(No Model.) 4 Sheets—Sheet 1.

E. F. GRANDY.

LASTING MACHINE.

No. 588,568. Patented Aug. 24, 1897.

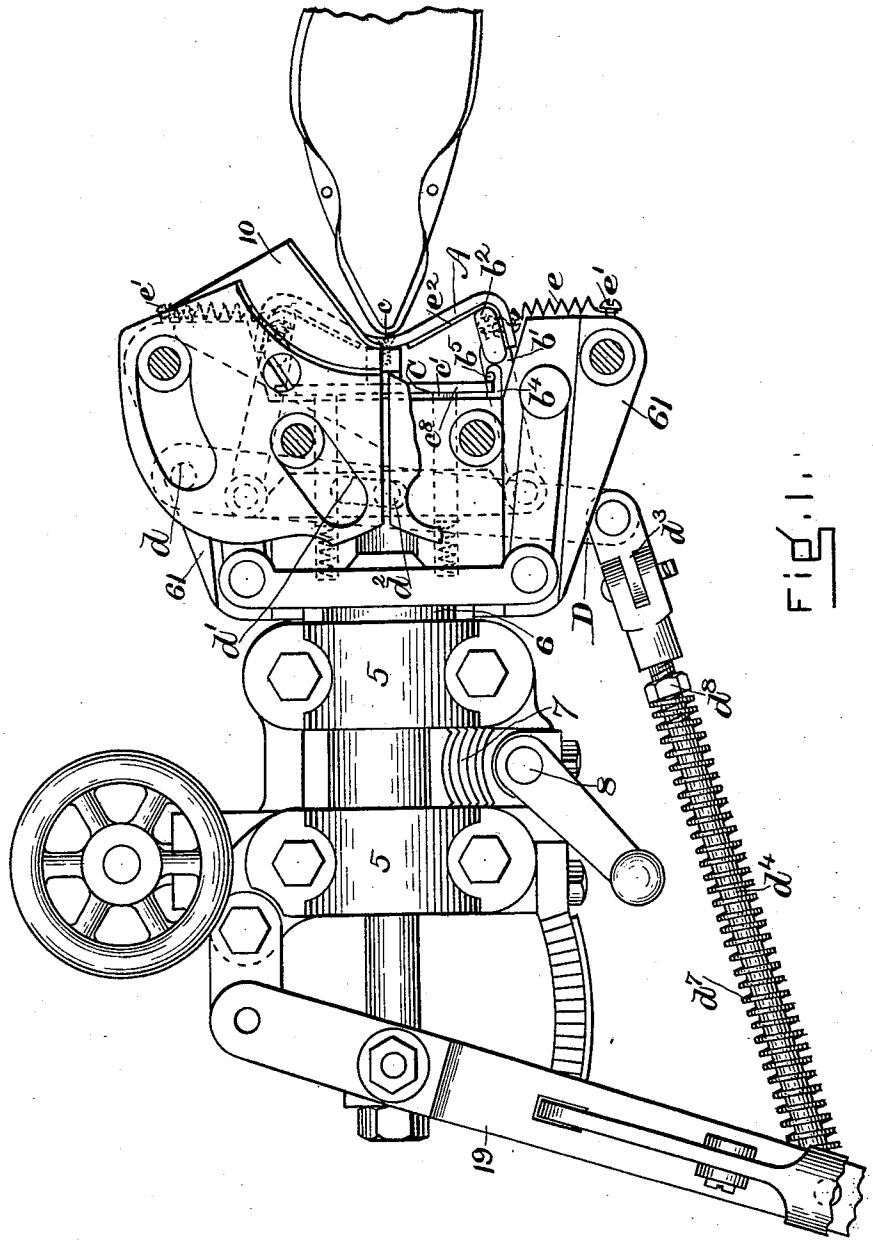


Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

