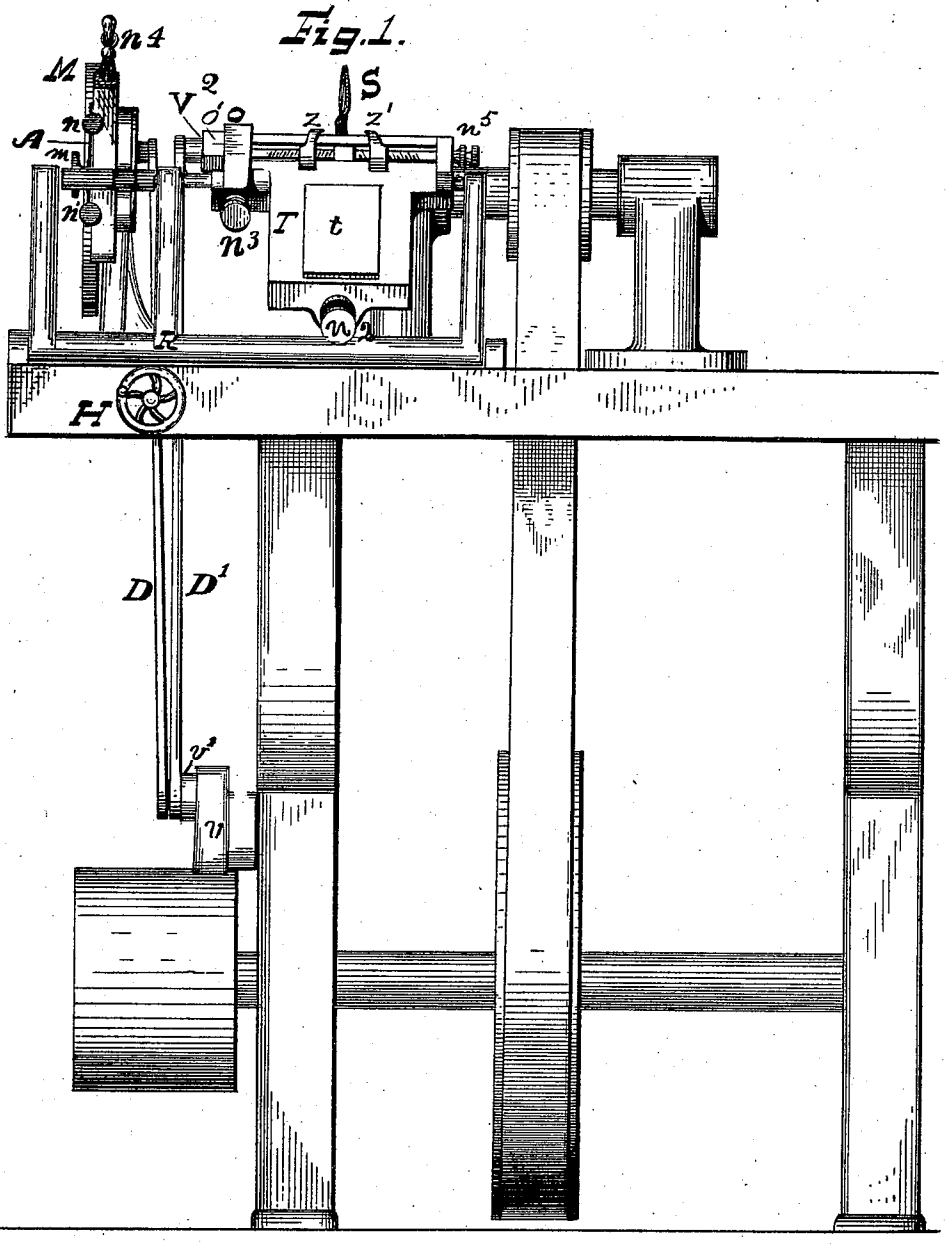
(No Model.) 3 Sheets—Sheet 1.

A. G. FITZ.

MACHINE FOR SHAPING HEELS OF LASTS.

No. 574,604. Patented Jan. 5, 1897.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

