

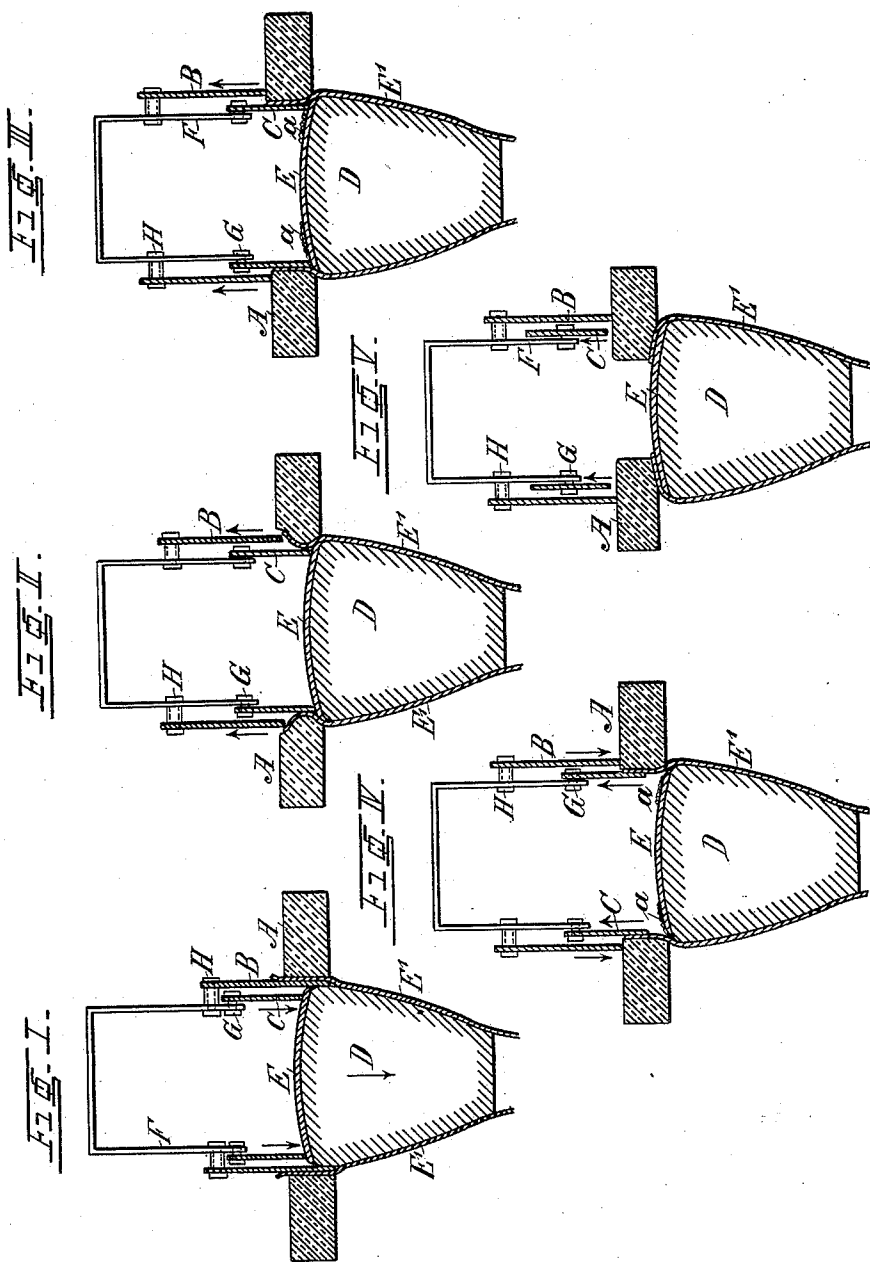
(No Model.)

4 Sheets—Sheet 1.

A. ANDRES.
LASTING MACHINE.

No. 463,022.

Patented Nov. 10, 1891.



Witnesses:
H. T. Dietrich
B. W. Sommers.

