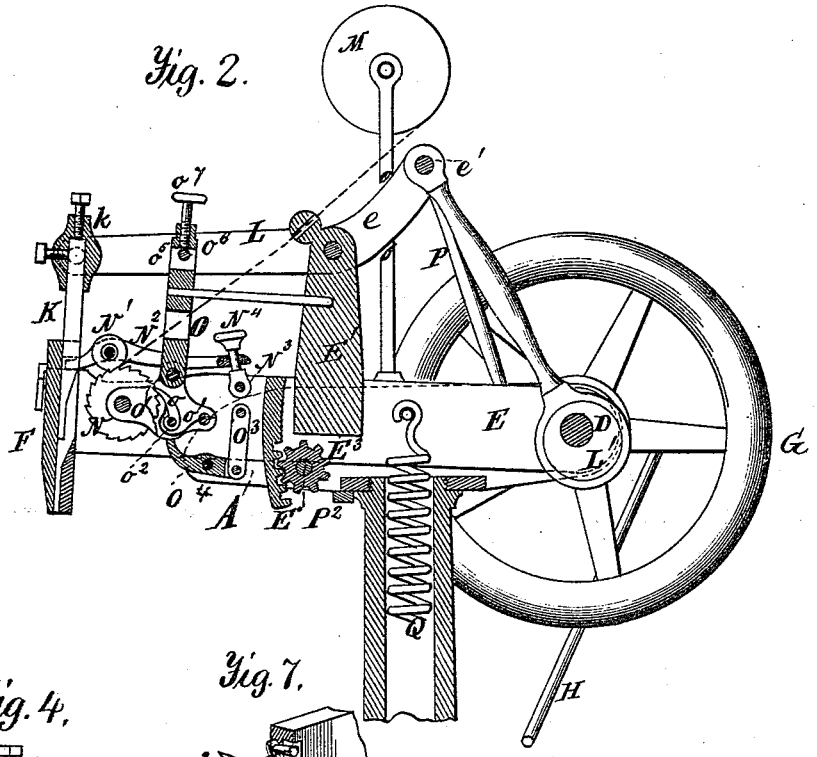


Fig. 7.

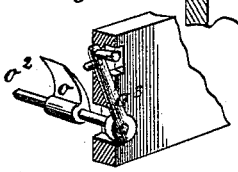


Fig. 4.

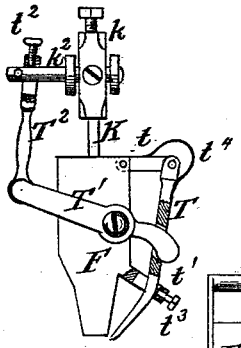


Fig. 3.

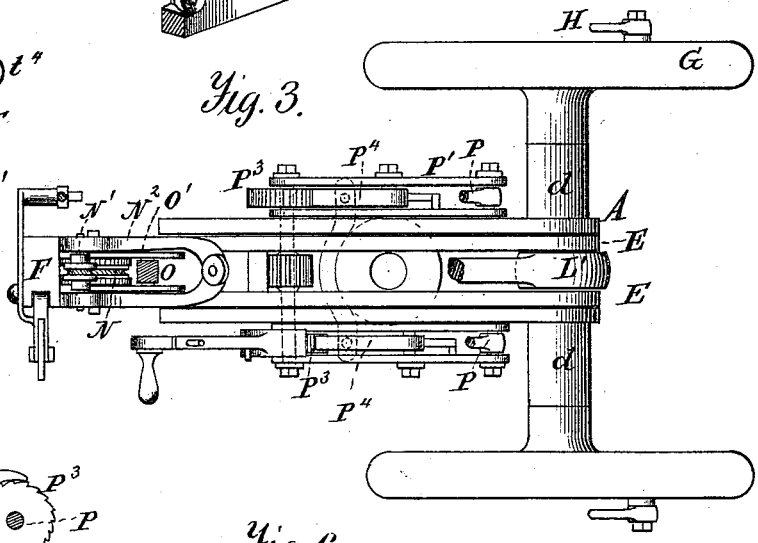


Fig. 5.