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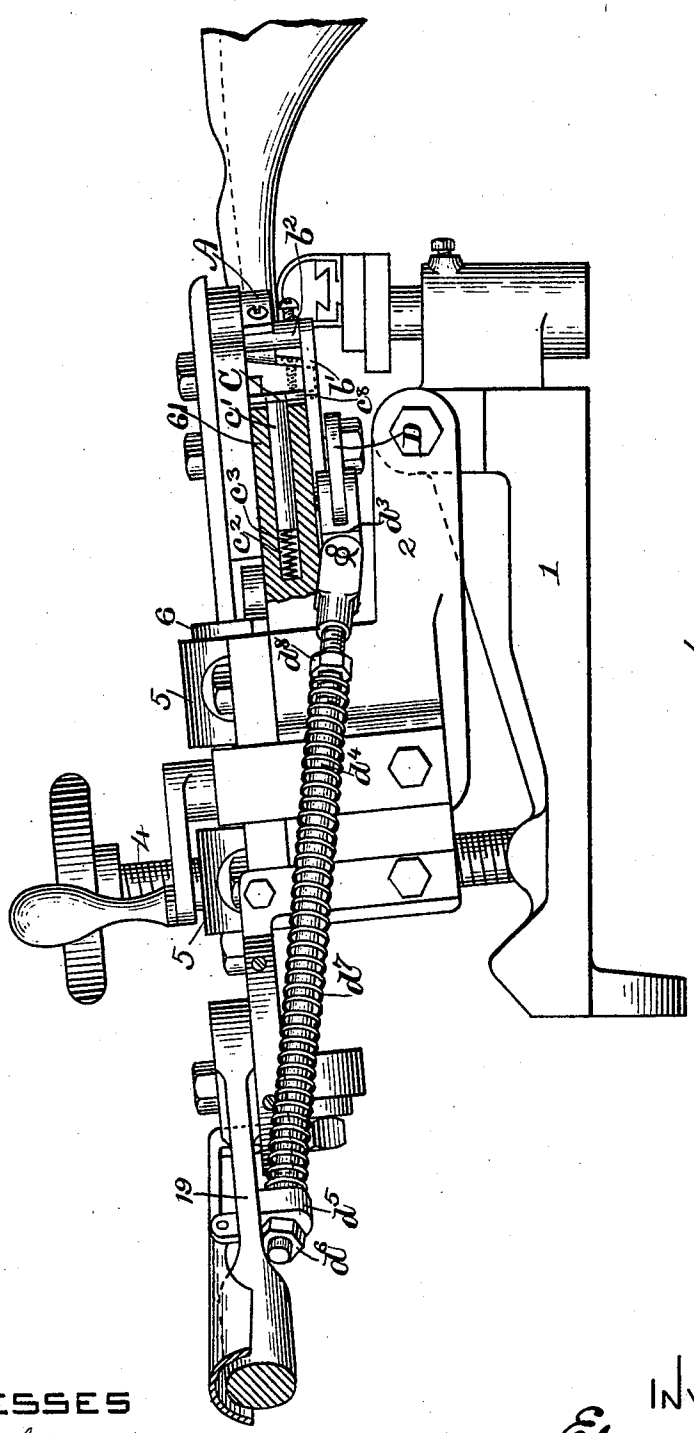


Fig. 2.

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E. F. GRANDY.

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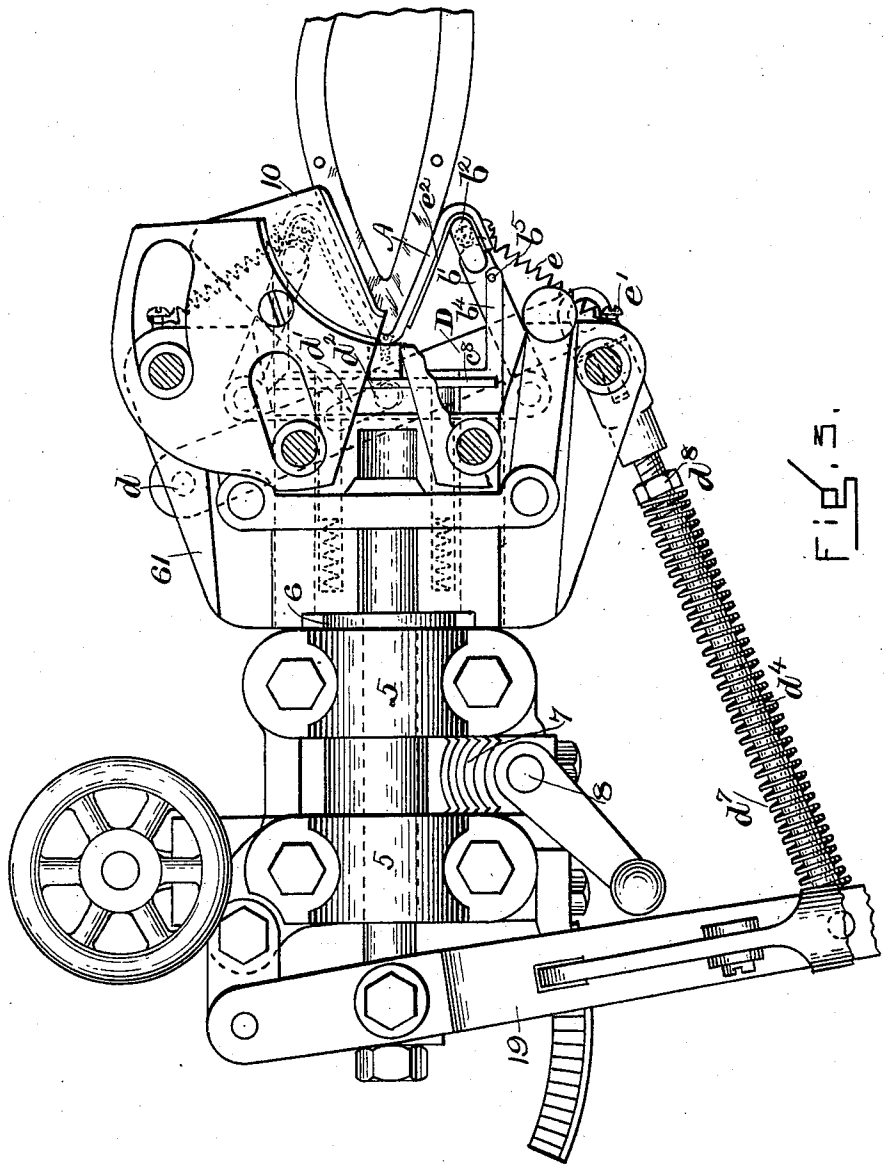