Inventor:
Albert Andres
Attorney: *for Henry Oth*

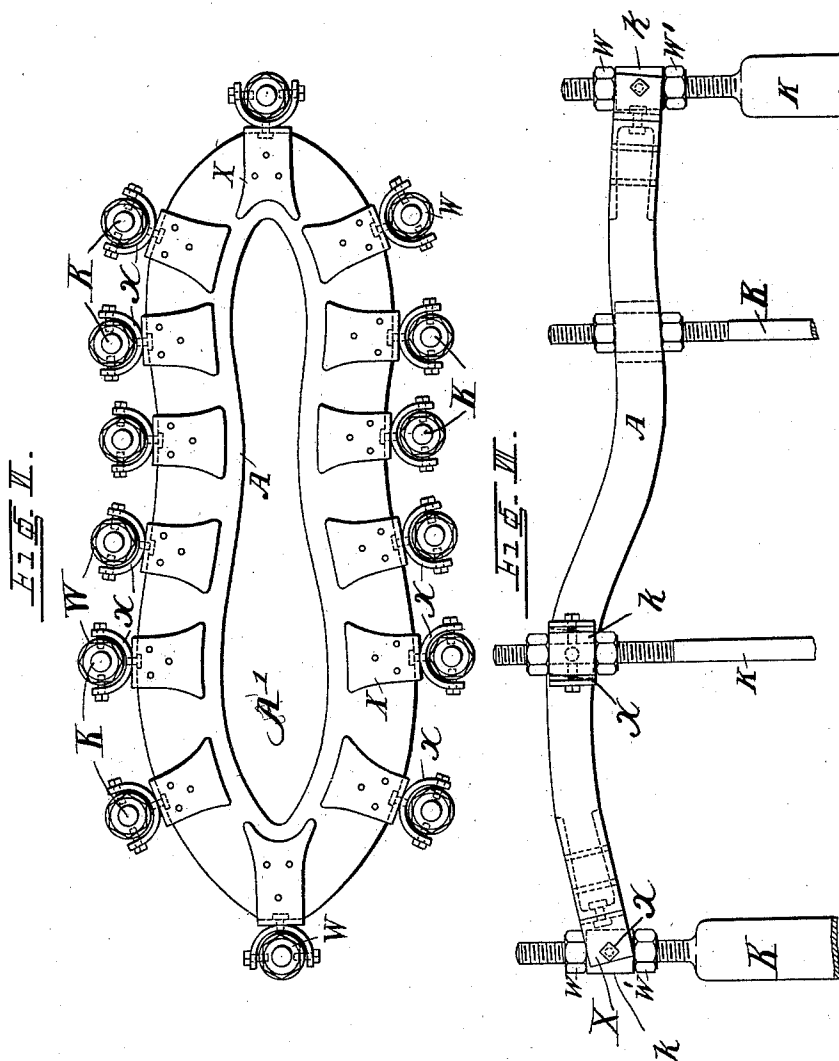
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Attorney:

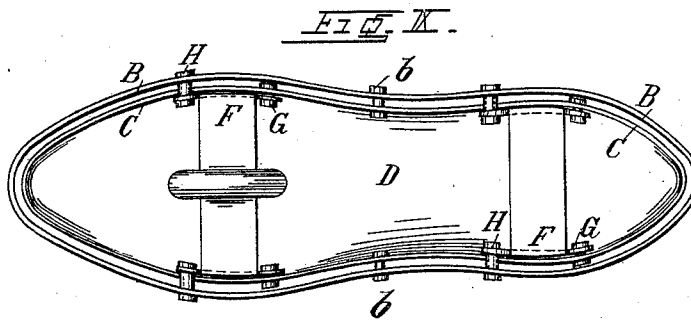
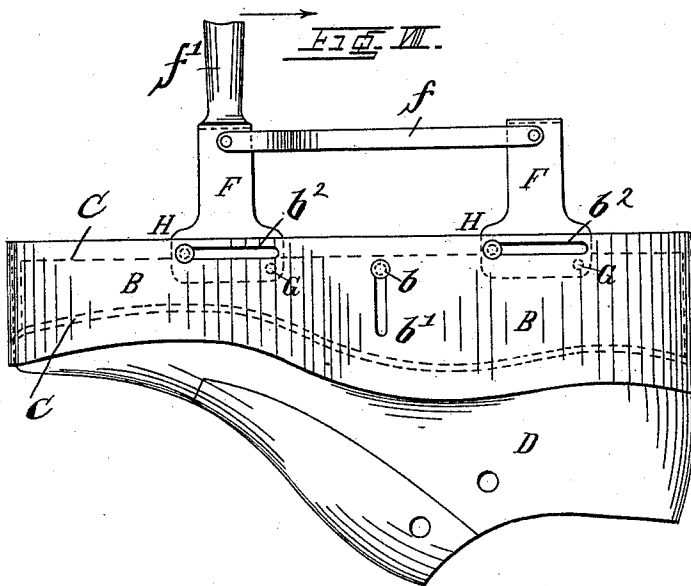
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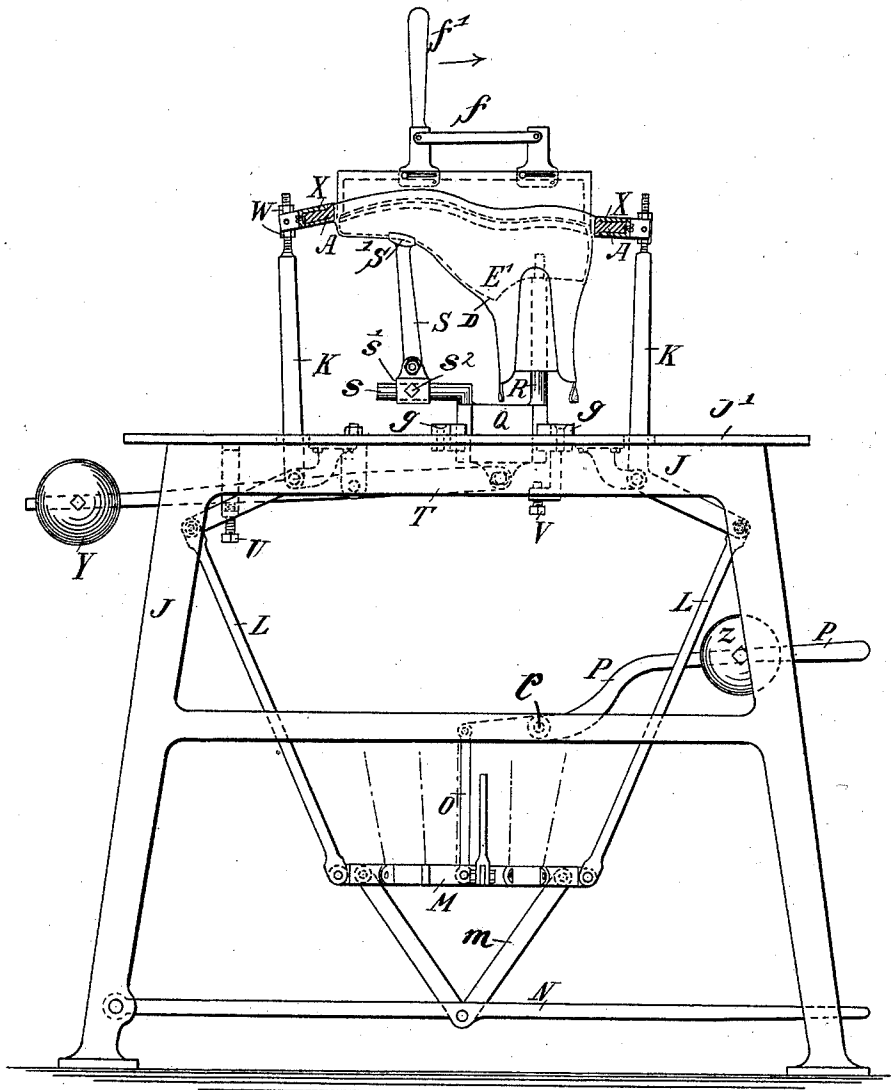
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Fig. 1.



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UNITED STATES PATENT OFFICE.

