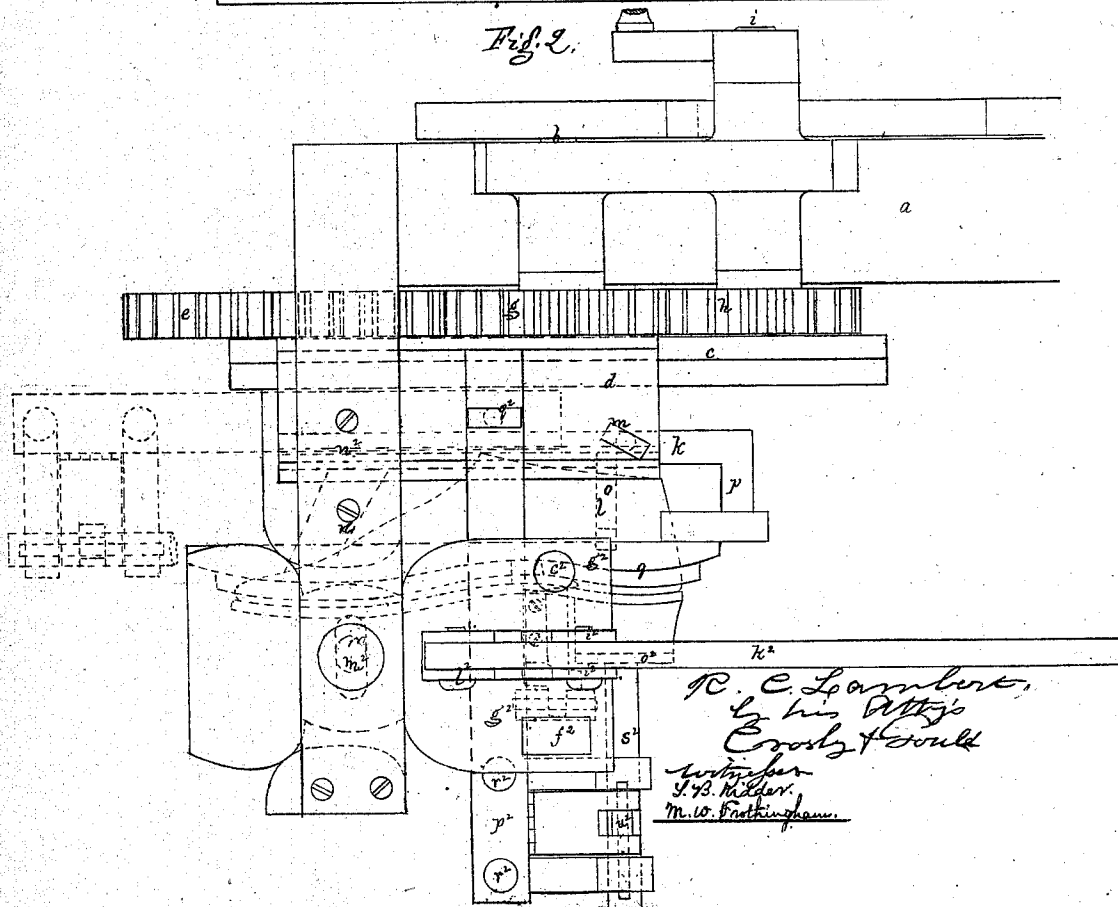
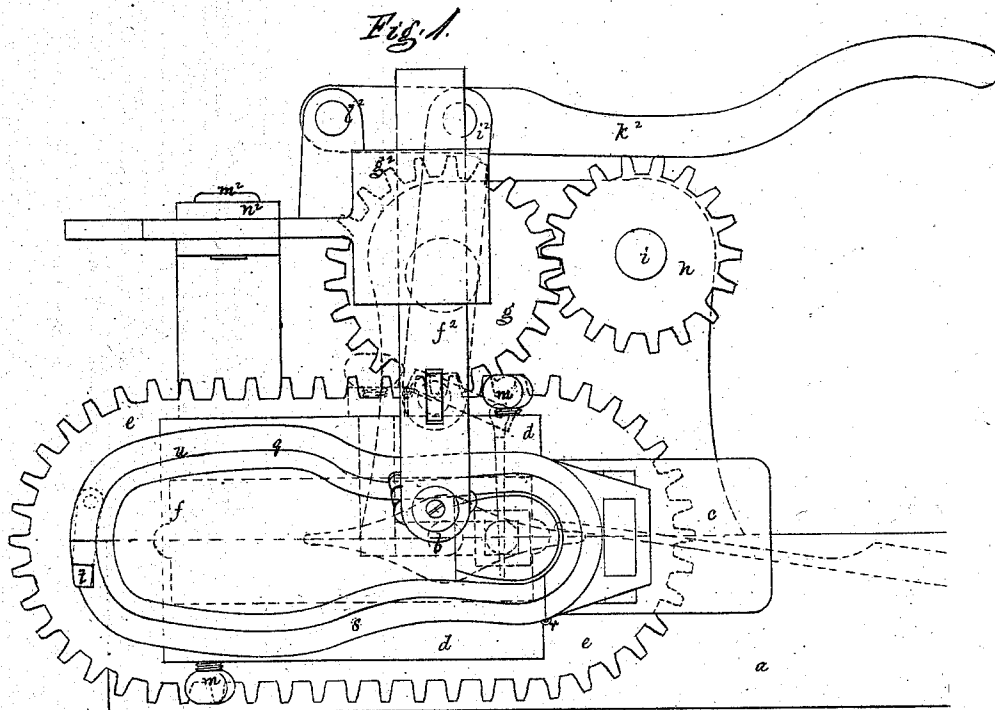