Fig. 7.

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(No Model.) 4 Sheets—Sheet 4.

E. F. GRANDY.

LASTING MACHINE.

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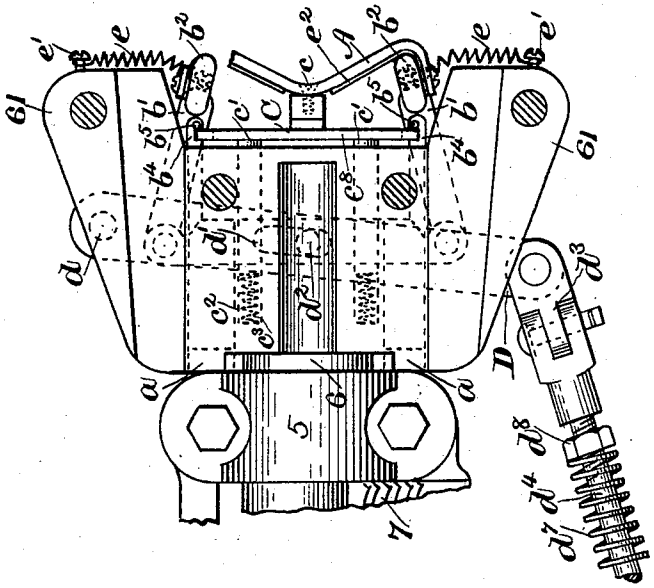


Fig. 4.

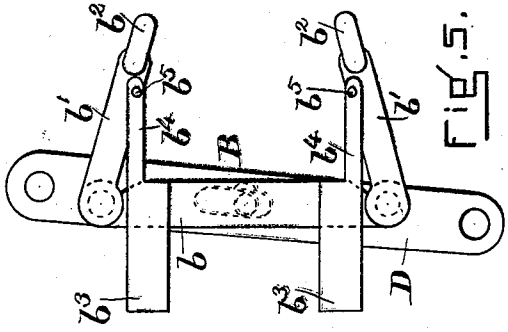


Fig. 5.

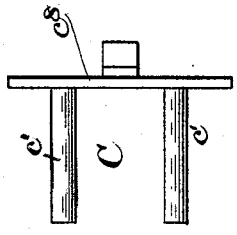


Fig. 6.

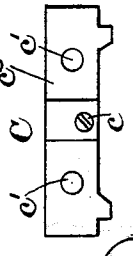


Fig. 7.

WITNESSES

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UNITED STATES PATENT OFFICE.

EDWARD FRANKLIN GRANDY, OF EVERETT, MASSACHUSETTS.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,568, dated August 24, 1897.

Application filed July 29, 1896. Serial No. 600,890. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FRANKLIN GRANDY, a citizen of the United States, residing at Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Lasting-Machines; 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.

My invention relates to improvements in lasting-machines, and more particularly to improvements in that type of lasting-machines which embody in their structure a flexible last band or clamp which embraces the heel or toe portion of the upper upon the last and holds it firmly in position during the lasting operation.

