R. C. Lambart, 3. Sheets. Sheet. 1.

Heel Machine.

No. 108,605. Patented Oct. 25. 1870.

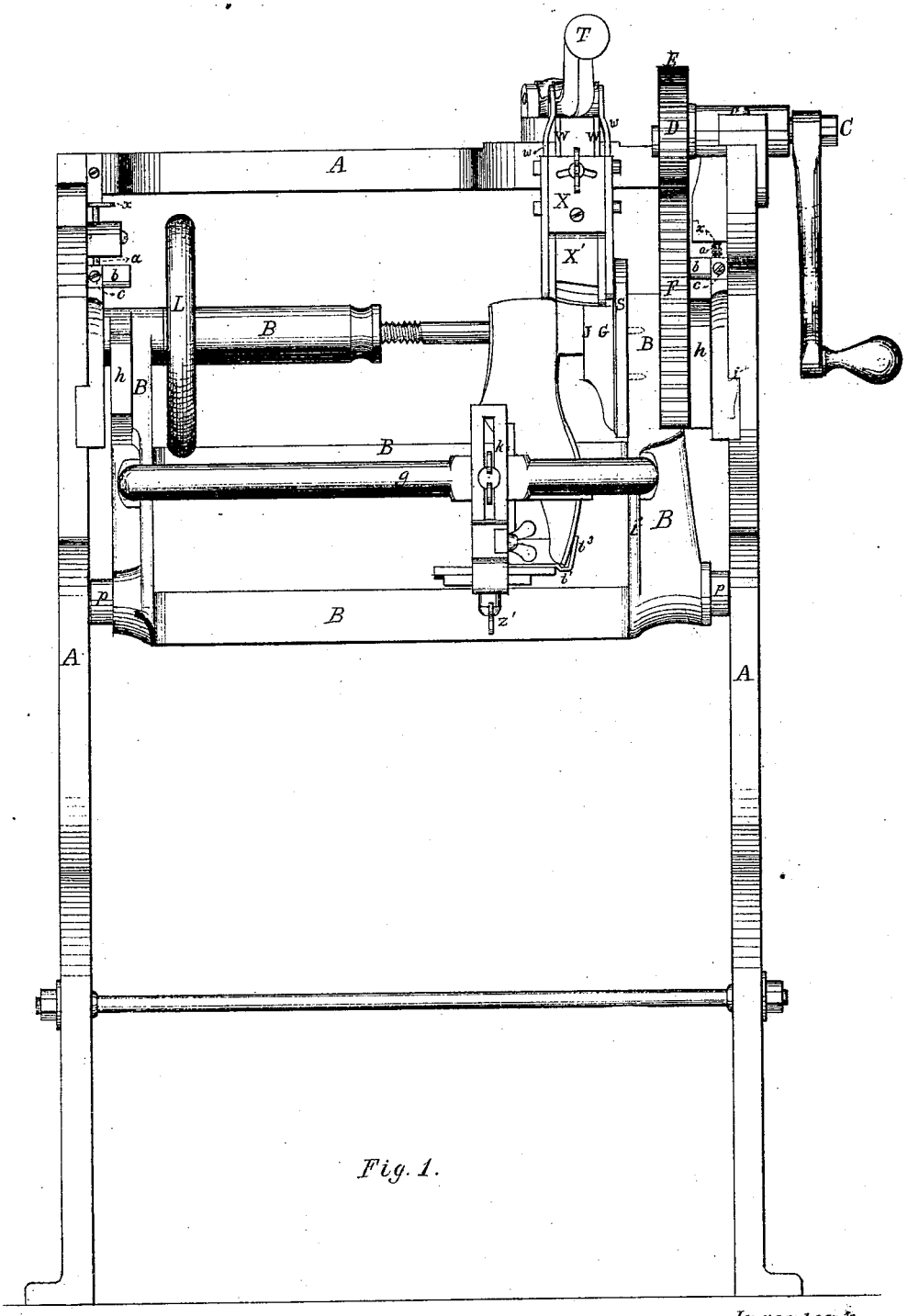

Fig. 1.

Witnesses.
William W Swan
Chas. P Gorely.

Inventor.
Richard C Lambart

R. C. Lambart, 3. Sheets. Sheet. 2.

Heel Machine.

No. 108605. Patented Oct. 25. 1870.

