

John Q. Moulton's Heel Trimming Machine.

Sheet 1.

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PATENTED APR 11 1871

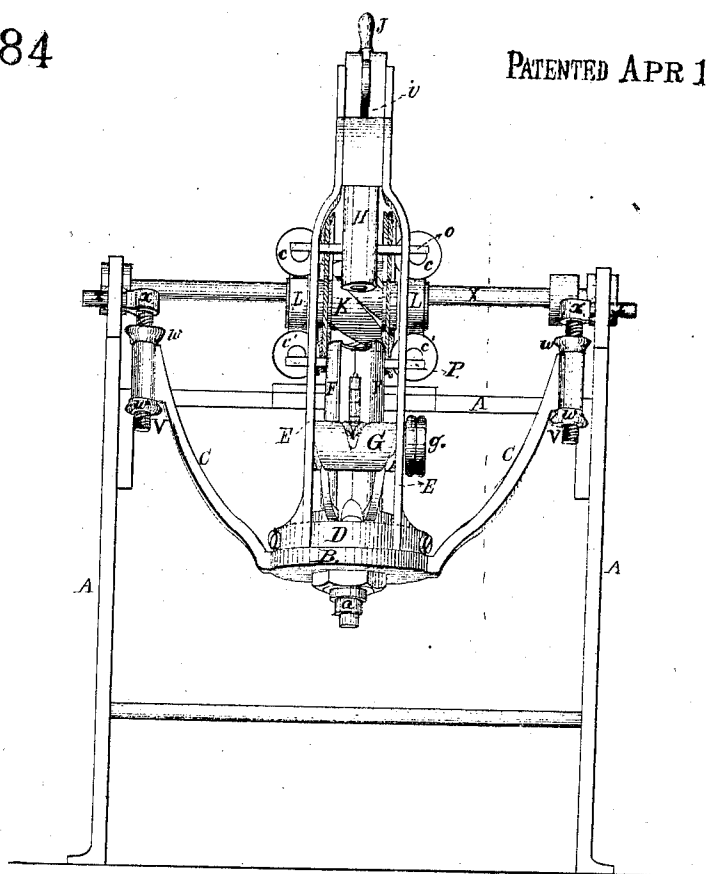


Fig. 1.

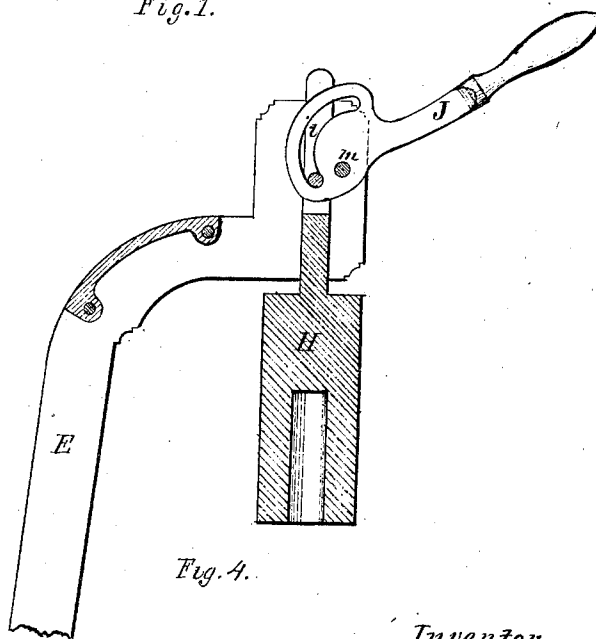


Fig. 4.

Witnesses.

William W. Swan
Chas. P. Gorely.

Inventor.

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John Q. Moulton's Heel Trimming Machine.

Sheet 2.

