

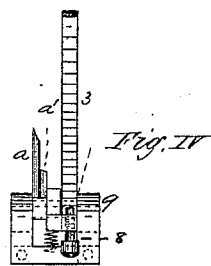
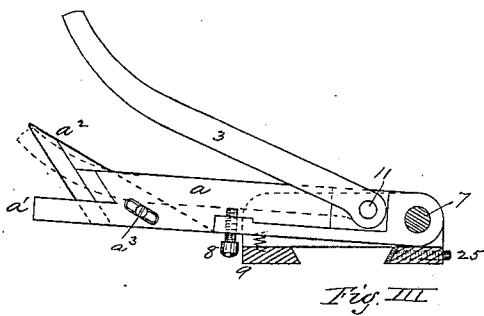
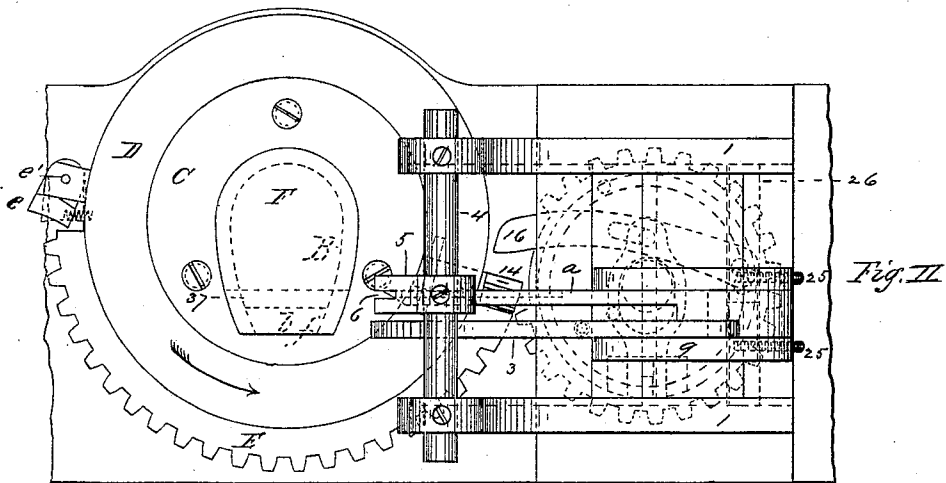
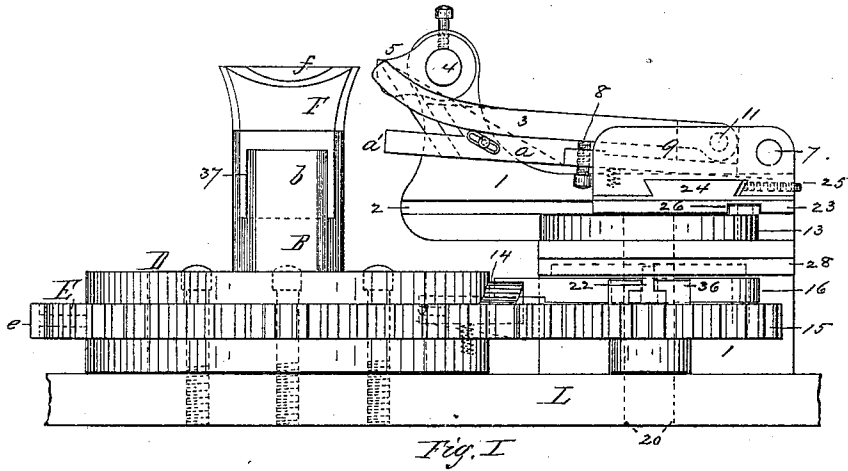
(No Model.)

2 Sheets—Sheet 1.

E. H. JOHNSON.  
Heeling Machine.

No. 242,540.

Patented June 7, 1881.



Witnesses. E. C. Curtis  
Chas. L. Wood,

Inventor,  
Edwin H. Johnson,  
By J. A. Curtis  
his atty.

