

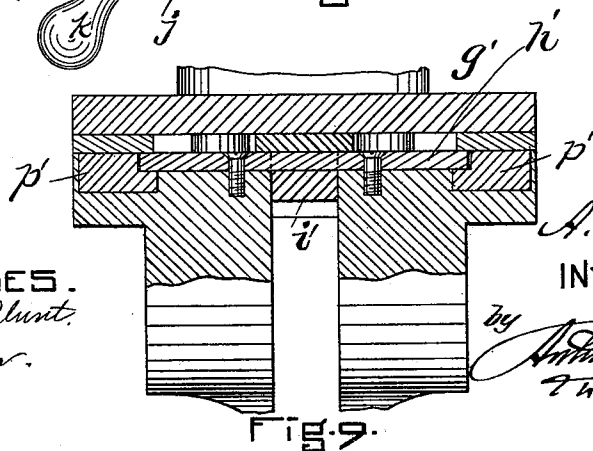
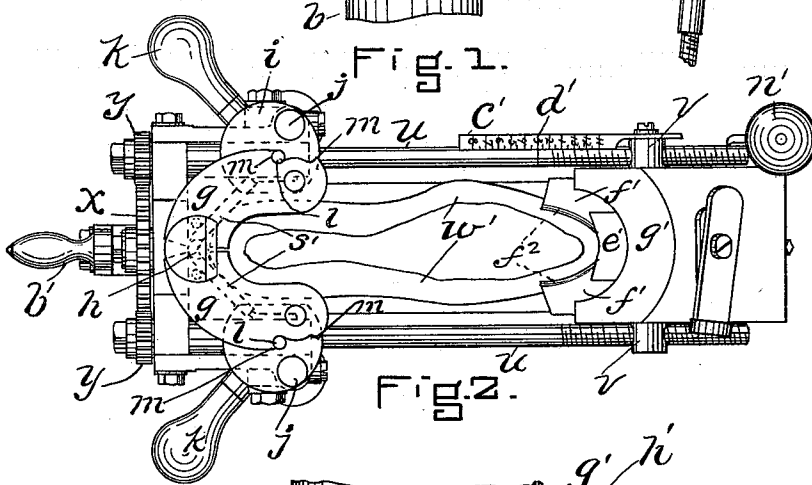
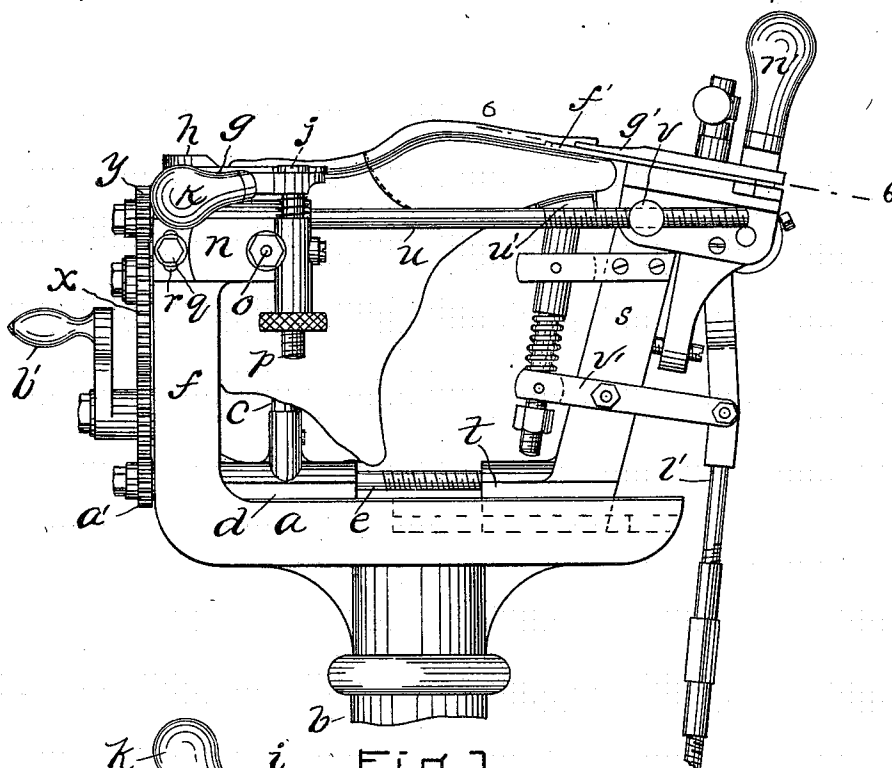
(No Model.)