ALBERT ANDRES, OF NIEDER WALLUF, GERMANY.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 463,022, dated November 10, 1891.

Application filed March 26, 1891. Serial No. 386,489. (No model.) Patented in Germany January 16, 1891, No. 57,834; in Switzerland January 24, 1891, No. 3,385; in France January 24, 1891, No. 210,981; in Belgium January 24, 1891, No. 93,535, and in Austria-Hungary July 25, 1891, No. 3,844 and No. 16,852.

To all whom it may concern:

Be it known that I, ALBERT ANDRES, machine-maker, subject of the Emperor of Germany, residing at Nieder Walluf, in the Empire of Germany, have invented certain new and useful Improvements in Lasting - Machines for Use in the Manufacture of Boots and Shoes, (for which I have obtained Letters Patent in the following countries: in Austria-Hungary, No. 3,844 and No. 16,852, dated July 25, 1891; in Germany, No. 57,834, dated January 16, 1891; in Switzerland, No. 3,385, dated January 24, 1891; in France, No. 210,981, dated January 24, 1891, and in Belgium, No. 93,535, dated January 24, 1891;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to boot and shoe lasting-machine, and has for its object to simplify their construction by dispensing with the usual gathering devices, as well as the usual clamps or pinchers, or said pinchers and the templet with which they are ordinarily connected, and to obviate the difficulty generally encountered with said devices in uniformly stretching the upper on the last, gathering its edges, and drawing the same over the sole of the last or over the insole thereon.

To these ends the invention consists in the combination, with a vertically-movable last, of a distensible stretching, gathering, and folding or overturning frame, which I will hereinafter call the "distensible templet," as said frame performs practically not only the function of a templet, but the function of the usual stretching-pinchers and gathering devices, and also folds or turns the edge of the upper over the last or over the insole thereon, said distensible templet having bearing upon the entire contour of the last at a point near the sole thereof; of means for imparting motion to the last to withdraw the same from the distensible templet, whereby the upper is uniformly stretched, and its edges gathered and folded onto the sole of the last or onto an insole.

The invention further consists in the construction, combination, and co-operation of the lasting devices, and the means for operating the same, and in minor details, as will now be fully described, reference being had to the accompanying drawings, in which—

Figures I to V are sectional and more or less diagrammatic views illustrating the operation of the lasting mechanism. Figs. VI and VII illustrate the distensible templet by a top plan view and a side elevation, respectively. Figs. VIII and IX illustrate the reciprocally movable frames for imparting motion to the last by a side elevation and top plan view, respectively; and Fig. X is a side elevation of a lasting-machine embodying my invention.

Referring more particularly to Figs. I to VII of the above-described figures of drawings, A indicates the distensible templet, which is preferably constructed of vulcanized rubber, because such construction is greatly simplified, a more uniform and general contact between the templet and the upper on the last obtained, and because the frictional contact between leather and rubber is greater than between leather and metal, so that when the last is withdrawn from the distensible templet the upper is more uniformly stretched than would be the case with a metal templet. As shown in Figs. VI and VII, the contour of the opening A' in the distensible templet is substantially that of a last near the sole, so that when said templet is distended sufficiently to introduce the last into said opening A' the inner edges of said opening will press upon the entire contour of said last. In order to facilitate the uniform distention of the templet, its outer configuration or contour will also be substantially that of a last. The distensible templet is distended or stretched for the introduction of the last D into the opening A' thereof by means of the following instrumentalities, reference being had to Fig. I, in which J indicates the framing of the machine, J' the table or top plate thereof, and M a frame, that is pivotally connected by means of a V-shaped link or links m with a foot-lever N, said V-shaped link being pivotally connected with the frame M. To the distensible templet A are connected, by means of universal joints, a series of bell-

crank levers K, having their fulera in suitable bracket-arms secured to the under side of the table J', to the shorter arm of which levers is pivoted one end of a connecting-rod 5 L, whose opposite end is pivotally connected with the frame M. It will be seen that when the foot-lever N is depressed the longer arm of the series of bell-crank levers K, connected with the distensible templet A, are caused to 10 move outwardly, thereby distending the templet and enlarging the opening A', so that the sole end of the last with the upper thereon may be introduced into said opening, and that when said lever N is released the templet will 15 contract upon and around the upper and the sole edge of the last.

