(Model.) 2 Sheets—Sheet 1.

# J. LANGLOIS.

## Heel Trimming Machine.

No. 229,426. Patented June 29, 1880.

Fig. 1.

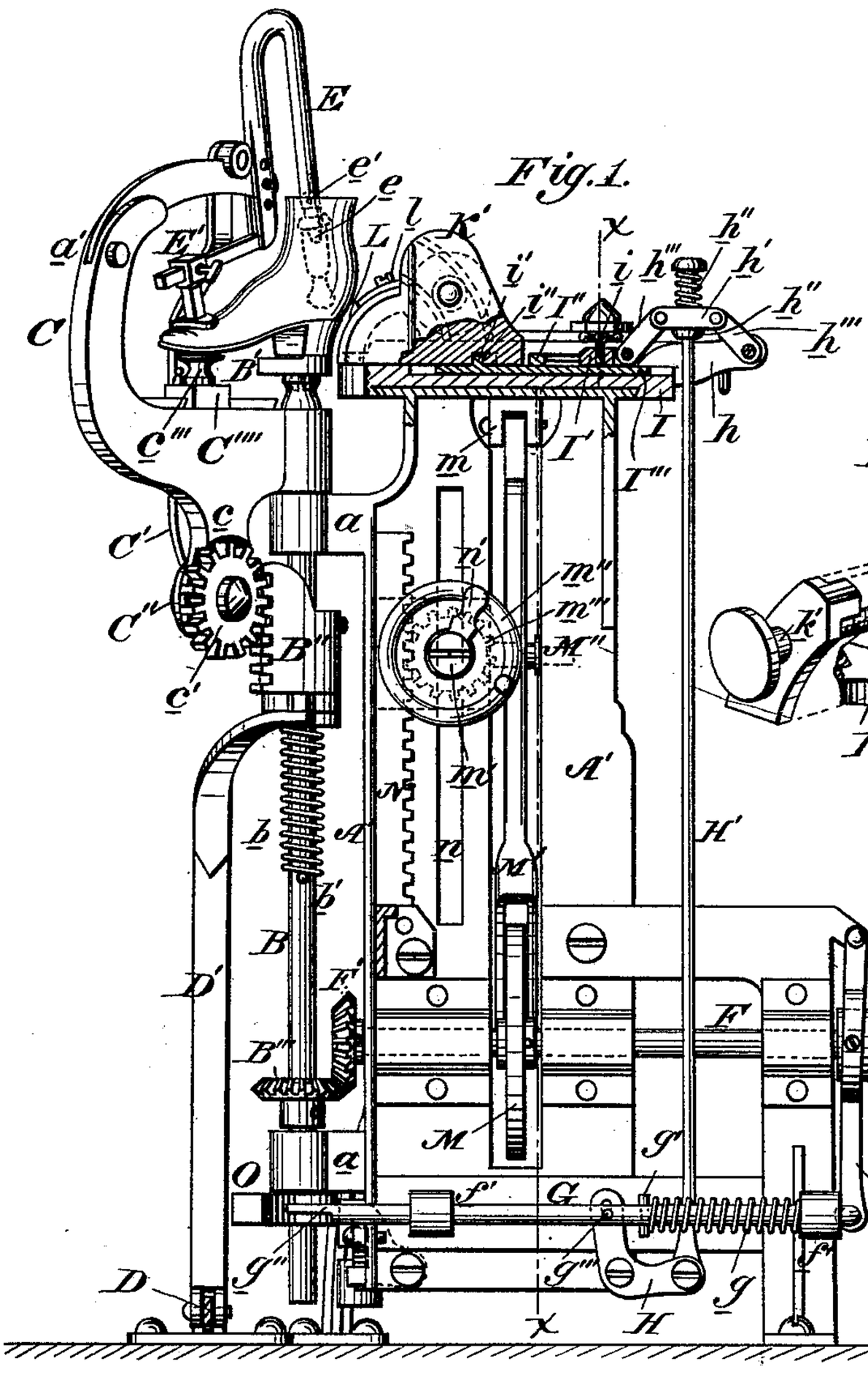



Fig. 3.