4 Sheets—Sheet 1.

A. F. PRESTON.
LASTING MACHINE.

No. 592,826.

Patented Nov. 2, 1897.



WITNESSES.
Matthew M. Blunt.
C. C. Flecher.

A. F. Preston,
INVENTOR.
by *Arthur Rossley*
ATT'Y

(No Model.)

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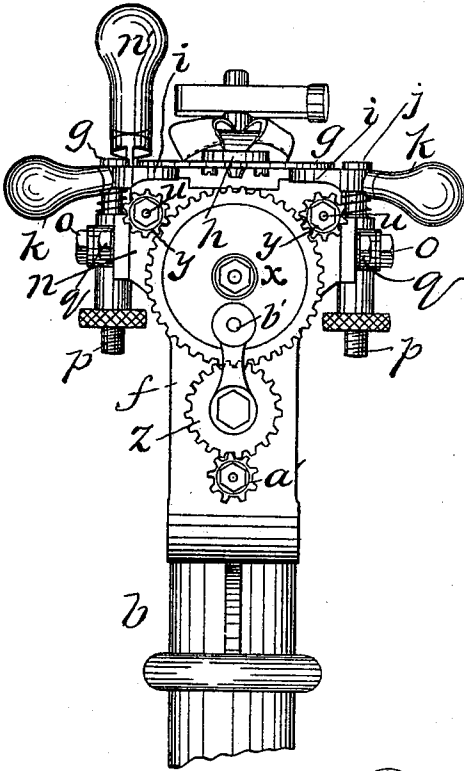


FIG. 3.

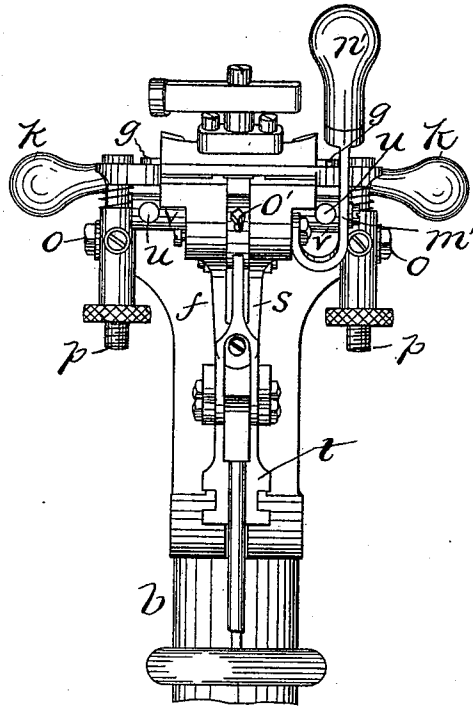
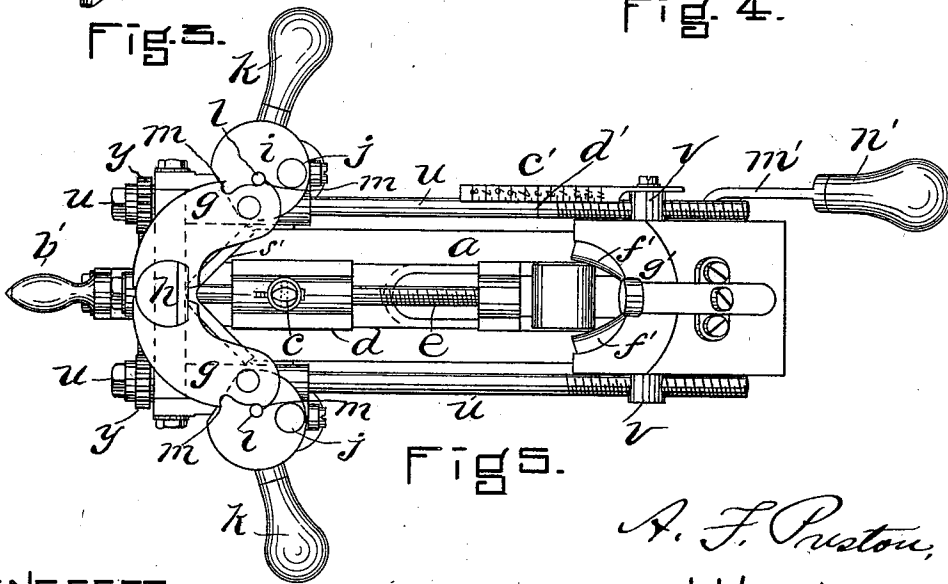


FIG. 4.



