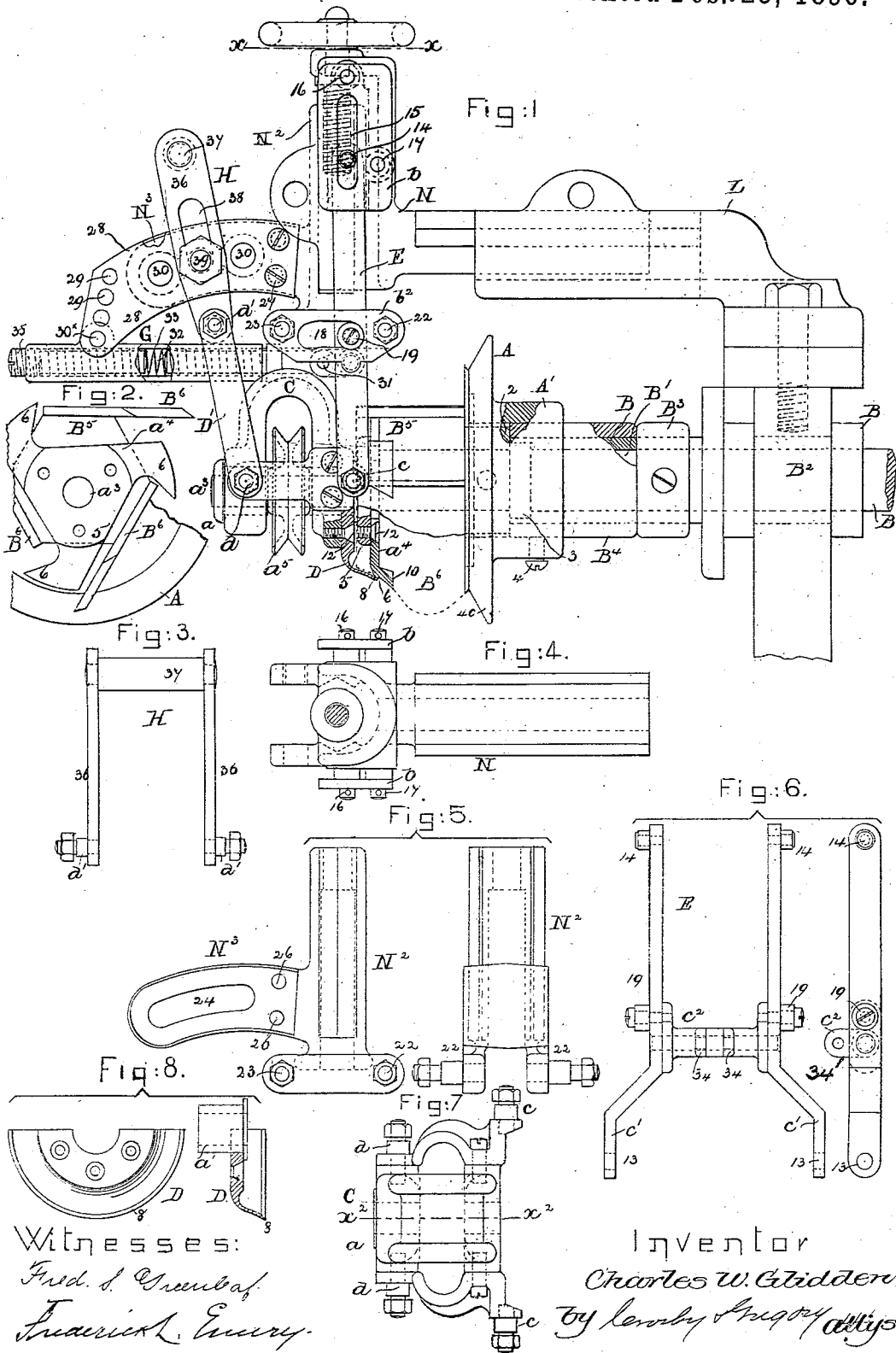


(No Model.)

C. W. GLIDDEN.
HEEL TRIMMING MACHINE.

No. 555,240.

Patented Feb. 25, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

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HEEL-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 555,240, dated February 25, 1896.

Application filed June 2, 1888. Serial No. 275,880. (No model.)

To all whom it may concern:

