

(No Model.)

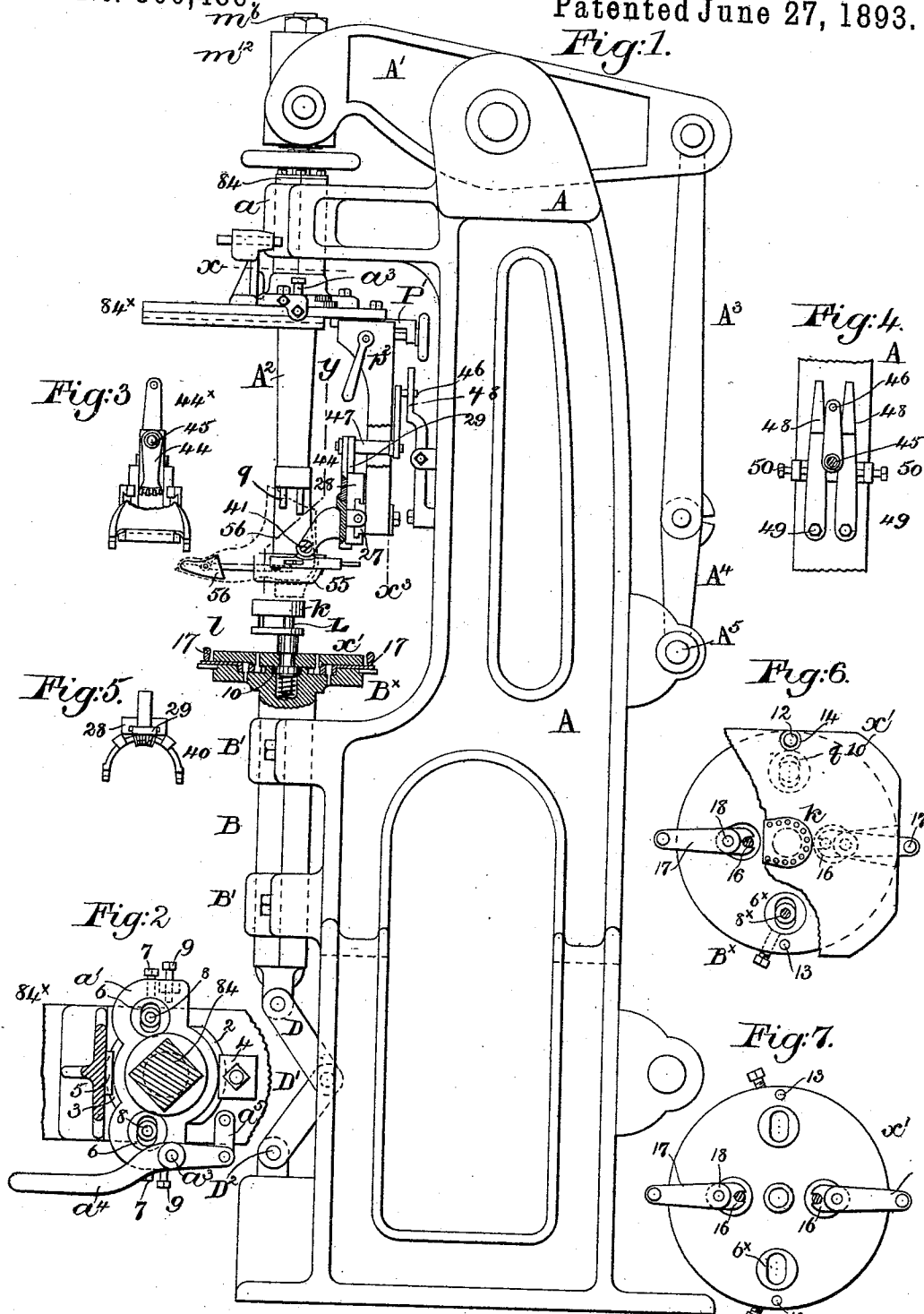
2 Sheets—Sheet 1.