FIGS.

WITNESSES.

Matthew M. Blunt.
C. C. Peck.

A. F. Preston,
INVENTOR.

by *Andrew Crossley,*
ATT'Y.

(No Model.)

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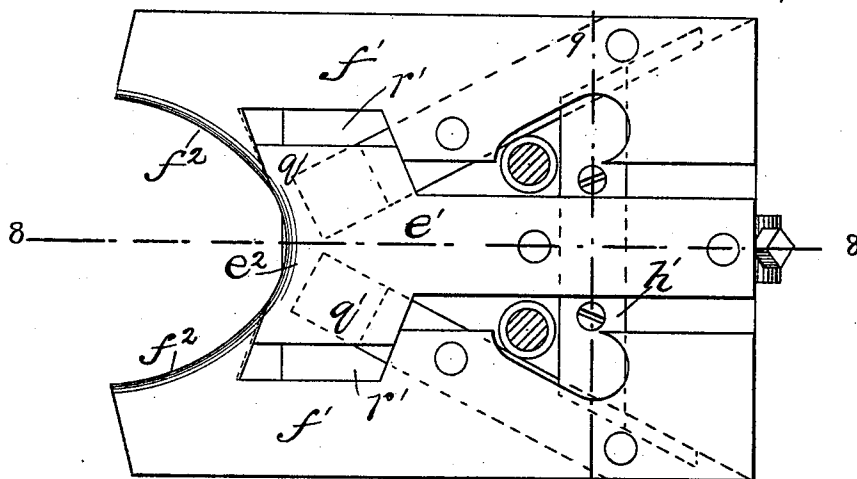


Fig. 6.

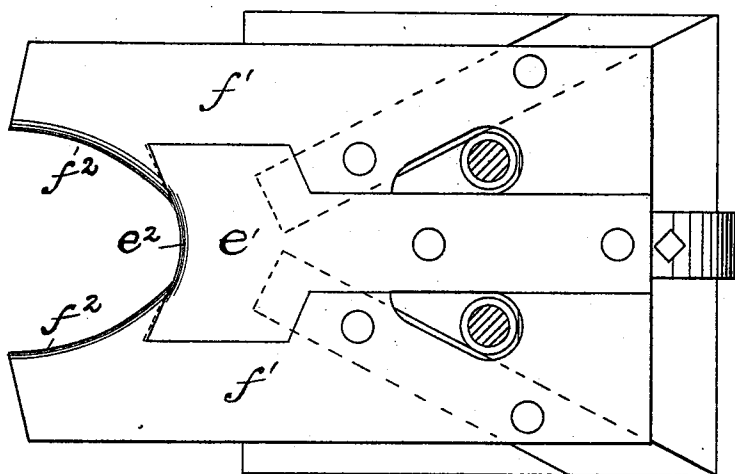


Fig. 7.

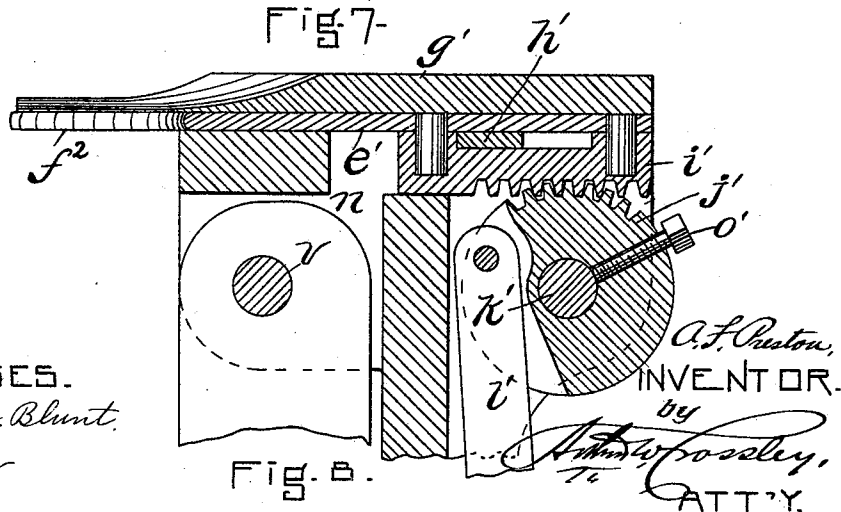


Fig. 8.