2 Sheets--Sheet 1.

R. C. LAMBERT.
Improvement in Machines for Trimming Boot and Shoe
Heels and Sole-Edges.

No. 115,219.

Patented May 23, 1871.



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Fig. 4.

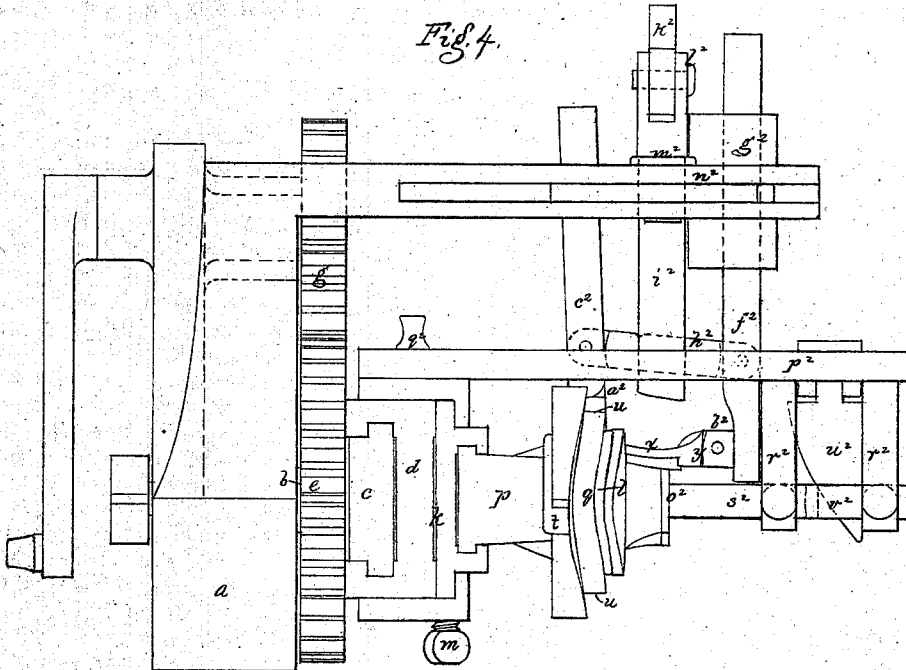
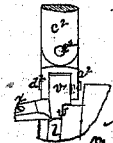
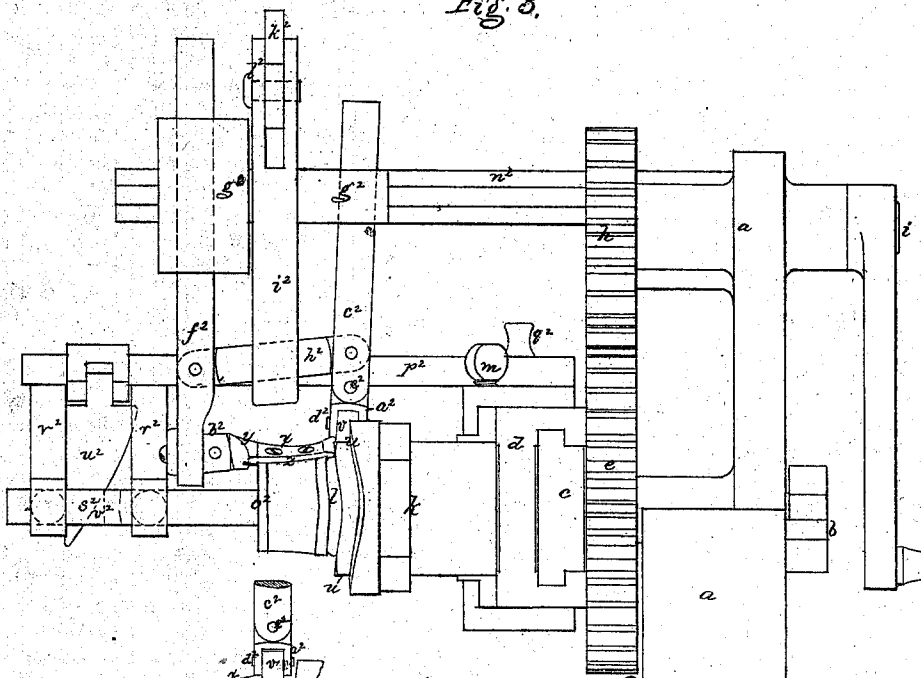


Fig. 3.