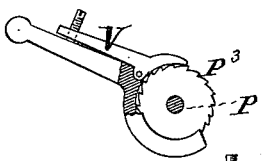
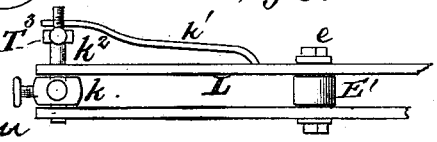


Fig. 6.



Witnesses.
A. Ruppert.
Jos. C. Wildman

T. T. Prosser
Inventor.
D. P. Holloway & Co
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UNITED STATES PATENT OFFICE.

TREAT T. PROSSER, OF CHICAGO, ILL., ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF AND OSCAR L. NOBLE, OF SAME PLACE, AND ALLEN C. CALKINS AND WINSLOW BUSHNELL.

IMPROVEMENT IN MACHINES FOR PEGGING BOOTS AND SHOES.

Specification forming part of Letters Patent No. **165,613**, dated July 13, 1875; application filed April 6, 1875.

To all whom it may concern:

Be it known that I, TREAT T. PROSSER, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Machines for Pegging Boots and Shoes, of which the following is a specification:

The leading features of my invention, contrived with a view of improving the pegging-machine described in the United States Letters Patent No. 145,754, granted to me December 23, 1873, may be briefly enumerated as follows: In the practical operation of the patented machine mentioned it was found that the mode adopted for clinching the pegs was defective. Practical tests demonstrated the fact that the short stubby pegs could not be successfully clinched by a concussive blow, and that if any permanent "set" was effected at all the pegs would merely be bent in the middle; and more especially was this the case when operating on leather of loose or spongy texture. It then occurred to me that a crushing force ought to be employed for upsetting the pegs, and that a firm lateral support ought to be given to them in the leather during the clinching action. To effect these conjoined actions I impart to the driver such a positive reciprocating motion that it will sever, drive, and upset the peg by pressure only; and I compress the leather—that is, the shoe or boot bottom—between the horn (which I now employ for supporting the shoe or boot) and the nail-tube around the peg, previous to the beginning of, and maintain it in a compressed state during, the clinching operation, the pressure being relieved in time for the proper action of the mechanism for feeding the boot or shoe forward.

I use a balanced horn and make it of angular form, standing obliquely at the upper end and vertically at the lower end, thus conforming measurably to the shape of a boot, aside from which, its weight being nearer the center bearing, it has less leverage upon it, and it can be made lighter; and, lastly, I provide for swinging the horn laterally from under the nail-tube, to bring it into position for conveniently applying a boot or shoe. This last feature possesses several other advantages. For instance, it provides for an easy and convenient removal and replacement of the horn, without in any way interfering with the nail-tube. By swinging the supporting-arm away from under the nail-tube the boot or shoe on the horn may at any time be operated upon with a hammer or other instrument, if necessary, and pegs may be cut without interfering with—that is, coming down on—the tip of the horn.

I have also made certain improvements in the mode of feeding the wire from which the pegs are cut, with a view of regulating the length of the pegs to conform to the thickness of the bottom of the boots or shoes; also, of suspending the feed of the wire while the machine continues running, and of accomplishing several other required actions, the means adopted to these ends being fully explained hereinafter. My invention consists lastly of certain novel contrivances for feeding the boot or shoe forward.

In the annexed drawings, Figure 1 is a side elevation of my improved pegging-machine with some portions broken away and others shown in section. Fig. 2 is a sectional side elevation of the head or upper portion of the machine. Fig. 3 is a plan view thereof, some of the parts being in part broken away. Figs. 4 to 8 are detail views, more especially referred to hereinafter.

The same letters of reference are used in all the figures in the designation of identical parts.

