

No. 696,740.

Patented Apr. 1, 1902.

S. W. LADD.
LASTING MACHINE.

(Application filed Apr. 19, 1900.)

(No Model.)

5 Sheets—Sheet 1.

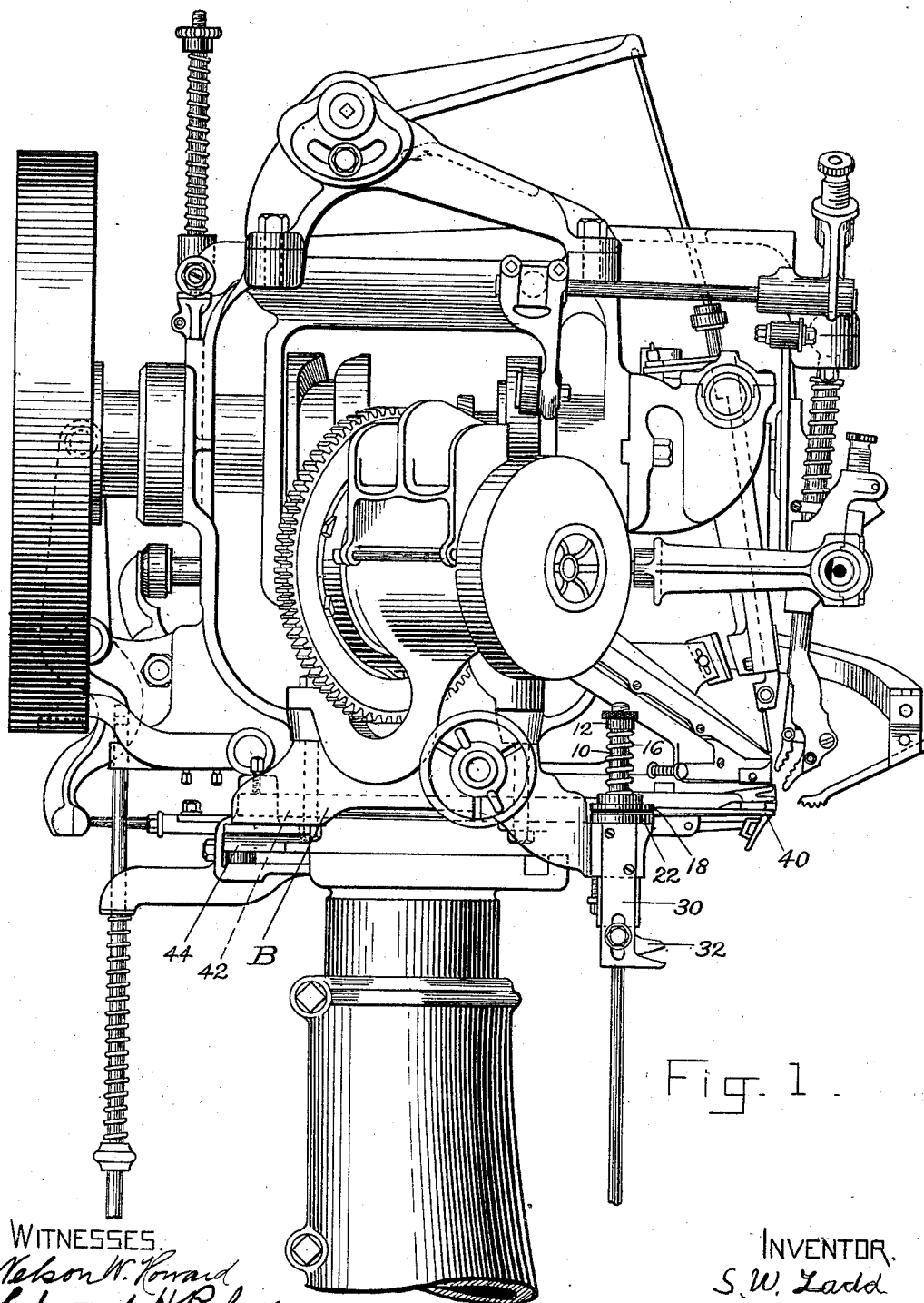


Fig. 1.