WITNESSES.

Matthias M. Blunt.

C. C. Flecher

A. F. Preston,
INVENTOR.

By
Arthur W. Fossey,
ATT'Y.

(No Model.)

4 Sheets—Sheet 4.

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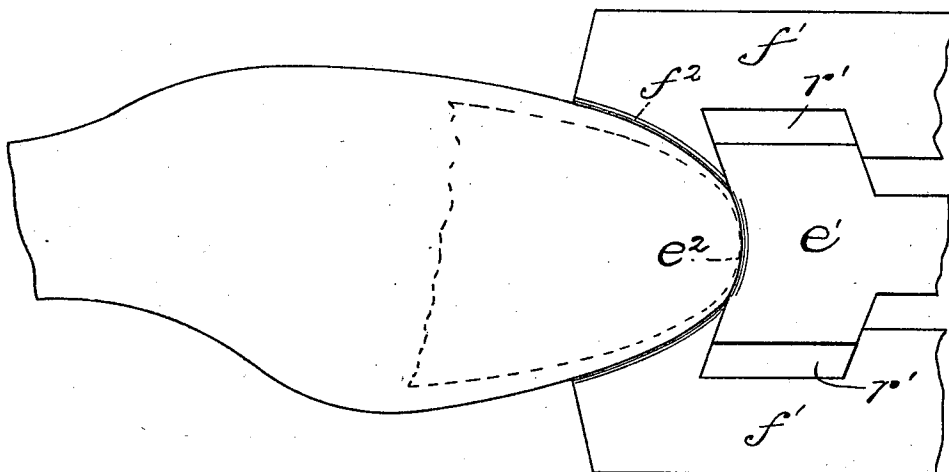


Fig. 10.

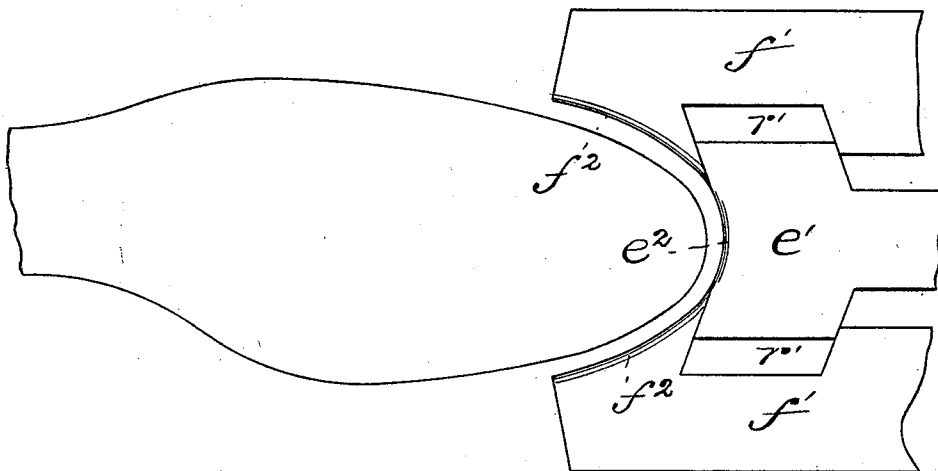


Fig. 11.

WITNESSES.

Matthew M. Blunt.
C. C. Stucker

A. F. Preston,

INVENTOR.

by *Arthur Rossley*
711

ATT'Y.

UNITED STATES PATENT OFFICE.

ALBERT F. PRESTON, OF WINTHROP, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE PRESTON LASTING COMPANY.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 592,826, dated November 2, 1897.

Application filed October 25, 1894. Renewed March 10, 1897. Serial No. 626,894. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. PRESTON, of Winthrop, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Lasting-Machines, of which the following is a specification.

This invention relates to machines for lasting boots and shoes of the kind in which the upper is strained over the last and smoothed or ironed down thereon by the action of moving metallic strips, or what are commonly termed "wipers."

It is the object of the invention to provide improved means for moving and guiding or controlling the movements of the wipers whereby improved results are secured in their operation.

It is also the object of the invention to provide improvements in the wipers themselves, to the end that they may act more smoothly and effectively upon the shoe in smoothing the upper down upon the last.

