2 Sheets--Sheet 1.

R. C. LAMBART.

Machine for Trimming the Heels and Soles of Boots and Shoes.

No. 160,529

Patented March 9, 1875.

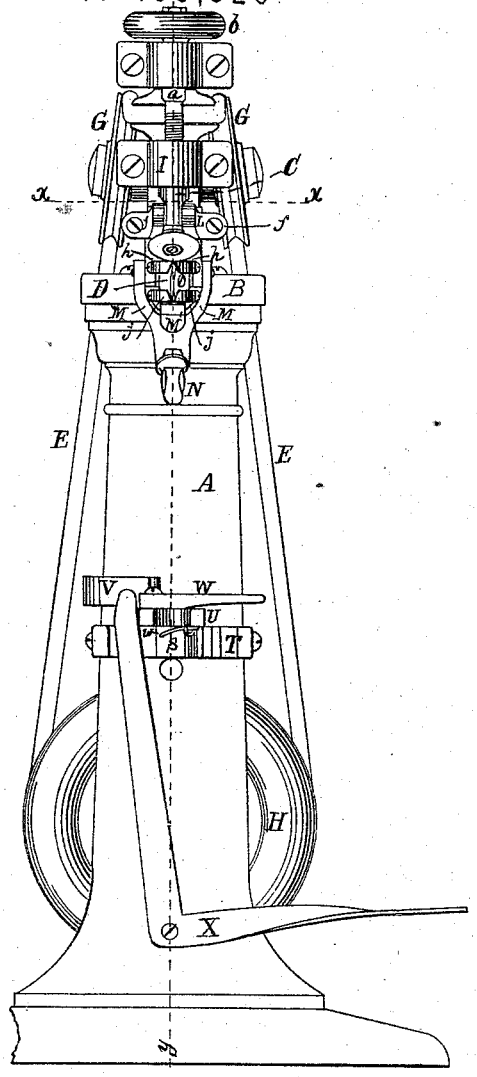

Fig. 2.

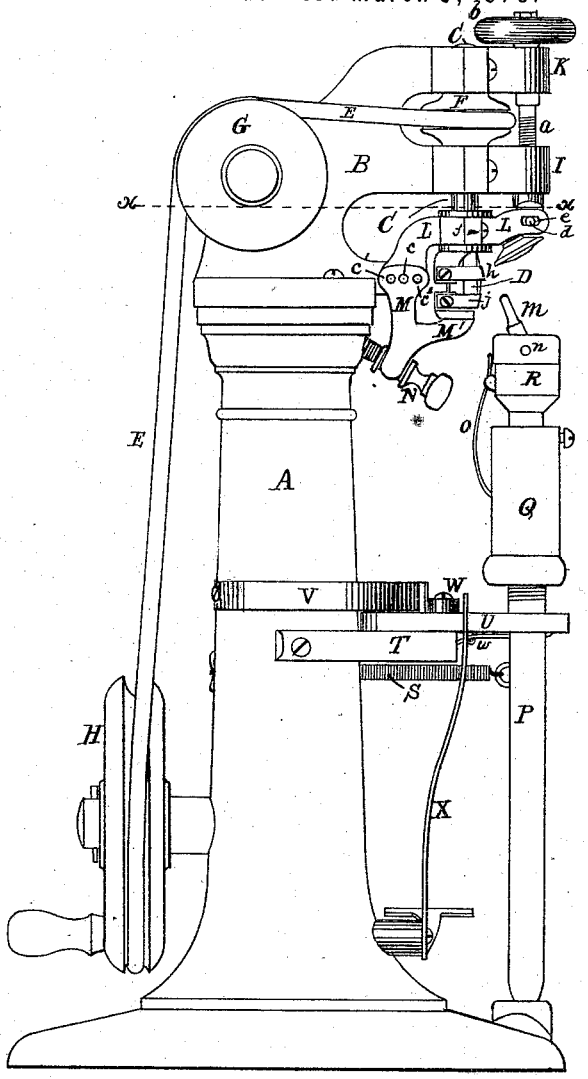

Fig. 1.

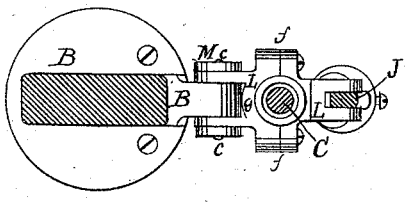

Fig. 3.