C. W. GLIDDEN.
HEEL NAILING MACHINE.

No. 500,486

Patented June 27, 1893.

Fig:1.



Witnesses. .
 Fred S. Green of
 Edward Allen.

Inventor:
Charles W. Glidden
by Leroy Gregory Atty's.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 8.

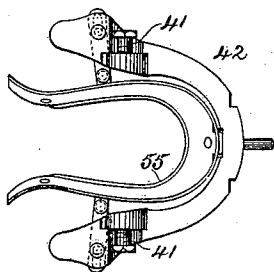


Fig. 9

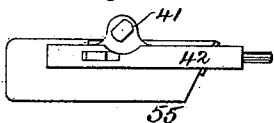


Fig. 10. y^2

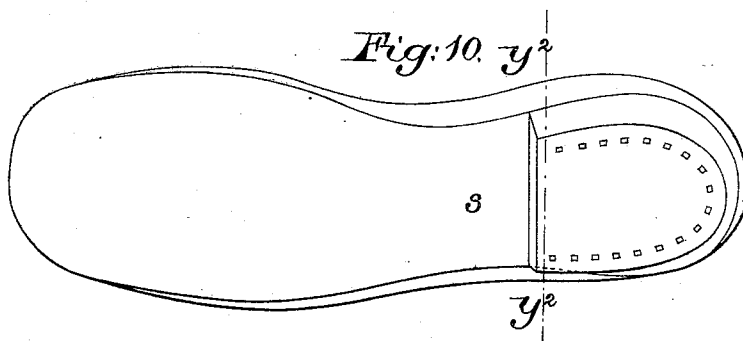


Fig. 12.

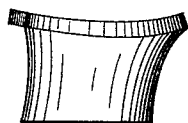
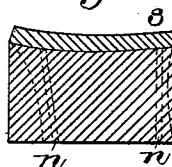


Fig. 11.



Witnesses.

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Inventor.

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UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE,
OF PETERSHAM, MASSACHUSETTS.

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 500,486, dated June 27, 1893.

Application filed February 6, 1891. Serial No. 380,486. (No model.)

To all whom it may concern,

Be it known that I, CHARLES W. GLIDDEN, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Heeling-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve the class of heeling machines shown in United States Patents Nos. 166,795 and 374,894, to adapt them to a greater range of work.

It is a well known fact that the majority of people wear the outer side of the heel faster than the inner side, and to overcome this difficulty in a measure, I have provided the heeling machine herein to be described with means whereby the nails to be driven into the heel to attach it to the sole end of the heel may be driven into the said heel, at that edge of the tread end or lift which is to constitute the outer edge of the heel, nearer the edge of the heel than the nails which are driven into that part of the tread end or lift nearest to its inner side, such plan of driving the nails into the heel enabling a much greater part of the heel at the inner side thereof to be trimmed or cut away than at its outer side, the amount cut away depending on the degree to which it is desired to set the tread end of the heel aside upon, or with relation to, the longitudinal center of the heel of the shoe; and provision has also been made to adapt my invention to right and left shoes. I have also provided the heel-clamp, in itself old, with means whereby it may be adjusted automatically around the heel about a point approximately the center of the heel to thus better adapt the clamp to heels of right and left shoes.

The prominent features of my invention will be hereinafter described and specified in the claims, at the end of the description.

Figure 1, in side elevation, represents a sufficient portion of a heeling machine with my improvements added, to enable my invention to be understood, the lever α shown in Fig. 2, being omitted; Fig. 2, an enlarged detail below the section line x Fig. 1; Fig. 3, a detail to the right of the dotted line y Fig. 1, chiefly to show the band clamp holder and