The present invention consists of improvements in the form and arrangement of the last band or clamp and its actuating mechanism, whereby said clamp or band is made to conform more accurately to shape of the toe or heel of the last whether the same be pointed or round.

The present invention further consists of connections between the mechanisms which actuate the clamp or band and the wipers, whereby the movement of the wiper-actuating mechanism effects the operation of the last clamp or band.

The present invention further consists of certain other improvements in the form and arrangement of parts, hereinafter more specifically set forth and claimed.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a toe-lasting head with the top plate removed and a portion of one of the lasting plates or wipers and the actuating handle or lever broken away, the lasting plates or wipers being drawn back and the last clamp or band open. Fig. 2 is a side elevation of the toe-lasting head, partially in section, showing its connection with the supporting-carriage. Fig. 3 is a plan view similar to Fig. 1, showing the parts in the positions which they occupy when the lasting plates or wipers have been moved forward and the last band or clamp is in close contact with the end of the last. Fig. 4 is a detail plan view, reduced, of a portion of the head, showing more clearly the construction of the actuating mechanism for the last band or clamp. Figs. 5, 6, and 7 show details of the mechanism for actuating the last band or clamp, which will be hereinafter more fully described.

As shown in the drawings, the present invention is illustrated in connection with the machine disclosed in Letters Patent of the United Stated granted to me January 7, 1896, No. 552,834; but it is not restricted to its application thereto, as it may be employed with lasting-machines of any other suitable or preferred form.

In the drawings the slide 1, pivoted head 2, adjusting-screws 4, bearing 5, sleeve 6, segmental worm-gear 7, worm 8, lasting-plates 10, and the mechanism for actuating the lasting-plates may be, and conveniently are, of the same construction as corresponding parts in the machine above mentioned, except as will be hereinafter noted.

Before proceeding to a detailed description of my improved last band or clamp I desire to state that while I have illustrated it in connection with toe-lasting devices the use is in no wise restricted thereto, but it is equally applicable for use in connection with heel-lasting devices, and I consider such application thereof clearly within the scope of my invention.

In the drawings, A represents the last band or clamp, formed of leather or any suitable flexible material, so as to readily conform to the end of the last.

B represents a carrier or frame, which may conveniently consist of the cross-bar b, to the ends of which are pivoted the arms b', having at their free ends the upturned blocks b^2, to which are secured the ends of the last band or clamp.

At the rear of bar b of the carrier B are the projecting guide-bars b^3, which, as shown, may be of substantially rectangular shape in cross-section, which are fitted to slide in suitable guideways a, formed in the plate 61, which is projected from the sleeve 6 and which sustains the lasting plates or wipers.

The above-described arrangement is such

that a forward-and-backward movement of the carrier or frame B will carry the last band or clamp toward or from the last.

In order to insure a close contact between the last band or clamp at its central portion and the toe of the last, I provide a spring-actuated follower or carrier C, to which the last band or clamp may be attached, as at *c*, to a suitable block or projection formed thereon by any suitable means.

Carrier C, as shown, comprises the plate c^8, which preferably extends nearly across the recess formed in the front of plate 61 and at its rear is provided with suitable guide-rods c', which are fitted to slide in bearings c^2, formed in plate 61. In these bearings are placed suitable springs c^3, which rest at one end against the bottom of the bearings and at the other end against the guide-rods c', the arrangement being such that upon a forward motion of carrier B the follower or carrier C is forced forward by the springs c^3, carrying with it the central portion of the last band or clamp and forcing it in close contact with the end of the last.

For the purpose of reciprocating the frame B and thus moving the last band or clamp toward and from the last substantially simultaneously with the forward-and-backward movement of the lasting plates or wipers I have provided suitable connections between the lever or handle 19, which operates the lasting devices, and the frame or carrier B, which actuates the last band or clamp.

Pivoted at *d* to the plate 61 is the lever D, in which is fitted a stud d^2 upon the bar *b* of the frame or carrier B, the arrangement being such that a swinging movement of lever D upon its pivot *d* will, through the slot-and-stud connection thereof with the frame or carrier B, cause a corresponding movement of the said frame and the last clamp or band. Lever D at its free end is connected by a universal coupling d^3 to a rod d^4, said rod passing through an eye formed in a lug d^5, secured to or formed on the lever 19, a nut or head d^6 on the rod forming a suitable stop to engage the lug d^5, whereby a backward movement of lever 19 will also cause a backward movement of the rod d^4 and the lever D, causing a backward movement of the frame B and the last band or clamp.

