2 Sheets--Sheet 1.

C. W. GLIDDEN & S. A. SIMMONS.

Boot and Shoe Heel-Trimmer.

No. 166,765. Patented Aug. 17, 1875.

Fig. 1.

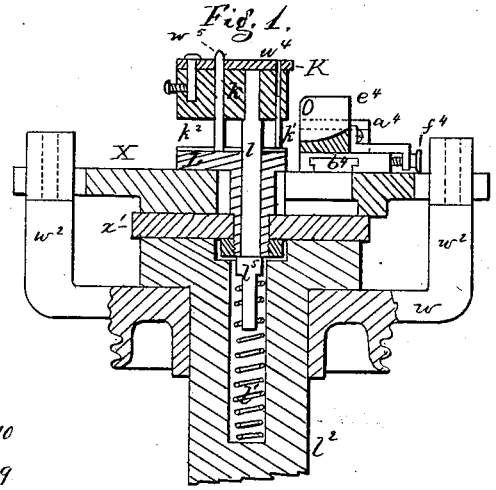


Fig. 6.

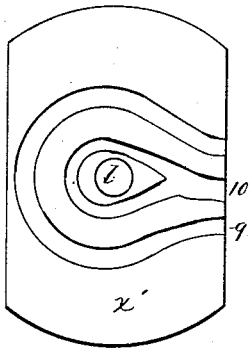


Fig. 2.

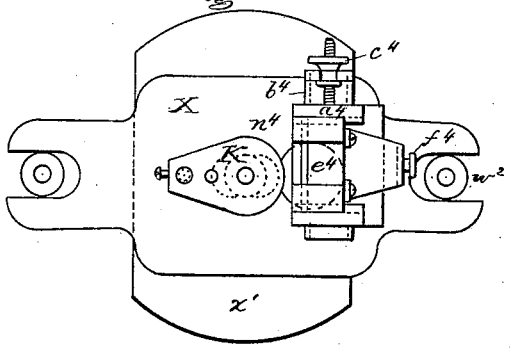


Fig. 8.

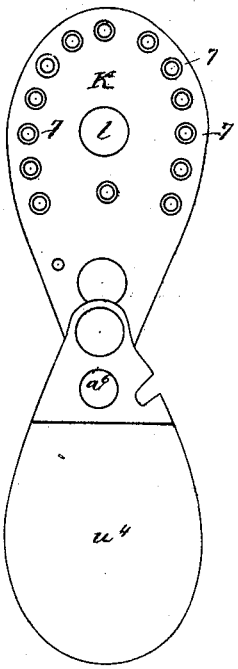


Fig. 3.

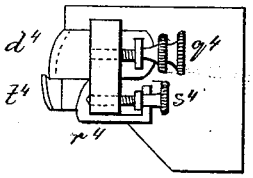


Fig. 4

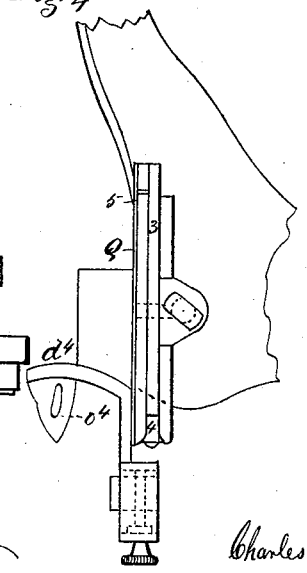


Fig. 10.

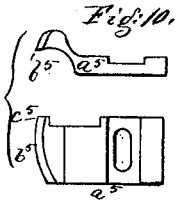


Fig. 5.

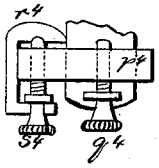
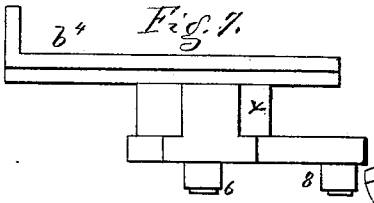


Fig. 7.



Witnesses:
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W. J. Pratt.

Inventors.
Charles W. Glidden and Stephen A. Simmons
PER Crosby & Gregory Attys.