its actuating devices, the band clamp being, however, omitted in Figs. 3 and 5; Fig. 4, a detail to the right of the section line, x^3 Fig. 1, chiefly to show the operating lever co-operating with the device for moving the hand clamp holder; Fig. 5, a detail in plan view of the band clamp holder; Fig. 6, a detail on a larger scale, showing the plate x' and nailing devices carried thereby, part of said plate being broken away to show devices under it; Fig. 7, a view like Fig. 6, but with the plate x' and nailing devices removed; Fig. 8, on a large scale showing the one form of band clamp which may be used in the holder. Fig. 9, is a side view of the parts shown in Fig. 8. Fig. 10, illustrates a heel set to one side so that its tread end is located nearest the outside of the shoe. Fig. 11, is a partial section supposed to be in about the line $y^2 y^2$ Fig. 10, looking to the right and showing the shape of the heel when nailed on the sole and before it was trimmed; Fig. 12, a like section showing the heel trimmed.

Referring to the drawings, A represents a column; A', a walking beam; A⁸, A⁴, two members of a toggle joint, connected with a shaft A⁵ by which to actuate the walking beam. The walking beam has at its end a rocking block or nut m^{12} which receives a screw m^6 connected to a last slide spindle 84.

B is a spindle in bearings B'. This spindle has an enlarged head B^x and is adapted to be raised and lowered by a toggle composed of members D, D', the member D' being pivoted at D². These parts are to be found in United States Patent No. 374,894, dated December 13, 1887.

If a heel nailed on a shoe, as hereinafter provided for, is to be trimmed on the machine, as it preferably will be, then the spindle B below its enlarged head will be surrounded loosely by a sheave having arms provided with pins to enter slots in a trimmer lever as in said patent. The devices carrying the blade to trim the heel have not been herein shown, as they may be such as commonly used in the McKay and Bigelow heel trimming machines, substantially as in United States Patent No. 166,795. The last containing the shoe to be heeled will be carried by a post A², and the nails driven into the heel will be driven

from a nail box *k*. The post shown has at its upper end a flanged head which enters a dove-tailed guide-way in a laterally movable carrier 84^x. The nail-box *k* having its supporting pin *l* and the pattern plate *L*, through the hollow shank of which the said pin is extended, and the spring to support the pin *l* and normally keep the nail-box elevated above the pattern plate on which in practice will rest the nail driver plate, are common to United States Patent No. 166,795, dated August 17, 1875. The plate 84^x at the lower end of the spindle 84, and the arm *p*³, clamped upon an extension thereof, and having at its lower end a guide-block or holder 27 on which moves horizontally a cross slide 28, it containing a vertically movable slide 29, are all as in United States Patent No. 377,301.

The plate or carriage *x'* when a heel is to be trimmed on the machine, will be provided with grooves such as represented in the plate designated by the letter *x'* in United States Patent No. 166,795, the said grooves being also shown in Fig. 5 of United States Patent No. 374,894, dated December 13, 1887, and before referred to, but in the latter patent the said plate is not lettered.

The machines described in United States Patent No. 166,795 and in No. 377,301 each contain devices by which to adjust the position of the last holding post A² to provide for right and left shoes, but by the said machines the nails were, and had to be, driven into the heel at a uniform distance from the edge of the tread end or lift of the heel, both at its inner and outer edges.

In the patented machines referred to, to provide for right and left shoes, the toe of the last was adapted to be swung from side to side about a center, approximately the center of the heel to be nailed, but in this my present invention I have devised means whereby the relative position of the post A² carrying the shoe, and the nail driving devices, may be changed bodily laterally, either one or the other, in order that the nails *n* driven into the heel to thereby attach it to the sole, may be driven into the said heel in such manner,—as shown by dotted lines Fig. 11,—that the nails to appear at the outer side of the heel, or at the outer edge of the tread end, are driven into the heel nearer to its outer side than are the nails which are driven into the heel and which are to show at the inner side of the heel, a heel attached by nails so driven into it at different distances from its edge, enabling the inner side of the heel to be trimmed away very much more than its outer side to thus leave the heel set with its tread lift nearer the outer than the inner side or edge of the heel end of the sole. This adjustment for the purpose stated may be effected by adjusting bodily laterally either the post A² or the nail-box of the heel nailing device, or both, and in the embodiment of my invention herein contained I have shown both of such adjustments.

