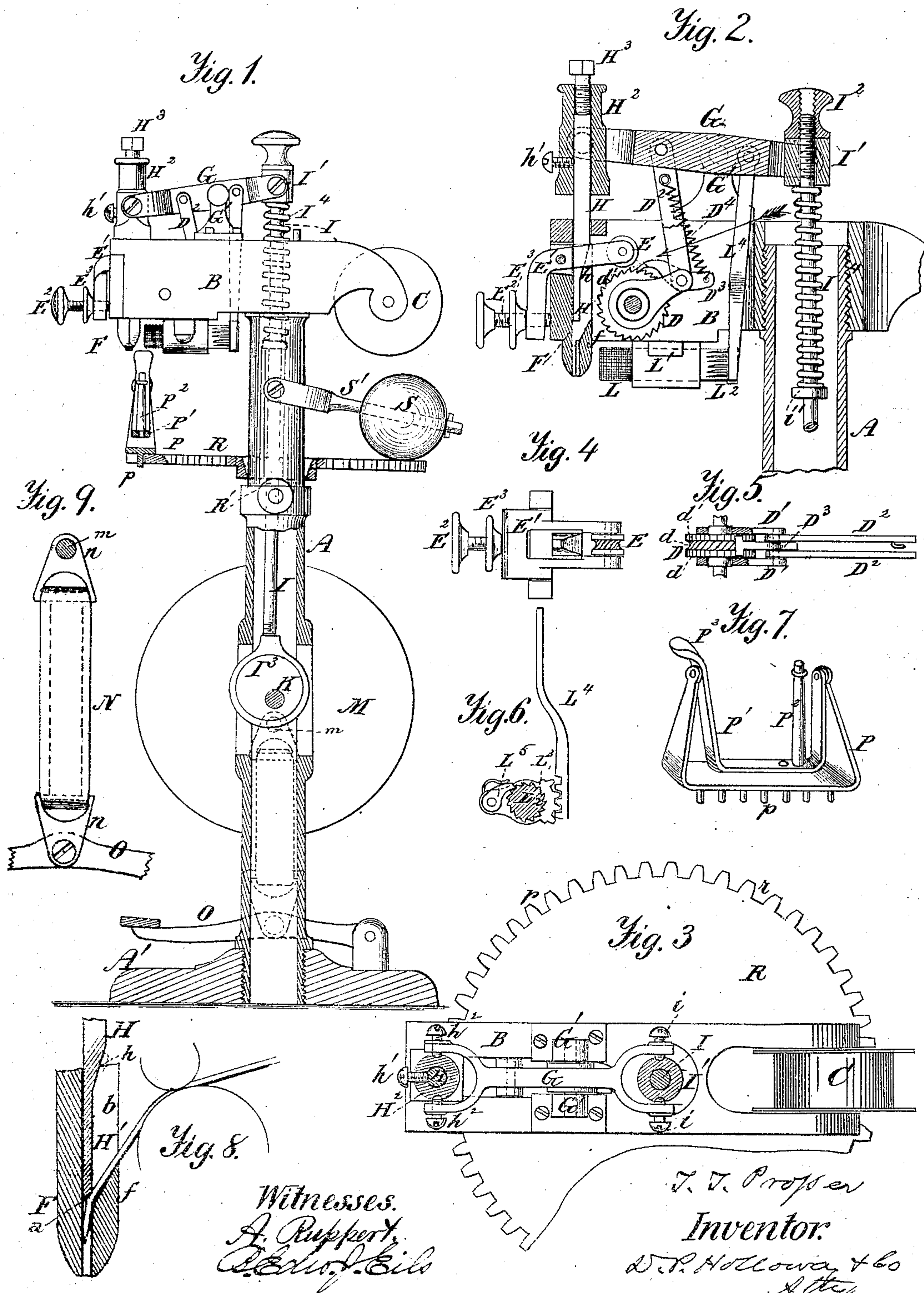


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Pegging-Machines for Boots and Shoes.

No. 145,754.

