

No. 751,128.

PATENTED FEB. 2, 1904.

A. L. WINN.  
LASTING MACHINE.  
APPLICATION FILED JULY 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

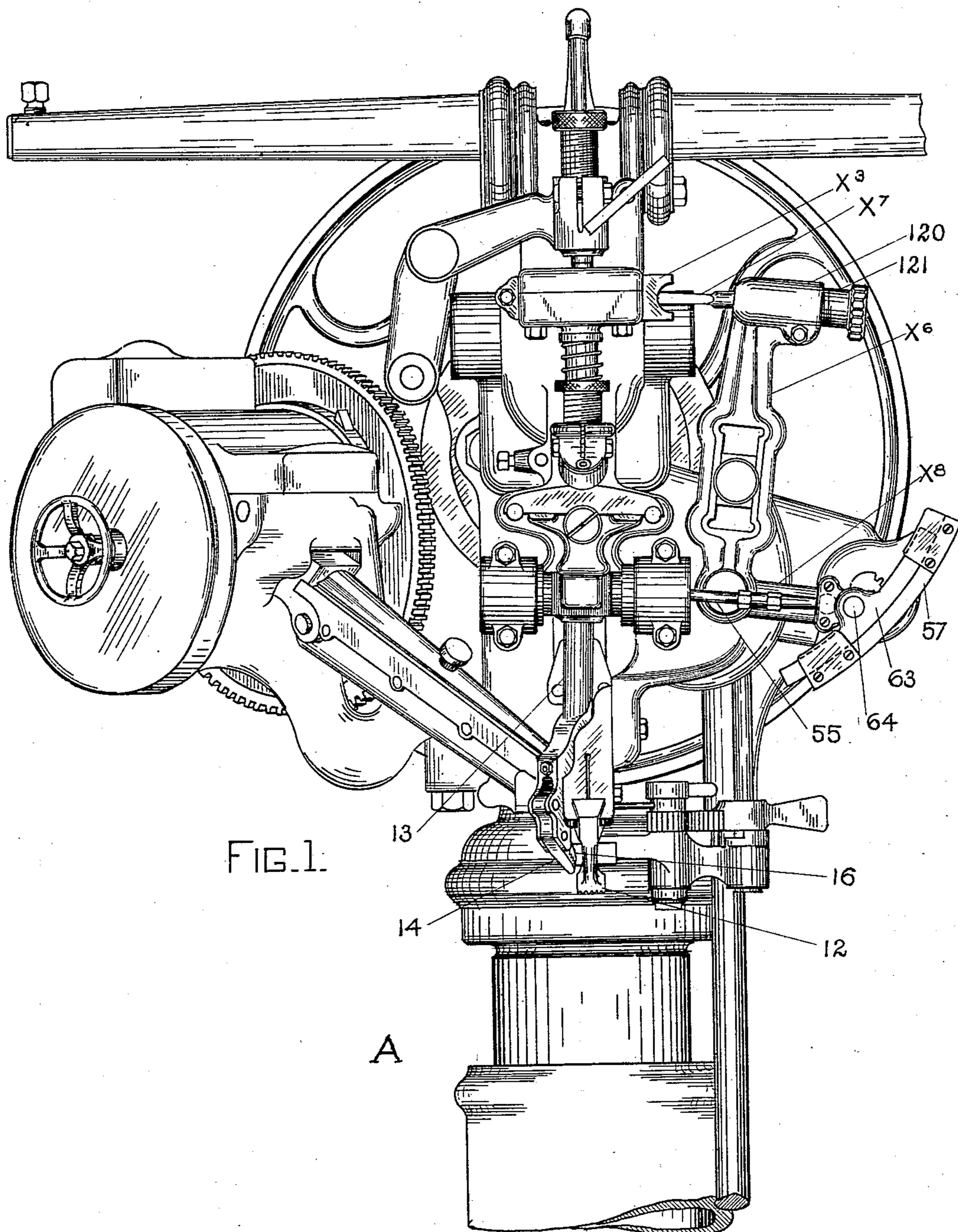


FIG. 1.