I will first describe the means shown for adjusting the post A² laterally.

Referring to Fig. 1, I have marked the plate or carriage at the lower end of the slide 84 as 84^x. Surrounding the slide 84 loosely below the bearing *a* I have placed a head *a'* having tracks or flanges 2, 3, which are engaged by lips or projections 4, 5, suitably connected to or forming part of the plate or carriage 84^x. The head *a'* is shown as having a stud *a*³ upon which is mounted a lever *a*⁴ suitably connected by a link *a*⁵, or otherwise, with the plate or carriage 84^x, so that as the said lever *a*⁴ is turned, the plate or carriage 84^x will be moved bodily laterally on or with relation to the spindle 84 as will be apparent by inspecting Fig. 2 of the drawings.

To further meet the desires of manufacturers as to the exact position of the median line of the tread end or lift of the heel with relation to the median line of the sole, means have been provided for controlling the direction of the lateral motion of the plate or carriage 84^x on the head *a'*, the means shown consisting of slotted disks 6 formed or set into the head *a'* and held in adjusted position by set screws 7, the said slots receiving roller or other studs 8 extended upwardly from the plate or carriage 84^x. By rotating these disks more or less in opposite directions, the slots therein may be so placed that the plate or carriage 84^x when moved laterally, will travel in a curved path rather than in a direct or straight line. Limiting screws or stops 9 are employed to determine the extent of the bodily lateral movement of the plate or carriage 84^x, there being two such stops, for it will be understood that the plate or carriage will be, and is, so supported that it may be moved first bodily laterally in one, and then bodily laterally in an opposite direction, according as right and left foot heels are being nailed, it being common to heel a right and then a left, or two or more rights or two or more lefts, in succession.

From the foregoing description, it will be understood that should the screws 9 be screwed in so as to contact with the edges of the plate or carriages 84^x, the movement of the lever *a*⁴ would simply cause the said plate or carriage 84^x to turn about the rounded part,—see dotted lines Fig. 2,—of the spindle 84, thus swinging the toe of the last more or less in one or the other direction, but by putting the said screws in the position Fig. 2, then the movement of the said lever will cause the part of the plate or carriage 84^x at the spindle 84 to be moved bodily laterally in addition to having its outer end oscillated. It will be noticed therefore that the screws or stops 9 define within established limits,—which may be varied more or less according to the requirements of the work being done,—the extent of the bodily lateral movement to first one and then to the other side of a line drawn longitudinally through the last.

Referring now to the nail-box, it will be seen in Figs. 1 and 6, that the head B^x of the

spindle is provided with slotted disks 6^x like the disks 6 in Fig. 2, the slots t^0 of the disks 6^x receiving roller or other studs 8^x depending from the under side of the plate or carriage x' , as I shall in this instance of my invention herein designate the said device, upon which is secured the shank of the pattern plate L. This head B^x, at its center, is provided with a hole larger than the hollow shank of the plate L described, so that the plate or carriage x' may be moved laterally on the spindle head B^x, as provided for, of the plate or carriage 84^x on the head a' , the ends of the slots t^0 in the plates 6^x serving as limiting stops for the nail box in each of its two directions of movement, to place the center of the nail box to one or the other side of a line drawn longitudinally through the last. The plate or carriage x' is kept down on the head B^x by suitable stud screws 12, one of which is shown in Fig. 6, as tapped into holes 13 of the said head, the heads of the said screws resting on shoulders on countersunk holes 14, the holes being enough larger in area than the screws to enable the plate or carriage x' to be moved on the said screws. The plate or carriage x' has depending pins 16 which are adapted to be engaged by plate or carriage actuating devices 17, herein shown as levers pivoted on the head B^x at 18, movement of the said levers about their fulcrum moving the plate or carriage x' laterally and in a straight or curved path according to the particular direction or inclination of the slot in the said disks 6^x. By moving one or the other of the plates or carriages 84^x or x' bodily laterally as described, or both of them bodily laterally, the stud l and the pins 19 of the post A² may be put more or less out of vertical line laterally, which enables the nails n to be driven into the heel while the latter is held pressed in usual manner between the nail-box k and the sole of the shoe, and the U-shaped line of nails, see Fig. 10, are driven into the heel, see Fig. 11, at one side of the center thereof or at one side of a median line drawn through the sole longitudinally from end to end, thus enabling the inner side of the heel to be subsequently cut away much more than the outer side, the trimmed heel showing the nails however substantially equi-distant from the edges of its tread end or lift, as in Fig. 10 which shows the heel Fig. 11 trimmed after it has been nailed upon the sole of the shoe.