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IMPROVEMENT IN PEGGING-MACHINES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **145,754**, dated December 23, 1873; application filed July 21, 1873.

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:

This invention relates to that class of machines for pegging boots and shoes in which the pegs or nails are successively cut from continuous lengths or coils of wire, and deposited in a tube or barrel, to be forced, by means of a reciprocating driver, into the sole of the boot or shoe borne up against the end of said barrel. My improvement consists, first, in such an organization of mechanism that on each down stroke of the driver it first turns down from one side of the wire a chip or fin to form a one-sided head on the nail immediately afterward sheared from the wire, and then, simultaneously with driving the nail thus cut into the boot or shoe, delivers a blow upon the end of the wire, pointing it for the next nail; and, secondly, of certain novel devices constituting the jack for supporting and guiding the boot or shoe.

In the annexed drawings, Figure 1 is a sectional elevation of my improved pegging-machine. Fig. 2 is a vertical longitudinal section through the head. Fig. 3 is a sectional plan view. Figs. 4 to 9 are views of details, to be more specifically referred to hereinafter.

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

The frame of the machine consists of a tubular standard or post, A, and an overhung head, B, carried on the upper end of the post, the lower end of which terminates in a suitable base, A'. The wire, wound upon a spool or reel, C, is passed from above into the slotted part of the head B, and between the feed-wheels D and E, which direct it obliquely into the upper end of the tube or barrel F, which is secured in a vertical position to the outer end of the head B. The shaft of the feed-wheel D turns in fixed bearings, and receives an intermittent rotating motion from the rocking beam G through the connecting-rods D², which are, at their lower ends, pivoted to crank-arms D¹, turning on the shaft of the feed-wheel. The same pin which connects the cranks D¹ with the rods D² also passes through, and serves as a fulcrum for, the pawl D³, which has a trans-

versely-elongated bit to engage the ratchet-teeth *d'* formed on the rims, which border on the concaved milled groove *d* of the feed-wheel. The other end of the pawl D³, extending beyond its fulcrum, is connected to one end of a spiral spring, D⁴, which is secured to one of the rods D², and holds the bit of the pawl in contact with the ratchet-teeth *d'*. The feed-wheel E is carried on the horizontal bifurcated arm of the bell-crank E¹, which passes through a slot in the end of the head B, where it is pivoted so that its vertical arm hangs down in front of the head. The elevation of the feed-wheel E, which governs the space between it and the feed-wheel D to adapt them for feeding various numbers of wire, is regulated by the set-screw E², which turns in a thread tapped in the lower end of the vertical arm of the bell-crank, and bears with its end against the head B. The jam-nut E³ locks the set-screw after adjustment. The front side of the nail-tube F forms a projection on the detachable end plate of the head B. The rear or inner side of the nail-tube is riveted to the front side, and extends with a shank, *f*, up into the guides or ways *b b*, between which the driver H moves. The end of the shank *f* is oblique, having an angular surface, as best seen in Fig. 8. In feeding the wire over the oblique end of the shank *f* it strikes the opposite side of the barrel, and is bent down into the aperture thereof, in the manner substantially as shown in Fig. 8, each motion of the feed-wheels projecting it the required distance into the nail-tube, to form a nail when cut, at the lower inner edge of the shank *f*. The driver H, carried on the outer end of the long arm of the rocking beam G, passes through an aperture in the top plate of the head B, between the guide-bars *b b* on the back of the end plate of the said head. Its lower end H¹ is reduced in size, and fits snugly in the square aperture of the nail-tube, which is of somewhat greater area in cross-section than the wire. At the junction of this reduced end with the main stem an inclined or beveled surface, *h*, is formed upon the inner side of the driver, and its down stroke is so regulated that it will carry the lower end of this beveled surface down to the lower inner edge of the inclined or oblique end of the shank *f*, with which it then forms an acute angle. The driver