A

WITNESSES.  
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*Arthur L. Winn,*  
*by his Attorney,*  
*Nelson W. Howard*

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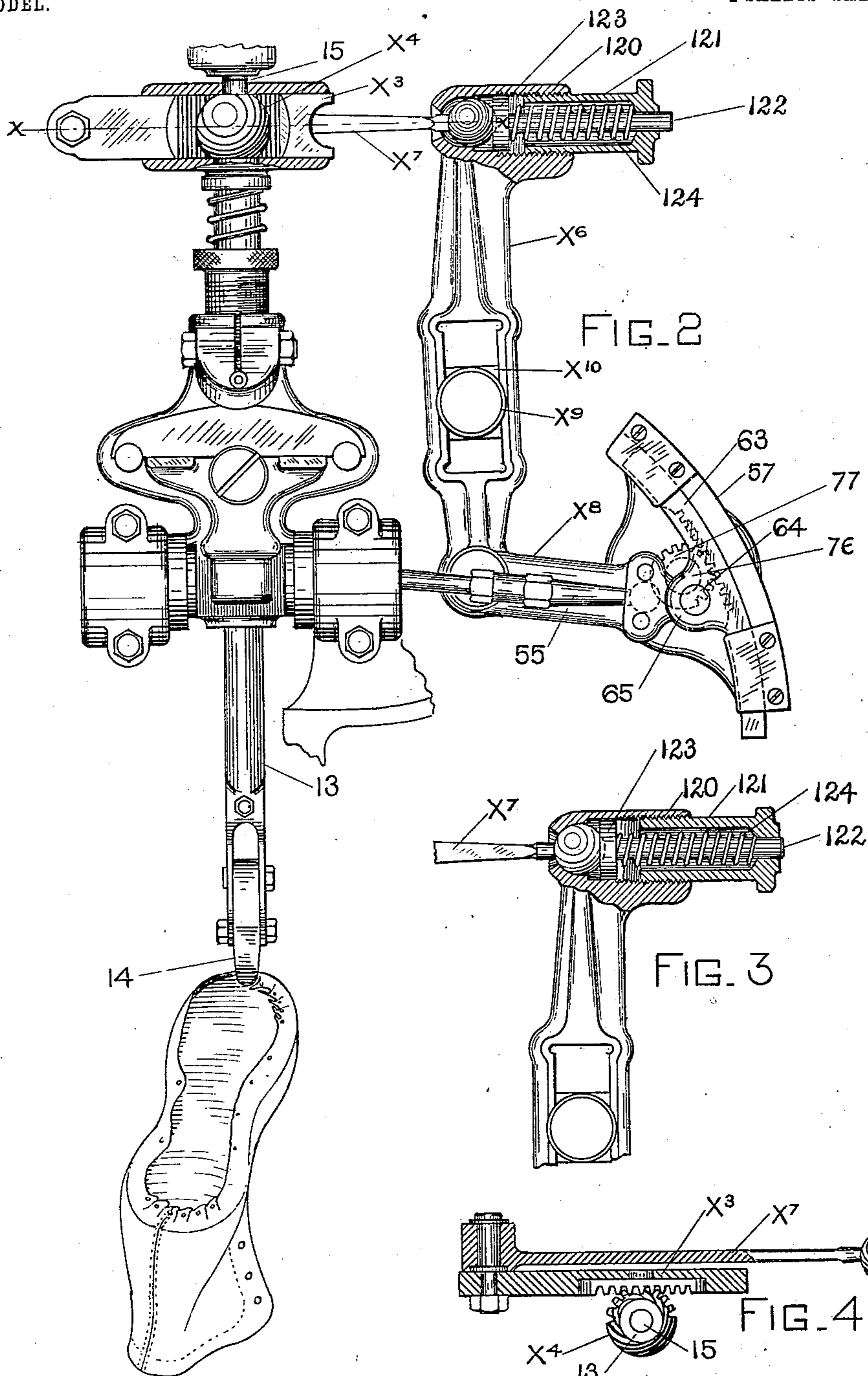
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INVENTOR

*Arthur L. Winn,*  
*by his Attorney,*  
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# UNITED STATES PATENT OFFICE.

ARTHUR L. WINN, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, AND BOSTON, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

## LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 751,128, dated February 2, 1904.

Application filed July 29, 1902. Serial No. 117,477. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR L. WINN, a citizen of the United States, residing at Brockton, in the county of Plymouth and Commonwealth  
5 of Massachusetts, have invented certain Improvements in Lasting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to that type of lasting-machines known as the "hand-method lasting-machine," and is shown and described in connection with the machine of United  
15 States Letters Patent No. 584,744, to which reference is had for matters not herein specifically set forth. As is fully explained in said Letters Patent, a shoe is prepared for lasting by assembling the upper, lining, and  
20 inner sole upon the last with the upper and lining drawn over at the toe and at the sides and sometimes at the heel also and secured by a tack or tacks in each of these places. As such it is hereinafter referred to as the  
25 "shoe" or the "last." In this condition it is presented to the machine with the inner sole held up against the bottom rest of the machine and the side of the shoe against the edge rest. In this type of machine a single  
30 pair of grippers is employed to engage a small portion of the upper at a time and manipulate it into place, where it is secured by a fastening device, preliminary to the next operation of the machine, the lasting operation as a whole being carried out progressively by repeated operations of the machine applied to different parts of the upper at different times. The grippers are given movements which cause the operation performed  
40 on the upper to approximate as nearly as possible to the operation performed by a workman when lasting shoes with a pair of hand-pincers. To this end the grippers after having grasped the upper are moved vertically  
45 to pull and stretch the upper, then inwardly parallel with the bottom of the last, and then downwardly toward the bottom of the last. The last two movements lay the upper over

onto the inner sole, in place to be secured by the tacks or other fastening means used to  
50 hold the upper to the inner sole.