WITNESSES.
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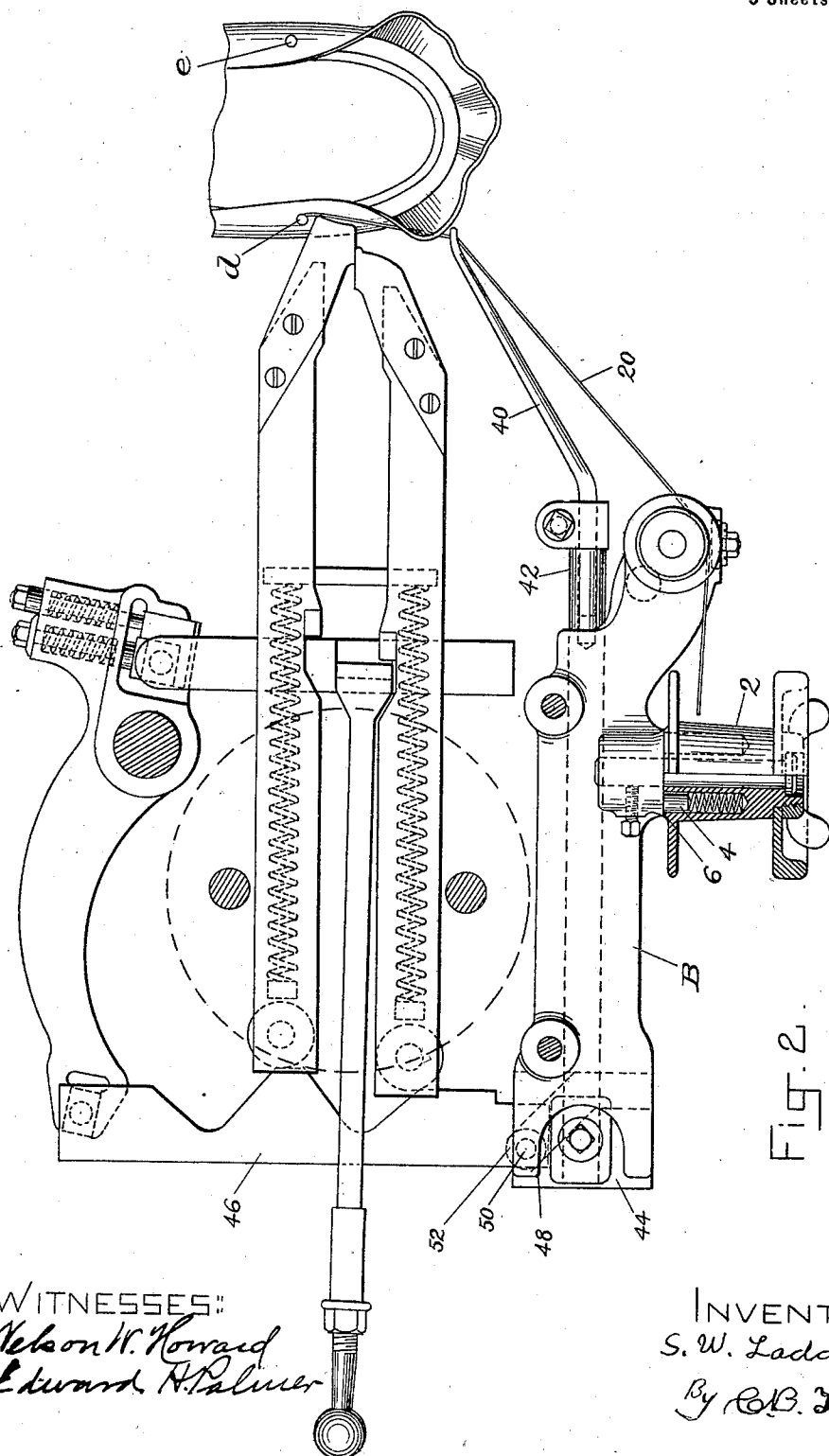


Fig. 2.