in its most elevated position hangs with its reduced end over the nail-tube, leaving sufficient space between it and the shank f thereof, for the passage of the wire. Its main stem is inserted in a socket, H^2 , abutting against the screw-bolt, H^3 , which can be adjusted to regulate the length of the protruding end of the driver. The set-screw h^1 holds the driver in position in the socket. The latter is pivoted in the fork of the rocking beam G by pivot-centers h^2 h^2 , as best seen in Fig. 3. The rocking beam G turns on trunnions in bearings of the standards G' mounted upon the top of the head B , and reaches with its short arm over the tubular post A , to be attached, by pivot-centers i i , to a loose collar or sleeve, I^1 , on the eccentric-rod I . This rod, which is screw-threaded upon its upper end, passes through the sleeve, and, projecting above the same, receives a nut, I^2 , to secure it. The rod I passes down into the tubular post A , and is, at its lower end, secured to the strap of the eccentric I^3 upon the driving-shaft K . In its downward throw the eccentric acts directly through its rod upon the rocking beam G , but its upward throw is transmitted thereto through the spiral spring I^4 , which encircles the eccentric rod between the fixed collar i' thereon and the sleeve I^1 . Thus, as the eccentric-rod begins to ascend, the spring will, without further compression, oscillate the rocking beam until the descent of the driver H is checked by the protruding end of the wire in the nail-tube. The eccentric-rod, continuing its ascent, now compresses the spring; but the driver H also continues moving, though it is retarded by the wire, which it cuts into obliquely, turning down a chip or fin, a , as seen in Fig. 8, which forms the head of the nail being severed. The tension of the spring is so regulated that just before the eccentric completes its upward throw it will have become so stiff as to act like a rigid bar upon the rocking beam to force the driver H through the wire, cutting off a nail therefrom. The moment the nail is thus sheared off the spring I^4 recoils, and causes the driver H to deliver a quick blow upon the nail, driving it through the sole of the boot or shoe. At the same time the beveled surface h of the driver delivers a sharp blow upon the obliquely-cut end of the wire resting upon the beveled end of the shank f , and completes its pointing. The boot or shoe should be drawn on an iron last, so that the nail will be upset at both ends. The normal tension of the spring I^4 is regulated by the nut I^2 , and is diminished or increased according as the machine works with thicker or thinner wire. Whenever the tension of the spring is regulated, the length of the protruding end of the driver must also be changed in such a manner that the rise and fall of its lower end will always be through the same space. This adjustment of the driver is necessitated by the change in the position of the rocking beam caused by the adjustment of the spring I^4 . The downward throw of the

eccentric operates the feed-wheel D , which, in conjunction with its fellow E , projects the pointed wire into the nail-tube to a length sufficient to form a nail, when severed by the next descent of the driver. It also turns the feed-roller L , bearing with its corrugated surface against the boot or shoe, and thus advances the latter the distance which the next nail shall be from the one just driven. The journal of this overhung feed-roller turns in the hanger L^1 , through which it projects, terminating in a ratchet-wheel, L^2 . (See Figs. 2 and 6.) A short hub or stud is formed upon the outer face of this ratchet-wheel to receive a lever, L^3 , one arm of which terminates in a segmental pinion, meshing into the rack on the lower end of the connecting-rod L^4 , which is suspended from the rocking beam. The other arm of the lever L^3 carries a spring-pawl, L^5 , which engages the teeth of the ratchet-wheel L^2 . The lever turns loosely on the hub of the ratchet-wheel L^2 , and imparts through its pawl an intermittent rotation to the feed-roller. The driving-shaft K projects through its bearings, and carries upon each end a fly-wheel, M , provided each with a crank-pin, m , which are connected, by the pitmen N , to the lever-arms of the treadle O . The crank-pins m are so arranged that the down-stroke of the treadle effects the upward throw of the eccentric I^3 . To provide against sudden jars upon the treadle resulting from the recoils of the spring I^4 , I construct the pitmen N of straps of leather or other flexible material, and provide such straps at each end with a metallic yoke, n , by which they may be connected to the pins or wrists on the fly-wheels and treadle. The fly-wheels are made of such size and weight that their momentum, gathered on the down-stroke of the treadle, will be more than sufficient to complete the revolution of the driving-shaft.

