

J. B. HADAWAY.
TACK PULLING MACHINE.
APPLICATION FILED NOV. 19, 1908.

1,006,652.

Patented Oct. 24, 1911.

4 SHEETS—SHEET 1.

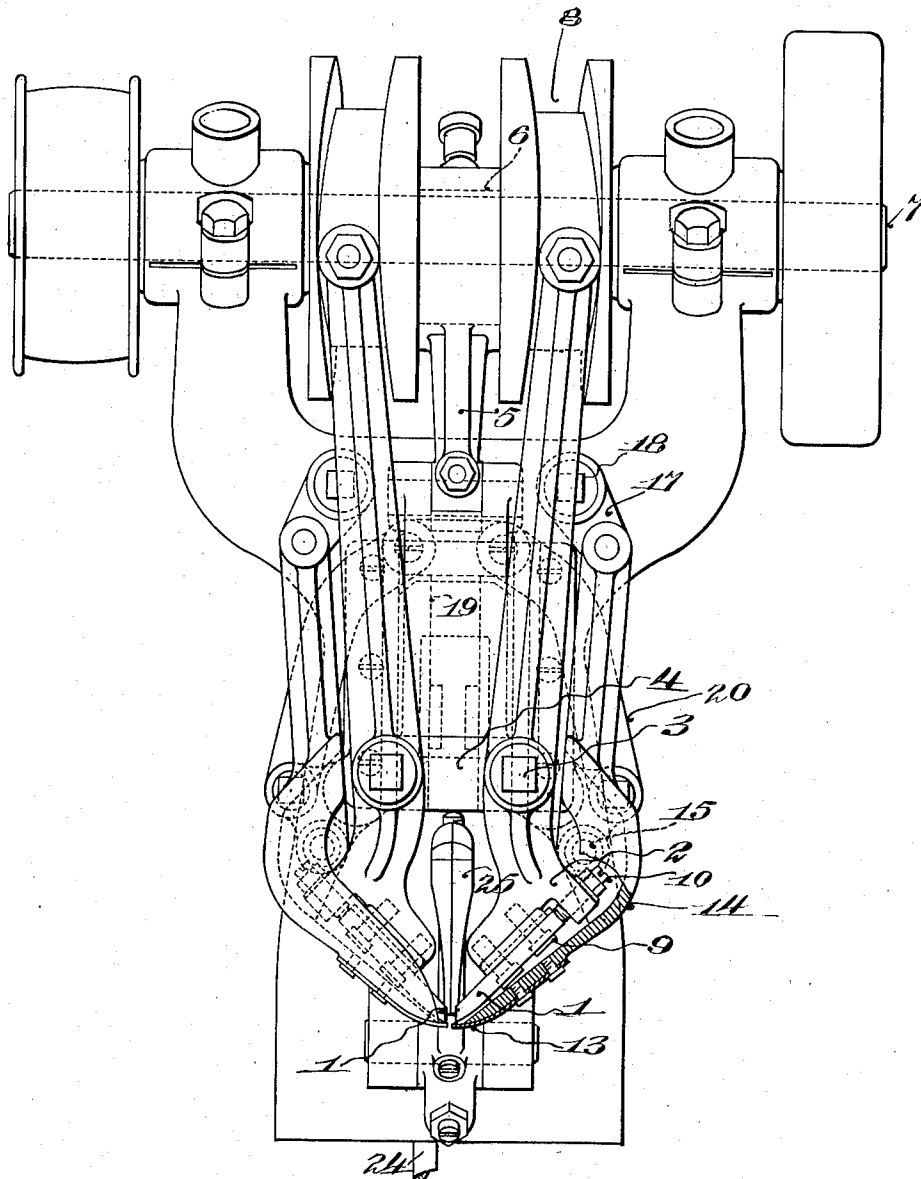


Fig. 1.