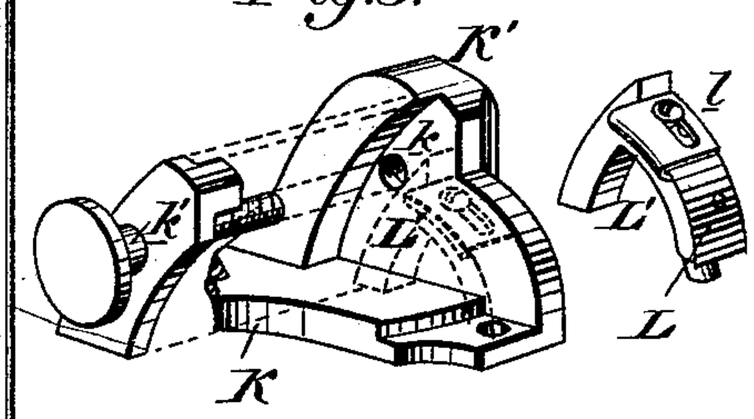
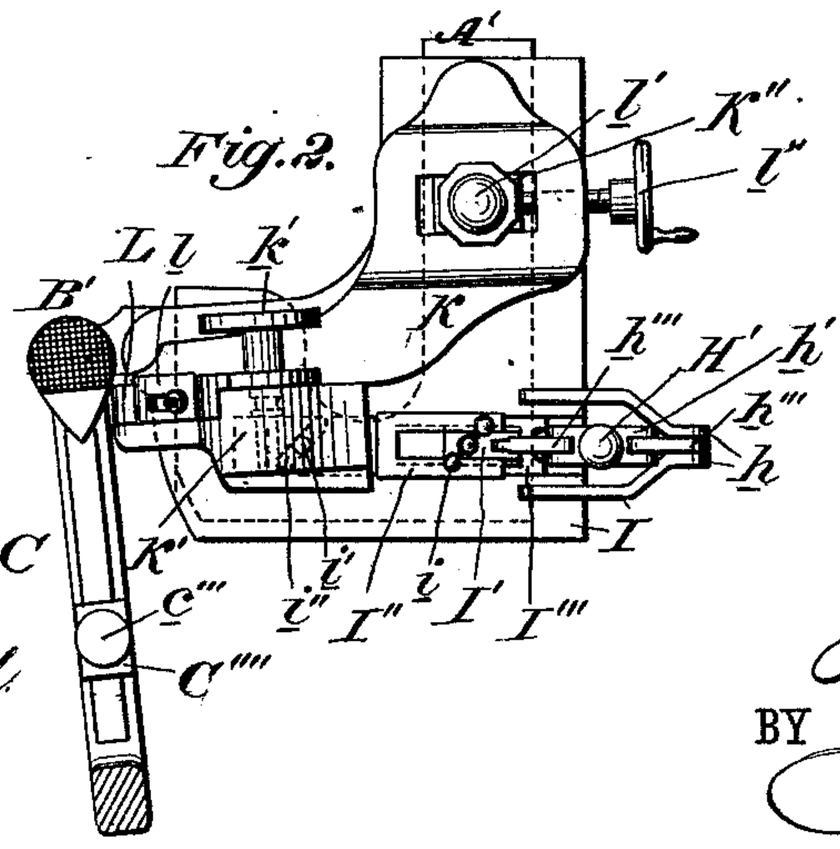



Fig. 2.

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INVENTOR:

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BY Munn & Co

ATTORNEYS.

(Model.) 2 Sheets—Sheet 2.

# J. LANGLOIS.

## Heel Trimming Machine.

No. 229,426. Patented June 29, 1880.

Fig. 4.