The last of the boot or shoe is secured to the heel-pin P^2 of the swinging hammer P^1 , which is suspended from the upper ends of the standards of the support or carrier P . The swinging hammer P^1 is provided with a toe-plate, P^3 , upon which the toe of the boot or shoe rests. The base of the carrier P is provided with a line of downwardly-projecting teeth, p , which are intended to engage with the teeth r on the periphery of the circular platform or disk R , which is to support the carrier P in the manner shown in Fig. 1. The disk R is slipped upon the post A , resting with its short hub upon anti-friction rollers R' , carried on studs upon the sides of the post. The aperture in the center of the disk R , through which the post passes, is tapering, so that, while it fits with its smaller lower end snugly around the post, its larger upper end affords considerable play to the disk, and permits it to readily adjust itself as changes in its position become necessary in operating upon different parts of the boot or shoe. The counter-weight S , carried on the pivoted arm S' , bears down upon the wobbling disk R upon the side opposite to

that where the shoe-carrier P is supported, and must be made sufficiently ponderous to hold the boot or shoe up against the feed-roller L, and the nail-tube against the blows of the driver.

As the shoe is regularly fed forward by the feed-roller L, the position of the carrier P is successively changed by hand by turning it on the disk, so that the nails will be driven along a curvilinear line conforming to the irregular contour of the sole.

In operating with this machine, several carriers P are used, which are successively supplied with boots or shoes, and placed upon the disk R, as required.

I do not propose to claim, broadly, a mechanism which, on the descent of the driver, first forms a headed nail from a length of wire, and then drives the nail into the boot or shoe. The distinguishing characteristic of my invention, as stated in the first claim, consists in the use of a combined cutter and driver, which, in severing a nail, cuts obliquely into the wire, for the purposes explained.

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

1. In a machine for pegging boots or shoes, a driver, H, which first, by an oblique cut, heads and shears a nail from a length of wire, and then drives the headed nail thus cut into the boot or shoe, substantially as specified.

2. In a machine for pegging boots or shoes, a driver, H, which first cuts a nail from a length of wire, and then, simultaneously with driving such nail, delivers a blow upon the end of the wire to point it, in manner substantially as shown.

3. The driver H, having a beveled surface, *h*, in combination with the beveled end *f* of the nail-tube, substantially as and for the purpose specified.

4. The combination of the driver H, having the beveled surface *h*, nail-tube F having the

beveled end *f*, and intermittently-rotating feed-wheels D and E, substantially as specified.

5. The combined nail cutter and driver H, in combination with a spring which, while in a compressed state, forces the driver through the wire, and, by its subsequent recoil, sends the driver to deliver the blow, driving the nail into the boot or shoe.

6. The combination of the combined nail cutter and driver H, rocking beam G, eccentric and rod I³ I, and spring I⁴, substantially as specified.

7. The combination of the vertically-adjustable combined nail cutter and driver H, rocking beam G, sleeve I¹, eccentric and rod I³ I, spring I⁴, and nut I², substantially as specified.

8. The combination of the combined nail-cutter and driver H, rocking beam G, eccentric and rod I³ I, and shaft K, driven by a treadle through flexible pitman N, and carrying fly-wheels M, substantially as and for the purpose specified.

9. The pitman N, composed of a flexible strap and metallic yokes *n n*, in combination with the crank-pin *m* and treadle O, substantially as specified.

10. The combination of the wobbling rotatory disk R and counter-weight S, substantially as and for the purpose specified.

11. A boot or shoe carrier, composed of the parts P P¹ P² P³, substantially as specified.

12. The combination of the toothed wobbling rotatory disk R *r*, and the toothed carrier P *p* P¹ P² P³, substantially as and for the purpose specified.

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

TREAT T. PROSSER.

Witnesses:

D. P. HOLLOWAY,
B. EDW. J. EILS.