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Edward S. Day
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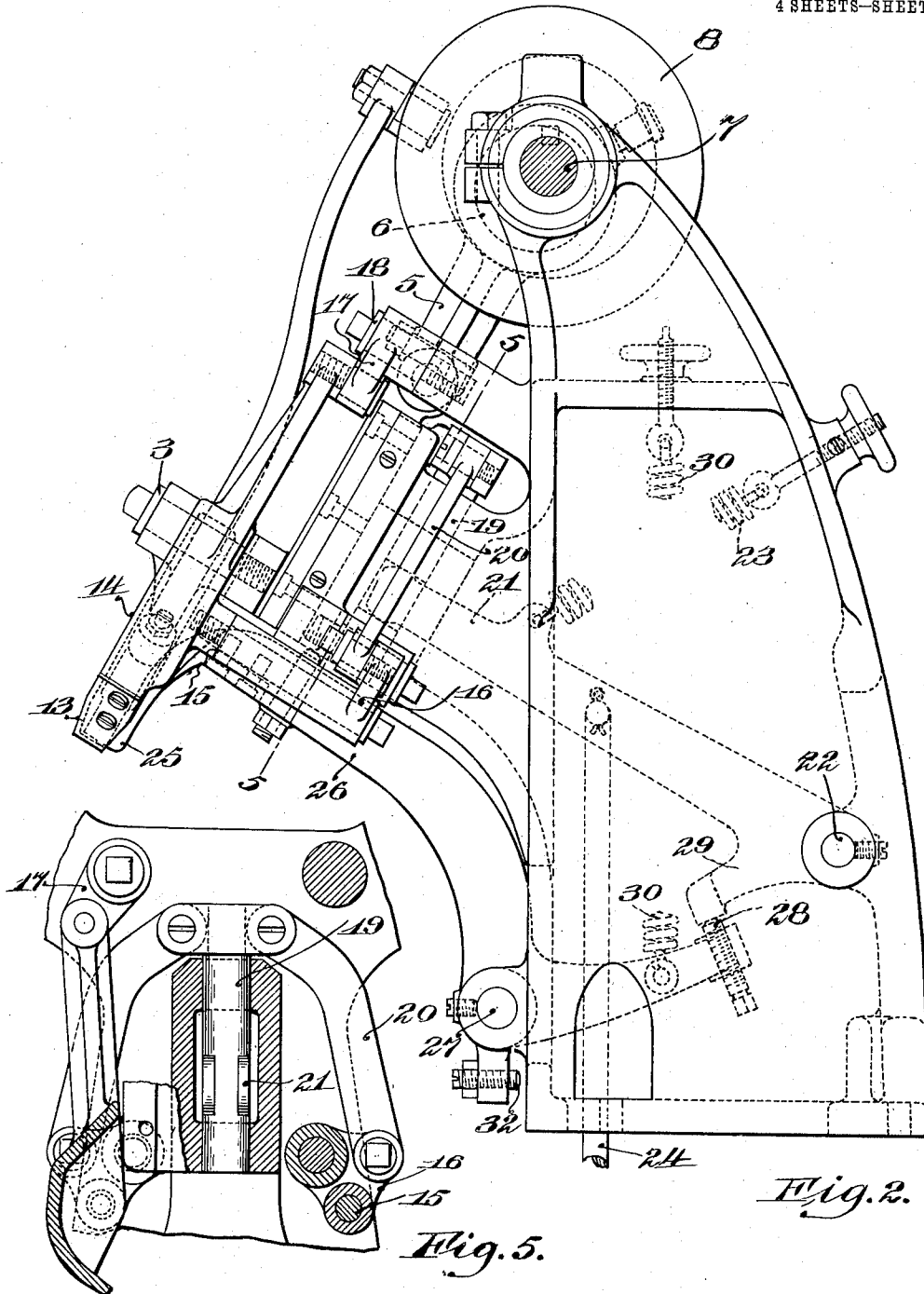
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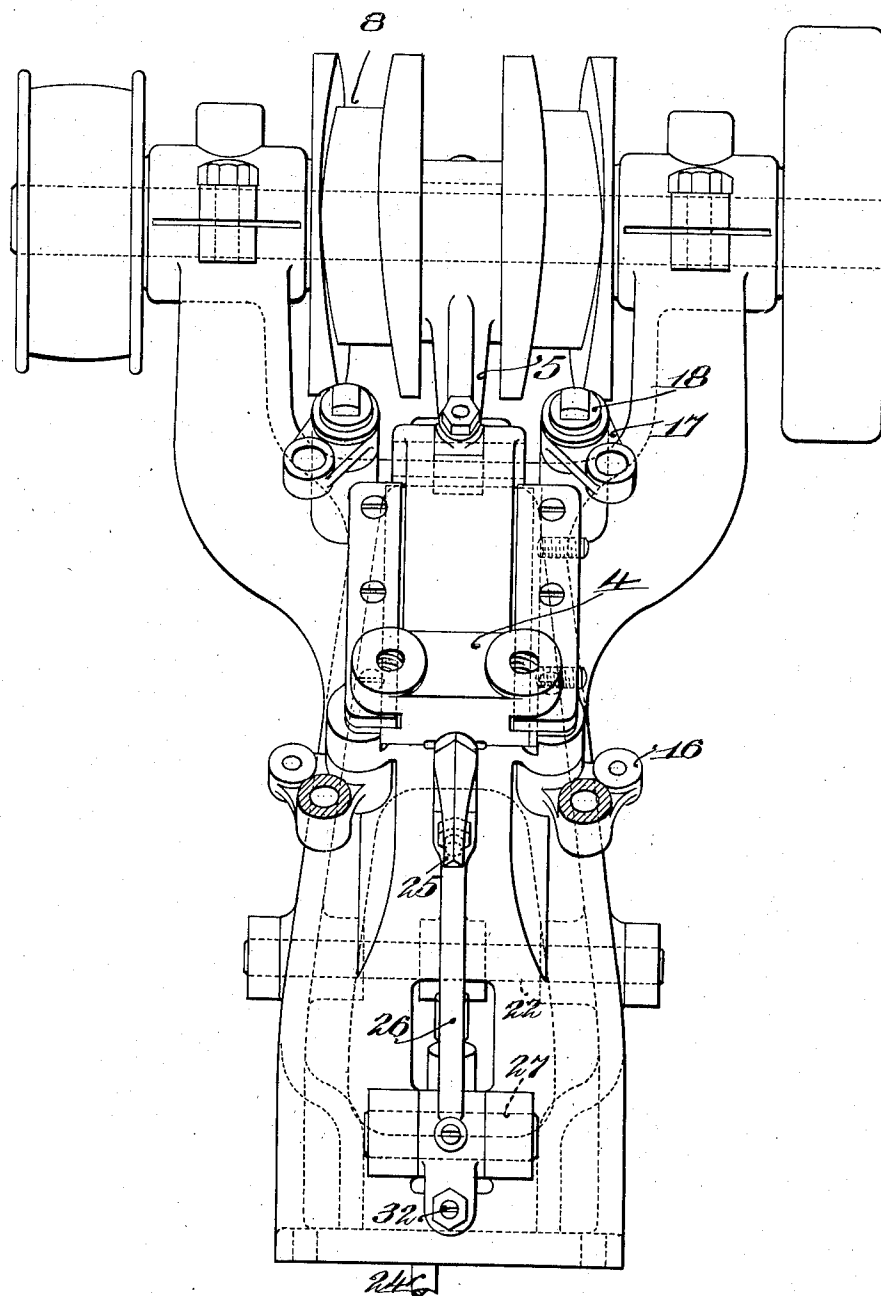