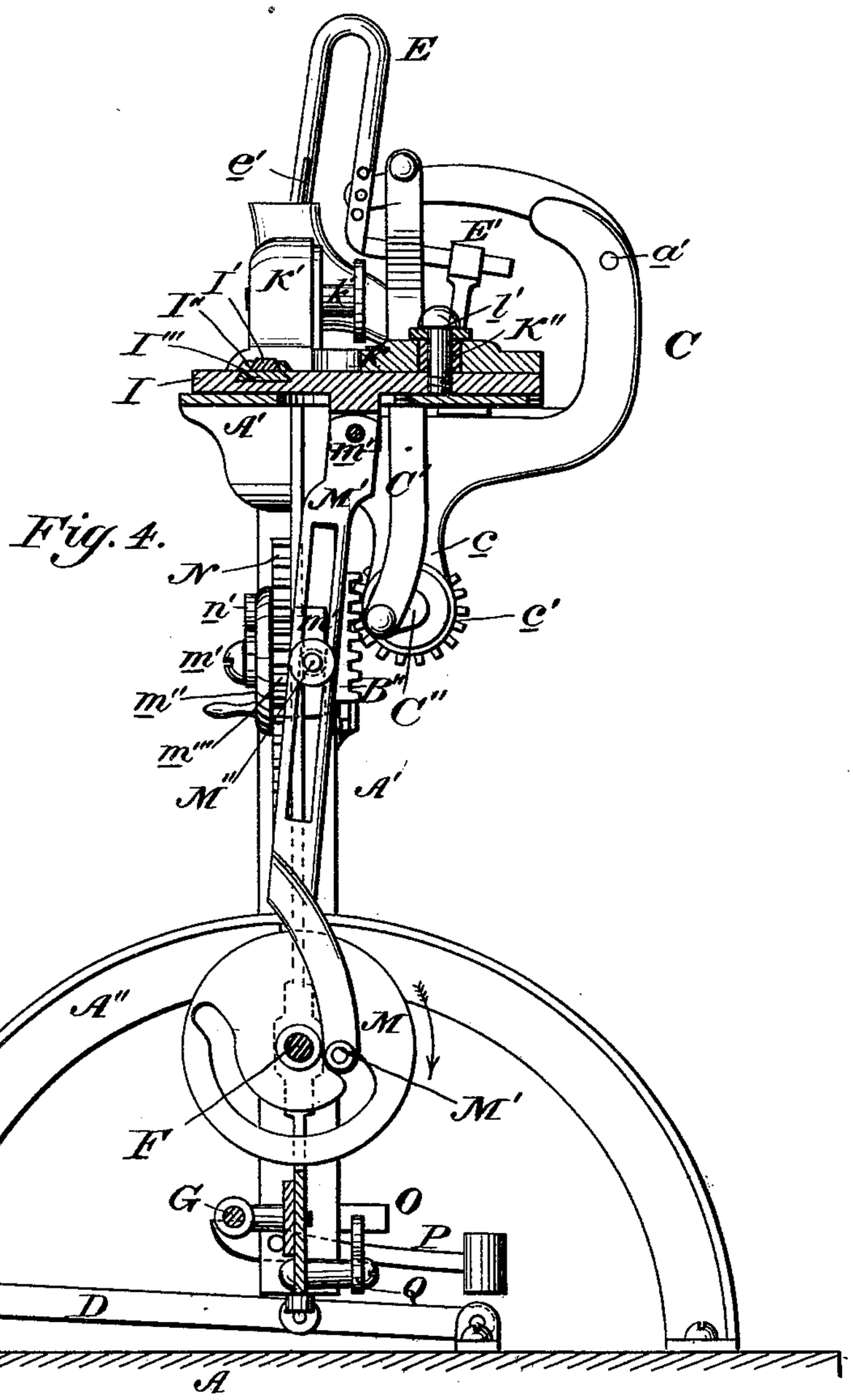
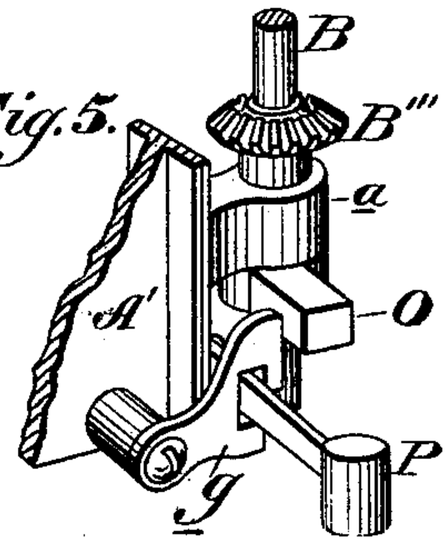



Fig. 5.

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# UNITED STATES PATENT OFFICE.