WITNESSES.

Wm. P. Edwards

E. A. Hemmenway

INVENTOR.

Hild C. Lambart

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

R. C. LAMBART.

Machine for Trimming the Heels and Soles of Boots and Shoes.

No. 160,529. Patented March 9, 1875.

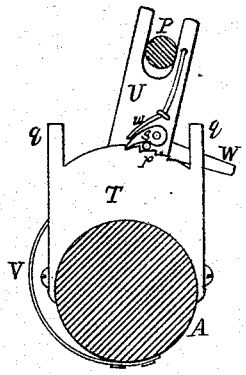

Fig. 6.

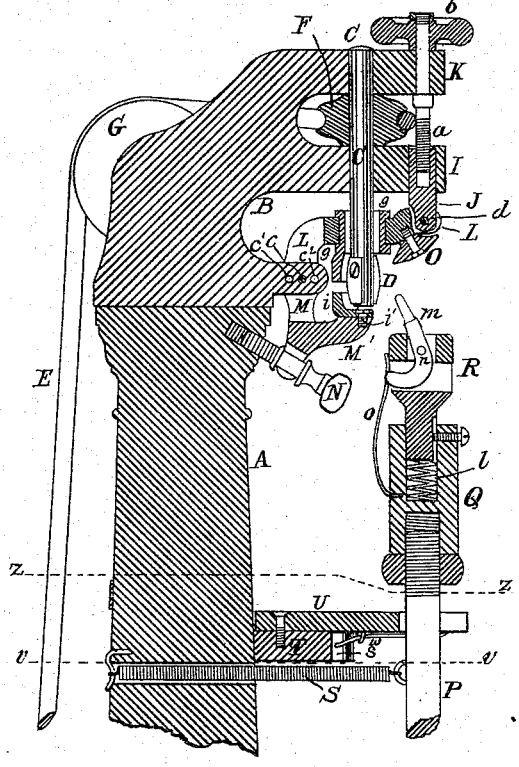

Fig. 4.

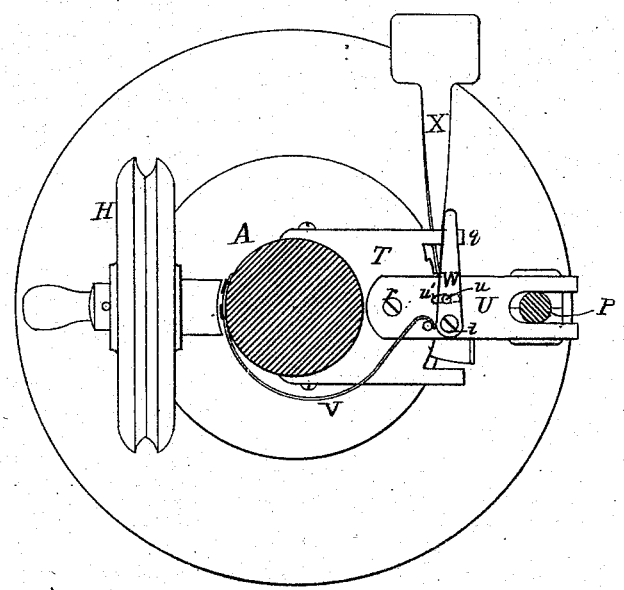

Fig. 5.

WITNESSES.

Wm. P. Edwards

E. A. Hemmenway

INVENTOR.

R. C. Lambart

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

RICHARD C. LAMBART, OF QUINCY, ASSIGNOR TO FRED S. POTTER, TRUSTEE, OF NEW BEDFORD, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR TRIMMING THE HEELS AND SOLES OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **160,529**, dated March 9, 1875; application filed January 27, 1875.

To all whom it may concern:

Be it known that I, RICHARD C. LAMBART, of Quincy, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Trimming the Heels and Soles of Boots and Shoes, of which the following, taken in connection with the accompanying drawings, is a specification:

My present invention relates to the manner of hanging the guides against which the shoe heel or sole rests while being acted upon by the cutter, and to certain devices for controlling or facilitating the operation of the jack, and is an improvement upon the invention for which Letters Patent No. 152,388 were granted to me June 23, 1874.

