(No Model.)

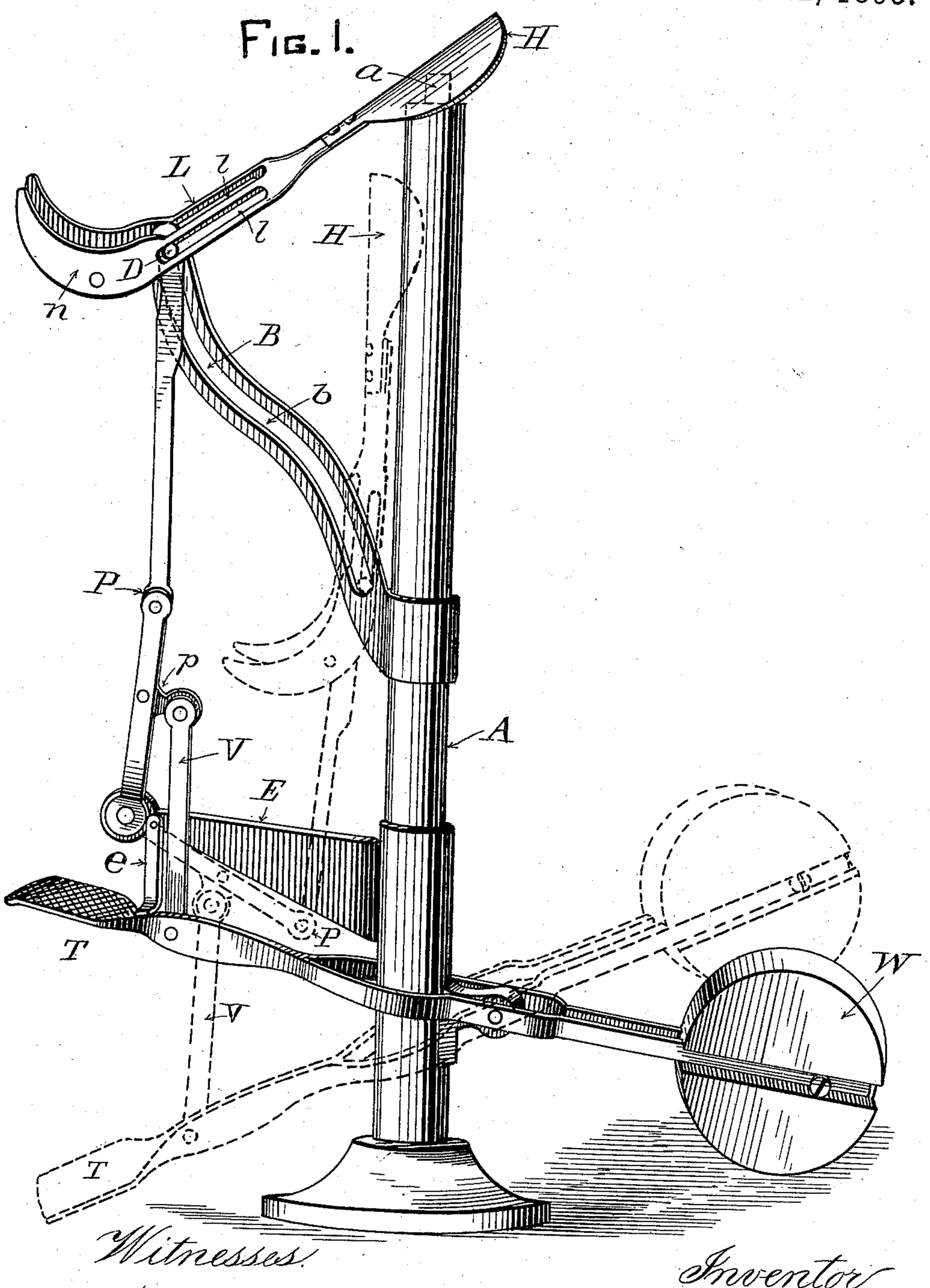
2 Sheets—Sheet 1.

A. D. GARDNER.

RELASTING MACHINE.

No. 535,536. Patented Mar. 12, 1895.

FIG. 1.



Witnesses.
E. E. Winkley.
A. E. Ripley

Inventor.
Andrew D. Gardner
By his Attorney
Benjamin Phelps

(No Model.)