When lasting the toe portion of the shoe, and sometimes other portions, it is necessary, in order to approximate as nearly as possible to the method followed in hand-lasting, to give  
55 the grippers other movements in addition to those above described. This is required for several reasons, of which one is that when the edge of the upper is turned back upon the inner sole at the toe portion of the last and  
60 sometimes at other places there is a fullness which it is necessary to dispose of by folding the material upon itself or plaiting it. Another reason is that the last is frequently of such shape that the upper blank does not fit  
65 the last when applied to it, but has to be "drafted"—that is, to have the fullness which is found at certain places, as at the ball of the last, pulled along toward another place, as the shank, where it is needed to enable the  
70 upper to fit down onto the inner sole. These operations of plaiting and "drafting" the upper are accomplished by giving to the grippers a lateral movement—that is, a movement from one side of their normal position  
75 to the other side thereof—and a turning movement about the axis of the shank of the grippers. The lateral movement, combined with the turning movement of the grippers, which twists the upper while it is being folded, effects a smoother and more satisfactory folding and placing of the edge portion than can be secured by the lateral movement alone. For the best results these movements should be yieldingly effected to avoid injury to the  
85 shoe.

The object of the present invention is to effect yieldingly the turning movement of the grippers. In the embodiment of the invention herein shown this is accomplished by interposing a spring between two members of the actuating mechanism, whereby the force of the actuating mechanism is yieldingly applied to the grippers, and the strain put upon the upper to twist it will never exceed the  
90 tension of the spring. Provision is made for

adjusting the spring so that the pull applied to the upper may be varied.

I have not illustrated the whole machine in the drawings, as it is shown in detail in the Letters Patent above referred to, but I have illustrated the mechanism which embodies my invention.

Figure 1 shows a front elevation of a lasting-machine with my improvement applied to it. Fig. 2 is a front elevation, partly in section, of a sufficient portion of the machine to disclose my improved construction and the relation of associated parts of the machine thereto. Fig. 3 is a fragmentary view of parts which are shown in Fig. 2 in a different position. Fig. 4 is a sectional view on dotted line *xx* of Fig. 2.

In the drawings, A indicates a column, upon which is supported the head of the machine. The head supports the operating mechanism, which is, generally speaking, the same as that in said patent, and includes a segmental block 57, which is mounted for oscillation about a center which is the axis of the shaft 76. A slide 63 is adjustably mounted in a guideway in the block 57. The slide is movable across the line of the axis of oscillation of the block 57 to either side thereof. Rocking movements are imparted to said block 57 by suitable mechanism, whereby the block and the slide 63, carried with it, are rocked once in each direction during each complete operation of the machine. The slide 63 is connected by the pivot-pin 64 with the arm X<sup>8</sup>, which is connected at its other end to lever X<sup>6</sup>.

A connecting-rod 55 is jointed to the arm X<sup>8</sup> near the pivot-pin 64, and has its other end connected with the gripper-shanks to move the grippers from side to side.

As has before been stated, the slide 63 is adjustable in the oscillating block 57. This adjustment is effected by the workman through any suitable mechanism, a convenient form of which is shown in the said Letters Patent. So long as the slide occupies a central position in the block, so that the pivot-pin 64 is concentric with the axis of oscillation of the block 57, no movement will be given to the arm X<sup>8</sup> and none will be imparted by the parts connected therewith to the grippers to plait the upper. This condition is maintained while lasting the parts of the shoe which require only the vertical and the forward-and-backward movements of the grippers. When the toe portion is to be lasted, the workman adjusts the slide 63 to one side or the other in the block 57, whereupon the slide will act as a crank and move the arm X<sup>8</sup> back and forth with each oscillation of the block. This movement of the arm X<sup>8</sup> moves the rod 55 to cause the side-to-side movement of the grippers.

The mechanism so far described is the same in construction and operation as that de-

scribed in the said Letters Patent No. 584,744 and illustrated in Figs. 6 to 11 thereof.