Fig. 3.

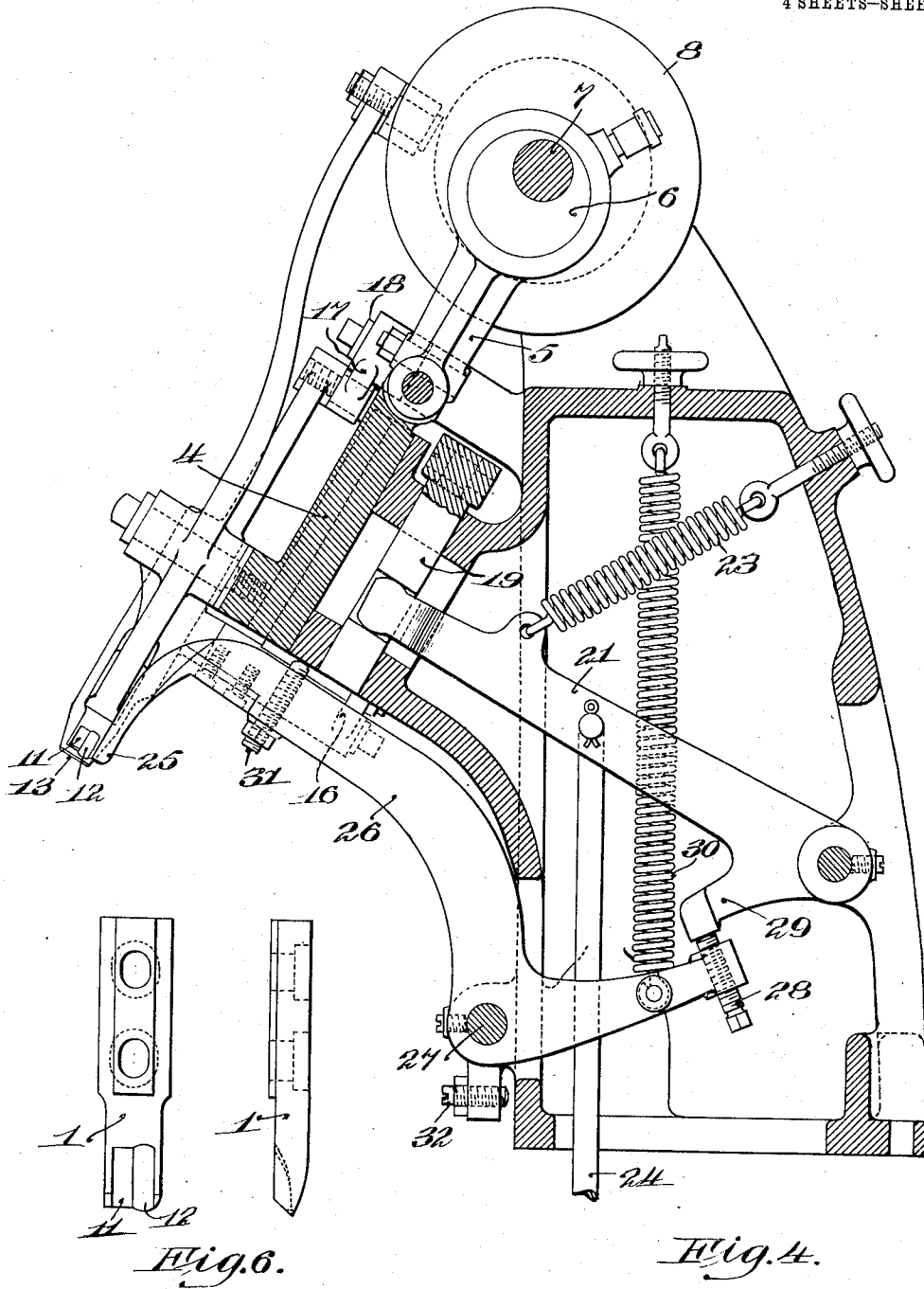
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UNITED STATES PATENT OFFICE.

JOHN B. HADAWAY, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TACK-PULLING MACHINE.

1,006,652.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed November 19, 1908. Serial No. 463,390.

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Tack-Pulling Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to a machine for pulling the tacks from lasted shoes.

Tack pulling machines have heretofore been devised by which the projecting lasting tacks may be removed from a lasted shoe preparatory to the sewing operation, and these machines may also be used to remove the projecting anchor and stay tacks after the sewing operation of the shoe is completed. Machines have also been devised for withdrawing the insole tacks which are driven in flush with the surface of the sole prior to the lasting operation, and serve to hold the sole in place upon the last until after the sewing of the upper or upper and welt is completed. Prior to the present invention, no machine has been devised which is adapted to remove both the projecting lasting, anchor and stay tacks and also to remove the flush insole tacks, and in those cases where machines have been employed for removing the projecting tacks it has been necessary to either employ additional machines for removing the insole tacks, or to remove these tacks by means of a hand tool.

It is the object of the present invention to provide a machine by which a part or all of the lasting tacks may be removed from the lasted shoe preparatory to the sewing operation, and by which the projecting lasting and anchor tacks and also the flush insole tacks may be removed after the sewing operation.

With this object in view, one feature of the invention contemplates the provision in a machine for pulling tacks from a lasted shoe of tack pulling devices and actuating means constructed and arranged to enable the operator to either pull the tacks which project from the lasted shoe, or to pull the tacks which are driven in flush with the sole.

