

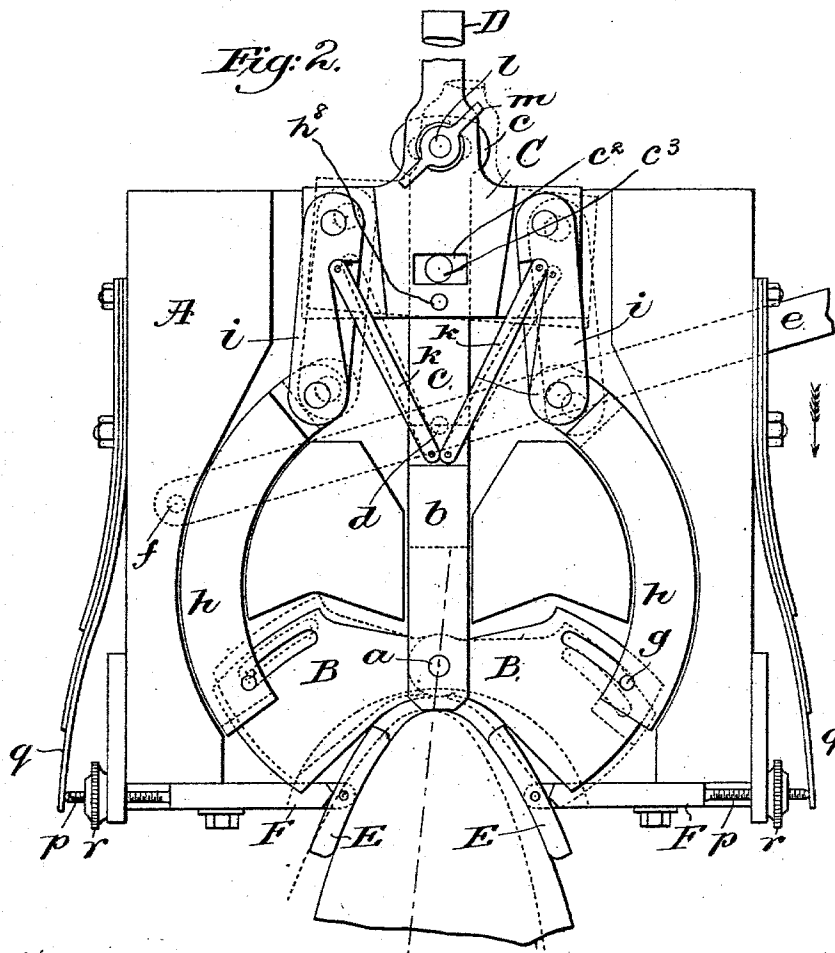
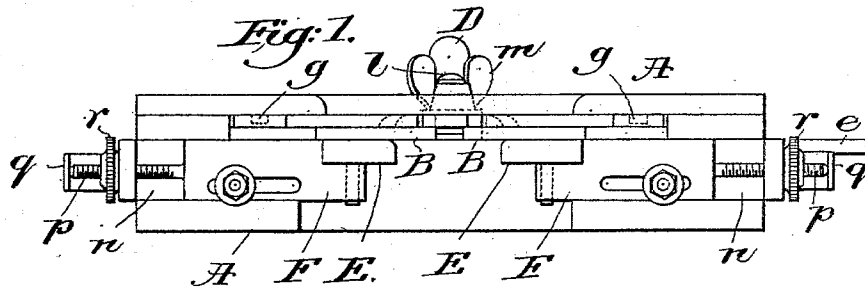
(No Model.)

2 Sheets—Sheet 1.

A. E. STIRCKLER.
LASTING MACHINE.

No. 548,671.

Patented Oct. 29, 1895.



Witnesses.
Edward B. Allen.
Thomas J. Drummond.

Inventor,
Albert Edward Stirckler
by Crosby Gregory, attys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