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

10 This invention is an improvement on that class of heel-trimming machines wherein a rotary cutter is employed.

In heel-trimming machines heretofore the rand-guard and rand-knife are moved to uncover more or less of the cutting-edge of the rotary heel-cutter; but in those machines the rand-knife has a different relation to the rand when trimming the sides of the rand than when trimming the rear portions of the rand, the result being that the rand-crease is made more flaring at the rear than at the sides, which is an objection in fine work, and is especially marked in heels of the kind called "French," or "pompadour," in which the distance from the upper crown of the rand to the corner of the top lift is much greater at the rear than at the sides. It is this difference in the distances from the corner of the top lift to the nearest point in the upper corner of the rand at different parts of the heel which makes it necessary to tip the heel and to move the rand-guard and rand-cutter as the heel is tipped in order that the length of cutting-edge of the heel-cutter shall be suited to the varying distances from top lift to rand-guard; but as the rand-knife is moved to uncover more of the cutting-edge of the heel-cutter it necessarily cuts away more of the upper corner of the rand, thereby making the rand-crease more flaring at the rear portions than it would be. Consequently I have combined with the rand or counter-guard a rand-cutter which is made to move in unison with it, which insures that the bevel of the rand is the same entirely about the heel; and another feature of my invention is a rand-knife which preserves the same relation practically to the rand at all parts of the heel, the rand-knife and rand-guard being mounted upon links having their outer ends pivoted at one side of

the axis of the heel-cutter; and for the best results these links will be of different lengths and not parallel, and for certain heels of peculiar curvature I have combined with the links a cam to supplement the movement of the links, as will be described, and I have also made provision in my improved machine for adjusting the links referred to according to the style or pattern of the heel.

Figure 1 in side elevation, partially broken out, shows a portion of a well-known trimming-machine with my improvements added; Fig. 2, a detail showing a portion of the usual molded cutter, the tread-guard, and the rand-cutter; Fig. 3, a detail of the adjustable supporting-yoke for the short links; Fig. 4, a partial section below the dotted line *xx*, Fig. 1; Fig. 5, side and end views of the cam-block to be described; Fig. 6, details of the long link to be described; Fig. 7, a top view of the carrier, and Fig. 8 the rand or counter-guard detached.

The standard B^2 and the arm *L* are and may be supposed to be the same as the parts designated by like letters in United States Patent No. 267,544, dated November 14, 1882, to which reference may be had.

The standard B^2 receives in it a box or bearing *B*, which is extended forward, as shown in Fig. 1, its end being chambered to receive a collar 3, fixed to the main rotating shaft B' , and also by its end to come in contact with a projection 2 from the head B^3 of the rotary cutter, the latter being provided with blades B^6 , which are curved more or less according to the particular curvature or shape to be given to the heel, the head and blades being hereinafter denominated as a "molded cutter."

The bearing *B* has screwed fast upon it at the left-hand side of the standard B^2 a collar B^3 , and between it and the projection 2 is mounted loosely a sleeve B^4 , this sleeve having secured to it by screw 4 a sleeve-like shank *A'* of the tread-guard *A*, the tread-guard being thus supported loosely with relation to the main shaft B' and being free to rotate more or less with the heel of the shoe as the latter with its tread against it is moved by the operator under the cutter.

I do not desire to limit my invention to any

particular shape of the blades of the molded cutter, as they may be of any usual or suitable form.

The arm L has adjustably mounted in it a head N, which is also substantially as in Patent No. 267,544.

Opposite the end of the molded cutter I have placed a carrier C. (Shown separately in top view in Fig. 7 and in side elevation in Fig. 1.) This carrier has through it in the line x^2 , Fig. 7, suitable openings to receive suitable bushings, as a^1 , which constitute bearings for a rotating shaft a^3 , having at its inner end next the molded cutter an enlarged head or disk, as 5, to which is connected the rand-cutter a^4 , the latter, as best shown in Fig. 2, having three cutting-blades, as 6, which are extended radially outward between the cutting-edges of one blade, B^6 , and the inner end of another blade, the said blade 6 being of such shape as to act upon that part of the sole next to the upper and bevel what is called the "rand," this being done while the lip 8 of the rand or counter guard D runs in the usual rand-crease.

Each blade 6 of the rand-cutter is provided with an outwardly-projecting portion, (marked 10 in Fig. 1,) which is of such shape externally as to correspond substantially with the edge of the cutting-blade which it overlaps, so that the formation of a rough or feather edge between the heel edge and rand is obviated.

The shaft a^3 has fast upon it a pulley a^5 , which in practice will receive any usual belt or cord whereby the said shaft may be rotated independently of the shaft B^1 .

The rand or counter guard D is secured by screws 12 or otherwise to or made to form part of the carrier C, the said guard having a lip 8, which in practice enters the usual rand-crease, the guard near the lip being curved or shaped to adapt itself readily to the counter of the shoe, the rand-cutter, or the disk 5 rotating within the rand or counter guard.

The carrier C has journals c , which enter holes 13 (see Fig. 6) in the lower ends of bars c^1 united in suitable manner, as by a cross-bar c^2 , to constitute a two-armed link E, as best shown in Fig. 6, which link I denominate hereinafter as the "longer link," the said link at its upper end having roller or other studs 14, which enter and are free to slide in slots 15 in like plates b held by studs 16 17 projecting from the sides of the head N^2 , the said plates constituting guides for the roller or other studs 14 and permitting a certain amount of endwise movement to the long link, the extent of said endwise movement being, as herein shown, limited by roller or other stud 19 in the cam-slots 18 of the cam-plates b^2 , mounted upon shouldered studs 22 23 projecting from opposite sides of the head N^2 , made adjustable in any usual or suitable manner in the head N.