It is also the object of the invention to provide improved means for adjusting the machine to lasts of different sizes and to combine with such adjusting means a scale whereby absolute exactitude in the adjustment is most readily secured.

It is also the object of the invention to provide improved means for securing the centering or proper position of the heel part of the shoe in the lasting-machine, all with a view to increasing its efficiency and serviceability and simplifying its construction and mode of operation.

To these ends the invention consists of the improvements which I will now proceed to describe and claim, reference being had to the accompanying drawings, and to the letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the said drawings, Figure 1 is a side view of one form of lasting-machine in which I have embodied my invention, a shoe being shown in position therein and the parts having been operated to wipe or smooth the upper over the last ready for tacking. Fig. 2 is a plan view of the machine as represented

in Fig. 1. Fig. 3 is a rear end view. Fig. 4 is a front end view. Fig. 5 is a plan view showing the machine as ready to receive a shoe to be lasted, the wipers being represented as in back position. Fig. 6 is a plan view of the toe-wipers and their immediate adjuncts drawn to an enlarged scale and showing the parts as they will appear when the wipers are moved back ready to operate upon a shoe. Fig. 7 is a view similar to Fig. 6, but showing the toe-wipers as advanced upon the upper. Fig. 8 is a vertical sectional view taken on the line 8 8 of Fig. 6. Fig. 9 is a transverse vertical sectional view taken on the line 9 9 of Fig. 6. Figs. 10 and 11 are diagrams hereinafter more fully referred to.

In the drawings, *a* designates the bed of the machine, which may be supported upon a suitable column or upright *b*, the lower part of which is represented in the drawings as broken away.

c is the spindle, of oval form, as shown, for entering the hole in the last, which spindle is pivotally supported upon a base *d*, adapted to slide on a rod *e*, centrally and longitudinally disposed in the machine.

f is an upright adapted to support the devices for straining the heel portion of the upper over and smoothing it down upon the last and for supporting other operative parts of the machine, the said devices for acting upon the heel portion of the upper consisting of two wipers *g g*, embracing plates pivoted at their rear or outer ends, as at *h*, upon the head or upper end of the upright *f*, and having their inner edges suitably curved, as shown.

The wipers *g* are pivoted at their forward or inner ends upon and near the peripheries of disks *i i*, which disks are adapted to turn upon pivot-pins *j j*, connected with the said disks. Handles *k k* are also connected with the said disks for turning the same upon their pivots and operating the wipers *g*. Stop-pins *l l* are connected with the disks and operate between shoulders or offsets *m m*, forming features of the wipers *g*, so as to limit the movements of the latter.

The head *n* of the upright *f*, on which the wipers *g* and their adjuncts are mounted, is

pivoted upon a transversely-arranged bolt *o* and is adjustable to any desired inclination from horizontal position by means of vertically-disposed screw-bolts *p p*, arranged to operate on the lower face of the forward part of the head *n*, as shown, a transversely-arranged screw-bolt *q* passing through a slot *r* in the head and the fixed part of the upright serving to set or fix the head *n* in adjusted position.

s is the upright or standard for supporting the operative parts of the machine, which act at and upon the toe of the boot or shoe in process of lasting. The said upright *s* forms a part of the base *t*, which is adapted to be moved or adjusted forward and backward on the bed *a* by means of its screw-threaded connection with the adjusting-rods *e* and *u u*. The rods *u u* are journaled at their rear in the head *n*, where they are held against longitudinal movement, and at their forward ends have a screw-threaded connection with nuts *v v*, swiveled in the head of the standards.

Upon a stud or journal projecting from the rear of the standard *f* is a gear-wheel *x*, which engages and is adapted to move pinions *y y* on the rear ends of the rods *u*.

z is a gear fixed upon a stud or journal having bearings in the standard *f*, which gear *z* meshes with the gear *x* and also with a pinion *a'* on the rear end of the rod *e*.

b' is a crank connected with the gear *z* or its journal, so that by the rotation of said gear *z* the pinions *y* and *a'* may be operated to turn the rods *e* and *u* and so adjust the standard *s* and its equipments to and fro or forward and backward on the bed *a*.

c' is a scale inscribed with numbers indicating sizes, with which an indicator, consisting in the present case of a score or mark *d'* on the rod *u*, adjacent to the scale *c'*, is adapted to cooperate in such manner as to indicate the size of the last to which the machine is set.