I have above stated that the longer arm of the bell-crank levers K is connected with the distensible templet by means of a universal 20 joint, which is more plainly shown in Figs. VI and VII, and consists of a U-shaped holder or clamp X, secured to the templet, to which holder is journaled a half gimbal-ring x, and in said half gimbal-ring is journaled a sleeve 25 k, through which the longer arm of the lever K passes freely.

As shown in Figs. I and VII, the upper end of the longer arms of the levers K is screw-threaded for the reception of two nuts W and 30 W', located, respectively, above and underneath the sleeve k, and by means of which the templet can be adjusted vertically and the distension of the templet varied within certain limits.

For the sake of clearness I have in Fig. X shown two of the distending-levers K only, from which and from Figs. VII and VIII the arrangement of said levers will be readily understood, and from which it will be seen that 40 the templet may be uniformly distended at every point of its contour.

The table J' has a slot formed therein, and at each end of said slot is arranged a guide g, in which slides freely a last-block Q, provided with a standard or vertical last-supporting arm R, that takes into a suitable 45 socket in the last, as shown in dotted lines in Fig. I. The sliding block is further provided with a horizontal arm s, that carries a sleeve s', adjustable on the arm by means of a set-screw s², and to said sleeve is pivoted a second supporting-arm S, that has a last-rest or saddle S', upon which rests the forward end 50 of the last. The sliding block Q is pivoted to a weighted lever T, an adjustable abutment or screw V being arranged in the path of the block to limit its downward motion, a similar abutment U performing the same function in respect of the lever T. By means 55 of these adjustable abutments V U the extent of downward motion of the last relatively to the distensible templet A may be regulated with great nicety.

For the purpose of holding the insole to the 65 last and for the purpose of applying an adhesive to said insole before the edges of the upper are gathered and turned over onto the

same, and for the purpose of moving the last out of the templet against the stress of its yielding bearing T, I employ two reciprocally-movable frames of substantially the same configuration as the last along the sole and of said sole, respectively. The latter frame C is 70 contained within and is of less height than the encompassing frame B. This reciprocal movement is imparted to the frames B and C by means of a handle f', secured to or formed on one of a pair of stirrups or bails F, pivotally connected together by a rod f. Both of 75 the stirrups are pivotally connected at G with the inner frame C, and are provided with a headed guide-pin H, that projects loosely into a longitudinal slot b² of the outer frame B. The frames B and C are guided in their reciprocal movements by a pin b, secured to the 80 inner frame C, and extending through a vertical slot b' in the outer frame B, as shown in Fig. VIII.

It will be seen that if the handle f' is pushed in the direction of the arrow, Fig. VIII, 90 when the inner frame C has bearing on the last support or on the insole of a boot or shoe thereon the outer frame B will be lifted, the stirrups performing the function of levers having their fulera at G, and inasmuch as the 95 last is carried by a yielding support—namely, the standard R, block Q, and weighted lever T—power applied to the handle in the direction referred to will not only cause the frame B to ascend but the frame C will descend with the last-supporting devices. A reverse reciprocal movement of the frames B 100 and C will of course result if the stirrups F are tilted in a reverse direction.

The operation of the lasting device is as 105 follows: The last-support having been adjusted to hold the last in proper relation to the distensible templet A, an upper E' is drawn onto the last in the usual manner. An insole is then laid in the outer frame B 110 on the inner frame C, and both frames are placed on the last D, so that the said outer frame will encompass the last near its sole with the edge of the upper on the outside of said outer frame, and so that the insole will 115 lay on the last D, with the inner frame C bearing on said insole. The foot-lever N is now depressed, thereby distending the templet A, so that the last may be introduced into the enlarged opening A' and stuck on the standard R, the forward end of the last resting on the saddle S' on standard S. The foot-lever 120 N being now released, the templet will contract and close upon the upper and last. The operator now depresses the weighted lever P, that is fulcrumed to the frame J at p, and connected with the frame M by a connecting-rod O, whereby said frame M is elevated and the bell-crank levers L moved toward the last 130 to more firmly press the templet thereto, said weighted lever performing normally the function to lift the frame M and return the levers to their normal position, so as to admit of the contraction of the templet A. The lasting