The roller or other studs 19 of the long link, one at each side of the link, enter cam-slots 18 in the plate b^2 .

The auxiliary head N^2 has extended outwardly from it an arm N^3 having preferably a curved slot 24, (see Fig. 5,) the said arm having holes 26 which receive screws 27 by which to attach the arm-plates 28, one at each side of the arm, the said plates being provided at one end with holes 29, in one of which is placed, as may be desired, a stud 30 $\times$, which forms a pivot for a spring-box G composed essentially of a sleeve having within it a rod 32 and surrounded by a spring 33, the end of the rod at the right in Fig. 1 being jointed by a pin 31 to ears 34 of the cross-piece c^2 . (See Fig. 6.)

In practice the rod 32 will be provided with a shoulder against which will bear the right-hand end of the spring 33, and an adjusting-screw 35 will bear against the opposite end of the said spring, the spring normally acting to push the long link E and the carrier C supported by it toward the outer end of the head of the molded cutter, as shown in Fig. 1.

The carrier C has two journals d , which are placed in holes at the lower end of two like short links D^1 , one only being shown, each link having at its upper end a hole to fit one of two like studs d^1 at the lower end of a yoke H, composed essentially of two arms 36 connected by a cross-bar 37, each of the said arms being slotted, as at 38, (see Fig. 1,) and fitting over the opposite ends of an adjustable bolt or stud 39 extended through one or the other of the holes 30 in the plates 28, before described, the said bolt or stud 39 being also extended through the slot 24, the latter permitting the adjustment of the yoke, which serves as the support for the short links D^1 .

In practice the edge 8 of the rand or counter guard follows in the rand-crease, and as the molded cutter trims the back of the heel, the tread of which is held against the surface 40 of the tread-guard, the heel is tipped and the rand-guard, as it is moved by the acting edges of the blades B^6 , is tipped in the same direction as the heel is tipped, thus enabling the lip of the rand or counter guard to remain in the rand-crease, and as the rand-guard is moved, as described, by the rand-crease the rand-cutter follows it in the same direction.

As described, it will be noticed that the carrier C, which supports not only the rand or counter guard and the rand-cutter, is sustained upon two links, as E and D^1 , of different length, and the said links are not parallel, for if they were parallel and of equal length it is obvious that the described movement for the rand or counter guard and rand-cutter with relation to the molded cutter could not take place.

It is obvious when the motion due to the links alone swinging on their fulera is suffi-

cient to uncover the rotary molded cutter in the line of the contour of the blades thereof, then the cam-path 18 in the plates b^2 will be in the arc of a circle described from the stud 14 on the link E, so that there shall be no endwise movement of the said link.

I claim—

1. In a heel-trimming machine the following instrumentalities, viz., a rotary heel-trimming cutter; a rand or counter guard to run in the heel-crease; a tipping support to which the said rand or counter guard is firmly attached; and means to sustain the said support loosely and to tip it, whereby as the rear part of the heel is being trimmed, as described, the said support is automatically tipped to cause the rand or counter guard to tip in the same direction that the heel is tipped as more or less of the length of the blades of the cutter are uncovered, substantially as described.

2. A rotary heel-cutter; a rand or counter guard; a rotating rand-cutter; a carrier or support to sustain the said rand-guard and rotary rand-cutter; and a tread-guard; combined with links of different lengths to sustain the said carrier and compel it to tip as it is moved toward and from the rotary heel-cutter, substantially as described.

3. In a heel-trimming machine, the following instrumentalities, viz: a rotary heel-trimming cutter; a rand or counter guard to run in the heel-crease; a tipping support to which the said rand or counter guard is firmly attached; a rand-cutter also carried by said tipping support; and means to sustain the said support loosely and to tip it, whereby, as the rear part of the heel is being trimmed, the said support is automatically tipped to cause the rand or counter guard and the rand-cut-

ter to tip in the same direction that the heel is tipped, as more or less of the length of the blades of the cutter are uncovered.

4. The rotary molded cutter, the independently-movable carrier, the rand or counter guard, and the rotating rand-cutter mounted in the said carrier, combined with links of different length to support the said carrier at both ends, substantially as described.

5. The rotary molded cutter, the independently-movable carrier, the rand or counter guard, and the rotating rand-cutter mounted in the said carrier, combined with links lying in converging planes or out of parallelism the said carrier being supported by the said links, substantially as described.

6. The rotary molded cutter, the independently-movable carrier, the links of different length to support it near the end of the cutter, combined with the rand or counter guard, and the rotating rand-cutter both mounted in the said carrier, and with means to adjust one of the said links, substantially as described.

7. The rotary molded cutter; the independent carrier; the rand or counter guard supported in said carrier, and two links jointed to said carrier, combined with a cam, as b^2 , to move one of said links longitudinally, to thereby determine the extent of movement of the carrier across the axis of the rotary-cutter shaft, 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:

GEO. W. HAMMATT,
H. P. FAIRFIELD.