WITNESSES:

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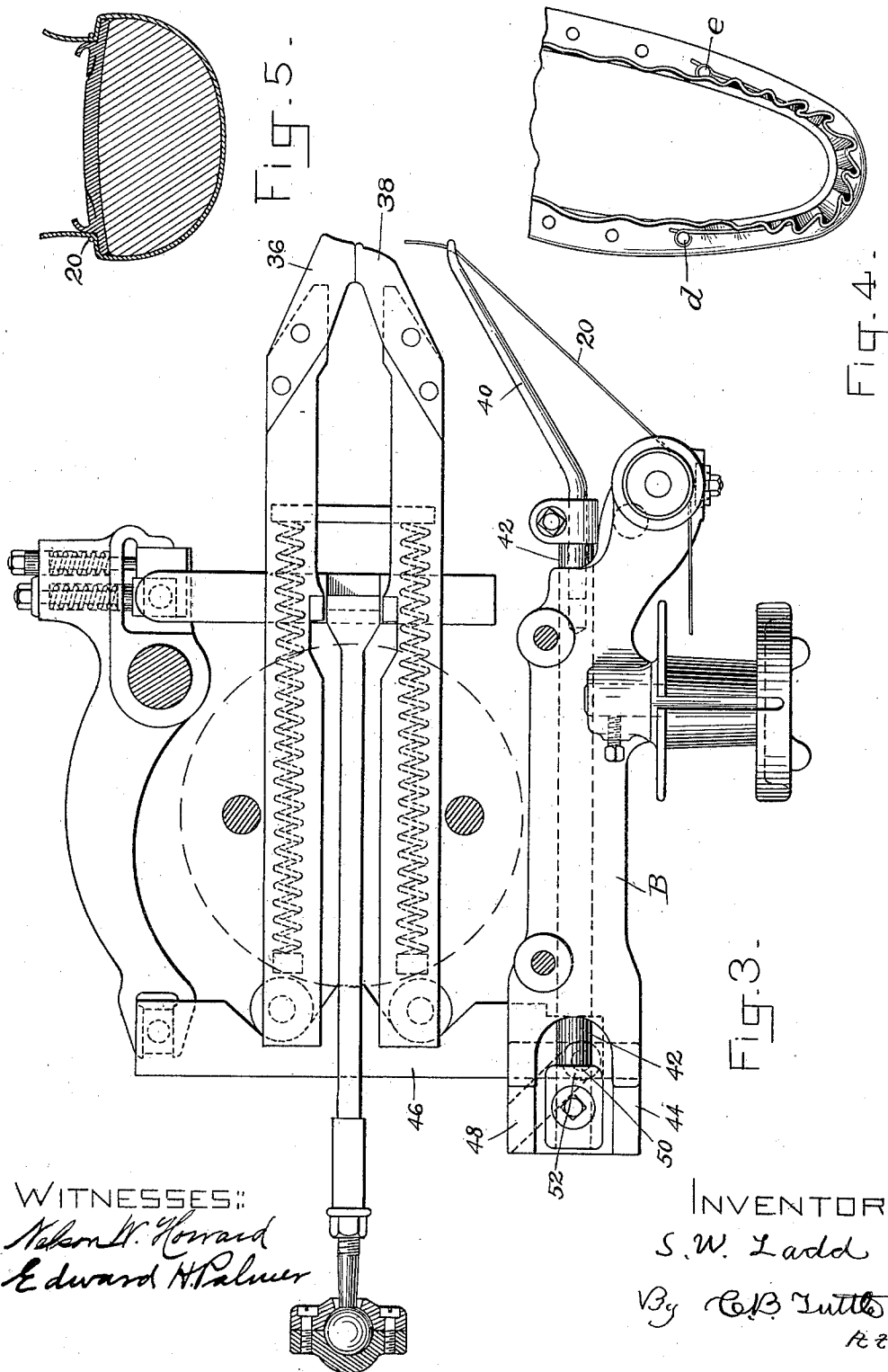
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5 Sheets—Sheet 3.