The head A of the machine, consisting of two strong plates of metal, is firmly secured on top of a column, B, rising from a stand, C. The rear ends of the plates forming the head are provided each with a fixed tube, *d*, projecting laterally on each side to form suitable bearings for the driving-shaft D, as well as trunnions upon which the arms E of the nail-tube F oscillate, so that the strain on these arms will be transferred directly to the head A, and will not come upon the driving-shaft. The latter carries a fly-wheel, G, at either end, provided with crank-wrists connected by pitmen H to a treadle, I, arranged on the stand C. The driver K, reciprocating up and down

in the nail-tube F, is connected by a head, *k*, to a united pair of rocking arms or beams, L, pivoted on a fulcrum-pin, *e*, in the upper end of the standard E', rigidly secured to the arms E of the nail-tube. The rocking beams L are connected by a rod and strap to an eccentric, L', on the driving-shaft, through means of which they are oscillated to impart the required stroke to the driver. The wire from which the pegs are cut is drawn from a spool, M, by means of the feed-wheels N and N', which are properly milled to corrugate or thread the wire in its passage through between them. The wheel N turns in fixed bearings; but the wheel N' turns in bearings in an adjustable yoke, N², pivoted at one end in the nail-tube, and connected at the other end to the stem of a link, N³, which is pivoted to the arms E of the nail-tube, and is provided with a thumb-nut, N⁴, by adjusting which the distance which wheel N' is permitted to recede from wheel N can be readily regulated to accommodate different thicknesses of wire and govern the depth of the threading. The feed-wheels are intermittingly rotated during each ascent of the driver by a bar, O, lifting a yoke, O', which is pivoted on the axle of wheel N, and carries a pawl, *o*, which operates upon ratchet-teeth on the rim of said feed-wheel. The pawl *o* is kept in gear with the ratchet-teeth by a spring, o^1. However, its fulcrum-pin o^2, on which it is rigidly secured, extends through an elongated aperture in one of the arms E, and is on the exterior side of such arm provided with a short crank-arm, o^3, by means of which it may be turned to throw the pawl out of gear.

The crank o^3 may be a spring, as shown, capable of engaging, by a short stud, in a groove, o^4, in the arm E, said groove being elongated vertically, so that the stud of crank o^3 may move up and down in it in accordance with the movements of the connected bar O, yoke O', and pawl *o*. In this way the feed action can be conveniently suspended at any time, while the machine continues running. This mechanism is best seen in Fig. 7.

The bar O, pivoted at its lower end to yoke O', has a slot, o^5, in its upper end, through which a fixed pin, o^6, in rocking arms L passes. This pin o^6, striking the upper edge of slot o^5 on the ascent of the driver, lifts the bar O, and thus moves the feed-wheels to advance the wire into the nail-tube. The slot o^5 is made so long that pin o^6 will never touch its bottom on the descent of the driver.

Instead of permitting pin o^6 to act on the upper edge of slot o^5 directly, in which case no primary adjustment to regulate the length of the pegs could be effected under the described organization of the parts, I cause it to act on a set-screw, o^7, by adjusting which the effect of the upstroke of pin o^6 on bar O can be conveniently governed.

The descent of yoke O', and, consequently, the motion of pawl *o* down on wheel N is arrested by the free arm of a check-lever, O², fulcrumed on the fixed head A, and with its other arm connected by a link, O³, to the arms E of the nail-tube.

Thus it will be observed that any change in the elevation of the nail-tube, consequent upon the varying thickness of the bottom of a boot or shoe moving under it upon the horn, will produce a corresponding rise and fall of the free arm of the check-lever, which, by varying the descent of pawl *o*, governs the periodical feed of the wire and the length of the peg.

Of course, the primary adjustment for regulating the length of the peg is effected by set-screw o^7; but after once starting the thickness of the shoe or bottom, itself, as it varies, changes the length of the pegs accordingly, the relative motions of the nail-tube and check-lever being so contrived that a change in the thickness of the bottom will effect a corresponding change in the length of the peg.