Broadly considered, the invention contemplates the provision of any suitable tack pulling means which is so constructed and arranged that the operator may utilize the machine to pull the projecting tacks without injury to the upper, or may utilize the machine to withdraw the tacks which are driven in flush with the surface of the sole. The same or different tack pulling tool or tools may be employed for engaging and withdrawing the projecting and flush tacks. In the simplest and preferred form of the invention, however, the tack pulling device or devices is so constructed that the projecting and flush tacks are presented in position to be operated upon by different parts of the same tool or tools.

A further feature of the invention contemplates the provision in a machine provided with tack pulling means constructed and actuated to engage and pull either projecting or flush tacks, of work positioning devices which are constructed and arranged to permit the operator to present the lasted shoe in proper position for pulling the projecting tacks or to present the shoe in proper position for the pulling of tacks which are driven in flush with the sole. Broadly considered, this feature of the invention contemplates the provision of any suitable form of positioning devices which will enable the operator at will to properly position the shoe for pulling either projecting or flush tacks. In the preferred form of the invention, however, the positioning devices comprise means for engaging the upper and positioning a projecting tack in proper relation to the tack pulling devices, and a tack gage for enabling the operator to properly position the sole tacks with relation to the tack pulling devices, the positioning means and gage being so constructed and arranged that either may be brought into working relation with the tack pulling devices at the will of the operator.

A further object of the invention is to provide an improved construction of track pulling mechanism by which insole tacks can be readily and quickly pulled from a shoe in a more efficient manner and with less danger of injury to the sole, or of breaking the tack and leaving a part thereof in the sole or last, than with the devices heretofore employed for this purpose.

With this object in view, a feature of the invention contemplates the withdrawing of the sole tacks from a lasted shoe by means of tack engaging jaws provided with working ends shaped to dig into the sole so as to pass under the head of the tack, and actuated to dig into the sole on opposite sides of the tack.

A further feature contemplates the provision in a machine provided with tack engaging jaws of this character, of means for locating a tack and for then effecting a relative shifting of the locating means and jaws to bring the tack into the path of the jaws as they are actuated to dig into the sole on opposite sides of the tack.

In the machine hereinafter described these features of the invention are embodied in a machine adapted to pull projecting tacks as well as to pull tacks which are driven in flush with the sole, but it will be understood that these features are not limited in their application to such a machine, but may be embodied in machines which are not intended for pulling or not adapted to pull the projecting lasting, stay or anchor tacks.

In addition to the features of invention above referred to, the invention also consists in certain devices, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be apparent to those skilled in the art from the following description.

The various features of the invention will be understood from an inspection of the accompanying drawings, in which—

Figure 1 is a front elevation of the machine embodying the features of the present invention in their preferred form; Fig. 2 is a side elevation looking from right to left in Fig. 1; Fig. 3 is a front elevation with the tack pulling devices and one of the work positioning devices removed; Fig. 4 is a vertical sectional elevation; Fig. 5 is a sectional view on line 5—5, Fig. 2; and Fig. 6 is a detail view showing one of the tack pulling jaws in front and side elevation.

In the construction of machine shown, the tack pulling devices comprise two jaws 1 which are secured to the lower ends of levers 2 and are given a reciprocatory movement toward and from the work and also a vibratory motion toward and from each other. The jaw carrying levers are pivotally supported at 3 upon a slide 4 mounted to reciprocate in suitable guideways formed in the frame of the machine. The slide is connected at its upper end to a rod 5, the upper end of which is provided with a strap encircling an eccentric 6 on the shaft 7. During the operation of the machine the shaft 7 is continuously rotated and the slide 4 and jaws carried thereby are reciprocated by the eccentric 6 to move the jaws toward and

from the work. During the reciprocation of the jaws, the jaw carrying levers 2 are vibrated on their pivots 3 by means of cams 8 arranged to engage rolls carried on the upper ends of the levers, the cams being properly timed with the eccentric 6 to move the jaws toward each other as they come into position to engage the tack to be pulled, and to open the jaws after they have been moved upward and have pulled the tack. The jaws are adjustably secured to the lower ends of the jaw carrying levers by means of clamping screws 9, and may be adjusted upon the levers by adjusting screws 10.