Witness
M. W. Southwickham.
B. B. Riddler.

R. C. Lambert,
By
Cross & Gould.

UNITED STATES PATENT OFFICE.

RICHARD C. LAMBERT, OF QUINCY, ASSIGNOR TO HIMSELF AND JOHN R. FOLSOM, OF STONEHAM, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR TRIMMING BOOT AND SHOE HEELS AND SOLE-EDGES.

Specification forming part of Letters Patent No. 115,219, dated May 23, 1 71.

To all whom it may concern:

Be it known that I, RICHARD C. LAMBERT, of Quincy, in the county of Norfolk and State of Massachusetts, have invented an Improved Machine for Trimming the Heels and Toe-part Edges of Boots and Shoes; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to the organization of a machine for trimming at one continuous operation the heel and forepart sole-edges of boots and shoes, the boot or shoe being jacked to a suitable carriage which has a feed movement such as to bring the whole length of the heel and sole-edge to the action of a stationary knife or cutter, or a knife or cutter which only has movement to conform to the irregular contour of the edge. Around the jacked boot or shoe, near the sole, extends a guide or pattern rail or frame, one edge of which is formed with a contour corresponding to the shape to be given to the heel and sole-edge; and on this guide rests a gage from which the cutter extends, the carriage to which the sole is jacked having combined longitudinal and circular movements, during which movements the gage rests upon the pattern-edge, and thereby controls the cutting position of the knife. It is in the combination of a carriage having longitudinal and circular movements, and having provision for jacking to it the boot or shoe, the heel and sole edges of which are to be trimmed, a pattern or guide-frame encompassing the boot or shoe near the edge, and a knife or cutter extending from a gage which rests upon or is held to the edge of the pattern or guide-frame, that my invention primarily consists, certain details of construction and arrangement also forming parts of the invention.

The drawing represents a machine embodying my improvements.

Figure 1 is a front elevation of the operative parts of the machine. Fig. 2 is a plan of the same. Fig. 3 is a front-end view thereof. Fig. 4 is a rear-end view thereof.

a denotes a frame, in which is journaled a shaft, *b*, carrying on its front end a guide-rail,

c, on which is mounted and slides the carriage *d*, to the front of which the boot or shoe is jacked. At the rear of the carriage, and fixed to or forming part of it, is an oblong gear-plate, *e*, the opposite ends of which are semi-circular gears, connected by the straight gear-racks, the shaft passing through the gear-plate, which has an oblong slot or opening, *f*, to permit the gear to move endwise. The gear-plate is driven by a gear, *g*, which may be driven by a pinion, *h*, on a crank-shaft, *i*, or in any other suitable manner; and, as the gear-plate is actuated, it moves straight forward until the circular gear-teeth reach the driving-gear; then turns on the shaft *b* as an axis, reversing its position; then moves forward again until the circular teeth at the opposite end reach the driving-gear, and then again turns (at its opposite end) upon the shaft *b* as an axis, and thus completes its movement, the guide-plate making a complete rotation, and the carriage in its end movements sliding upon said guide-plate and in its rotative movements turning with said plate. At the front of the carriage is an auxiliary slide or jack, *k*, to which the boot or shoe *l* is immediately jacked. This slide is adjustable, being retained in any suitable position along the main carriage by clamp-screws *m*. At the front end of the slide or jack is a toe-block, *n*, and near its rear end is a last-pin, *o*, and by these or other suitable fastenings the boot or shoe upon a last is jacked to the carriage, standing out therefrom, as seen at Fig. 2. At the rear end of the jack is a projection, *p*, to which is fixed the heel end of a guide-rail or pattern-frame, *q*, which frame extends entirely around the lasted and jacked boot or shoe, at a slight distance back from the edge thereof, as seen in Fig. 1. This guide-rail or frame is preferably made in two parts, connected by a hinge, *r*, the movable piece *s* swinging up to facilitate removal or jacking of the boot or shoe, and the two parts being locked together by a hook, *t*, or any other suitable fastening device. Extending around the frame is a guiding-edge or ledge, *u*, the periphery of which is of the exact pattern to be given to the sole and heel-edge, and upon this edge sets a gage-block, *v*, having a vertical guide-piece, *w*, the inner face of which sets against