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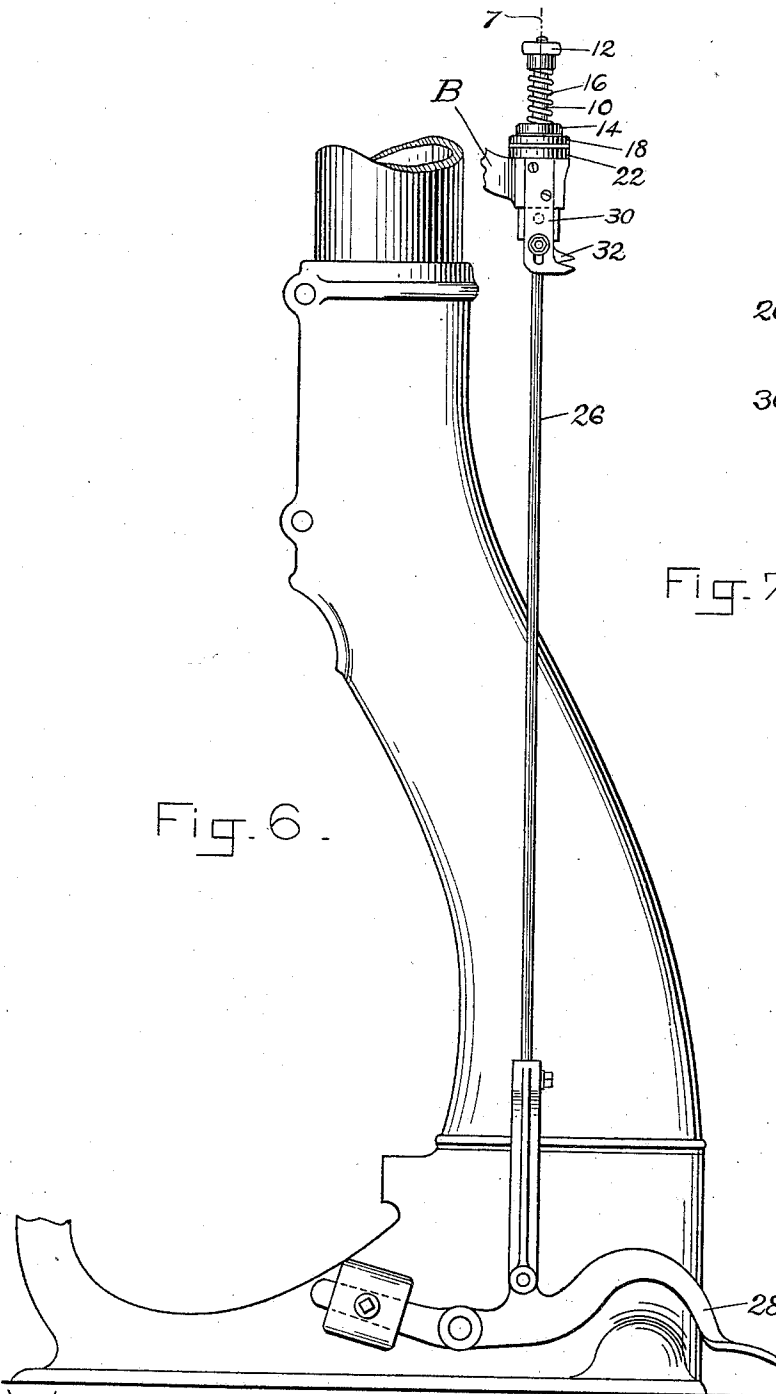


Fig. 6.

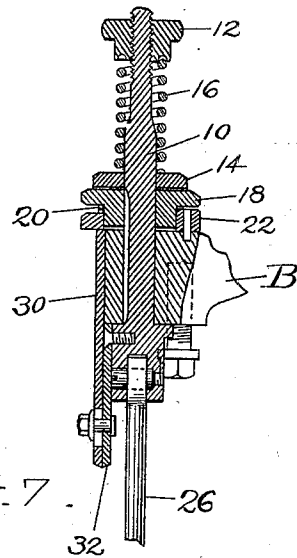


Fig. 7.

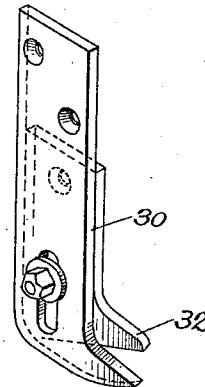


Fig. 8.