In order that the jaws may be adapted to act efficiently upon either the projecting tacks, such as lasting, stay or anchor tacks, and also upon the sole tacks which have been driven in flush with the sole, the working ends of the jaws are differently shaped at different points on their opposing edges. A part of the working end of each jaw is chisel shaped, as indicated at 11 in Fig. 6, so that this part of the working end will bite into and grip the shank of a tack which may be located between the jaws as they are brought toward each other. The rear part of the working ends of the jaw are gouge shaped, and project slightly beyond the chisel, as indicated at 12 in Fig. 6, so that the rear portion of the working ends of the jaws will act to dig into the sole when it is presented in position to cut the path of movement of the jaws, and will pass under the head of a tack embedded in the sole and located between the jaws.

In order to enable the working edges 11 of the jaws to operate upon and pull a projecting tack without danger of injury to the upper, and also to enable the operator to conveniently and rapidly position the tacks so that they will be engaged by the jaws, the machine is provided with positioning plates 13 arranged to engage the shoe on opposite sides of a projecting tack and to guide the tack into position where it will project between the edges 11 of the tack pulling jaws. These plates also act as work supports for the work during the tack pulling movement of the jaws. The work positioning plates 13 are secured to the lower ends of levers 14 and project somewhat beyond the lower ends of the levers, so that the tack pulling jaws may operate to engage the tack close to the surface of the shoe which is pressed against the under surface of the plates.

In order that the work positioning plates 13 may be moved out of working relation with the tack pulling jaws when it is desired to pull insole tacks, the carrying levers are pivotally supported at 15 upon rock arms 16, and are connected to their upper ends by links 17 which are pivoted to the frame of the machine at 18. By rocking the arms 16, the plate carrying levers may

be swung upward and outward to carry the plates 13 out of working relation with the tack pulling jaws.

The mechanism for operating the rock arm 16 to move the work supports into and out of working relation with the tack pulling jaws comprises a slide 19 having its upper end connected with the rock arms by means of links 20, and provided with recesses engaged by the bifurcated front end of a lever 21. The lever 21 is pivoted at 22 to the frame of the machine, and is normally held in position to retain the work supporting plates 13 out of working relation with the tack pulling jaws by a spring 23. The lever is operated to move the plates into working relation with the tack pulling jaws through a rod 24 connected with a treadle (not shown).

The means for enabling the operator to properly position a sole tack with relation to the tack pulling jaws when it is desired to operate upon tacks driven in flush with the surface of the sole, consists of a tack positioning gage 25 formed on the front end of a lever 26 which is pivoted at 27 and is provided at its rear end with an adjusting screw 28 arranged to engage an arm 29 on the lever 21. A screw 28 is held in engagement with the arm 29 by a spring 30. When the work positioning plates 13 are in working relation with the tack pulling jaws, the tack positioning gage 25 is held in the position indicated in Fig. 4 where it will not interfere with the proper operation of the work positioning plates, or the operation of the tack pulling jaws upon the projecting tacks presented thereto. The upper position of the gage 25 is determined by an adjusting screw 31. When the lever 21 is operated to move the work positioning plates 13 out of working relation with the tack pulling jaws, the upward movement of the lever 21 allows the spring 30 to swing the lever 26 about its pivot, and thus move the gage 25 downward into position below the path of movement of the working ends of the tack pulling jaws. The lower position of the gage is determined by an adjusting screw 32. When in working relation with the tack pulling jaws, the lower end of the tack gage 25 is directly back of and below the path of movement of the working edges 12 of the jaws, and the operator may quickly and rapidly position a sole tack in proper relation to the jaws by bringing it into position directly in front of the gage holding the surface of the sole against the lower end of the gage. Having thus positioned the tack without bringing the surface of the sole into the path of movement of the tack pulling devices, the operator may then press the sole upward, the spring 30 yielding to allow the gage to move upward until the stop 31 arrests the upward movement of the gage.