JOSEPH LANGLOIS, OF ST. JOHNS, QUEBEC, CANADA, ASSIGNOR TO HIMSELF AND JEAN BAPTISTE LALIME, OF SAME PLACE.

## HEEL-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 229,426, dated June 29, 1880.

Application filed April 3, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, JOSEPH LANGLOIS, of St. Johns, Province of Quebec, and Dominion of Canada, have invented a new and Improved Heel-Trimming Machine, of which the following is a specification.

The object of this invention is to construct a simple, effective, and quick-working machine for trimming the heels of boots and shoes of any shape or size.

The invention consists of novel devices for holding, tightening, raising, lowering, centering, and otherwise adjusting the trimming-knife, and for holding and releasing the boot or shoe operated upon, and of other novel auxiliary parts, all of which are hereinafter fully described.

Figure 1 represents a front elevation of the machine, partly in section. Fig. 2 is a plan of the top of the machine, partly in section. Fig. 3 represents a perspective view of the trimming-knife and knife-holder. Fig. 4 is a sectional side elevation of the machine on line *x x*, Fig. 1. Fig. 5 is a perspective view of a portion of the machine.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the base of the machine; A″, an arched support; A′, the upright frame supported on said base and having projecting from the side of it lugs *a a*, through which passes the vertical rod B, on the top of which is fixed the heel-plate B′. This rod B serves as a hinge to connect the curve C to the frame A′ of the machine. Said curve C consists of a C-shaped frame having its upper part pivoted at *a′* to the lower part, and the free end of this upper part connected, by means of the rod C′, with the crank C″, which is supported in the lug *c*, depending from the said curve C, and has on its opposite end the cog-wheel *c′*.

Fitted on the rod B is a rack, B″, that engages with cog-wheel *c′*, and is held up in position by a spiral spring, *b*, whose lower end is supported on the pin *b′*, that passes transversely through the rod B.

The lever D, pivoted at one end in the base A, connects with the rack B″ by means of the forked rod D′, so that by pressure upon the long arm of said lever D the rack B″ is pulled down on the rod B, and the free end of the curve C thereby drawn down to hold the boot or shoe on the heel-plate B′; and in releasing the lever D the spiral spring *b* operates to cause the free end of the curve C to be raised, and loosen the boot or shoe, without interfering with the running of the machine.

Adjustably pivoted on the extreme end of the upper part of the curve C is the goose-neck-shaped rod or holder E, that is designed to hold the boot or shoe in position on the heel-plate B′. The end of this holder E that enters the boot or shoe has hinged in it, and projecting downward in the same plane with it, a pivoted stud, *e*, that is restricted in its movements by a spring, *e′*, which spring *e′* is inserted in a longitudinal slot in the said end of the holder E and in the side of the said stud *e*. This stud *e* is designed to press upon the last in the boot or shoe and hold the said boot or shoe down. On the opposite end of this holder E is an adjustable holding-clamp, E′, the function of which is to assist in holding the boot or shoe in position by pressure upon the boot or shoe just above the toe thereof, as shown in Fig. 1.

Fixed on the horizontal arm of the curve C is a sliding block, C‴, in the top of which is screwed the rest *c‴*, on which the sole of the boot or shoe is supported, and the said rest *c‴* may be screwed down to hold this block in any desired position.

F is the driving-shaft of the machine, journaled horizontally in the frame A′ near its bottom and extending entirely across it. On one end of this shaft F is a bevel-wheel, F′, which gears into the bevel-wheel B‴, which is keyed on the vertical rod B near its lower end, so that when the loose pulley F″ is thrown in gear and the shaft F is revolved the vertical rod B, with its connected curve C and other attachments, is turned from the position shown in Fig. 2 around to a reverse position, whereby the outer curve of the heel of the boot or shoe is brought in contact with the trimming-knife. On the other end of the shaft F is firmly keyed the pulley F‴, with which the loose pulley F″ may be thrown in gear by means of the clutch-gear *f*, that encircles the collar of said pulley F″, and has

its upper end pivoted on the frame A′, while its lower end is attached to one end of the horizontal sliding rod G, which is supported in the hangers *f′*. Encircling this rod G is a spiral spring, *g*, held between one of the hangers *f′* and a pin, *g′*, that is passed transversely through said rod. At its free end this rod G is cut away and shouldered on its under face, as shown at *g″*, to permit the engagement of the weighted lever P, that is pivoted on the side of the frame A′, to which the curve C is connected.