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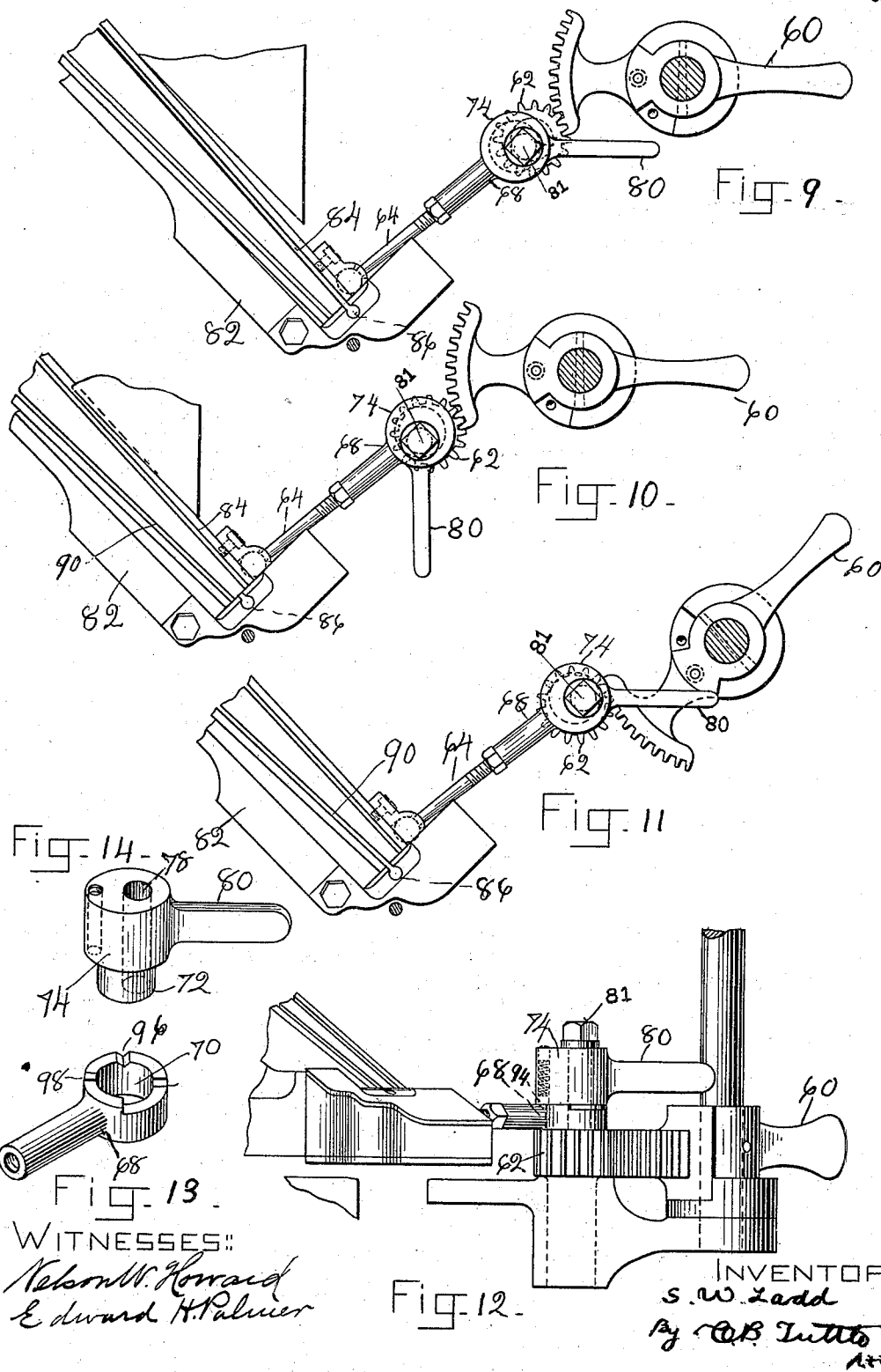
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(Application filed Apr. 19, 1900.)

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5 Sheets—Sheet 5.



WITNESSES:
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Fig. 12.

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UNITED STATES PATENT OFFICE.

SHERMAN W. LADD, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO THE UNITED SHOE MACHINERY COMPANY OF THE STATE OF NEW JERSEY, OF BOSTON, MASSACHUSETTS.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 696,740, dated April 1, 1902.

Application filed April 19, 1900. Serial No. 13,453. (No model.)

To all whom it may concern:

Be it known that I, SHERMAN W. LADD, of Beverly, county of Essex, Commonwealth of Massachusetts, have invented certain Improvements in Lasting-Machines, of which the following, read in connection with the accompanying drawings, is a specification.

In the present instance this invention is represented and described in connection with the machine of United States Letters Patent No. 584,744, whereto reference is made for matters not herein fully set forth and described.

Of the drawings, Figure 1 is a side elevation of the machine embodying this invention. Fig. 2 is a plan view of parts more particularly connected with this invention. Fig. 3 is a plan view of machine parts shown in Fig. 2. Fig. 4 is a section, and Fig. 5 is an elevation, of a cross-section of the last and shoe after being operated upon in accordance with this invention. Fig. 6 is an elevation of the machine-base and treadle-operated cutter connections. Fig. 7 is an elevation of a section on line 7 of Fig. 6. Fig. 8 is a perspective view showing the cutters detached. Figs. 9, 10, and 11 are sectional plan views representing different operative positions of the mechanisms whereto this invention in part is related. Fig. 12 is an elevation of parts shown in Fig. 9. Figs. 13 and 14 are perspective views showing details connected with Fig. 12.