2 Sheets--Sheet 2.

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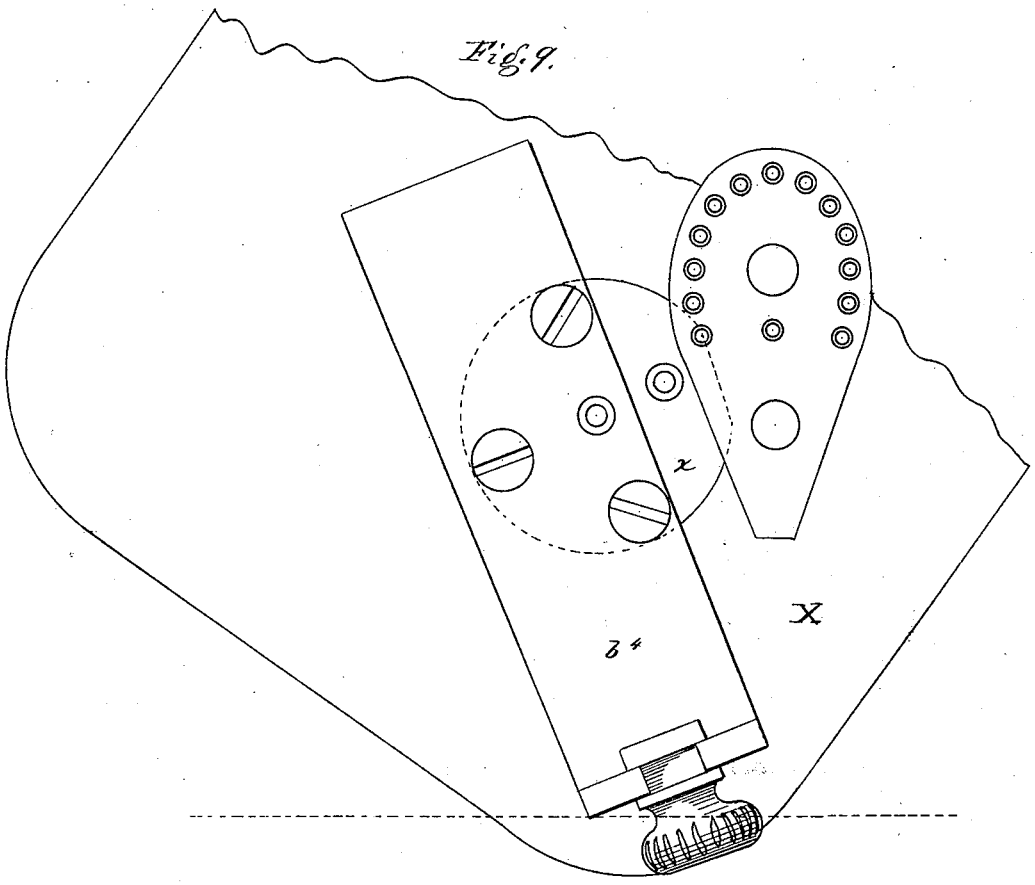
Fig. 9.



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L. H. Latimer.
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Inventors.
Charles W. Glidden & Stephen A. Simmons
PER Crosby & Gregory
Att'ys.

UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, AND STEPHEN A. SIMMONS, OF LAWRENCE, ASSIGNORS TO JAMES W. BROOKS, TRUSTEE, OF BOSTON, MASS.

IMPROVEMENT IN BOOT AND SHOE HEEL TRIMMERS.

Specification forming part of Letters Patent No. **166,765**, dated August 17, 1875; application filed June 24, 1875.

To all whom it may concern:

Be it known that we, CHARLES W. GLIDDEN, of Lynn, in the county of Essex, and STEPHEN A. SIMMONS, of Lawrence, in the county of Essex, all in the State of Massachusetts, have invented an Improved Machine for Trimming Heels of Boots and Shoes, of which the following is a specification:

This invention relates to improvements in heel-trimming mechanism for use in machines for attaching heels to boots and shoes; and the invention consists in a heel-support and box and drivers, in combination with a loose plate, for retaining the drivers in position; also, in a heel-support, box, loose plate, and rod *l*, made detachable from the heel-cutting mechanism, whereby the supports for heels of different sizes are made easily interchangeable; also, in a movable carriage, having a turn-table with projecting pins and a ledge, in combination with the plate, grooved substantially as described, to move the turn-table and knife-holder, as hereinafter set forth; also, in the combination, with a turn-table and trimming-knife, of an adjustable trimming-knife holder and slide-plate, to adjust the knife; also, in the combination of a trimming-knife and sole-gage with a gage operating against the heel-seat clamp, to throw the knife outward, as hereinafter set forth; also, in a toplift plate, held in position by means of a locking-pin.