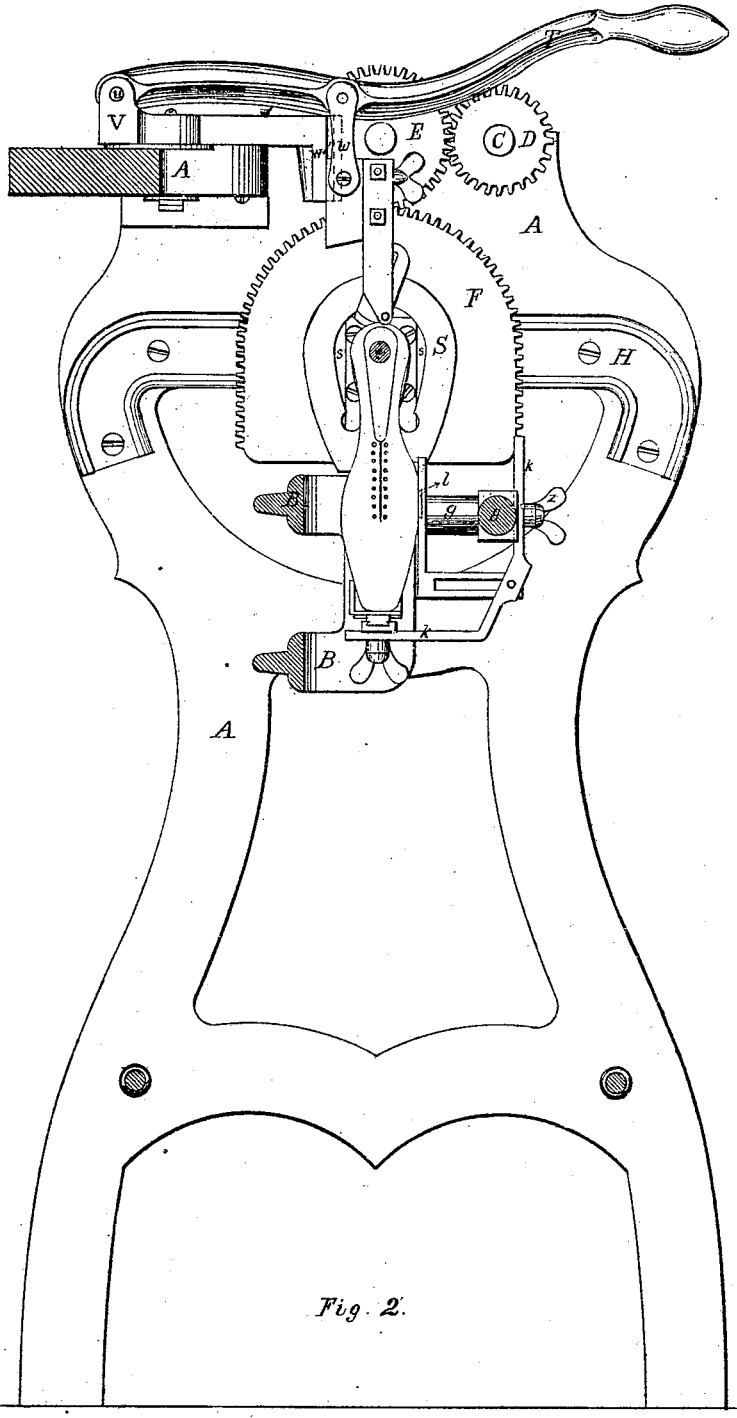

Fig. 2.

Witnesses.
William W. Swan
Chas. P. Gorely.

Inventor.
Richard C. Lambart

R. C. Lambart, 3 Sheets, Sheet 3.

Heel Machine.

No. 108,605. Patented Oct. 25. 1870.

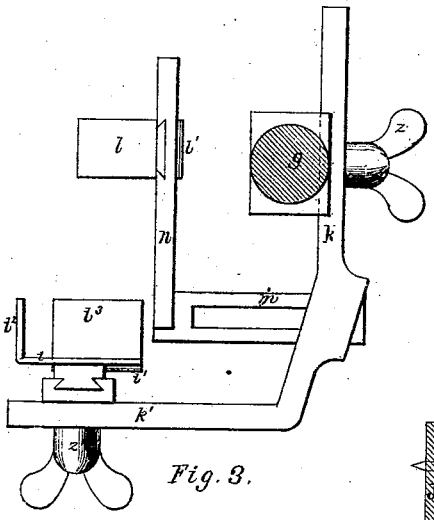

Fig. 3.

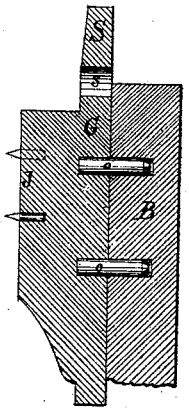

Fig. 5.