The construction of the interior of the nail-tube and of the driver, and the position of the feed-wheels, with reference to them, for effecting the partial heading, shearing, and pointing of the pegs, are the same as set forth in the patented machine aforementioned.

A torsion-spring, k^1, Fig. 6, is used to so act on the head *k* of the driver as to keep the latter in close contact with the front wall of the nail-tube.

From the pin *e'*, which connects the eccentric rod to the rocking arms L, connecting-rods P reach down, and are pivoted at their lower end to a pair of levers, P', on either side of the head A. These levers are pivoted on a shaft, P², supported on the head A, and carrying within or between the plates of this head a pinion, E³, meshing into a segmental rack, E², fixed on the arms E of the nail-tube. Fixed on the opposite ends of shaft P² are also two ratchet-wheels, P³, one being located between each pair of levers, P', as best seen in Fig. 3. A pawl, P⁴, is connected to each pair of levers, to act upon the corresponding ratchet-wheel, to give a partial rotation to shaft P² at each descent of driver K. The pinion E³, being thus rotated, will force the rack E² down, causing a depression of the nail-tube, so that a firm compression of the shoe or boot soles between it and the horn will be effected. This depression of the nail-tube begins before the driver begins to clinch, and continues during the upsetting of the peg. The degree of compression is regulated according to the quality and condition of the soles by set-screws *p*, arranged under the pawls P⁴, by adjusting which the action of the pawls on the ratchet-wheels can be governed.

In this connection it is proper to state that the effect aimed at may be accomplished by the use of a fixed nail-tube and an intermittently-rising horn, the mechanism being, of course, suitably changed.

The nail-tube bears down forcibly, as usual, upon the boot or shoe during the intervals between the compressions just described, it being held down first by its own weight and

that of its adjuncts, and, secondly, by the stress of a spring, Q, in the hollow column B, the tension of which can be regulated by the nut Q′.

The arms E of the nail-tube should be provided with rubber or other buffers at such points on the under side where they would be likely to come into contact with any parts on head A when the horn is removed from under the nail-tube, and the latter can descend unobstructed by it.

The horn S is supported in the frame R, which is centrally pivoted on a spindle projecting upward from the stand G into socket r of the frame. The horn S, of the angular form shown, is supported, by one arm, in the vertical socket r^1 of frame R, and its other arm, in length about equal to the length of a shoe, extends in an oblique direction upward, bringing the tip, when adjusted for work, directly under the nail-tube.

The horn can be swung around in its socket to turn the tip away from the nail-tube; but it is provided with a spring-catch, s, which engages a groove, s', in socket r^1 whenever the tip is brought into position under the nail-tube, holding the bar firmly in position. The length of the vertical arm of horn S and its socket r^1, when united as shown in Fig. 1, is about the length of an ordinary boot-leg. At the other end frame R has a solid handle, r^2, which affords a convenient means for turning it when the horn stands toward column B, and helps also to balance the horn on its center bearing. This balancing is effected by properly weighting the end of frame R opposite to the horn, either by casting it heavier, or by loading it with lead. The described construction of the horn admits of the use of a cast frame, and a wrought-iron horn proper with a steel tip.