devices will now be in the position indicated in Figs. I, VIII, and X. If motion in the direction of the arrow, Figs. VIII and X, is now imparted to the stirrups F through the medium of the hand-lever f' , the inner frame C will move downward, thereby moving the last downwardly also against the stress of the weight Y and the supporting-lever T, the outer frame B remaining stationary, being held fast by the upper E and the templet. This downward motion of the last is maintained until it has moved out of the templet, when the short arm of lever T will bear upon the abutment-screw V and hold the last-support against further downward motion. As the last is now locked against downward movement, a further motion of the stirrups toward the right will cause the outer frame B to move upwardly, the parts assuming the relative positions shown in Fig. 2. The edge of the templet A, owing to its elastic nature, contracts under the edge of the outer frame B, thereby moving the edge of the upper into contact with the inner frame C. A further movement of the stirrups F toward the right will lift the frame B sufficiently to allow the templet to contract on frame C, as shown in Fig. III. During all these described movements of the frames and the templet the inner frame C holds the insole firmly to the last, while said templet A uniformly stretches the upper E' on said last, and, as shown in Fig. III, the said inner frame has bearing upon the insole E near the edges thereof, so that an adhesive may now be applied to said insole, as at a . If now the stirrups F are moved toward the left, the frame C will move upward, as shown in Fig. IV, until it has moved clear of the templet, when the latter will contract over the last and press the edge of the upper E' onto the adhesive coated edge of the insole E, as shown in Fig. V, when the foot-lever may be depressed to stretch the templet, and the last D and frames B C removed.

45 In order that the templet may fit lasts the curvatures of the contour of which vary, I provide the means hereinbefore described, by which the levers K can be adjusted relatively to the templet, and whereby, as stated, the extent to which the templet may be distended can be regulated within certain limits.

Having thus described my invention, what I claim is—

1. In a lasting-machine, the combination, with the last-support, of means for holding the insole and upper on the last, consisting of the frames B and C, arranged one within the other, the frame B, encompassing the last, and the frame C, having bearing thereon, and

means for imparting a reciprocal movement to said frames, consisting of the connected stirrups F, pivoted to frame C, and a sliding connection between the two frames.

2. In a lasting-machine, the combination, with the last-support and a yielding bearing therefor, of means for holding the insole and upper on the last and for imparting motion to the last in one direction, consisting of the frames B and C, arranged one within the other, the frame B, encompassing the last, and the frame C, having bearing thereon, and means for imparting a reciprocal movement to said frames, consisting of the connected stirrups F, pivoted to frame C, and a sliding connection between the two frames.

3. In a lasting-machine, the combination, with the last-support, a yielding bearing therefor, and a distensible stretching and gathering templet adapted to encompass the last, of a reciprocating holder for holding the upper and insole on the last and for imparting motion thereto in one direction against the stress of the templet, consisting of two reciprocally-movable frames, one of which encompasses the last and the other has bearing thereon.

4. In a lasting-machine, the combination, with the last-support, a yielding bearing therefor, and a distensible stretching and gathering templet adapted to encompass the last, and a reciprocating holder for holding the upper and insole to the last and for moving the last-support in one direction against the stress of the templet, such as two reciprocally-movable frames, whereof one encompasses the last and the other has bearing thereon, of means for returning the last-support into its normal position when moved out of it, such as a weight acting upon the bearing for the last-support.

5. In a lasting-machine, the combination, with a last-support, the weighted lever T connected therewith, and the adjustable abutments V U, of a distensible stretching and gathering templet provided with an opening for the reception of but smaller than the last along or about along its sole, distending bell-crank levers L, a universal joint connecting one arm of said levers with the templet, the frame M, to which the other arm of the levers is connected, a foot-lever, and a connection between the foot-lever and the frame M, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT ANDRES.

Witnesses:

FRANZ KOST,
GEORG LITTLER.