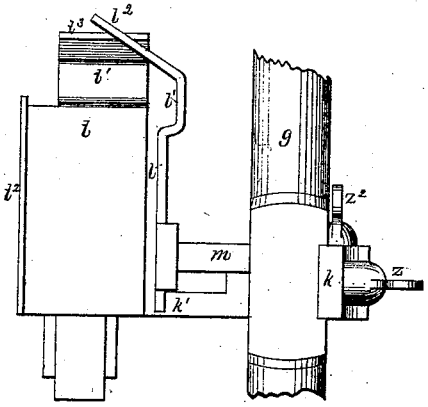

Fig. 4.

Witnesses.

William H Swan

Chas. P. Gordy.

Inventor.

Richard C Lambart

United States Patent Office.

RICHARD C. LAMBART, OF SOUTH ABINGTON, ASSIGNOR TO DAVID WHITTEMORE OF NORTH BRIDGEWATER, MASSACHUSETTS.

Letters Patent No. 108,605, dated October 25, 1870.

IMPROVEMENT IN MACHINES FOR CUTTING HEELS OF BOOTS AND SHOES.

The Schedule referred to in these Letters Patent and making part of the same.

I, RICHARD C. LAMBART, of South Abington, in the State of Massachusetts, have invented certain new and useful Improvements in Heel-cutting Machines, of which the following is a specification.

These improvements have particular reference to a machine and improvements therein invented by me, and patented to David Whittemore by Letters Patent No. 76,207, dated March 31, 1868, and Letters Patent No. 96,817, dated November 16, 1869, but are not confined thereto.

They consist—

First, in a center-guide, to force the heel, when it is chucked, to take the proper position to be operated upon by the trimming mechanism.

Second, in a device for registering the position of a shoe operated upon by the cutting mechanism in a heel-trimming machine, in order that shoes of the same shape and size thereafter operated upon may be trimmed in the same manner and to the same extent.

Third, in making the pattern and its cam-groove detachable from the jack, that "right" and "left" heels, as well as heels of different sizes, may be trimmed upon the same machine.

Fourth, in an improved device for releasing and fixing the center of oscillation of the jack.

In the drawing—

Figure 1 is a front elevation of the machine.

Figure 2 is an elevation, showing the parts to the right of the dotted line in fig. 1.

Figure 3 is a detached view of my center-guide in the same position in which it is shown in fig. 2, but of double the size.

Figure 4 is a plan of the same.

Figure 5 is a detached view, showing the pattern, cam, and cam-groove, and their connection with the jack.

A is the frame of the machine.

B is the jack, constructed substantially as in the machine patented as aforesaid, in 1868, and having the same oscillating and reciprocating movements.

As described in the former patent, the jack derives its movements from the main shaft C, through a pinion, D, on the main shaft, meshing into a toothed wheel, E, which engages with a toothed segment, F, rigidly attached to the jack, and oscillates upon journals, in proper boxes, in blocks sliding back and forth in the ways H, describing a half-circle at each oscillation.

These sliding blocks are not shown in the drawing as in the old machine; however, they are held in their places, when the jack is to rotate, by pins *a a*, but I have invented a new device for raising the pins and releasing the sliding blocks when the jack is to travel forward or back, viz., two bars *b b* are secured to the pins *a a* by set-screws *c c*, which bars at the proper times are acted upon by two cams *h h* upon the jack, thus raising the pins, or allowing them to fall into the sliding blocks by force of the leaf or spiral springs *x x*.

The jack has two pins *p p*, which, during a part of the movement of the jack, run in the ways H.

J is the heel-pattern, provided with a cam, G, and cam-guide S, the two latter forming a cam-groove, *s*, to control the movement of the rocking knife, as described in my patent dated November 16, 1869.

The principal office of the pattern J is to serve as a rest for the heel, that the edge of the heel may be properly cut by the knife, and that the side edge of the heel may not be crowded over upon the tread. It also serves as a bearing for the rocking knife-stock.

The pattern, cam, and cam-guide are cast in one piece, and secured to the jack by dowel pins *o o*, as shown in fig. 5.

The knife-stock consists of two parts X X′, as described in my patent of 1869.

A roller attached to the rocking knife, and running in the cam-groove, determines the movement of the rocking knife, and the angle at which it is presented to the heel to be operated upon. The knife is further controlled by the lever T, as before.

As in the former machine, the lever is pivoted at *u* to the stanchion V, which is pivoted to and turns horizontally upon the frame A, and it is connected with the ways W by links *w w*.