From Letters Patent No. 584,744, cited above, it will be learned that the boot or shoe is prepared for the lasting operations by suitably arranging the last, upper, lining, &c., and overdrawing the upper at the toe and along the ball at each side of the last and there fastening it to the inner sole by a tack or similar fastening device in each of said places. A single pair of pincers is employed to which the boot or shoe is presented and turned about by the workman, 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. Tack-supplying and driving mechanisms are employed whereby the part

of the upper acted upon by the machine at one time is secured in place to the inner sole preliminary to the next operation of the machine.

In the machine as herein represented mechanism is employed whereby wire or a similarly continuous material is placed progressively in binding relation with the successively lasted parts of the upper, particularly about the toe portion of the shoe, said wire being then secured in place and thereafter serving in place of said tacks for holding said manipulated parts of said upper against displacement.

It may be stated here that this invention in part relates to means for suspending the insertion of said tacks during the time of said wire-placing operations of said machine and, further, in part to means for variably controlling the tension of said wire and to means for shifting the wire-placing mechanism into and out of operative positions.

In carrying out this invention a reel 2 is employed for holding wire 20 in bulk. Said reel being mounted to turn on a stud in the frame B has its motion retarded to a limited degree by frictional resistance between the spring-actuated plunger 4 and the end face 6 of said frame B. The rod 10 permits movement endwise in frame B and has screw-threaded engagement with nut 12. Between nut 12 and a collar 14, loosely mounted on said rod, is a spring 16, operating on collar 14 and through it forcing downwardly the flanged drum 18. The wire 20, going forwardly from reel 2, passes around the drum 18 normally in between collar 22, supported on frame B, and the flange of drum 18, where it is gripped by tension of spring 16, said gripping tension being variable adjustably by suitably operating the nut 12. Attached to the rod 10 is a rod 26, having connection with lever 28, whereby the workman may further operate the downward movement of rod 10, and consequently vary the grip or tension on wire 20 at any moment during the machine's operations. The cutter member 30 has support on frame B, its cooperating member 32 being on rod 10. Movement of lever 28, forcing downwardly the

rod 10, operates the cutters 30 32 for cutting the wire 20, which to that end is placed therebetween by the workman when desired.

Said machine also comprises the pressers 36 38. Description of the construction and operation of said pressers may be found in said Letters Patent No. 584,744. It is to be noted here that said pressers normally stand in a retracted inoperative position, from which position they are advanced to the operative position whenever desired for use. In use one of said pressers is made to rest upon the part of the upper manipulated by the last operation of said machine, while said other presser is in the next operation of the machine moved forwardly to press into place the next-adjacent part of the upper. The wire 20, being fastened by the workman to tack *d*, is held by the support 40 in suitable position for bearing upon and binding the parts of said upper which are being operated upon by the said pressers. The shoe is turned and shifted step by step for successively presenting the different parts of said upper to the machine-upper-manipulating members, whereby the said upper is manipulated progressively from tack *d* to tack *e*. In this operation the wire 20 is drawn from reel 2 normally under tension, which tension is variable by the workman at will by suitably operating the treadle-lever 28. The said manipulated sections of said upper are in this manner tied down by the wire 20, which wire is then made fast to the tack *e* by the workman, who thereupon positions the shoe with wire 20 in cutters 30 32 and operates said cutters for cutting off the section of said wire which has been used to bind the upper.

When not intended for use, the wire-supporter 40 is preferably moved to a position back of the working position. To this end said supporter is carried by the endwise-movable rod 42. Said rod connects by its rearmost end with plate 44. In plate 44 is a cam-groove 48. In slide 46 is a pin 50, on which is mounted a roll 52, adapted to travel in said groove 48. Endwise movement of slide 46 to the position shown in Fig. 2 operates a movement of rod 42, as required for putting the wire-supporter 40 into operative position, and simultaneously operates an advance of pressers 36 38 into working position, with presser 36 stationary and presser 38 movable. Reversely moving the slide 46 to the position shown in Fig. 3 operates a movement of rod 42, as required for putting supporter 40 in inoperative position, and simultaneously retracts the pressers 36 38 to inoperative position. Such endwise movements of slide 46 are effected by the workman at will through means described in said Letters Patent No. 584,744. In the machine of said patent provision is also made for movement of slide 46 endwise beyond the position shown in Fig. 3 in order to advance the pressers into working position, with presser 38 stationary and presser 36 movable, and in order to permit such movement to take place

without changing the position of supporter 40 the cam-groove 48 is extended from the point occupied by roll 52 in said Fig. 3 in a line with the said endwise movement of slide 46.