The boot or shoe is fed forward by a pointed feed-bar, T, connected at its upper end by a link, t, to the nail-tube. Its lower bent end extends through a loop, t^1, on the nail-tube, and it is actuated by a lever, T^1, and a pitman, T^2, the lever being pivoted on the nail-tube, while the pitman is connected to the trunnion k^2 of the head of the driver, as best seen in Fig. 4. The trunnion operates in a slot in the pitman, and alternately lifts and depresses the same as the driver ascends and descends, by bearing on the bottom of the slot and on a set-screw, t^2, passing into the top of the slot. The effect of the upstroke of the driver on the pitman T^2, which causes the feed-bar T to advance the boot or shoe on the horn, does not begin to take place until the shoe or boot has been relieved from compression by the nail-tube; and the degree of feed is regulated by adjusting the set-screw t^2. The guide or loop t^1, acting on the curved or bent end of the feed-bar, causes it to move laterally to effect the feeding, at the same time that it moves vertically to take hold of the sole. It is necessary to so dispose the feed-bar that it will act close up to the nail-tube, no matter whether the feed be more or less, in order to operate properly in going around the toe of a boot or shoe. This is accomplished by adjusting a set-screw, t^3, in the loop to compel the feed-bar to advance close up to the nail-tube under varying feed-motions. The feed-bar is held in contact with screw t^3 by the stress of a spring, t^4.

Two springs, U, (one only being seen in the drawings,) act upon the treadle I so as to draw it up on stopping the machine. When the treadle is thus lifted to about the terminus of its upstroke the pawls P^4 have been lifted out of the teeth of the ratchet-wheels P^3, relieving the nail-tube and its arms of the action of the pinion and rack, so that it may be easily lifted to release the boot or shoe. The tension of the springs U can be duly adjusted by nuts m.

For conveniently lifting the nail-tube and its connections I provide one of the ratchet-wheels P^3 with a handle, V, by turning which the shaft P^2 can be rotated, to raise the nail-tube, by means of the rack and pinion. The handle is adjustable on the wheel, and is preferably constructed and connected as shown in Fig. 5.

The machine may, of course, be driven by a belt or gearing instead of a treadle.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The nail-tube F and its arms E, in combination with the segmental rack E^2 and pinion E^3, substantially as specified.

2. The combination of the nail-tube and its arms with the rack E^2, pinion E^3, shaft P^2, ratchet-wheels P^3, pawls P^4, and levers P^1, substantially as and for the purpose specified.

3. The adjustable set-screws p, in combination with the pawls P^4, ratchet-wheels P^3, and levers P^1, substantially as and for the purpose specified.

4. The combination of the nail-tube and its arms with the rack E^2, pinion E^3, shaft P^2, ratchet-wheels P^3, pawls P^4, levers P^1, connecting-rods P, rocking arms L, and driver K, substantially as and for the purpose specified.

5. The swinging nail-tube and its arms, in combination with the spring Q and adjusting-nut Q′, substantially as and for the purpose specified.

6. The horn S, adapted to turn laterally in the socket r^1 independent of the frame R, substantially as and for the purposes specified.

7. The horn S, provided with spring-catch s, in combination with the socket r^1 of frame R, having groove s', substantially as and for the purpose specified.

8. The horn S, supported by the balancing-frame R, having sockets r and r^1 and handle r^2, substantially as and for the purposes specified.

9. The feed-wheel N, in combination with bar O, yoke O^1, pawl o, check-lever O^2, link O^3, and the nail-tube and its arms, substantially as and for the purpose specified.

10. The combination of the slotted bar O o^5, set-screw o^7, and pin o^6, in the rocking arms L of the driver, substantially as and for the purpose specified.

11. The combination of pawl o, spindle o^2, spring-crank o^3, having an inwardly-projecting stud at its outer end, and groove o^4 in arm E, substantially as and for the purpose specified.

12. The feed-wheel N^1, in combination with yoke N^2, link N^3, and nut N^4, substantially as and for the purpose specified.

13. The combination of the bent or curved feed-bar T, link t, loop t^1, lever T^1, pitman T^2, and trunnion k^2 on the head of the driver, substantially as specified.

14. The feed-adjusting screw t^2, in combination with the adjusting-screw t^3, for governing the stroke of the feeder at the same time, substantially as and for the purpose specified.

15. The feed-bar T and link t, in combination with the spring t^4, guide or loop t^1, and set-screw t^3, substantially as and for the purpose specified.

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

TREAT T. PROSSER.

Witnesses:
B. EDW. J. EILS,
O. L. NOBLE.