The device for registering the position of a shoe, the heel of which is trimmed in the machine, consists of two slotted arms, *k* and *k′*, attached to the bar *g* of the jack by a set-screw, *z*, as shown; the arm *k′* carries a toe-rest, *t*, secured thereto by a set-screw, z^1; the toe-rest has a recess, *t′*, as shown, to receive a sole of any thickness, projecting beyond the upper leather of the shoe on the last; the arm t^2 of the recess is so inclined as to strike against the tread of the sole at a higher or lower point, according to the thickness and bend of the sole; the slot in the arm *k* allows the toe-rest a movement back and forth in the direction of the slot, a dovetailed tongue and groove, giving to the toe-rest a free movement at right angles to the slot, as shown, to allow the recess *t′* to accommodate itself to the sole of the shoe. To the arm *k*, by means of a set-screw, z^2, a slotted bar, *m*, and an upright bar, *n*, as shown, is attached a slide-rest, *l*, having a recess, *l′*, for the sole of the shoe.

The following is the method by which the position of a shoe is registered by the device just described:

A shoe upon the last is jacked by the eye, and trimmed, as directed in the previous patent of 1869. The set-screw *z* being loose in the slot of the arm

k, the registering apparatus is raised until the toe-rest strikes the toe of the shoe, receiving the sole in the recess t', the toe-rest at the same time being moved away from or toward the bar g of the jack, that the arm t'' of the toe-rest may press against one side of the shoe, and being secured in that position by the set-screw z'; the side rest l is then moved up against the other side of the shoe, the recess l' receiving the sole, and is there secured by the set-screw z''. The registering device is now set for all shoes of the kind and size of the shoe jacked at the beginning of the operation, and with respect to the shoes upon which the heel-trimming operation is to be continued, may be considered as a center-guide, *i. e.*, a guide which forces the center of oscillation and rotation of the heel to coincide with the center of oscillation and rotation of the pattern and jack.

The first shoe may be released by a turn of the wheel L, and to jack the second it will be only necessary to slip it into the center-guide, so that the sole shall be in the recesses t' and l', and turn the wheel L till the heel is held firmly against the pattern.

This center-guide may be used with "rights and lefts" as well as with straight shoes; the toe-rest and side-rest being moved further from the bar g for a "right" than for a "left" or "straight."

I provide my machines each with several patterns and cam-grooves for rights and lefts, as well as straights, of various sizes; and that the piece containing the pattern and cam-groove may be readily taken out of the machine and another substituted, I secure it by dowel-pins, as hereinbefore stated. The same pattern and groove, however, will answer for both a right and a left shoe of the same size.

Since the sizes and shapes of shoes are pretty accurately known by their numbers, I mark my center-guide with several scales, that, without experiment, it may at once be set for a shoe of any size, either right or left. A scale on the slotted arm k, with an indicator on the bar g of the jack, shows how much the attachment is to be raised or lowered for a shoe of any given size.

In like manner there are two scales on the arm k', one for left shoes on one side of the slot, and the other for right shoes on the other side; and there are similar scales on the slotted bar m.

An operator, after a little experience, will readily allow for slight variations, different manufacturers make in the size and shape of shoes of the same number.

The scales above referred to are not shown in the drawing.

Instead of raising the toe-rest by means of the slotted arm k, it might be attached to the arm k' by an independent slotted arm, and so be raised or lowered independently of the rest of the center-guide.

It is obvious that other points than the extreme right side and extreme left side of a shoe might be taken to determine the proper position of the shoe upon the jack.

Where much work is done upon shoes of the same pattern, a fork extending from the arm i of the jack, so as to embrace the shoe-last, in combination with a toe-rest, would be sufficient for this purpose; or, a hollow frame or case might be adapted to receive a part of the lasted shoe, so as to determine the position of the heel. Such devices would come within my invention, the object of this part of the invention being to furnish a guide by which the heel, on being screwed up against the pattern, will be compelled to take the proper position as to its center.

I claim—

1. A center-guide, substantially as described, for the purpose described.

2. A device for registering the position of a shoe operated upon in a heel-trimming machine, substantially as described, that shoes of the same pattern thereafter operated upon may be trimmed in the same manner and to the same extent.

3. The piece containing the pattern and cam-groove, when secured to the jack by dowel-pins, that it may be readily removed from the machine and another substituted in its place.

4. A detachable heel-rest or pattern and cam-groove in combination with a center-guide, substantially as described, to adapt the machine for shoes of any size.

5. The improved device for releasing and fixing the center of oscillation of the jack, as described.

The above specification of my said invention signed and witnessed at Boston this 29th day of June, A. D. 1870.

RICHARD C. LAMBART.

Witnesses:

WILLIAM W. SWAN,
CHAS. P. GORELY.