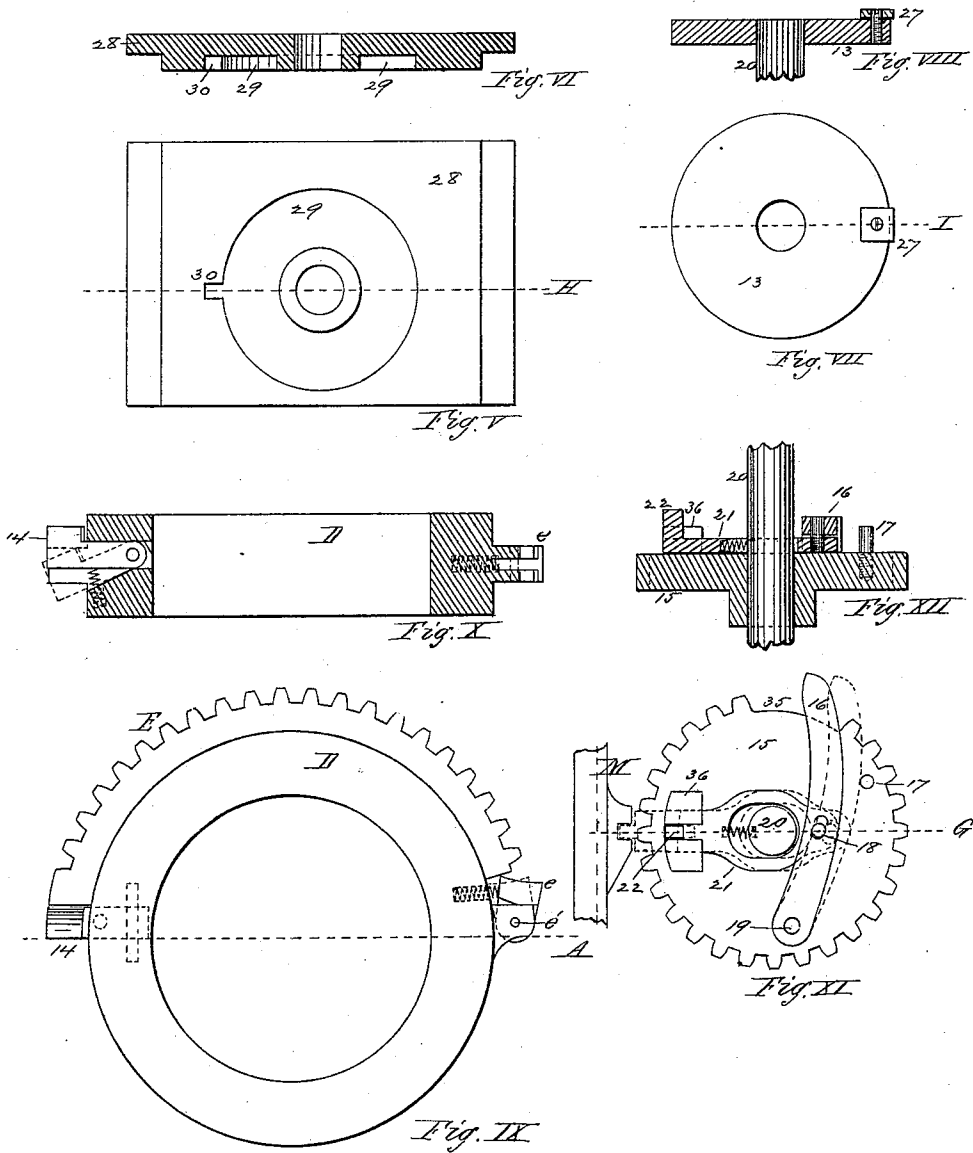
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his Atty.

# UNITED STATES PATENT OFFICE.

EDWIN H. JOHNSON, OF BROOKFIELD, MASSACHUSETTS.

## HEELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 242,540, dated June 7, 1881.

Application filed April 13, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN H. JOHNSON, of Brookfield, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Heeling-Machines, of which the following is a full, clear, and exact specification and description.

The object of my invention is to trim the front face of the heel of the boot or shoe while it is in position in the machine for having its outer edge trimmed; and my invention is adapted to be attached to or connected with the machine known as the "McKay Heeling-Machine."

I accomplish the object above mentioned by the mechanism substantially hereinafter described, and illustrated in the accompanying drawings, making a part of this specification, in which—

Figure I is a side view of my invention, adapted to be attached to, and operated in connection with, the McKay heeling-machine. Fig. II is a plan view of the same. Fig. III is a vertical section of the knife and gage-carriage at line N, Fig. IV, showing a side view of the knife, its guide, and its gage pivoted to said carriage. Fig. V is an end view of the knife and its gage as pivoted in the carriage. Fig. VI is a reverse plan view of the horizontal plate between the guideways, and which forms a part of the frame. Fig. VII is a vertical transverse section at line H of Fig. V. Fig. VIII is a plan view of the disk or crank-pin which operates the carriage containing the knife and guide. Fig. IX is a vertical transverse section at line I of Fig. VII. Fig. X is a plan view of the operating-wheel, having a segmental gear which engages with a toothed wheel, which actuates the knife and its carriage. Fig. XI is a vertical transverse section of the same at line A. Fig. XII is a plan view of the toothed wheel which actuates the knife and knife-carriage, and showing also the lock for locking said wheel in a stationary position, and the mechanism for operating the lock; and Fig. XIII is a vertical transverse section of the same at line G.

In the drawings, L represents what may be a part of an ordinary McKay heeling-machine, to which is secured a block, B, for supporting the heel of a boot or shoe, the latter being placed on the top of said block, as shown at F in Figs. I and II. In the ordinary McKay

heeling-machines, this block and the heel to be trimmed being stationary, the trimming-knife is made to pass around the heel, trimming off and shaping the outer edges of the heel, except, however, its front end or face, which is trimmed by hand, either before or after its curved edge is trimmed.

1 represents two uprights fixed to the part L of the machine, and extending upward parallel with each other, with a horizontal plate, 28, secured to and between said uprights. A pivot or shaft, 20, (shown in dotted lines in Fig. I,) has its bearing at its lower end in the part L, and extends up through the horizontal plate 28, the crank or disk 13 being secured firmly to its upper end, and the toothed wheel 15 being also firmly secured to the lower part of said pivot or shaft. A small portion of this wheel 15, at its periphery, is unprovided with teeth, as shown at 35 in Fig. XI, and a yoke or latch, as 21, is arranged to slide upon the upper part of this toothed wheel, being held in place by any suitable guides or flanges, as 36, one end of this latch being provided with a projecting catch, as 22, and the other end of the latch being pivoted to a lever, as 16, hinged at one end to the wheel 15, and whose free end projects out over that part of said wheel which is unprovided with teeth, and the movement of which lever is limited by a stud or projection, as 17, on said wheel, all as shown clearly in Figs. XI and XII.

The horizontal plate 28 has a circular recess, as 29, made in its lower side, with a small recess, as 30, extending outward therefrom, as shown clearly in Figs. V and VI, to receive the projecting catch 22, which is forced into said recess by a spring pressing against the latch 21, or against the lever 16, pivoted to said latch.

In the drawings, a disk, 13, is shown as secured to the upper end of the shaft 20, with a small rectangular disk or plate, 27, pivoted thereto, which engages in a straight groove or channel, 26, made transversely across the lower side of the plate 23, as shown in side view in Fig. I, and in dotted lines in Fig. II; but in practice an ordinary crank may be used, as this disk and its plate 27 perform the same function as a crank. The upper plate, 23, may have a dovetail projection extending transversely across its upper side, with a corresponding transverse dovetail recess in the

lower side of the knife-carriage 9, so that the latter may be moved laterally and secured in its desired position by one or more set-screws, as 25, turned through the lower part of the carriage 9 and against the dovetail projection, as shown in Figs. I and II.