A. G. FITZ.

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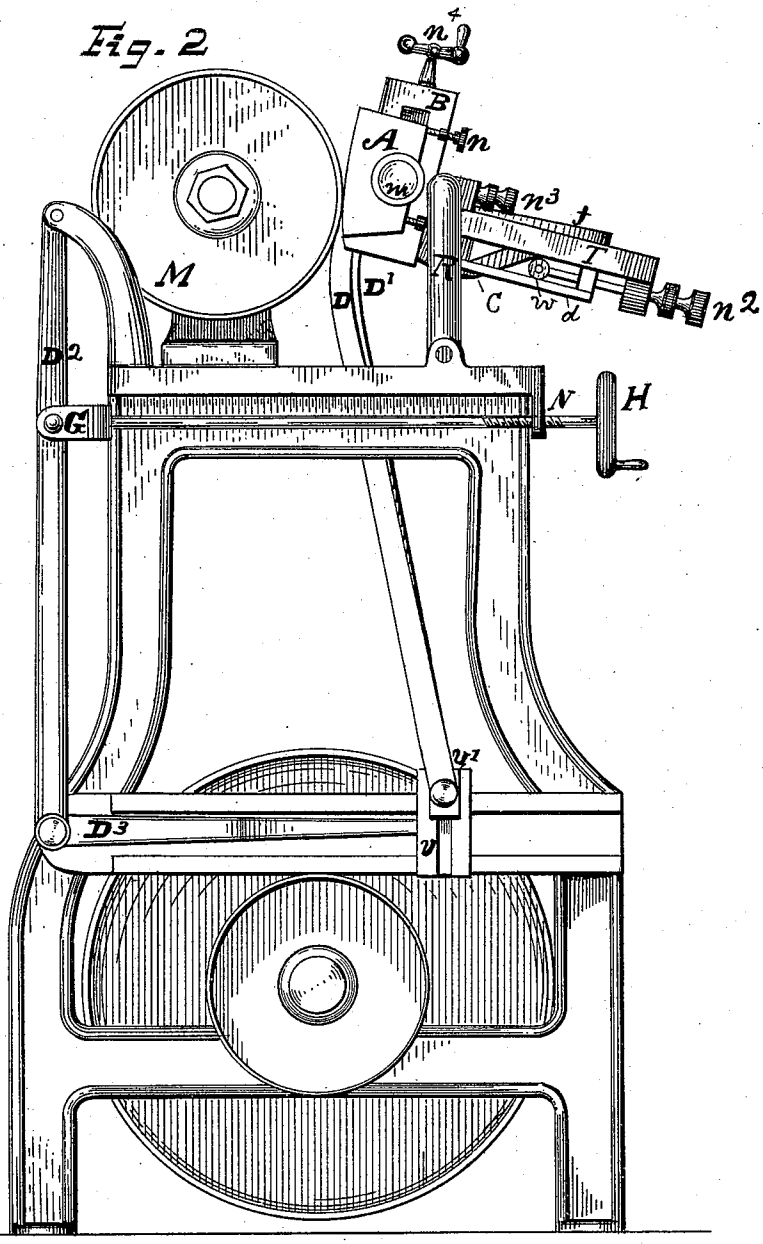
Fig. 2



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(No Model.) 3 Sheets—Sheet 3.

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MACHINE FOR SHAPING HEELS OF LASTS.

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Fig. 3.

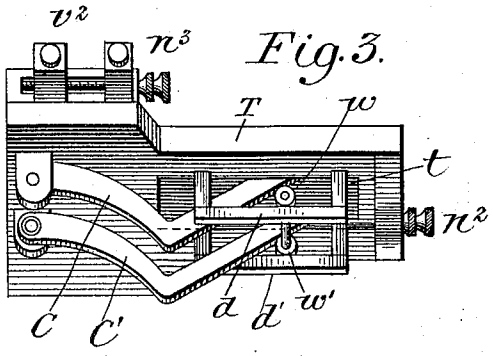


Fig. 4.

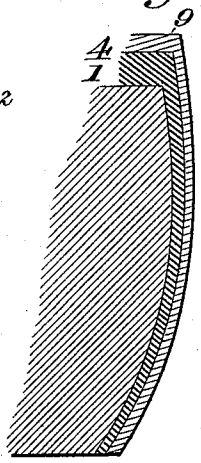


Fig. 7.

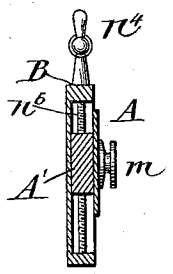


Fig. 5.