My invention consists, first, in the use of one or more pairs of gages, attached by their rear ends to stands provided for the purpose, and arranged to nearly surround the cutter, said stands being so mounted in or on bearings concentric with the axis of the cutter-head that said gages may vibrate about the cutters without materially changing their relation to the periphery of said cutters.

It further consists in mounting the gage-stands in or on bearings formed for the purpose upon levers pivoted to the frame of the machine at a point coincident with the center of the curve given to the cutters in a longitudinal direction, so that said gages may be adjusted vertically without changing their relations to the cutting-edge of the knives, as will be further described.

My invention further consists in the use, in combination with a non-revolving last-support or jack, of a pivoted last-pin, arranged to vibrate about an axis in the upper end of the jack, and provided with an elbow-arm, projecting through the side of the jack-head below the axis of said pin, against which bears a spring tending to hold the last-pin in an inclined position toward the cutters, so that into whatever position the shoe may be revolved about said last-pin, the upper or tread surface of the heel or sole shall be pressed toward the cutters.

My invention further consists in the use of a forked lever or arm pivoted to the frame of the machine in position to embrace the jack-rod, and carrying a pawl arranged to engage with ratchet-teeth formed upon the frame, or a stand secured thereto, for the purpose of holding the jack to the right of the cutter-head, while placing a shoe in position on the jack, against the tension of a spring arranged to move the jack to the left, as will be described.

It further consists in the combination, with the jack, forked lever, pawl, ratchet-teeth, and spring, of a hand-lever for releasing the pawl from the teeth of the ratchet, and a treadle elbow-lever, for moving the jack to the right during the process of trimming the edge of the heel or sole.

In the drawings, Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a front elevation. Fig. 3 is a horizontal section on line *x x* on Figs. 1 and 2. Fig. 4 is a vertical section on line *y y* on Fig. 2. Fig. 5 is a horizontal section on line *z z* on Fig. 4; and Fig. 6 is a horizontal section on line *v v*, looking upward.

A is a column provided with a broad base, and to the top of which is bolted the frame B, in which is mounted, in a vertical position, the spindle C, to the lower end of which is secured the cutter-head D. The spindle C is rotated by means of the endless belt E, which passes around the grooved pulley F, over the idle-pulleys G G, and around the driving-pulley H, in an obvious manner.

In the cap I of the lower bearing of the spindle C is mounted the rod or bar J, arranged to be moved up or down by the screw *a*, provided with the hand-wheel *b*, and mounted in a bearing in the cap K of the upper bearing of the spindle C.

So far this machine is constructed and arranged substantially like the machine patented to me June 23, 1874.

L is a bifurcated lever, pivoted at *c* to the frame B, and connected at its movable end to the bar J by means of the pin *d* passing through the slot *e*. The lever L is made in two parts, bolted together at *f*, and has formed therein a box or bearing, in which is mounted

the annular journal of the gage stand or carrier *g*, which surrounds the lower end of the spindle C, as shown in Fig. 4, and has secured thereto the two curved gages *h h*, one upon either side, said gages being brought forward, one on either side of the cutter-head D, and curved around said head in close proximity to the path of the cutting-edge of the knives, so as to nearly meet in front of the cutters. M is another bifurcated lever or stand, also pivoted to the frame B at *c*, and arranged to be adjusted about said pivot by means of the thumb-screw N, and provided with the horizontal arm M′, extending under the lower end of the cutter-head D, and carrying upon its upper side the gage-stand *i*, mounted upon the pin *i′*, the axis of which is in line with the axis of the spindle C and cuter-head D, and around which it is free to vibrate, as circumstances may require.

The pivoted stand *i* has secured thereto a pair of gages, *j j*, constructed and applied thereto in substantially the same manner as the gages *h h* are applied to the carrier *g*.

The pin *c*, upon which the levers L and M are pivoted, is so located that its axis coincides with the center from which the curve of the front side of the cutter is struck, so that into whatever position the gages may be adjusted vertically their front ends will always bear the same relation to the path of the cutting-edges of the knives.

If a cutter is used having less curve in the direction of its length the pin *c* is placed in the hole c^1, and if one is used having a quicker curve the pin *c* is placed in the hole c^2.