the front face of the guiding-edge or lip u . The gage-block v , a head, x , and end-piece y , form together a stock for the trimming-knife or cutter z , and when the machine is in operation the position of the gage upon the ledge or guide-rail q insures the proper position of the inner end of the cutting-edge to effect the trimming of the edge of the sole to the requisite contour. The pattern-frame or rail is removably attached to the jack-slide, and by having a set of these pattern-frames different sizes and shapes of boots and shoes may have their heel and sole edges trimmed. The inner end of the gage and cutter-stock is pivoted to a knuckle, a^2 , and its outer end to a swivel-piece, b^2 , journaled in the foot of a vertical slide, c^2 , and by the pivots d^2 e^2 the knife can rock so as to keep at a proper cutting-angle of presentation throughout the variously-curved parts of the heel and sole edges. The knuckle a^2 is jointed to the bottom of a vertical slide, f^2 , the two slides c^2 f^2 passing through a head, g^2 , and being connected by a cross-rod, h^2 , which, by a link, i^2 , is jointed to a lever, k^2 , pivoted at l^2 , the cutter being raised from working position by lifting the lever, and the gage-block being kept in contact with the guide-rail by forcing down the lever. The head, g^2 is pivoted, by a pin, m^2 , to an arm, n^2 , of the main frame, and by means of this pivot the cutter-head and frame can be swung laterally outward from or inward into position, and can be held further in or out for different pattern-frames and sizes and styles of boots or shoes. In trimming the heel to a proper inclination provision is necessary for canting the cutter, and a guide is necessary for the outer end of the cutter. For the guide I use a heel-plate or pattern, o^2 , which I clamp to the outer heel-lift by an auxiliary frame, which may consist of a bar, p^2 , pivoted to the carriage d at q^2 , and having two bent arms, r^2 , through which passes a slide-rod, s^2 , at the inner end of which is the heel-plate o^2 , which heel-plate may be forced up and locked against the heel by a bolt, u^2 , passing through slot v^2 in the rod; and to permit the knife or cutter to tip, the knuckle a^2 is pivoted to the slide c^2 , as seen at x^2 , and the opposite end of the cutter is pivoted at y^2 , so that the cutter can assume any requisite angle, the link i^2 being slotted, and the cross-rod h^2 pivoted, and the slide f^2 moving freely in the head to permit free vertical swiveling movement of the cutter, and to permit the outer end of the cutter to fall down to and cut against the heel-plate.

The downward pressure upon the link i^2 forces the cutter down to the requisite angle, or until the knife reaches the heel-plate.

When the sole edge is being trimmed the heel-plate clamping mechanism may be swung around to the end of the machine on the pivot, and when the heel comes into position to be trimmed said mechanism is swung into position and the heel-plate clamped by it to the heel of the boot or shoe.

I claim—

1. In combination, a boot or shoe holding jack, having forward and backward and semi-rotative movements, a pattern-frame or guide-rail, (extending entirely around the boot or shoe near the sole,) and a non-rotative knife or cutter, having a gage resting upon the guide-rail, while the entire length of the rail runs under it, and thereby controlling the position of the cutter and the curve or contour of the edge of the sole and heel trimmed by the cutter, substantially as shown and described.

2. The rotary guide-bar c and the jack-carriage sliding upon said bar, arranged and combined substantially as shown and described.

3. The oblong gear or gear-plate fixed to the rear of the carriage, and slotted to permit the shaft to extend through the plate and the plate to ride longitudinally, substantially as shown and described.

4. The auxiliary jack or jack-carriage, adjusably fixed to and sliding upon the main carriage, substantially as shown and described.

5. The cutter-stock, hung by pivots to permit the edge to automatically tip and assume a cutting-angle in accordance with the varying curve of the edge of the sole, and also hung by pivots to permit it to tip to cut the requisite inclination or bevel to the heel-edge.

6. The cutter-frame, (composed of the slide to which the cutter-stock is pivoted and the pivoted cross-rod,) the head to which said frame is hung, and the link and lever for raising or pressing down the cutter-frame, combined and arranged substantially as shown and described.

7. The cutter-frame head, hung upon a pivot by which it can be moved laterally, substantially as shown and described.

8. The heel-pattern plate and the mechanism by which said plate is clamped to the boot or shoe heel, substantially as shown and described.

9. The heel-clamp frame or mechanism hung upon a pivot, which permits it to be swung into or from position, substantially as shown and described.

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Witnesses:

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M. W. FROTHINGHAM.