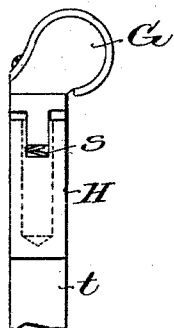
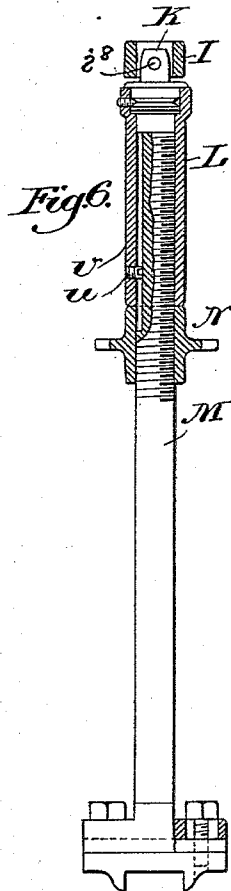
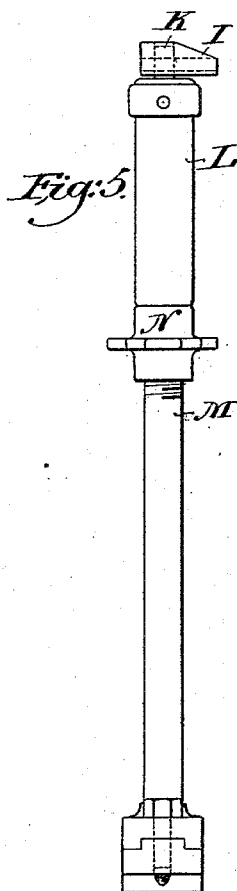
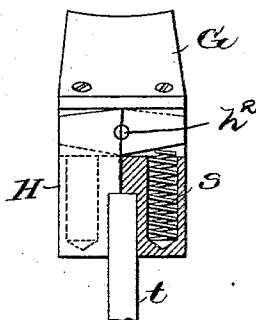


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT EDWARD STIRCKLER, OF NORTHAMPTON, ENGLAND, ASSIGNOR
TO THE MCKAY-COPELAND LASTING MACHINE COMPANY, OF PORT-
LAND, MAINE.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,671, dated October 29, 1895.

Application filed August 24, 1894. Serial No. 521,257. (No model.) Patented in England December 21, 1892, No. 23,576.

To all whom it may concern:

Be it known that I, ALBERT EDWARD STIRCKLER, engineer, of Northampton, in the county of Northampton, England, have invented an
5 Improvement in Boot or Shoe Lasting Machines, (for which I have obtained a patent in England, No. 23,576, dated December 21, 1892,) of which the following description, in connection with the accompanying drawings, is a
10 specification, like letters on the drawings representing like parts.

My invention relates to boot or shoe lasting-machines in which the upper-leather is forced over the heel and toe portions of the last
15 by means of wiper-plates—such, for example, as those described in the specification of Letters Patent dated June 28, 1892, No. 477,788, and June 9, 1885, No. 391,784; and it has for its object to provide means whereby, whatever
20 may be the shape of the last, it will be automatically adjusted in position, so that the bottom or sole of the last will be in the same plane as that in which the wiper-plates move or in the most advantageous position for the
25 wiper-plates to act on the upper, and so, also, that the wiper-plates conform to the shape of the last.

A convenient and simple way of carrying out my invention consists in providing the
30 supports for the heel and toe portions of the last with pivoted pieces or blocks on which the heel and toe of the last respectively bear. The pivoted toe-supporting block may be maintained in a normally-horizontal position
35 by springs, which when a last is placed in position will yield more or less, according to the varying thickness of the last, so as to present the sole of the last to the action of wiper-plates in the same plane as that in which the
40 wiper-plates move. The pivoted support for the heel portion of the last may be arranged to oscillate in the same directions as the toe-support, and also to turn in a horizontal plane, so as to be capable of automatically adjusting
45 itself to varying angular positions of the lasts in a vertical plane, as well as in a horizontal plane. The wiper-plates to act on the upper at the toe of the last are pivoted on a slide-bar, and the actuating means for the wipers

is adapted to be changed in its position about 50 the pivotal point of the wiper-plates, thus enabling the said plates to be closed uniformly on the upper at the toe of the boot or shoe, according to the inclination of the toe to one side of a line drawn centrally through 55 the sole and heel or whether the boot or shoe is a right or left. The actuating means for the wiper-plates is shown as toggle-levers, mounted on a carrier made adjustable about the pivotal center of the wiper-plates, whereby 60 the said plates may be caused to act uniformly on the upper at each side the toe of the boot or shoe on the last, no matter how much the inclination of the toe to the right or left of a line drawn centrally through the heel and ball 65 of the sole or whether the shoe is more or less pointed or is a right or left. I also provide pivoted guide-pieces to press on the sides of the toe of the last, the said pivoted pieces being carried on bars or blocks capable of sliding toward and from the last, springs being 70 provided to act on the sliding blocks, so that when a last with an upper thereon is placed in position in the machine the pivoted pieces will be forced in with sufficient pressure to 75 hold the upper firmly against the last while the upwardly-projected edges of the upper are being turned over the last and the usual inner sole thereon and the lasting is being effected. These guide-pieces are adjustable in position 80 to suit lasts of different widths. The swiveling block of the heel-support is carried on a socket or sleeve mounted on the upper screwed end of a rod and has a bearing on a nut screwed onto the said rod, so that by 85 screwing this nut along the rod the height of the heel-support may be adjusted as desired. The socket may be prevented from turning on the rod by a stud or projection in the interior of the socket entering a longitudinal 90 slot or groove in the rod. This rod carries at its lower end a block provided with slots, through which pass screws, by which the said rod may be secured to another block in any desired lateral position with reference to the 95 longitudinal center line of the last and the block to which the rod is adjustably connected may be adjusted in position in the longitudi-

nal direction of the last. By this means the supports may be employed for lasts of any size and shape.