O is a gage-wheel, mounted on the axial pin *k*, set in the lever L, in such a position that its inner edge will rest upon the inner edge of the upper surface of the heel when the shoe is placed in position upon the jack, and the side or edge of the heel is brought to bear against the gages *h h* and *j j*.

The jack-rod P, sleeve Q, and jack-head R, resting upon the spring *l*, are all constructed and arranged substantially as described in my aforesaid patent, and, therefore, form no part of my present invention; but the last-pin *m*, instead of being attached to the jack-head by a ball-and-socket joint, as in said patent, is made in the form of an elbow-lever, and pivoted to the jack-head R by means of the axial pin *n*, around which it may be made to vibrate within certain limits, and is held in a position inclined toward the cutter-head D by the spring *o*, bearing against the end of its lower or horizontal arm, as shown.

The jack, with the shoe placed thereon, is drawn toward the cutters by the spring S, one end of which is attached to the jack-rod P, and the other to the column A, as shown.

It will be obvious that the jack-rod P, sleeve Q, and jack-head R are not to be revolved during the process of trimming a heel or sole, from the fact that the attachment of the spring S to the rod P precludes such revolution; but the shoe or last is revolved upon the last-pin *m*, the jack and pin *m* always maintaining the same relative position, or nearly so, to the cutters.

T is a projecting stand, cast upon or otherwise secured to the front side of the column A, the outer edge of which is curved and provided with the ratchet-teeth *p* and the projecting lugs *q q*, to limit the movement of the jack-rod.

U is a forked lever, pivoted to the stand T at *r*, the forked end of which embraces the jack-rod P, and has pivoted to its under side the pawl *s*, arranged to engage with the teeth *p* on the stand T, to hold the jack in convenient position while the shoe is being placed thereon.

V is a spring, one end of which is attached to the column A, and the other end to the forked lever U, and serves the purpose of moving the jack in one direction, while its movement in the opposite direction is accomplished by means of the treadle elbow-lever X, the upper end of which rests against the side of the forked lever U.

W is a lever, pivoted at *t* to the forked lever U, and provided with a pin, *u*, projecting downward through a slot, *u′*, in position to act upon the pawl *s*, to disengage it from the ratchet-teeth *p* when the lever W is moved toward the front of the machine.

The pawl *s* is held in contact with the edge of the stand T, and made to engage with the teeth *p* by the action of the spring *w*.

What I claim as new, and desire to secure by Letters Patent of the United States, is as follows:

1. The gages *h h* or *j j*, arranged to partially inclose the cutter-head D, and to vibrate about an axis coincident, or nearly so, with the axis of the cutter-head, substantially as described.

2. In combination with a rotary cutter-head and its spindle, the gages *h h* and gage-carrier *g*, provided with an annular journal surrounding the spindle, and mounted in a bearing concentric, or nearly so, with the axis of the spindle and cutter-head, substantially as described.

3. The combination of the gages *h h*, the gage-carrier *g*, and the bifurcated lever L, pivoted to the frame at a point coincident with the axis of the longitudinal curve of the front side of the cutters, and suitable means of adjusting the movable end thereof, substantially as described.

4. The combination of the gages *j j*, the pivoted stand *i*, and the bifurcated lever M, provided with the horizontal arm M′, and pivoted to the frame at a point coincident with the axis of the longitudinal curve of the front side of the cutters, and the screw N, for adjusting the same, substantially as described.

5. The combination, upon the jack of a sole or heel edge trimming machine, of a pivoted heel-pin, constructed with a lever-arm, with a

spring secured to the vertical standard, and adapted to press against said lever-arm and hold the pin in an inclined position, all substantially as and for the purpose described.

6. In combination with the jack-rod P, the forked lever U, pivoted to the stand T, the pawl *s*, and ratchet-teeth *p*, all as and for the purposes described.

7. The combination of the jack-rod P, forked lever U, pawl *s*, ratchet-teeth *p*, and lever W, provided with the pin *u*, all arranged substantially as described, for the purposes specified.

8. The combination of the jack-rod P, forked lever U, springs S and V, and the treadle-lever X, all arranged substantially as described.

Executed at Boston, Massachusetts, this 22d day of January, 1875.

R. C. LAMBART.

Witnesses:

WM. P. EDWARDS,

E. A. HEMMENWAY.