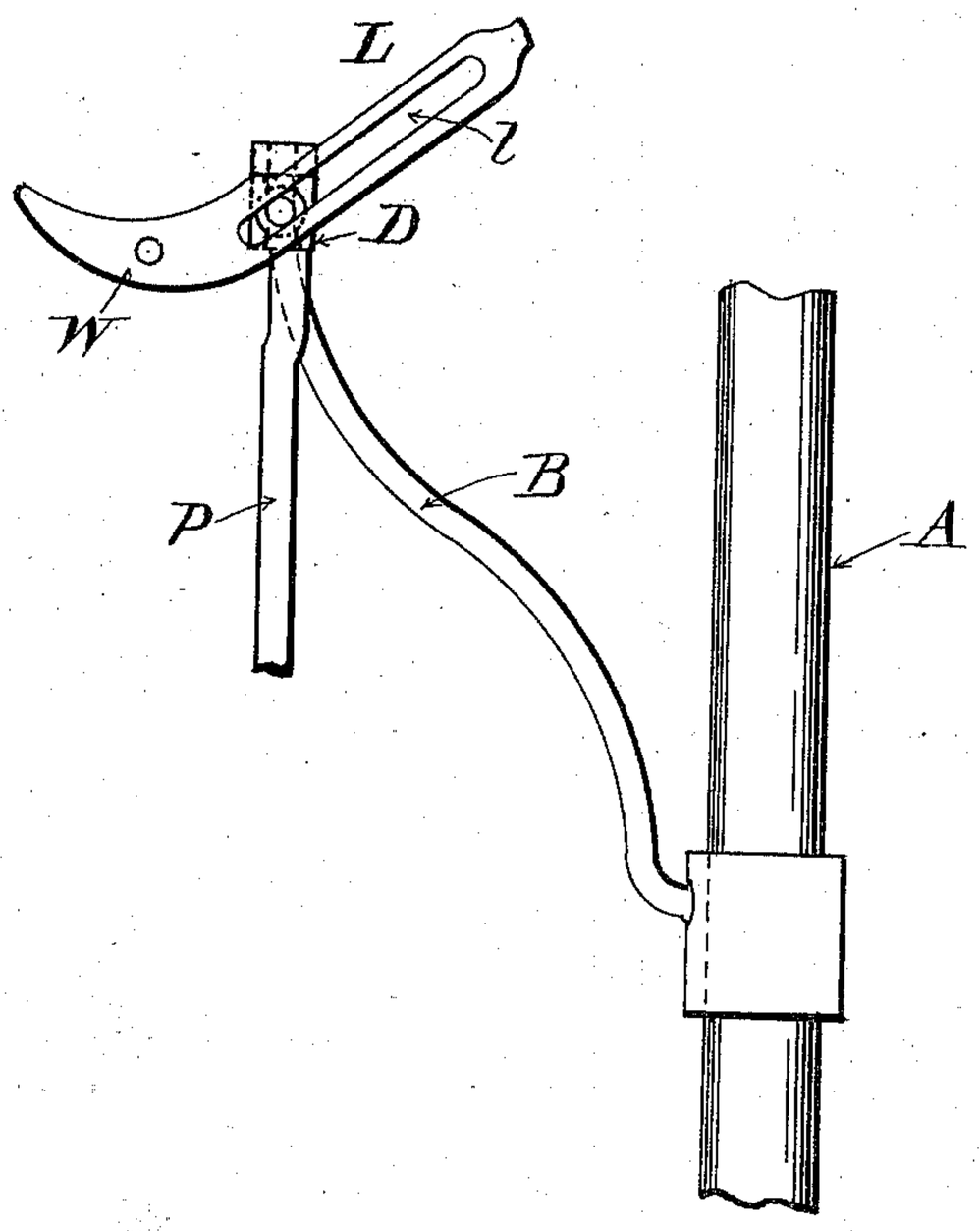
2 Sheets—Sheet 2.

A. D. GARDNER.

RELASTING MACHINE.

No. 535,536. Patented Mar. 12, 1895.

FIG. 2.



WITNESSES.
C. S. Chadwell.
A. E. Hyde.

INVENTOR.
Andrew D. Gardner
By Benjamin Rhodes
Atty

UNITED STATES PATENT OFFICE.

ANDREW D. GARDNER, OF LYNN, MASSACHUSETTS.

RELASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,536, dated March 12, 1895.

Application filed December 21, 1894. Serial No. 532,520. (No model.)

To all whom it may concern:

Be it known that I, ANDREW D. GARDNER, a citizen of the United States, and a resident of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Relasting-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to improvements in that class of relasting machines in which the operation of relasting is performed by a shoe horn interposed between the shoe and the last and "drawn" by a treadle and connected mechanism, and consists of the form and arrangement of the mechanism connecting the treadle and horn as hereinafter more specifically described and claimed.

The object of my invention is to so regulate the action of the horn while being drawn from between the shoe and last in the operation of relasting that no undue strain will be brought on the upper which will tend to tear or otherwise injure the same.

The further object of my invention is to produce a simple and easily operated machine of the class above referred to.

My invention is illustrated by the accompanying drawings, in which—

Figure 1 is a perspective view of a machine embodying the same, and Fig. 2 a side view showing a modification thereof.

In the drawings A represents a standard suitable to support the working parts of the machine, and from the top of which projects the usual spindle *a* by means of which the last is held in position.

D represents the horn guide and B the curved guide way along which the guide D is movable.