On reference to said Patent No. 584,744 it will be seen that the machine of that patent has provision for plaiting or crimping the upper when desired by the workman. It is usual to perform these plaiting operations only when lasting the toe portion of the shoe, and since the mechanism in which I have chosen to embody my invention in the present instance is adapted particularly for use in lasting the toe portion of the upper I have connected the wire-placing mechanism with the mechanism for causing said plaiting operations, whereby the wire-placing mechanism is rendered operative when the plaiting operations are taking place. It has heretofore been the usual practice in lasting the toe portion of the shoe on the machine of said patent to begin at the center of the toe portion and to last from that point around to one side of the toe—as, for instance, to the point *d*, Figs. 2 and 4—and then to return to the center of the toe and last from the center around to the other side of the toe to substantially the point *e* in said figures. In lasting the toe portion in this manner it is desirable to plait or crimp the upper, as fully explained in said patent, and in the machine of said patent and other machines of the same type it has been customary to accomplish this plaiting or crimping by moving the pincers laterally or turning the pincers, or both, while the upper is gripped by the pincers. When the toe portion is lasted from the center of the toe to either side, as above explained, it is necessary or desirable to turn the pincers or move them to one side when lasting from the center to one side of the toe and to the other side when lasting from the center to the other side of the toe. In the form in which I prefer to embody my invention the toe portion is preferably lasted from one side of the toe around to the other side—as, for instance, from point *d*, Figs. 2 and 4, around to the point *e*—and in this operation it is obviously preferable that the plaiting or crimping mechanism shall operate only in one way, and the mechanism herein shown is adapted to operate in that way. As is clearly shown in the said Patent No. 584,744, the slide 46 is connected with the mechanism which controls the plaiting or crimping of the upper, and when the parts are in the position shown in Fig. 2 the machine is adapted to plait the upper in the proper manner during the operation of lasting the toe from the point *d* around to the point *e*. Inasmuch, however, as it may be desired to turn or move the pincers to plait the upper in the opposite direction without putting the wire-placing mechanism in operative position, I have in the machine herein shown provided means whereby said plaiting can be effected without putting the wire-placing mechanism in operative position. In

the form herein illustrated this means includes the slide 46, which, as already explained, when it is moved to the left, viewing Fig. 3, into the position shown in Fig. 2, moves forward the wire-supporter 40 into the position shown in Fig. 2, but which when moved to the right of the position shown in Fig. 3, as it will be moved when the plaiting is taking place in the opposite direction, will not put the wire-supporter 40 in operative position, as already explained.

From said Letters Patent No. 584,744 it may be learned that said machine comprises means for distributing different-sized tacks along different raceways into a single receptacle wherefrom to be driven at different operations of said machine, the size of tack to be driven at a given operation of said machine being governed by the raceway which during such operation of said machine is in communication with the avenue to said receptacle, said machine further comprising means for shifting said raceways, whereby one or another is placed in position for delivering tacks to the said receptacle according to the size of tack most desired, but in all cases delivering a tack from one or another of said raceways to be driven at each complete operation of said machine.

It has been made a feature of this invention to provide means for intercepting the delivery of tacks to said receptacle during a number of repeated operations of the machine, whereby the inserting of tacks may be suspended when, as above described, the wire 20 is employed for retaining the manipulated parts of said upper against displacement. In this connection lever 60 has its toothed end in mesh with a rotatively-movable pinion 62. The rod 64 has one end attached to the raceway-block 82, its other end being in screw-threaded connection with part 68. Said part 68 has an opening 70, wherein is journaled the section 72 of part 74. In part 74 is an eccentric hole 78 for receiving the stud 81, on which is also said pinion 62, said stud being supported in frame B.