Pivoted on a stud that projects from the face of the frame A′ is a bent lever, H, one end of which is slotted and engaged over a pin, *g‴*, that is passed through the rod G, while the other end of said lever H is connected with the lower end of the vertical adjusting-rod H′, which rod H′ extends upward between lugs *h* above the edge of the sliding plate I, which carries the trimming-knife and its supporting and adjusting parts, and which plate I slides on the top of the frame A′. On the upper end of this rod H′ is a yoke, *h′*, held adjustably in place by the collars and spring *h″* on said rod H′, and in either end of the yoke *h′* is hinged a lever, *h‴*, one of which levers has its other end pivoted between the lugs *h*, while the opposite lever, *h‴*, has its lower end pivoted in the sliding block I′, that moves in the socketed block I″, and is adjustable by means of the set-screw *i*, so that when the rod H′ is pulled down it operates the levers *h‴*, and their connections, to press the knife L in contact with the heel to be trimmed. This socketed block I″ is secured to the upper face of the sliding plate I‴, which is longitudinally adjustable in a groove in the plate I, and said plate I‴ is provided with an upward-projecting pin, *i′*, that engages in the diagonal slot *i″* in the under face of the knife-lever K, said pin *i′* serving as the pivot in and about which the said knife-lever K is adjustable, and by means of this plate I‴ and its connections the trimming-knife is forced toward or from the heel-plate B′. On the forward end of the lever K is fixed the vertical knife-supporter K′.

L is the trimming-knife secured on the front leg of the arched knife-frame L′, which frame L′ is held in place by having one leg thereof held in the recess *k* of the supporter K′ by the clamp and screw *k′*, while the end of the other or front leg of the said knife-frame enters a hole in the lever K. This knife L has fastened upon it and covering its upper portion the slotted and adjustable guard *l*, that serves to protect the upper of the boot or shoe when the heel thereof is being trimmed. The knife L can be adapted to any curve of heel by loosening the clamp and screw *k′* and elevating the rear leg of the frame L′, so as to change the inclination of the said knife.

Secured on the upper face of the plate I, by a bolt or screw, *l′*, is a rectangular block, K″, over which the slotted end of the lever K is set, and said lever K is held in place and moved to center the knife L at the heel-plate B′ by means of the hand-screw *l″*, that passes through the edge of said plate I and into the block K″.

Keyed on the driving-shaft F is a slotted eccentric, M, in the slot of which engages the pin of the longitudinally-slotted eccentric rod M′, whose upper end is secured in a lug, *m*, which projects down and from the under side of the sliding plate I.

M″ is the vertical adjustable fulcrum of the eccentric-rod M′, and is held in the longitudinal slot of said rod M′ by means of clamp and screw *m′*, that hold the hand-wheel *m″* and cog-wheel *m‴* upon the vertically-slotted portion of the frame A′, and the cog-wheel *m‴* in gear with the vertical rack N, that is fixed on the frame A′ parallel with the slot *n*.

As the shaft F reciprocates the eccentric M moves with it, and consequently, by means of the rod M′, causes the plate I also to reciprocate back and forth in some degree, the extent of the movement of said plate I being determined by the position of the fulcrum M″, that may be easily raised or lowered by turning the cog-wheel *m‴* on the rack N by means of the hand-wheel *m″*; and said fulcrum M″ may be held at any desired elevation by turning the tightening-screw *n′*.

When heels of large size are to be operated upon the fulcrum M″ is lowered to permit an increased movement of the plate, and when small heels are to be operated upon the said fulcrum M″ is elevated to decrease said movement. This forward and backward movement of the plate I is designed for the purpose of enabling the knife L at each movement, to reach straight along the extended sides of boot or shoe heel.