As shown in Fig. 1 of the drawings the guide way B consists of a longitudinally curved slot formed in a rigid arm *b* projecting from the standard A, and the horn guide D of a suitable roll movable along the slot B, but it is evident that the guide way B may consist of a longitudinally curved rod, and the guide D of a suitable collar or other device movable along the same, as shown in Fig. 2 or the construction may be otherwise modified without departing from the essential nature of my invention.

T represents the treadle and H the shoe horn. The treadle T is fulcrumed on the standard A and provided with a suitable counter weight W. The horn H may be of the usual form used with this class of machines.

The horn guide D is connected with the horn H and the treadle T by suitable connections whereby a depression of the treadle T moves the guide D along the guide way B and draws the horn H from between the shoe and last.

With regard to the shape or curvature of the guide way B, it will be sufficient to say that the guide way B is curved downwardly and laterally (toward standard A) in such manner that as the guide D passes along the same the horn H is gradually brought into a vertical position and drawn out at the heel without any undue strain on the upper.

I will now describe the mechanisms connecting the horn guide D with the treadle T and horn H, as shown in the drawings, but before doing so I wish to state that I do not consider my invention limited thereto as many equivalent devices will readily suggest themselves to one skilled in the art, the substitution of which would involve no departure from my invention.

To a suitable bracket E on the standard A is pivoted the lower arm of the toggle P, the upper arm of which is forked and pivotally connected with the guide D on each side of the arm *b*. From the lower arm of the toggle D projects a shoulder *p* to which is pivoted a connecting rod V which is also pivoted to the treadle T, the above arrangement being such that by a depression of the treadle T the toggle P is bent and the guide D moved downward along the guide way B, and when the pressure on the treadle is released the counter weight W acts to straighten the toggle P and raise the guide D along the guide way B. A suitable stop *e* on the bracket E limits the upward motion of the treadle.

As shown in the drawings the horn H is mounted upon a horn carrier L which is forked and pivoted on the guide D outside of the toggle P. The horn carrier L is provided with the longitudinal slots *l* and *l* along which the ends of the guide D are free to move so that the horn H may be pushed back and advanced to adjust the same between the shoe and last,

a result which may be also accomplished by substituting for the carrier L a strap or other flexible device suitably connected with the guide D.

As shown in the drawings the carrier L is substantially rigid and rigidly connected with the horn H. The carrier L may be conveniently provided with a suitable counter weight *n* which raises the horn H out of the way of spindle *a*, when not in use, and causes it to drop down over the guide D in position to be advanced and adjusted between the shoe and the last.

The operation of my invention is described as follows:—The fore part of the last being inserted in the shoe, the last is placed upon the spindle *a*, and the horn H is inserted between the last and the shoe, the pivoted slotted connections between the carrier L and guide D providing a convenient means for securing this result. After the horn has been placed in the required position the treadle T is depressed bending the toggle P and moving the horn guide D along its curved guide way B. The curvature of the guide way B determines the motion of the horn H and as the guide D moves along the guide way B, the horn D is drawn over the last and gradually inclined until it reaches the heel when it is drawn in a substantially vertical position along the counter of the last.

In forms of relasting machines as heretofore constructed the treadle connections are so arranged that the power to draw the horn is applied substantially transversely to the direction of its motion along the bottom of the last, and the horn is suddenly inclined and a great strain brought on the upper, as the shoe is being drawn on to the last, particularly across the instep, and shoes are quite frequently torn or otherwise injured thereby. By means of horn guide and its guide way as hereinbefore described, I produce a gradual inclination of the horn as the same is drawn, and secure an even pressure on the upper preventing any danger of injury thereto.

Owing to the arrangement of the toggle P and treadle connection, I also secure a machine that requires little power and can be operated with a short stroke of the treadle.

I claim as novel and desire to secure by Letters Patent—

1. In a relasting machine the combination, with a suitable last support, a shoe horn and its operating treadle, of a horn guide, a curved guide way along which the horn guide is movable and suitable connections between the horn guide and the horn and the horn guide and the treadle, substantially as described.

2. In a relasting machine the combination, with a suitable last support, a shoe horn and its operating treadle, of a toggle lever one member of which is pivoted to a fixed support and the other free to move along a downwardly and laterally curved guide, said guide, and suitable connections between the toggle lever and the horn and treadle substantially as described.

3. In a relasting machine the horn carrier L provided with the longitudinal slots *l*, *l*, substantially as described and for the purposes specified.

4. In a relasting machine the combination of a suitable standard A, a spindle *a* supported thereby, a shoe horn H, a horn guide D suitably connected with the horn H, an arm *b* supported by the standard A, the downwardly and laterally curved guide way B in said arm in which runs the horn guide D, the toggle lever P one member of which is pivoted to a bracket E supported by the standard A and the other member pivotally connected with the horn guide D, the shoulder *p* on said toggle, the treadle T, and the pivoted connecting rod V connecting the treadle T and shoulder *p*, all substantially as described and for the purposes specified.

In witness whereof I have set my hand this 19th day of December, 1894.

ANDREW D. GARDNER.

Witnesses:
WALTER H. SOUTHWICK,
DERBY L. UPTON.