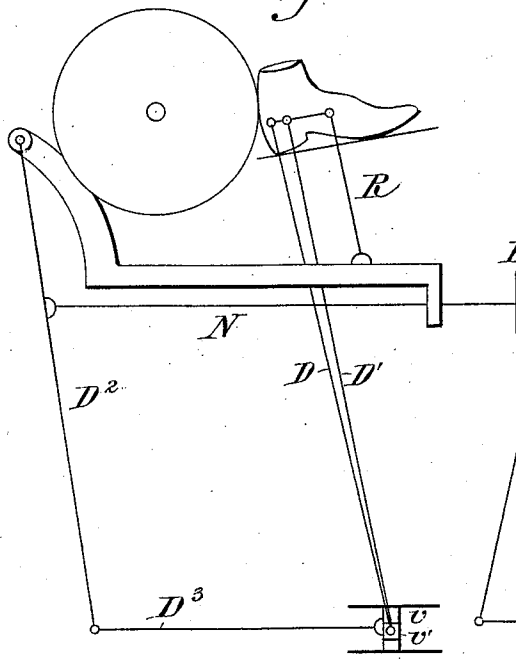
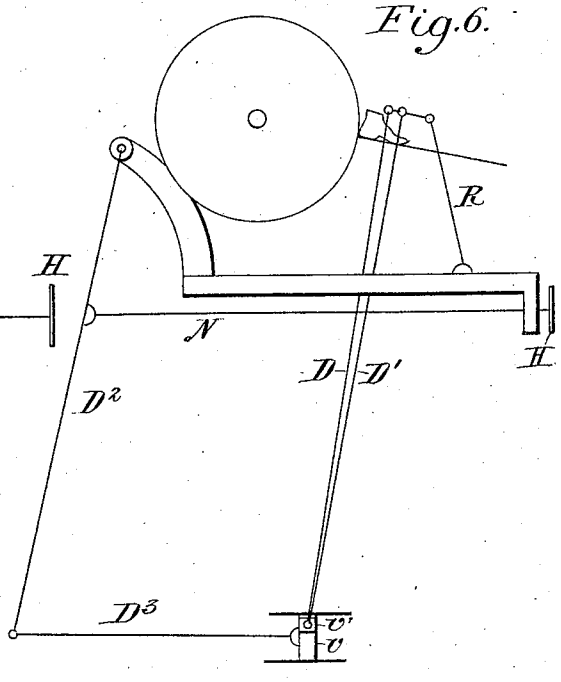


Fig. 6.



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UNITED STATES PATENT OFFICE.

AMOS G. FITZ, OF AUBURN, MAINE.

MACHINE FOR SHAPING HEELS OF LASTS.

SPECIFICATION forming part of Letters Patent No. 574,604, dated January 5, 1897.

Application filed April 23, 1896. Serial No. 588,750. (No model.)

To all whom it may concern:

Be it known that I, AMOS G. FITZ, a citizen of the United States, residing at Auburn, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Machines for Shaping the Heels of Lasts, of which the following is a specification.

In the United States Patent No. 541,158, which was granted to me on the 18th day of June, 1895, I have described a machine for shaping the heels of lasts by which all the sizes of a set have the vertical outline of their heels formed to correspond with different parts of the same pattern-curve. It has been found that a machine working on this plan will not give through all the sizes the close approximation to the exact curve desired which is now called for in the finer grades of lasts.

The object of this my present invention is to provide a machine which shall be capable of meeting this demand for accuracy.

My invention consists, primarily, in a combination of a curved pattern-plate and a last independently mounted so as to rock upon the same line of centers, with means of connection which insure that the ratio of the swing of the last to the swing of the pattern shall vary in a definite proportion to the size of the last.

My invention also comprises certain details hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of the machine; Fig. 2, an end elevation. Fig. 3 shows certain details. Fig. 4 shows actual sections of heels trimmed to shape on the machine. Fig. 5 is a diagram showing the position of certain parts where a large last is being trimmed. Fig. 6 shows the position of the same parts when a small last is substituted. Fig. 7 is a sectional elevation of the support for the heel-pattern.

In the drawings, S is the rotating cutter.

M is a pattern-wheel.

R is a rocking frame to which are independently attached supports for the last and for the heel-pattern.

T is the support for the last, hinged to R and swinging with it.

B is the support for the heel-pattern, similarly hinged to R.

A is the heel-pattern, clamped to B by the screw m and a sliding gib A'.

n^4 is the handle of a screw by which A is adjusted vertically.

n^6 is the screw itself.

n and n' are screws by which the angular position of A in relation to B may be adjusted.

D is a connecting-rod by which B is attached to the slider V', which is free to move vertically in the second sliding piece V, whose horizontal position is controlled by the hand-wheel H, acting through the screw N, shackle G, swinging arm D^2, and connecting-rod D^3. D' connects V' with a sliding piece V^2 upon the last-support T. The position of V^2 is determined by the adjusting-screw n^3 and the graduations o o'.

t is an adjustable support for the toe of the last, hinged to the under side of T near its front end by means of inclined bearing-strips, as C C', projecting from the lower side of t, which rest upon the pair of rollers w w', which are supported by the double track d d' and moved back and forth by the screw n^2.

As in the machine of No. 541,158, the heel of the last is pressed against the stops z z', which are adjusted by the right-and-left screw n^5.