After the nails are driven the heel cutting or trimming mechanism is thrown into action, the heel-trimming knife is guided about the heel-support in a heel-shaped path, being governed by cam-grooves in a plate, into which project pins from a turn-table. The trimming-knife holder is carried by this turn-table, it in turn being carried by, and is free to rotate in, a rotary reciprocating carriage, having movement imparted to it by means of projections on a cross-plate, which enter openings in the carriage, the cross-plate being supported on a spindle moved by a band or cord attached to a sliding carriage operated by a slotted radius-bar through a crank on a rotating shaft. The knife is supported on the trimming-knife holder, and in a slide, so that the cutting-edge of the knife may always be kept on a line with the center, about which the turn-table turns, so as to properly and smoothly cut the heel.

Figure 1 is a partial section through the heel-support and devices for operating the heel-trimming mechanism. Fig. 2 is a top view of parts shown in Fig. 1. Fig. 3 is a view of the heel-trimming knife removed from the knife-holder. Fig. 4 is a view, in part, of a shoe or boot, with the clamp in position, and the knife d^4 acting to trim the heel; Fig. 5, partial view of the knife; Fig. 6, a view of the grooved plate; Fig. 7, a side view of the turn-table; Fig. 8, a top view of the heel-support *k*; Fig. 9, a top view of the turn-table for carrying the trimming-knife about the heel-support.

The heel support or plate K has a series of holes, 7 7, to receive the nails partially entered or started into the lower portion of the heel to be attached to a shoe, but projecting from the heel; and the box *k*, on which the plate rests and is pivoted, contains within it a series of drivers, k^1, resting on a loose plate, k^2, supported on a stationary heel-shaped plate, L, shaped to conform to the shape of the heel-support and box K *k*. The box and supporting-plate *k* are sustained on a rod, *l*, which passes through plate L, and is sustained on a shouldered pin, l^5, resting on a spiral spring, l^1, sustained in a chamber of a post, l^2, which may be raised and lowered in its bearing by means of a screw, seated at one end on the frame of the machine, and provided with screw-threads, to engage screw-threads in an opening in the post l^2.

By the hand-wheel on the screw the post may be raised or lowered, to adapt the mechanism to operate on heels of different thicknesses, as in the application of McKay, Glidden and Fairfield, filed in the United States Patent Office concurrently with this application.

This construction of the heel-support, box, loose plate, and rod *l* enables the heel-support to be easily and quickly removed from the turn-table, to permit the application of another support and box, and drivers adapted for different-sized heels, and in doing so the loose plate k^2 retains the drivers in position

and prevents them from being thrown out of the box k.

Supposing the nails projecting from a heel, as described, and inserted in the holes in the plate K; then the descent of the heel and box k, the heel being kept in contact with the plate K, and the drivers k^1 being then immovable, will cause the drivers to act on the end of, and drive the nails in and through the heel, and into and through the sole of the shoe, provided the sole is kept in contact with the heel as the latter descends, and the nails, striking against the metallic last, will be clinched.