It is obvious that the indicator may consist of a finger or pointer fixed to any stationary part of the machine in case the scale moves with the head, or with the movable head in case the scale is stationary.

The wipers for the toe portion of the upper consist of three movable plates—namely, a central plate *e'* and side plates *f' f'*. The forward edges of these plates are rounded, as indicated in Figs. 6, 7, and 8, and their form is such that when adjusted, as shown, they will fit about the toe of the shoe when closed thereon, and when moved still farther upon the shoe will close in laterally as well as longitudinally toward, as it were, a common center, and so wipe the upper of the toe part or piece over and smooth it down upon the last in a perfect manner.

The central plate *e'* is arranged to be moved longitudinally, or toward and from the heel of the last between the cap-plate *g'* and cross-strip *h'*, and has secured to its lower side a rack *i'*, which is engaged by a toothed wheel

or segment *j'*, secured to a shaft *k'*, suitably journaled in the head, with which wheel the upper end of a connecting-rod or pitman *l'* is eccentrically pivoted, as is clearly indicated in Fig. 8, so that as the said connecting-rod is drawn down the wheel *j'* will be partially rotated and the wiper-plate *e'* will be moved inward. Any suitable means may be provided for rotating the wheel *j'* so as to move the wiper-plate *e'* outward. As herein illustrated, a lever or crank *m'*, provided with a handle *n'*, is secured to the shaft *k'*, on which the gear *j'* is fixed, by a set-screw *o'*, so that by a movement of the said lever by hand the said gear may be operated, as described. The connecting-rod *l'* may be connected at its lower end with a treadle, (not shown,) so that by depressing the treadle with the foot the wiper-plate *e'* may be moved inward.

The side wiper-plates *f'* have secured to the lower sides of each slide-bars *p'*, inclined with respect to the line of movement of the central wiper-plate *e'* and arranged also in inclined guideways, so that as the said side wiper-plates are moved toward the heel they will also close inward with the central wiper to all intents and purposes, as it were, toward a common center.

The central wiper is provided on its inner end with offsets or arms *q' q'*, having their inner and outer edges inclined, as shown, which offsets or arms extend and fit into recesses *r' r'*, formed in the adjacent edges of the side wiper-plates, so that as the central wiper-plate is adjusted inward and outward the side wipers will be moved in unison therewith by the cam-like action of the said inclined arms in the said recesses of the side wipers, all as will be readily understood without further description.

It is to be particularly noted that the inner rounded edges *f²* of the side wiper-plates *f'* are so formed with respect to the inner rounded edge *e²* of the central wiper-plate *e'* that whatever may be the adjustment of the said plates within the capacity of the machine a continuous, unbroken, angleless edge will be presented for action upon the upper of the shoe.

In the operation of lasting a shoe upon my improved machine, the wipers being in outward position, as shown in Figs. 5 and 6, the last, with the upper thereon, will be placed upon the spindle *c*, which, being of oval form, as shown and hereinafter mentioned, will allow of the requisite lateral play of the last, so as not to necessitate a rocking movement of the spindle. The spindle and its base *d* will then be moved backward, so as to bring the heel of the last in place against the angular heel-support *s'*, fixed to the standard *f*, which angular support holds in place and centers the heel of the last. Pincers of suitable character (not shown and forming no part of the present invention) are next applied to the edge of the toe portion of the upper and the same is drawn upward, so that

when the rod l' is depressed the wipers may close inward and acting upon the upper strain it over and smooth and iron it down upon the last, the rounded character of the inner edges of the wipers affording a construction which in the operation of the wipers obviates liability of abrading the upper and contributes toward a smooth ironing down of the parts.

The toe-rest u' , upon which the toe of the last rests, is supported upon one end of a lever v' , fulcrumed upon the standard or upright s , the other end of said lever being pivoted to the connecting-rod l' , so that as the said rod is depressed to operate the wipers e' f' the toe-rest will be gradually raised to increase the wiping or ironing down pressure of the wipers on the upper to effectually crimp and smooth down the same.

The wipers g g at the heel of the last will next be operated to wipe over and smooth down the upper at this point, the said wipers being manipulated through the medium of the handles k in a manner hereinbefore indicated. Finally the edges w' of the upper (see Fig. 2) are tacked to the inner sole and the wipers are moved in reverse order to that just described and the last and shoe lasted thereon are released and may be removed. The toe-wipers may be moved outward by manipulating the handle n' of the lever m' , as has been described.