When I wish to use my invention, I select a pattern A which is made for the particular style of last which I wish to trim. I secure it to B by the screw in it in such a position that an adjusting-mark upon it comes opposite a corresponding mark on the front edge of B. This adjustment is not afterward changed for any last of that set. The screws n n' are then turned up against the back edge of A, so as to hold it in position. I next move the piece V^2 by turning the screw n^3 until the graduation o' upon V^2 comes opposite to the graduation o upon T which corresponds to the size of the last. Owing to the reduced size of the drawings these graduations are only indicated by a few lines. In the machine itself there is a line for every half-size of last. I now turn the screw n out or in until there is just room for the last-heel, taken depthwise, between the hand-wheel H and the frame of the machine. The connections shown are so proportioned as to insure that the slide V shall take such a position that the

connecting-rods D D′ shall stand approximately at right angles to T when the middle point of the last is opposite the cutter S. If this were not done, the varying side swing of the connecting-rods D D′ would distort the last-heel curve. The working of this part of my invention is shown more clearly by the diagrams, Figs. 5 and 6. I now place the last upon the support T, and, pressing the last against the stops *z z′*, adjust them until the saw S cuts to the right depth, at the same time raising or lowering the toe-support *t* until the same cut touches the finished parts left by the last-lathe at top and bottom. In my previous invention this adjustment was made by swinging the pattern A in and out by means of the screws *n n′*, and where it is necessary to adjust for extreme variations I still change the angle of the pattern to make part of the adjustment; but the principal and final adjustments are much more conveniently made by raising or lowering the toe-support *t*, as above specified. When the pattern is swung as above noted, it is necessary to proceed as in Patent No. 541,158, that is, to bring the adjustment-marks on A and B again opposite each other by raising or lowering A, which is done by turning the handle n^4 of the actuating-screw n^6 of the gib A′, to which the pattern A is clamped by the screw *m′*.

Having now fully described my invention and the manner of using it, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for trimming the heels of lasts the combination of a rotary cutter, a pattern-wheel, a pattern, a rocking frame, a support for the last and a support for the pattern independently hinged to the rocking frame and free to swing about the same center line, and an adjustable connection between the two supports which controls the relative range of their swings, all as set forth.

2. In a machine for shaping the heels of lasts, the combination of a rotary cutter, a pattern-wheel, a pattern, a rocking frame, a support for the last hinged to the top of the rocking frame, a support for the pattern similarly hinged, a connecting-rod extending from the pattern-support to a guided piece, a second rod connecting the guided piece with the last-support, means of varying the point of attachment of the connecting-rod to the last-support, and thereby its leverage, and means of horizontal adjustment for the guided piece which brings the connecting-rods approximately into line with the average direction of motion of their upper ends.

3. In a machine for shaping the heels of lasts, the combination of a swinging support for the last attached to a rocking frame, a vertically-moving slide, a rod connecting the swinging support to the vertically-moving slide, a horizontally-adjustable support for the vertically-moving slide, a vertical lever from which the adjustable support receives its adjustment, and means of imparting motion to the vertical lever at such a point that a movement there equal to the difference in depth of two last-heels will shift the vertically-moving slide from a position approximately correct for one last, to a position approximately correct for the other, all as set forth.

4. In a machine for shaping the heels of lasts, the combination of a swinging support for the last hinged to a rocking frame, a rod connecting the support to a vertically-moving slide, a horizontal slide upon which the vertical slide is mounted, a vertical lever pivoted at its upper end, means of connection between the vertical lever and the horizontal slide, a screw acting upon the vertical lever and projecting through the front of the machine, and a hand-wheel upon the end of the screw, all in combination with each other and of such relative proportions that the vertical slide will be in an approximately correct position when the hand-wheel is separated from the front of the machine by a distance equal to the height of the last-heel.

5. In a machine for shaping the heels of lasts, the combination with a rotary cutter of a pattern-wheel, a swinging pattern, a swinging support for the last whose motion has a definite relation to that of the swinging pattern, and a support for the last-toe mounted upon the support for the last and vertically adjustable in relation thereto, all as set forth.

6. In a machine for finishing the heels of lasts a support for the pattern and a support for the last, separately hinged to the top of a swinging frame, and a connection between the two supports which maintains them in a definite angular relation to each other, in combination with a vertically-adjustable support for the toe of the last.

7. In a machine for shaping the heels of lasts the combination with a support for a last which is hinged to the top of a rocking frame of a support for the toe of the last which has a pair of inclined projections on its lower side and is hinged to the front end of the last-support, a pair of tracks parallel to the upper surface of the last-support and suspended from its lower side, a pair of rollers acting between the tracks and the inclined projections and a screw which passes through the front end of the last-support and actuates the rollers, all as set forth.

In witness whereof I have hereunto set my hand this 14th day of April, 1896.

AMOS G. FITZ.

Witnesses:
N. M. EMERY,
B. F. BEALS.