It is often desirable to give a further forward and closing movement of the lasting plates or wipers after the last clamp or band has moved forward a sufficient distance to clamp the end of the last, and to enable this to be done I have provided a yielding connection between lever 19 and the rod d^4. This yielding connection may comprise, as shown, a suitable spring d^7, surrounding said rod and bearing at one end against the lug d^5 and the other against an adjusting nut or collar d^8 upon said rod.

In order that the last band or clamp may be held open when retracted, as shown in Fig. 1, I have provided suitable springs *e*, one end of which is secured, as by screws e', to the plate 61 and the other end to the swinging arms b', whereby said arms will be swung outwardly on their pivots when the parts are retracted, thus causing the last clamp or band to assume substantially the position shown in Fig. 1.

In order to retract the carrier C against the tension of springs c^3 and thus retract the central portion of the last band or clamp, the frame B is provided with the forwardly-projecting arms b^4, upon the ends of which are the lugs or stops b^5, which engage the frame or carrier C and cause it to be retracted when the frame or carrier B is drawn back. In order that the last band or clamp may be caused to closely embrace the end of the last and to smooth out the upper and tightly clamp the same all around the toe or heel, I have provided the flat springs e^2, which are secured by one end to the blocks b^2, from which they extend toward the central portion of the clamp or band in close contact therewith, the free ends being adjacent to the point of connection *c* of the clamp or band to the frame or carrier C.

In the operation of the machine of the drawings, the upper being drawn onto the last, the last is jacked in the usual manner. The lever 19 is then moved forward and through suitable connections, as fully shown and described in said patent, causes a forward and closing movement of the lasting plates or wipers 10. Substantially simultaneously with this forward movement of the lasting devices the lever 19, through its connection with frame B, moves said frame forward, the springs c^3 at the same time causing a forward movement of the frame C, which brings the central portion of the clamp or band into contact with the upper at the end of the last. The continued forward movement of frame B will carry forward the ends of the clamp or band A, which will cause the arms b' to swing on their pivots, (spring *e* yielding,) and thus the clamp or band is carried around and brought into close contact with the upper on the last, tightly clamping the same and preventing it from moving during the lasting operation.

In some kinds of work it is advantageous to have the clamp or band close on the upper before the closing of the lasting plates or wipers, and in other kinds of work it is of advantage to have the last clamp or band and the wipers come in contact with the upper at substantially the same time, and it will be noted in connection with the construction herein shown and described that by means of the adjustable nut or collar d^8 the relative time of closing of the clamp or band and the lasting devices may be regulated.

Having thus described my invention and its mode of operation, I claim as novel and desire to secure by Letters Patent of the United States—

1. In a lasting-machine the combination

with the lasting plates or wipers, of a last band or clamp, and connected mechanisms for actuating the lasting plates or wipers and for closing the last band or clamp around the upper on the last, substantially as described.

2. In a lasting-machine the combination of lasting plates or wipers, a last band or clamp, mechanism for actuating the lasting plates or wipers, mechanism for closing the band or clamp, and a yielding connection between said actuating mechanisms, substantially as described.

3. In a lasting-machine the combination with a last band or clamp, of a spring-actuated follower arranged to advance the central portion of said band or clamp, substantially as described.

4. In a lasting-machine the combination with a last band or clamp, of suitable supports for the ends thereof, and an independent yielding support for the central portion of the band or clamp around the upper on the last, substantially as described.

5. In a lasting-machine the combination with a last band or clamp, of suitable supports for the ends thereof, an independently-movable support for the central portion of said band or clamp and means for advancing and retracting said central support, substantially as described.

6. In a lasting-machine the combination with a last band or clamp, of suitable supports for the ends thereof, and springs secured to said supports and projecting along said band or clamp, substantially as described.

7. In a lasting-machine the combination of suitable lasting plates or wipers, a last band or clamp, connected mechanisms for actuating the plates or wipers, and to close the band or clamp around the upper on the last, and means to adjust the actuating mechanisms to adjust the relative movements of the lasting plates or wipers and the last band or clamp, substantially as described.

8. In a lasting-machine the combination with a last band or clamp, of spring-controlled supports for the ends thereof, and a yielding support for its central portion, substantially as described.

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

EDWARD FRANKLIN GRANDY.

Witnesses:

T. HART ANDERSON,

A. G. CLIFFORD.