It will now be understood that a movement of lever 60 to the position shown in Fig. 9 (the handle 80 of part 74 being positioned as in said Fig. 9) will operate the raceway-block 82 for placing raceway 84 in communication with opening 86 and allow for passage of tacks from said raceway 84 through said opening 86 into the tack-receiving chamber of the receptacle above mentioned. A movement of lever 60 to position shown in Fig. 11 may be effected (the position of said handle 80 being the same) for placing the raceway-block 82 in position with raceway 90 in communication with opening 86. Said movements of lever 60 are normal to the machine of said Patent No. 584,744 for shifting said raceway-block and other machine parts, as in said patent more fully described. Now by placing the handle 80 in position, as shown in Fig. 10, the part 74 is relatively placed with said race-

ways 84 and 90 both out of communication with opening 86. No tacks will then pass into said opening 86, and consequently the machine thereafter continues its operation without inserting any tacks. A reverse movement of handle 80 to the position shown in Figs. 9 and 11 again places the parts in position for the operation of lever 60, already described, to cause the presentation of different-sized tacks. The different positions of handle 80 are yieldingly maintained by the spring-actuated plunger 94, seated in grooves 96 and 98 of part 68.

I claim—

1. A machine for working an upper over a last, comprising mechanism for presenting individual fastenings, mechanism for supplying continuous fastening material, and means for rendering either of said mechanisms operative or inoperative.

2. A machine for working an upper over a last, comprising a plurality of mechanisms for supplying different kinds of fastening material, and means for rendering either of said mechanisms operative during a single operation of the over-working mechanism.

3. In a machine for working an upper over a last, mechanism for securing the over-worked upper in position, means to suspend the operation of said mechanism and a second mechanism adapted to operate for supplying fastening material while said first mechanism is inoperative.

4. In a machine for working an upper over a last, means to plait or crimp the upper, mechanism for supplying wire-fastening material, and means to render said mechanism operative when said plaiting means is operative.

5. In a machine for working an upper over a last, pincers for gripping the upper, means to turn the pincers, wire-placing mechanism and means to render said mechanism operative when the pincers are turned.

6. In a machine for working an upper over a last, pincers for gripping the upper, means to turn the pincers to either side, wire-placing mechanism and means to render said mechanism operative when the pincers are turned to one side, said mechanism being inoperative when the pincers are turned to the other side.

7. In a machine for working an upper over a last, pincers for gripping the upper, means to move the pincers to either side, wire-placing mechanism and means to render said mechanism operative when the pincers are moved to one side, said mechanism being inoperative when the pincers are moved to the other side.

8. A machine for working an upper over a last comprising means for inserting fastenings, means to suspend the insertion of said fastenings during a number of repeated operations of said machine and means for placing wire or a similarly continuous material in position for holding the parts of said upper which are manipulated by operations of

said machine taking place during said suspension of the insertion of said fastenings.

9. In a machine of the class described, means for working an upper over a last, auxiliary upper-manipulating mechanism normally occupying an inoperative position, means for placing wire or a similarly continuous material in position for holding said upper, said means normally occupying an inoperative position, means to advance said auxiliary mechanism as desired for use and means to put simultaneously said wire-placing means into operative position.

10. In a machine of the class described, means for working an upper over a last, auxiliary upper-manipulating mechanism normally occupying an inoperative position, means for placing wire or a similarly continuous material in position for holding said upper against displacement, said means normally occupying an inoperative position, mechanism for putting said auxiliary mechanism in operative position and simultaneously putting said wire-placing mechanism in operative position and means for rendering said mechanism inoperative relatively to the wire-placing mechanism at times.

11. In a machine of the class described, grippers, mechanism for actuating them to

work an upper over a last, means for superimposing wire or a similarly continuous material in position for holding said over-worked upper, and means controllable by the workman for varying the tension of said wire during the operation of said machine.

12. In a machine for working an upper over a last, mechanism for delivering different-sized tacks, a device to change the size of tacks delivered by said mechanism and independent means controlling the size-changing operation of said device to prevent the delivery of any tacks.

13. In a machine for working an upper over a last, two tack-raceways for different-sized tacks, a device to receive tacks therefrom, means to change the relative positions of said raceways and said device and thereby change the size of tacks delivered to said device and independent mechanism to change the relative positions of said raceways and said device and thereby prevent the delivery of tacks.

Signed by me this 18th day of April, 1900.

SHERMAN W. LADD.

Witnesses:

NELSON W. HOWARD,
EDWARD H. PALMER.