It is not intended to limit this invention to the exact devices shown for accomplishing the bodily lateral movement of either the post A² or of the nail-box k .

The vertical slide 29 referred to, is provided at or near its lower end at its front side with a dove-tailed groove or way shown best in Fig. 1, shaped to receive a segmental shaped band-clamp holder 40, which receives between its ends suitable pivots 41 of a V-shaped frame 42, which supports the band clamp 55, the said devices being essentially as in United States Patent No. 217,867. The segmental

shaped holder 40 has at its upper end a series of teeth adapted to be engaged by an adjusting device shown as arms 44, 44^x on a rod 45 extended through a sleeve 47 projected backwardly from the vertical slide 29, the upper end of the arm 44^x having a pin or projection 46 which normally stands between two like fingers or band clamp limiting stops 48, 48, pivoted at 49 on the frame A, the said fingers or stops being adjustable as to their position by suitable screws 50. When the plate 84^x is adjusted or turned on or with relation to the spindle 84 as described, the pin 46 strikes against one or the other of these fingers stops and slides the holder 40 in the segmental guide referred to, thus enabling the clamp 55, which embraces the counter of the shoe to adapt itself to the requirements of a right or left shoe.

Prior to my invention, I am not aware that a clamp for the counter of a shoe to be heeled or trimmed has ever been made adjustable around the post A² holding the last, and has had its movement regulated or determined by or through limiting stops, so that this invention is not limited to the exact form of device represented for this purpose, as it is obvious that other equivalent forms of device might be employed without departing from my invention.

The lever A⁴ mounted upon the head and operatively connected with a part of the plate or carriage 84^x, and the lever 17 mounted upon the head B^x and operatively connected with the plate or carriage x' , each constitute what I shall denominate in the claims as plate or carriage actuating devices, I meaning thereby, devices through or by which bodily lateral movement may be imparted to the post A² in one instance, and the nail-box k in the other instance, and I desire it to be understood that the said plate or carriage actuating devices may be constructed differently from what is shown in the accompanying drawings, and yet not depart from my invention, as I am not aware that such movement has ever been imparted to either the post or the nail-box within limits in each of two directions laterally to a line drawn longitudinally through the center of the last to accomplish the result aimed to be accomplished in this present invention.

The shoe-holder 56, serving to hold the shoe on which the heel is to be nailed, is of usual construction.

The end of the slots t^0 referred to, constitute limiting stops for the nail box in its lateral movement.

I claim—

1. A heeling machine containing the following instrumentalities, viz:—a nail box; a series of drivers; a shoe holder; a plate or carriage to support said shoe holder; limiting stops to limit the extent of lateral movement of said carriage in two directions from a line drawn through the longitudinal center of the last; and plate or carriage adjusting devices

to effect the movement bodily laterally of the said carriage between the said stops thereby enabling nails to be driven into the heels of right and left shoes differently, as described, and leave the nailed heels in condition to be trimmed away more at their inner than at their outer side edges to thus offset the tread of the heels, as set forth.