From the cross-plate w, operated by a cord, (as described in an application for Letters Patent of the United States made by Gordon McKay, Charles W. Glidden, and Hadley P. Fairfield, and filed concurrently with this,) project lugs w^2, which enter slots in a movable carriage, X, provided with a turn-table, x, (Fig. 9,) having pins 6, 8, (Fig. 7,) entering grooves 9, 10, (Fig. 6,) in a stationary plate, x'. These grooves are shaped substantially as shown in Fig. 6, the groove 9 receiving the pin 6 and the groove 10 the pin 8. The groove 10 governs the shape of the heel, and the groove 9 controls the presentation of the knife d^4 to the heel, so that the angle at which it meets the leather on its travel about the heel shall be such as to cut with the greatest ease and advantage possible, and therefore the outer groove is made of a shape differing somewhat from groove 10, and is adapted in each case to the particular shape of the heel to be trimmed. The trimming-knife holder a^4 is adapted to a slide on a T-shaped ledge, b^4, attached to the turn-table x, and the holder is adjustable by means of a nut, c^4, engaging a screw projecting from the holder. This nut and screw permit the adjustment of the edge of the knife d^4, so that it shall be exactly in line with the center on which the turn-table turns, so that the cut shall always be smooth and not injuriously dip into or leave the leather or cut the heel roughly. The knife d^4, curved to properly shape the heel, is adjustable laterally in its holder a^4, to adapt it to heels of different sizes, it being carried by a slide-plate, e^4, adjusted by a screw and nut, f^4. The plate e^4 has a rod, n^4, fitted to its ears; and this rod is entered in the opening o^4, Fig. 4, in a lug attached to the lower end of the knife, this rod serving as a fulcrum for the knife. The knife d^4 is made adjustable with reference to a block, p^4, Fig. 3, and to the sole-gage t^4, by means of a screw, q^4, to regulate the depth of the cut or the quantity of material to be removed from the sole and heel. This block p^4 carries a gage, r^4, adjustable by means of a set-screw, s^4, the gage being adjusted to strike the end of the clamp Q and throw the upper end of the knife outward just as the knife is finishing its cut to prevent the knife from cutting the shank of the sole.

The sole-gage is shown by the letter t^4, Fig. 3. It bears against the edge of the sole as the trimming-knife is moved about the heel.

In Fig. 8 the heel-support is shown of full size for one class of heels. Hinged or pivoted to plate K is a plain plate, w^4. The nails are usually not driven quite through the outer lift of the heel, because an outside or finishing lift is added.

To add the finishing-lift, turn the plate w^4 over the plate K, place the outside lift on it, and then force the lift, by the descent of the heel and shoe, onto the projecting heads of the heel-nails.

In Fig. 9 the turn-table and knife-carrying guide b^4 are in the position they occupy with reference to the heel-support just about as the knife commences to cut the heel, and as the plate X is rotated half way round, the pins 6 8 of the turn-table entering the grooves 9 10 of the plate x' cause the carrier-guide to so move as to move the knife in a heel-shaped path, and present its edge in the proper angular position to cut the heel of the desired shape.

The clamp Q is used chiefly in the manufacture of shoes having cloth uppers, and it may be used with advantage with all kinds of shoes, but in the manufacture of shoes having leather counters it need not be used. In such case the shoe is put over the last, and instead of the sole-gage t^4 the rand-crease gage and guard a^5, Fig. 10, is placed in advance of the trimming-knife, its edge b^5 resting in the rand-crease, and its lip c^5 overlapping the upper corner of the knife, preventing it from cutting the counter.

Rising from the stationary plate L is a pin, w^5, which, in connection with the rod l, keeps the heel-support and box in correct position. In addition to its function of a guide, this pin also serves as a locking device for the plate w^4, Fig. 8, its upper end entering the opening a^6 in the plate, thereby holding it in position on top of the support K, so that it is in correct position with reference to the knife which trims the heel after the top-lift is added.

We claim—

1. The heel-support and box and drivers, in combination with a loose plate for retaining the drivers in position, substantially as described.

2. The heel-support, box, loose plate, and rod l, in combination with and detachable from the heel-cutting mechanism, whereby the supports for heels of different sizes are made easily interchangeable, substantially as described.

3. The movable carriage, a turn-table with projecting pins and ledge b^4, in combination with the plate grooved substantially as described, to move the turn-table and knife-holder, as set forth.

4. The combination, with the turn-table

and trimming-knife, of an adjustable trimming-knife holder and slide-plate, to adjust the knife, substantially as described.

5. The combination of the knife d^4 and sole-gage t^4 with the gage r^4 and heel-seat clamp, substantially as described.

6. The top-lift plate w^4, box k, and heel-support, in combination with the locking-pin, substantially as described.

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

CHARLES W. GLIDDEN.
STEPHEN A. SIMMONS.

Witnesses:
G. W. GREGORY,
S. B. KIDDER.