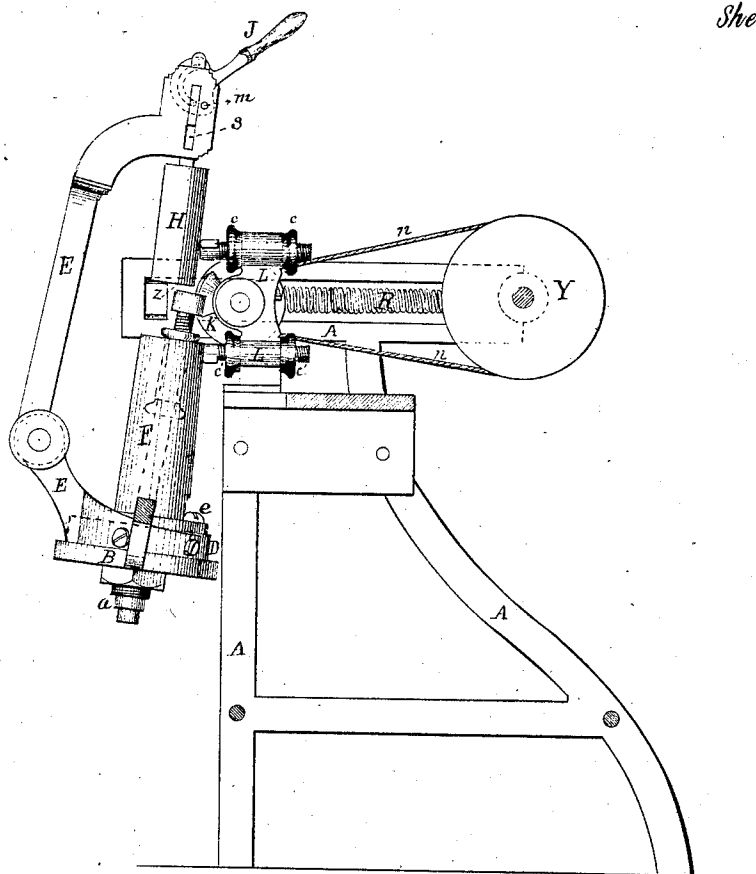


Fig. 2.

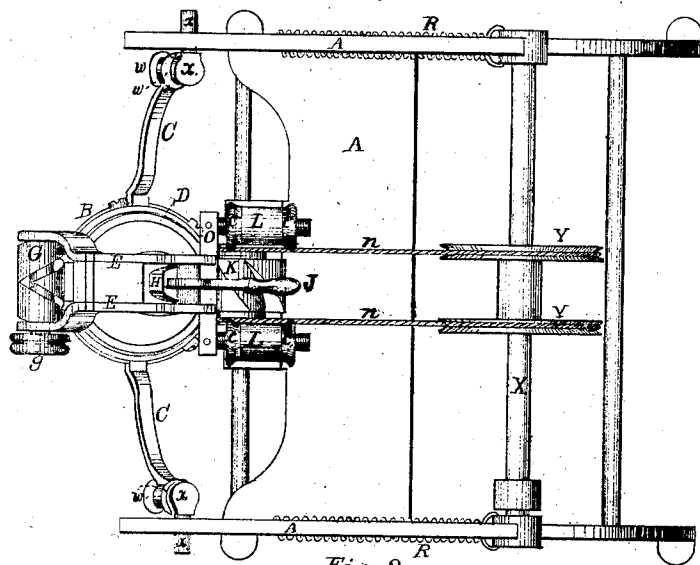


Fig. 3.

Witnesses.

William W. Swan
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JOHN Q. MOULTON, OF LYNN, MASSACHUSETTS.

Letters Patent No. 113,684, dated April 11, 1871.

IMPROVEMENT IN HEEL-TRIMMING MACHINES.

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

I, JOHN Q. MOULTON, of Lynn, in the State of Massachusetts, have invented an Improved Heel-trimming Machine, of which the following is a specification.

The invention consists in the use of a revolving knife so placed, relatively to the carriage for the boot, as to cut the heel from top to bottom or from bottom to top, the center of revolution of the knife-blades being at right angles, or nearly so, to the center of revolution of the heel, instead of the two centers being parallel, as in other machines where revolving knives are used.

It consists, secondly, in the peculiar construction of the knife, whereby a drawing cut is made, and whereby the danger of pulling apart the layers of the heel is obviated.

It consists, thirdly, in an improved carriage or holding mechanism, and in a combination of the same with the cutting apparatus and the gauges for determining the level of the heel.

In the drawing—

Figure 1 is a front elevation of the machine.

Figure 2 is a vertical section showing the parts of the machine to the left of the dotted line in fig. 1.

Figure 3 is a plan.

Figure 4 is a detailed view of a part of the carriage on an enlarged scale.

A is the frame.

B is a rest for the revolving carriage or holding mechanism.

The rest is supported by two arms, C C, secured to the frame of the machine, as hereinafter described.

D is a plate forming the bottom of the carriage, and revolving upon a pin, *a*, by which it is secured to the rest, as shown.

E E are two bent bars forming the principal part of the carriage, and firmly secured to the plate D by screws. These bars meet above the frame of the machine and there support other mechanism, to be described.

F F are two curved plates, as shown, to grasp the "upper" of the boot just above the heel, and embracing the boot-leg. The plates F F open and shut, being hinged together at the rear, as shown. They have each, at the bottom, a flange resting upon the plate D.