In order that my said invention may be fully understood, I shall now proceed more particularly to describe the same, and for that purpose shall refer to the several figures on the annexed sheet of drawings, the same letters of reference indicating corresponding parts in all the figures.

Figure 1 is a front elevation of a toe clamp or head for boot-lasting machines such as that described in United States Patent No. 477,788, hereinbefore referred to; and Fig. 2 is a plan of the same, the top plate being removed to show more clearly the parts for operating the wiper-plates. Figs. 3 and 4 are elevations at right angles to each other of the pivoted support for the toe end of the last, Fig. 5 being shown partly in section; and Figs. 5 and 6 are elevations at right angles to each other of the adjustable support for the heel end of the last, Fig. 7 being shown partly in section.

The head or clamp A is or may be mounted in the lasting-machine in the manner described in the specification of said Letters Patent or otherwise, so as to permit of it being tilted or inclined longitudinally to suit the dip of the toe end of the last to enable the wiper-plates B to act on the upper in the desired direction. The wiper-plates B are pivoted at *a* to a plate or bar *b*, fitted to slide longitudinally in the head or clamp A, beneath which plate or bar *b* is another plate or bar *c*, also capable of sliding longitudinally in the said head or clamp. The plate *c* is connected by a pin *d* to the operating-lever *e*, centered at *f* to the head or clamp A. The wiper-plates B are also connected by pin-and-slot connections, as shown at *g*, to two curved arms or plates *h*, fitted to slide in correspondingly-shaped grooves in the head or clamp. The said curved arms or plates *h* are connected, according to this invention, by links *i* to a plate C, which is capable of being moved laterally to any extent required in the head A, according to the shape of the last, so as to cause the links *i* to move the arms *h* longitudinally in opposite directions, to thus cause the wiper-plates to be adjusted in position on the axis *a* or pivotal point on which they turn when in operation, so as to present them in the direction most advantageous to act uniformly at both sides of the toe of the last. The plate or bar *b* is connected to the links *i* by links *k*, so that when the operating-lever *e* is moved in the direction of the arrow a longitudinal forward motion is given through the links *i* and *k* to the plates or bars *b* and *c* and wiper-plates B, which wiper-plates, through the links *k* and curved arms *h*, also receive motion on their axis *a* toward each other, so as to wipe the upper over the toe of the last.

If the shape of the last be such that a straight line drawn through the center of the sole of the last from the center of the heel

passes through the center of the toe of the last, the plate C should be fixed in its central position, as shown by full lines in Fig. 2; but if the shape of the last be such that the toe end thereof is turned either to the right or to the left of the line through the center of the last, as shown, for example, by dotted lines in Fig. 2, the plate C may be adjusted to a corresponding position to the right or to the left, and so the wiper-plates are turned on the axis *a* and made to take a position conforming to the shape of the toe end, and they will consequently act uniformly at both sides of the last and thereby insure the proper draft being given to the upper-leather.

The plate C may be adjusted and fixed in position by any suitable means. In the drawings I have shown it provided with an arm D, having a hole therein, through which and through a curved slot in the outer end of the bar *c* is passed a screwed bolt *l*, into which is screwed a thumb-nut *m*, by means of which the plate C may be held in its adjusted position. Any other convenient arrangement may, however, be employed for adjusting and fixing the position of the wiper-plates on the axis on which they turn when in action. The plate C is also provided with a guide-slot *c*², with which engages a pin *c*³, carried by the bar *c*.

An arrangement similar to that described can be applied to the heel end of the last; but this will generally not be necessary, as the central line of the heel is usually not diverted from the central longitudinal line of the last.

E are blocks or guide-pieces which bear against the opposite sides of the toe end of the last with sufficient pressure to hold the upper in position thereon, these blocks being pivoted to bars F, fitted to slide in groove *n* in the head or clamp A, so as to admit of their automatically adjusting themselves to toes of different shapes. The bars F are each provided with a screwed stem *p*, projecting through a hole in the side of the head or clamp and acted on by a spring *q* to force the guide-pieces E with the required pressure against the upper while being lasted. On each of the screwed stems *p* is a nut *r*, which may be adjusted in position on the stems to suit lasts of different widths and prevent undue pressure of the blocks E on the upper.