Figs. 10 and 11 of the drawings are designed to assist in an understanding of the mode of operation of adjusting the machine to suit lasts of different sizes by moving the standard s and its equipments toward and from the heel.

It is necessary to the performance of good work that the wipers e' and f' should begin their operations upon the upper substantially simultaneously, and in order to accomplish this in the adjustment of the machine the distance of the toe-wipers from the toe of the last when the former are in their extreme outward position will be necessarily varied. For example, supposing the machine, when the wipers are moved out to normal position, to be just suited to last a No. 8 shoe, as indicated in full lines in Fig. 10, and it is desired to adjust the machine to operate upon a No. 7, which is, in fact, ten-thirtieths of an inch shorter than the No. 8. Now if the toe-wipers should be adjusted inward the full ten-thirtieths of an inch they would come into contact with the extreme end or point of the toe, but branch outward from the sides, as shown by dotted and full lines in said Fig. 10, so that the center wiper e' would begin to act upon the upper before the side wipers would begin to close in thereon. To avoid this defect, I adjust the toe-wipers inward under the circumstances above mentioned but substantially nine-thirtieths of an inch, so that the toe of the last will not quite touch the upper, (see full lines in Fig. 11,) and so that when the wipers are advanced to wipe down the upper they will meet the same simultaneously

around the toe, as indicated by full and dotted lines in the last-mentioned figure. The scale which I have combined with the adjustable head is drawn or made up in accordance with the foregoing facts—that is, so that the toe-wipers when they reach the toe to act in wiping over and down the upper at that point will fit therearound and act at all points simultaneously.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is—

1. A lasting-machine comprising in its construction three wiping-plates consisting of a center plate and two side plates, constructed and related to present and maintain a continuous wiping edge as described, means connected with the center plate for engaging the side plates to move the same to and fro in unison with the former, and inclined guides with which the side plates are connected to cause the same to move inward toward the center plate while being advanced by the latter.

2. A lasting-machine comprising in its construction three wiping-plates consisting of a center plate and two side plates, the same having their operative edges rounded, and the inner points of the rounded edges of the side plates being adapted to fit and move inward upon the rounded edge of the center plate without forming an angle at the points of juncture or meeting of the said edges, thereby presenting and maintaining a continuous wiping edge.

3. The combination of the longitudinally-movable center wiper-plate, with the side wiper-plates, means connected with the center plate for moving the side plates in unison therewith, slide-pieces connected with the side pieces in inclined position with respect to the line of movement of the center plate, and inclined guideways in which the said slide-pieces are adapted to move, the forward ends of the said plates being constructed and related to present and maintain a continuous edge to the material acted upon.

4. A lasting-machine comprising in its construction a center wiping-plate and two side wiping-plates, the three constructed and related to present and maintain a continuous wiping edge, inclined guideways with which the side wiping-plates are operatively connected, connecting devices between the center and side wiping-plates whereby by the movement of the former the latter will be moved, a rack connected with the center plate, a toothed gear arranged to engage the said rack, and means as set forth, for rotating the said gear in opposite directions.

5. A lasting-machine comprising in its construction wiper-plates adapted to be moved longitudinally on the last and to close inwardly thereon, said wiper-plates presenting

and maintaining a continuous wiping edge, in combination with means for adjusting said plates as to position to suit varying sizes of last without changing the position of the plates with respect to each other, and a scale to gage the position of adjustment or size at which the machine is set.

6. A lasting-machine comprising in its construction a center wiping-plate and two side wiping-plates, means for moving all of the plates longitudinally and also for moving the side plates at the same time in an inclined direction inwardly, devices for adjusting the plates longitudinally as well as inwardly to suit lasts of different sizes, whereby when the wipers are advanced to wipe down the upper on varying-sized lasts they will meet the upper simultaneously at all points, and a scale and indicator to gage and determine the position of adjustment.

7. The combination with the support for the heel-wipers consisting of two curved plates pivoted at their rear ends on said support, of two disks eccentrally pivoted upon the latter and having pivoted connection with said wipers, handles connected with said disks for operating the same, shoulders or offsets formed on said wiper-plates, and stop-pins connected with said disks adapted to cooperate with the said shoulders or offsets to limit the movement of the wiper-plates.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of August, A. D. 1894.

ALBERT F. PRESTON.

Witnesses:

ARTHUR W. CROSSLEY,
C. C. STECHER.