A pin, *e*, passing through the flanges at the rear, as shown, secures the hinged plates to the plate D, while it also serves as a pivot upon which they open and shut. When closed these hinged plates form one of the patterns. Their upper edges are bent so as to fit into the rand of the boot between the heel and the upper.

These flanges thus formed serve as a gauge to determine the first position of the boot when it is introduced into the machine, and as a protection to the

upper. If they fit properly the boot does not require a last.

The flanges of the hinged plates which rest upon the plate D extend up in front into two levers, the ends of which work in two cam-grooves, corresponding to each other, cut in the shaft G, which has bearings in the bars E E, and is turned back and forth by the wheel *g*, as shown.

H is a pattern-bar, a horizontal section of which, where it comes into contact with the gauge O, to be hereinafter described, has the contour of the tread of the heel.

The upper part is attached to the bars E E by pins working in the slots *s s*, thus allowing a vertical movement to the pattern-bar.

The position of the pattern-bar is determined by the lever J, as shown upon an enlarged scale in fig. 4.

The lever J is pivoted to the bars E E by the pin *m*.

The lever J has a slot, *t*, in which works a pin which is fixed in the slot *v* in the upper part of the pattern-bar H. (See figs. 1 and 4.)

K is a revolving knife whose shaft has bearings in the standards L L attached to the main frame, as shown. To make this knife, deep and wide screw-threads are cut around a cylinder, and to the projections remaining between the threads are secured steel blades, as shown.

The knife is revolved by belts *n n* passing around the cylinder or shaft and two pulleys, Y Y, upon the main shaft X, as shown.

The standards L L also support two gauges, O and P, against the former of which is held the pattern H, and against the other the pattern formed by the hinged plates F F, in a manner presently to be described.

The gauge O is secured to two pins passing through the standards, as shown. Each pin is cut as a screw, and is furnished with two nuts by which the position of the gauge is determined horizontally. In like manner the position of the gauge P is determined by the nuts *e' e'*. The relative position of the two gauges, when the machine is in operation, determines the bevel of the heel.

V V are two screws passing through rings in the arms C C, and furnished with nuts *w w w w* to determine the vertical position of the carriage.

The screws V V have arms *x x* which pass through holes in the slides *z z*, which travel back and forth on ways in the main frame, as shown.

R R are spiral springs attached to the slides *z z* and the frame in such manner as to cause the patterns of the carriage to press against the gauges O and P.

The operation is as follows:

The boot is placed, heel upward, between the hinged plates, the leg extending down between the hinged

plates, which are closed by turning the wheel *g* until the boot is firmly grasped by the upper edges of the plates fitting into the rand of the boot.

The lever *J* is then brought forward until the pattern-bar *H* presses with sufficient force to prevent any movement of the boot independently of the carriage.

The vertical position of the carriage is then determined by the nuts *w w w w*, so as to bring the heel into contact with the knife. These nuts also determine, to some extent, the vertical shape of the heel, since the knife, unless of very large diameter, makes a concave cut.

The required bevel is then determined by the gauges *O* and *P*, as before directed.

The carriage is next turned to the extreme right, and the main shaft being set in motion by any suitable means the carriage is turned from right to left by the hand of the operator.

The arms *x x* allow to the carriage a slight movement to the right or left, whereby the operator may make slight variations in the length of the heel.

After one heel has been trimmed, to trim another of a boot or shoe of the same kind further movement of the nuts *w*, or *c*, or *c'* will be necessary.

The operator has only to exercise sufficient care to cause the upper edge of the hinged plates *F F* to fit into the rand of the boot.

The screw-form of the knife-blades permits a draw-

ing cut to be made, which not only cuts each layer of the heel in a smoother manner but prevents the rapid action of the blades from pulling the layers apart.

In the above description the knife-blade is represented as revolving forward. It is obvious that either or both edges of the blades may be sharpened and the knife revolved either way, the carriage being turned accordingly.

I claim—

1. A revolving knife, in a heel-trimming machine, whose axis is at right angles to the center of revolution of the heel to be trimmed, substantially as described.

2. The plates *F F*, formed and operated substantially as described, to determine the position of the boot, and to serve as a guide and protect the upper.

3. The plates *F F* and pattern-bar *H*, in combination, to hold the boot without the aid of a last.

4. The plates *F F* and pattern-bar *H*, in combination with the knife *K* and gauges *O* and *P*.

5. In a heel-cutting machine, a revolving knife made in the form of a screw, substantially as described, for the purposes described.

JOHN Q. MOULTON.

Witnesses:

WILLIAM W. SWAN,
CHAS. P. GORELY.