This upward movement of the sole and gage brings the surface of the sole into the path of movement of the working edges 12 of the jaws, so that as the jaws are advanced toward the work and are moved toward each other, they dig into the surface of the sole on opposite sides of the tack and pass under the head of the tack. During the upward or tack pulling movement of the jaws, the gage acts as a work support for resisting the pull of the tack pulling jaws. By manipulating the treadle connected with the rod 24, the operator may at will bring the work supporting plates 13 into position to cooperate with the tack pulling jaws, and may rapidly and conveniently present any projecting tacks, such as last, anchor or stay tacks, to the tack pulling devices, without danger of injury to the upper, or may bring the tack gage 25 into working relation with the tack pulling jaws so that he may rapidly and conveniently present the insole tacks in position to be operated upon and pulled by the tack pulling devices.

While it is preferred to employ the construction and arrangement of devices shown and described, it will be understood that this construction and arrangement is not essential, and may be varied and modified without departing from the invention. It will also be understood that it is not essential to the broader features of the invention that the same tack pulling jaws should be utilized for pulling both the insole and lasting tacks, nor is it essential, in case the same jaws are utilized for pulling all the tacks, that different parts of the working ends of the jaws should be differently formed, or that the insole and projecting tacks should be presented to different parts of the working edges of the jaws.

Having explained the nature and object of the invention, what I claim is:—

1. A tack pulling machine, having, in combination, opposed tack engaging jaws provided with working ends shaped to dig into the sole of a shoe and pass beneath the head of a tack, and continuously operating mechanism for actuating the jaws to dig into the sole on opposite sides of the tack and pull the tack from the shoe, substantially as described.

2. A tack pulling machine, having, in combination, opposed tack engaging jaws provided with working ends shaped to dig into the sole of a shoe and pass beneath the head of a tack, mechanism for actuating the jaws to dig into the sole on opposite sides of the tack and pull the tack from the shoe, and means for locating a tack and then relatively shifting the locating means and jaws to bring the tack into the path of the jaws, substantially as described.

3. A tack pulling machine, having, in combination, opposed tack engaging jaws

provided with working ends shaped to dig into the sole of a shoe and pass beneath the head of a tack, mechanism for actuating the jaws to dig into the sole on opposite sides of the tack and pull the tack from the shoe, and means for locating the tack with the surface of the sole cutting the path of the working edge of the jaws, substantially as described.

4. A tack pulling machine, having, in combination, tack pulling devices provided with means for engaging a projecting tack and with means for engaging a flush insole tack, actuating mechanism for the tack pulling devices, means for engaging the upper and positioning a lasting tack with relation to the tack pulling devices, and a sole tack gage, substantially as described.

5. A tack pulling machine, having, in combination, opposed cooperating tack pulling jaws constructed and actuated to engage and pull either projecting or flush tacks, mechanism for continuously actuating the jaws, and work positioning devices constructed and arranged to permit the operator at will to present the shoe in proper relation to the jaws to pull either projecting tacks or to pull flush tacks, substantially as described.

6. A tack pulling machine, having, in combination, tack pulling devices, means for positioning a shoe to pull projecting tacks, means for positioning a shoe to pull sole tacks, and means for selectively bringing either of said means into working relation to the tack pulling devices, substantially as described.

7. A tack pulling machine, having, in combination, tack pulling devices, means for protecting the upper in pulling lasting tacks,

a sole tack gage, and means for selectively bringing said protecting means or gage into working relation to the tack pulling devices, substantially as described.

8. A tack pulling machine, having, in combination, work positioning devices constructed and arranged to hold the face of the work out of the path of the pulling devices, work positioning devices constructed and arranged to position the work with the face cutting the path of movement of the pulling devices, and means for selectively bringing either of said work positioning devices into working relation with the tack pulling devices, substantially as described.

9. A tack pulling machine, having, in combination, two opposed tack pulling jaws, means for actuating the jaws to engage the opposite sides of a tack and pull it from the shoe, work positioning plates for guiding the tack between the jaws, and means for bringing the work positioning plates into or out of working relation with the tack pulling jaws, substantially as described.

10. A tack pulling machine, having, in combination, two opposed tack pulling jaws, means for actuating the jaws to engage the opposite sides of a tack and pull it from the shoe, work positioning plates for guiding the tack between the jaws, a sole tack gage, and means for bringing the work positioning plates and sole tack gage selectively into and out of working relation with the tack pulling jaws, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN B. HADAWAY.

Witnesses:

IRA L. FISH,
N. D. McPHAIL.