The lever X<sup>6</sup> above referred to is fulcrumed on a stud X<sup>9</sup>, which is adjustably fixed in the head of the machine and supports the rotatable block X<sup>10</sup>. The upper end of the lever X<sup>6</sup> is pivotally attached to a connecting-rod X<sup>7</sup> by means hereinafter described, and the other end of said rod X<sup>7</sup> has a suitable connection with the slide X<sup>3</sup>. The slide X<sup>3</sup> is provided on one side with a rack formation, which is in engagement with a pinion X<sup>4</sup> on the head of the gripper-shank 13. By means of these connections the grippers are turned at each oscillation of the block 57 if the slide 63 is positioned on either side of the axis of oscillation of the block 57.

For the purpose of yieldingly effecting the turning of the grippers the connection above referred to between the upper end of the lever X<sup>6</sup> and the connecting-rod X<sup>7</sup> is a yielding one and is formed as follows: The upper end of the lever X<sup>6</sup> is provided with a lateral extension 120, bored to receive in one end the spherical head of the connecting-rod X<sup>7</sup> and to receive in the other end the exteriorly-screw-threaded thimble or socket-piece 121. The thimble 121 contains a plunger having an elongated stem 122 and a head 123. The head 123 is shaped to bear against the spherical head of the connecting-rod X<sup>7</sup> and is yieldingly held thereagainst by a spiral spring 124, which is contained in the thimble 121 and surrounds the stem of the plunger. The thimble or socket-piece 121 may be adjusted in the bore of the lever X<sup>6</sup> to vary the tension of the spring 124.

It is to be understood that the lateral movement of the grippers is also yieldingly effected, but this is not of my invention. My new construction interposes a yielding element between the lever X<sup>6</sup> and the rod X<sup>7</sup>, so that when the lever is actuated from the oscillatory block 57 the rod X<sup>7</sup> will be moved and the grippers will be turned to twist the upper until the resistance of the leather exceeds the tension of the spring 124, and then the spring will yield and permit the lever X<sup>6</sup> to complete its oscillation without further moving the rod X<sup>7</sup> or further turning the grippers, and the injury to the upper which sometimes results from a non-yielding twist is avoided. In many classes of work it is practicable to do all the plaiting in one direction, as shown in the shoe illustrated in Fig. 2, and also in lasting welt-shoes on machines equipped with the usual "wire-attaching device." In such work all the turning movements of the grippers are yieldingly effected by means of the construction herein shown. When it is desired to "draft" the upper, the plaiting mechanism is put into operation, and the grippers will then pull the upper longitudinally of the last at each operation to work it along in the direction in which the lasting is progressing, but the strain exerted upon the upper in these movements

will not any time exceed the tension to which the springs are adjusted.

It is of course obvious that the twisting movement could be yieldingly effected in other ways and by other mechanism than that herein shown and that the mechanism could be arranged in other locations than that shown in the present embodiment of my invention. I wish it to be understood, therefore, that my invention is not limited to a particular mechanism, but is broad enough to include any means for accomplishing the yielding actuation of the mechanism for turning or twisting lasting-machine grippers in the operation of pulling the upper.

What I claim as my invention, and desire to secure by Letters Patent in the United States, is—

1. A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and yielding means to turn the grippers.

2. A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and yielding means under the control of the operator to turn said grippers in plaiting the upper.

3. In a machine of the class described, grippers for stretching the upper, means to actuate the grippers to plait the upper, and yielding means to turn the said grippers during the plaiting movement to cause them to twist the portion of the upper being plaited.

4. In a lasting-machine, grippers adapted to engage and stretch the upper, yielding means to move the grippers laterally while in engagement with the upper, and yielding means to turn the grippers during such lateral movement.

5. In a lasting-machine, grippers, and means to actuate them to stretch the upper, in combination with means to turn said grippers, said

means comprising an actuator and mechanism connecting said actuator with said grippers, said mechanism comprising a yielding element whereby the turning movement of the grippers is yieldingly effected.

6. In a lasting-machine, grippers and means to actuate them to stretch the upper, in combination with mechanism to turn said grippers during the stretching operation, said mechanism comprising a connecting-rod, a lever, and a spring through which movement is imparted by said lever to the connecting-rod.

7. A lasting-machine comprising grippers, mechanism for actuating the grippers to pull the upper, and means for turning the grippers in either direction at the will of the operator, said means being constructed to effect the turning movement yieldingly in one direction.

8. In a lasting-machine, the combination with grippers for pulling the upper, of an actuator, yielding mechanism having permanent connection therewith and means for rendering said mechanism operative or inoperative at the will of the operator for turning the grippers.

9. A lasting-machine comprising grippers and mechanism for actuating the grippers to pull the upper, in combination with a positively-operated actuator for turning the grippers, and connecting mechanism intermediate said actuator and the grippers, said connecting mechanism including a yielding element whereby the movement of the grippers is yieldingly effected.

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

ARTHUR L. WINN.

Witnesses:

WILLIAM LIDDELL,  
THOMAS A. FORSYTH.