2. A heeling machine containing the following instrumentalities, viz:—a shoe holder; a support therefor; a plate or carriage; an attached nail-box; a series of drivers; plate or carriage limiting stops ¹⁰ actuating devices to effect the lateral movement bodily of the said plate or carriage and nail box with relation to the shoe support, the said limiting stops serving to arrest the said plate or carriage in its movements in either and both of two directions from a line drawn longitudinally through the center of the last, whereby the nails may be driven into the heel of the shoe at its tread end nearer the outer than the inner edge of the tread end thereof, as set forth, thereby enabling the inner side of the attached heel to be trimmed away more than the outer side, thus offsetting the tread end of the heel and leaving it nearer the outer than the inner side or edge of the sole, substantially as described.

3. In a heeling machine, the following instrumentalities, viz:—a head as *a'*; a plate or carriage mounted thereon; a post and shoe holder constituting a jack and sustained by the said plate or carriage two adjustable limiting stops as 9; and plate or carriage actuating devices, whereby the latter may be moved bodily laterally upon the said head for a distance determined by the adjustment of the said stops, for the purposes set forth.

4. In a heeling machine the following instrumentalities, viz:—a head *a'*; a support therefor; a plate or carriage mounted on the said head; and a pin and slot connection between the said head and plate or carriage whereby one is adapted to move on the other, substantially as described.

5. In a heeling machine, the following instrumentalities, viz:—a head *a'* having adjustable slotted disks; combined with a plate or carriage sustained by the said head and having studs to enter the slots of the said disks; and a lever connected to the said head and the said plate or carriage to move one on the other, substantially as described.

6. In a heeling machine, the following instrumentalities, viz:—a head *a'* having adjustable slotted disks; combined with a plate or carriage sustained by the said head and having studs to enter the slots of the said disks; and a lever connected to the said head and the said plate or carriage by which to move one on the other; and with stop screws 9, to operate, substantially as described.

7. A heeling machine containing the following instrumentalities, viz:—a head as *B'*; and a plate or carriage mounted thereon loosely; a nail-box carried by the said loosely

mounted plate or carriage; and plate or carriage actuating devices by which to move the said plate or carriage carrying the nail box laterally with relation to the said head, combined with limiting stops to control the extent of the bodily lateral movement of the said nail box, substantially as described.

8. A heeling machine containing the following instrumentalities, viz:—a shoe holder, a clamp to embrace the counter of the heel, a nail box upon which the heel rests; means to move it bodily laterally; limiting stops to control the extent of said bodily lateral movement of the said nail-box, whereby the nail-box may be arrested in such position as to place its longitudinal center at a definite distance at one side of the median line of the shoe holder, substantially as described.

9. In a heeling machine, a last holder or spindle; and a nail-box; combined with adjustable guides, made as circular blocks provided with slots whereby the relative positions of the said last holder and nail-box may be changed within defined limits in each of two directions from a line drawn longitudinally through the last.

10. In a heeling machine the following instrumentalities, viz:—a clamp to embrace the counter of the shoe, a clamp holder, a support for the clamp holder, and actuating devices by which to move the clamp holder in the arc of a circle, combined with limiting stops or fingers to arrest the lateral movement of the band clamp, as set forth, substantially as described.

11. In a heeling machine the following instrumentalities, viz:—a cross-head 28, means to support it, the vertically movable slide 29 therein, the holder 40 made movable in the guideways of the said vertically movable slide, combined with a toothed arm to move the said holder in the arc of a circle, substantially as described.

12. In a heeling machine the following instrumentalities, viz:—a cross-head 28, means to support it, the vertically movable slide 29 therein, the holder 40 made movable in the guideways of the said vertically movable slide, combined with a toothed arm to move the said holder in the arc of a circle, and with fingers to actuate the said arm, as and for the purpose set forth.

13. In a heeling machine the following instrumentalities, viz:—the spindle, its head *B^x*, and the plate or carriage *a'* carrying the nail box, and a pin and slot connection between the said plate and head, and plate actuating devices to move the same upon the said head laterally, substantially as described.

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

CHARLES W. GLIDDEN.

Witnesses:

W. C. WILLSON,
H. P. FAIRFIELD.