The support for the toe end of the last consists of a piece G, Figs. 3 and 4, pivoted at *h*² to a block H, so as to be capable of rocking in a vertical plane or in a direction at right angles to the plane of the sole of the last, but is normally maintained in an approximately horizontal position by springs, interposed between the piece G and the block H. The plate C is shown as pivoted at *h*³ to the bar *c*.

The block H is mounted on the upper end of a rod or stem *t*, which when a last is placed in position is pressed upward by a spring or otherwise to secure the last in position between the piece G and a "hold-down" or pressing device—such, for example, as that

described in the specification of United States Patent No. 477,788, hereinbefore referred to—the springs yielding to unequal thicknesses of the last, so as to permit of the piece G adapting itself firmly to the contour of the last.

The support for the heel end of the last consists of a block I, Figs. 5 and 6, pivoted at α^3 to a piece K, so as to be free to rock on said pivot to conform to the inclination of the last, the piece K being free to turn in a horizontal plane to suit lasts of different shapes laterally. The piece K is mounted on the upper end of a hollow stem or socket L, fitted to slide on a screwed rod M and having a bearing on a nut N, so that by screwing the nut along the said rod the stem or socket L may be raised or lowered as required to suit the "spring" of the last. The stem or socket L is prevented from turning with the nut N by a projection u in the interior thereof engaging a slot or groove v in the rod M, as shown in Fig. 6; but any other suitable means for the purpose may be employed.

When a last with an upper thereon is placed in position in the lasting-machine, the heel and toe supports will automatically adjust themselves to the shape of the last, so that the bottom or sole thereof will be presented to the action of the wiper-plates in the same plane as that in which the wiper-plates move, and the wiper-plates, being adjusted about their pivotal point, as hereinbefore described, to suit the lateral shape of the last, the proper draft will be given to the upper.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a machine for lasting boots or shoes, a slide bar, and a pair of wiper plates mounted thereon to swing about a fixed point, combined with actuating means to close and move said plates forward over the toe of the last, said actuating means being adjustable about the center of movement of said plates, whereby the said wiper plates are adjusted about such center of movement, to adapt their leading edges to the inclination of the toe of the boot or shoe being lasted, and thereby enable the said plates when moved forward and closed to act uniformly on the upper on both sides of the toe of the boot or shoe whether right or left, substantially as described.

2. In a machine for lasting boots or shoes pivoted guide blocks for the toe end of the last, free to slide toward and from the last and springs to act on said blocks so as to press on the upper on opposite sides of the last with sufficient force to hold the upper in position while being lasted substantially as hereinbefore described.

3. In a machine for lasting boots or shoes

a pivoted block for supporting the toe end of the last capable of rocking in a direction transverse to the longitudinal axis of the last and springs to keep said block in contact with the last substantially as and for the purpose hereinbefore described.

4. In a machine for lasting boots or shoes, a support for the heel end of the last consisting of a block pivoted to a piece so as to be free to rock in a vertical plane the piece to which it is pivoted being free to turn in a horizontal plane so as to conform to lasts of different shapes substantially as hereinbefore described.

5. In boot and shoe lasting machines the combination of a support for the toe end of the last consisting of a pivoted block capable of rocking in a direction transverse to the longitudinal axis of the last, and a support for the heel end of the last adjustable in height and free to rock in a vertical plane and also to turn in a horizontal plane so as to conform to lasts of different shapes and spring substantially as hereinbefore described.

6. In a machine for lasting boots or shoes the combination with wiper plates for wiping the upper over the toe end of the last the said wiper plates being capable of being adjusted in position laterally with reference to the longitudinal axis of the last to suit different shaped toes, of a support for the toe end of the last capable of rocking in a direction transverse to the longitudinal axis of the last, and a support for the heel end of the last capable of rocking in a vertical plane with reference to the sole of the last and also of turning in a horizontal plane to suit lasts of different shapes, substantially as hereinbefore described.

7. The plate A, the sliding plate b , the wiper plates pivoted thereon, the bar c , the plate C adjustable on said bar c , the arms h, h , and the links i and k , combined with an actuating lever e , to operate, substantially as described.

8. In a machine for lasting boots or shoes, wiper plates made adjustable about a center located in a line drawn centrally from the extremity of the toe backward along the sole to thus place the edges of the said plates at like distances from the edges of the toe of the last whether a right or left, and means to move the said wiper plates forward to act substantially simultaneously and uniformly on the upper to wipe the same over the last, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT EDWARD STIRCKLER.

Witnesses:

CHAS. MILLS,

WILLIAM F. UPTON.