The knife-shank *a* is pivoted at one end, as at 7, in the carriage 9, with a spring between the shank and its carriage to press the knife upward, and the knife *a*<sup>2</sup> is made, preferably, with its edge from its upper point inclined downward and backward, and may be secured to the shank *a* by a slot in the latter, and screw turned through it into the knife, as shown at *a*<sup>3</sup>, or in any other convenient manner. The knife-shank *a* may also be elongated, as at *a'*, to assist in holding the knife firm in commencing its work.

The guide 3 is pivoted to the knife-shank *a* at 11, with an adjusting-screw turned up through a portion of the shank, or through a projection thereon, as at 8, upon which the guide rests, so as to adjust the guide to any desired height with reference to the upper point of the knife *a*<sup>2</sup>.

A shaft, 4, has its bearings in the uprights 1, so that it may be adjusted lengthwise, and secured by one or more set-screws turned into the uprights and against the shafts, and a guide, 5, provided with a slot, 6, in its forward end, is arranged to slide along this shaft 4, and be secured in any desired position by a set-screw turned through said guide and against the shaft, this guide assisting to steady the knife in doing its work. A piece, *b*, projects upward just in front of the heel-block B, leaving a small space, 37, between the heel-block and said upwardly-projecting piece *b*, and in front of the knife-shank, of a width to just admit the latter without much friction. The guide 3 is located beneath the shaft 4, and its free end is curved upward, so that its extreme upper end may be adjusted to the same horizontal plane as the upper point of the knife *a*<sup>2</sup>, as shown in Fig. I.

The wheel D, provided with the segmental gear E, is arranged to turn or rotate upon the bed L, the heel-block B remaining stationary, and at one end of the gear E a tooth, *e*, is pivoted, at *e'*, to the wheel D, with a small spring pressing outward against the inside of said pivoted tooth to hold it out, as shown in Figs. I, II, and IX, so that when pressed in and the pressure removed the pivoted tooth will quickly move out again. At the opposite end of the segmental gear E is a dog, 14, also pivoted to the wheel D, but so as to move in a vertical direction with a spring beneath it, so that when pressed down and the pressure removed the dog will move up again into the position shown in full lines in Fig. X.

The operation of my invention is as follows: The knife-carriage 9 is adjusted along the dovetail way 24 to the desired position, and there secured by the set-screws 25, and the guide 5 is adjusted along the shaft 4 to such a position

that its slot 6 is directly in line with the knife *a*<sup>2</sup>, and the gage 3 is adjusted by the screw 8, so that the upper end of the gage shall cause the upper point of the knife to pass across the heel along the lower surface of the shank of the boot or shoe. As soon as the knife of the ordinary machine has finished the trimming of the curved edge of the heel the wheel D, being in the position shown in Fig. II, is turned in the direction indicated by the arrow, and the pivoted dog 14 first strikes against the projecting end of the lever 16, and moves the latter over against the pin or stud projecting upward from the wheel 15. As the latch 21 is pivoted to the lever 16 in this movement of the latter the latch is also drawn in the same direction, and the catch or projection 22 thereon is withdrawn from its recess 30 in the lower side of the horizontal plate 28, and the wheel 15 is turned a little, by the pressure of the lever against the stud or pin 17, until the catch 22 is carried away from its position in front of the recess 30. The wheel 15 is then free to turn, and as it is rotated by the rotation of the wheel D it communicates its rotary movement, through the medium of the shaft 20, to the disk or crank 13, which, by its pin or plate 27, causes the carriage 23 to move in the guide-ways 2 of the uprights 1 forward toward the heel-block B, upon which the heel of the boot or shoe is placed to be trimmed. As the carriage is thus moved forward the upper end of the gage 3 strikes against the edge of the shank of the boot or shoe on its under side, which causes the upper point of the moving knife *a*<sup>2</sup> to strike against the side of the heel, near its front face, at the same or at the desired height, the guide *a'* on the knife-shank entering the space between the heel-block B and the upright part *b*, and the knife is steadied and held firm while making its cut in trimming off the front face of the heel. In passing across beneath the shank of the boot or shoe the upper end of the guide 3, impinging against the lower side of the shank, causes the knife to make the same movement and trims off the front of the heel up to the lower side of the shank.