This machine is designed to be run with a constant reciprocating motion. The curve C being brought to the position shown in Fig. 2, the stud O, that is fastened on the end of the rod B, presses against the shouldered end of the rod G, so as to throw the loose pulley F″ in gear with the driving-pulley F‴, and at the same time to pull down the rod H′, so as to force the knife L in contact with the heel to be trimmed, and when the parts are in position the short arm of the weighted lever P engages against the shoulder of the rod G, and thereby holds said rods G and H′ and their connecting parts in position. Then, on the revolution of the pulley F″, the curve C and its attached parts are swung around to the reverse position from that shown in Fig. 2, the heel of the boot or shoe carried by the said rod B being thereby pressed throughout the semicircular sweep of said curve C against the trimming-knife L, and the plate I being at the same time moved back so that the sides of the heel shall be fully covered by said knife. When the curve C has reached the limit of its rearward swing the stud O strikes the slotted lever Q in a slot in which the long arm of the weighted lever P rests, and lifts the said weighted arm, and thereby depresses the short arm of said lever P, and disengages it from

the rod G. Simultaneously with this release of the rod G the spiral spring *g* operates to retract said rod G, and to thereby throw the loose pulley F″ out of gear with the driving-pulley F‴ and to release the rod H′, so that the knife L shall be drawn away from the boot or shoe heel. Then the motion of the driving-pulley F‴ is reversed and the plate I, with its attachments, thereby moved forward through the agency of the eccentric and rod M M′, and the curve C is turned back again to the position shown in Fig. 2, and then the stud O strikes the freed end of the rod G, and thereby throws the loose pulley F″ in gear again, where it is held by the lever P until the curve C is swung backward again, and by these reciprocating movements the heel of the boot or shoe is brought in proper contact with the trimming-knife, and thereby shaped and trimmed as desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a heel-trimming machine, the combination, with the trimming-knife L, of rod H′, provided with yoke *h′* and levers *h‴*, sliding block I′, provided with set-screw *i*, and socketed block I″, substantially as herein shown and described, whereby the said knife is fixed in contact with the heel to be trimmed, as set forth.

2. In a heel-trimming machine, the combination, with the knife L, knife-frame L′, and knife-supporter K′, of the plates I I‴, the latter provided with pin *i*, socketed block I″, and knife-lever K, provided with diagonal slot *i″*, substantially as herein shown and described, whereby the said knife L is adjusted in respect to the heel-plate B as set forth.

3. In a heel-trimming machine, the combination, with the knife L, of the lever K, knife-supporter K′, provided with clamp and screw *k′*, and adjustable arched knife-frame L′, substantially as herein shown and described, whereby the said knife may be adjusted and inclined, as set forth.

4. In a heel-trimming machine, the combination, with the knife L, of the plate I, block K″, screws *l′ l″*, and lever K, substantially as herein shown and described, whereby the said knife is moved to center at the heel-plate B′, as set forth.

5. In a heel-trimming machine, the combination, with the socketed block I″, knife-supporter K′, levers *h‴*, yoke *h′*, and lugs *h*, of the sliding block I′, provided with set-screw *i*, substantially as herein shown and described, whereby the movement of the knife L toward the heel-plate B′ is adjusted.

6. In a heel-trimming machine, the combination, with the driving-shaft F and sliding plate I, of the slotted eccentric M, slotted eccentric-rod M′, and adjustable fulcrum M″, substantially as herein shown and described, whereby the said sliding plate and its attachments are reciprocated back and forth, as set forth.

7. As a means for adjusting the fulcrum M″, the clamp and screw *m′*, hand-wheel *m″*, cog-wheel *m‴*, and rack N, substantially as herein shown and described.

8. In a heel-trimming machine, as a means for throwing the loose pulley F″ in gear, the combination of the shaft F, clutch-gear *f*, rod G, and stud O, substantially as herein shown and described.

9. In a heel-trimming machine, as a means for throwing the loose pulley F″ out of gear, the combination of shaft F, clutch-gear *f*, rod G, levers P Q, and stud O, substantially as herein shown and described.

10. In a heel-trimming machine, the combination, with the frame A′, of the revolving rod B, supporting heel-plate B′, rack B″, and curve C, provided with rod C′ and cog-wheel *c′*, holder E, clamp E′, sliding block C‴, and rest *c‴*, substantially as herein shown and described.

11. In a heel-trimming machine, as a means of holding a boot or shoe on the heel-plate, the combination, with the curve C and its attachments, of the lever D and rack B″, substantially as herein shown and described.

JOSEPH LANGLOIS.

Witnesses:
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F. ATWELL.