When the wheel D has been revolved so that all its teeth E have engaged with the teeth of the wheel 15 the latter will have then made one revolution, and the pivoted tooth *e* on the wheel D, which projects out farther than any other tooth on said wheel, being the last to pass the last tooth on the wheel 15, the said last tooth is thrown or moved so far that the wheel D may be rotated back again into the position shown in Fig. II without its teeth engaging with those of the wheel 15, and in each half-revolution of the wheel D and back again the wheel 15 is caused to make one revolution, bringing that part of the latter wheel which is unprovided with teeth, as also the lever 16, hinged thereto, into the position shown in Fig. II, so that the wheel 15 is caused to revolve intermittently in the same direction; and at

each revolution the knife  $a^2$  is caused to make a forward movement to trim off the front face of the heel placed on the block B, and then to move back again to its position shown in Figs. I and II. Every time the wheel D is rotated back to the position shown in Fig. II the pivoted dog 14 rides against the under side of the end of the lever 16 and springs up again on passing it, and is then in position, when the motion of the wheel is reversed, to strike against the end of the lever 16, to unlock and move the wheel 15, to operate the knife-carriage and knife.

It will thus be seen that when the boot or shoe is in position on a machine for having its outer edge trimmed, by having my invention attached to the same machine, its front face may be trimmed also with little or no trouble, and very quickly, and with no change in the working parts of the McKay machine other than the attachment of my invention, and the attachment of the segmental teeth E to the wheel D.

Of course I do not limit myself to the precise construction of all the parts as hereinabove described. For example, instead of the disk 13 and its plate 27 to engage in the slot or groove in the under side of the part 23 of the knife-carriage, it may be a simple crank, as hereinbefore mentioned, and the mode or means of adjustment of the different parts may be changed to suit the construction and arrangement of the machine to which the invention is to be attached without departing in the least from the invention.

In practice, instead of making the recess 30 in the lower side of the horizontal plate to receive the projecting catch 22, this recess may be made on the inside of the frame or upright

1, with an incline on the side against which the catch may ride to enter said recess, as shown at M, in which case the horizontal plate 28, and also the disk 13, may be dispensed with, and the pin 19, to which the lever 16 is hung, may project upward into the groove or channel in the lower side of the knife-carriage and serve as a crank-pin to actuate said carriage.

If it should be desired to give the wheel D a continuous rotating movement, instead of the vibrating rotary movement hereinbefore described, it may be done, and the result will be precisely the same, in which case, however, the tooth  $e$  and the dog 14 may be made permanent or fixed, instead of being pivoted, the tooth  $e$  in that case serving to throw the toothed wheel 15 far enough around to be locked by the latch 22, and the dog 14 serving to strike the lever 16 in advance of the teeth E and unlock said wheel 15, so that it may be rotated by said teeth.

Having thus described my invention, what I claim as new is—

In a heeling-machine, the combination of a knife pivoted to a reciprocating carriage and adapted to move in the plane of the front face of the heel, a gage for regulating the path of said knife, an operating-wheel provided with segmental gear engaging with an intermittently-revolving toothed wheel, and a crank-pin for giving a reciprocating movement to the knife-carriage and knife pivoted thereto, substantially as described.

EDWIN H. JOHNSON.

Witnesses:

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