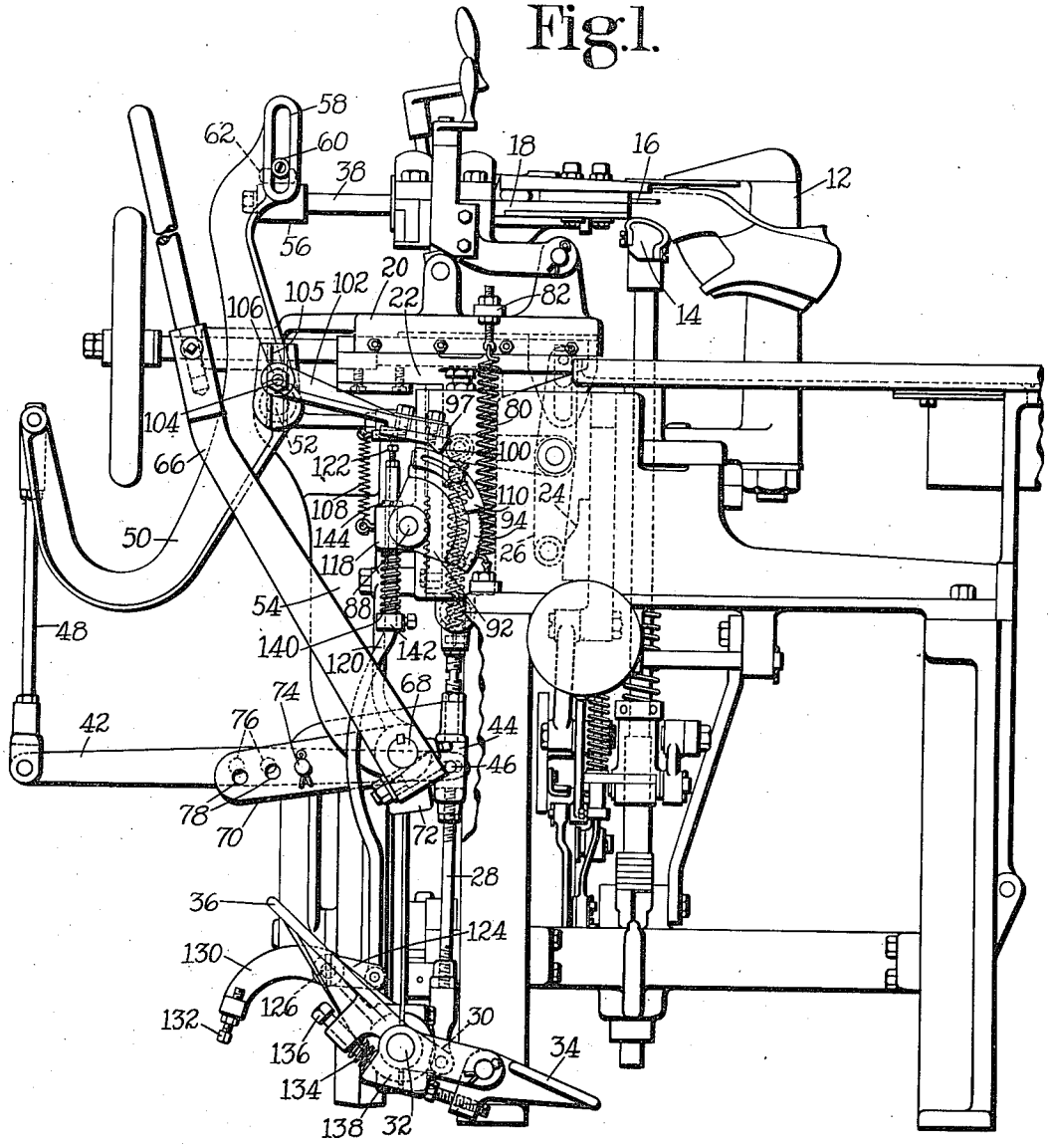
Aug. 20, 1935. B. JORGENSEN 2,011,682

LASTING MACHINE

Filed Sept. 24, 1934 2 Sheets-Sheet 1

Fig.1.



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Filed Sept. 24, 1934 2 Sheets-Sheet 2

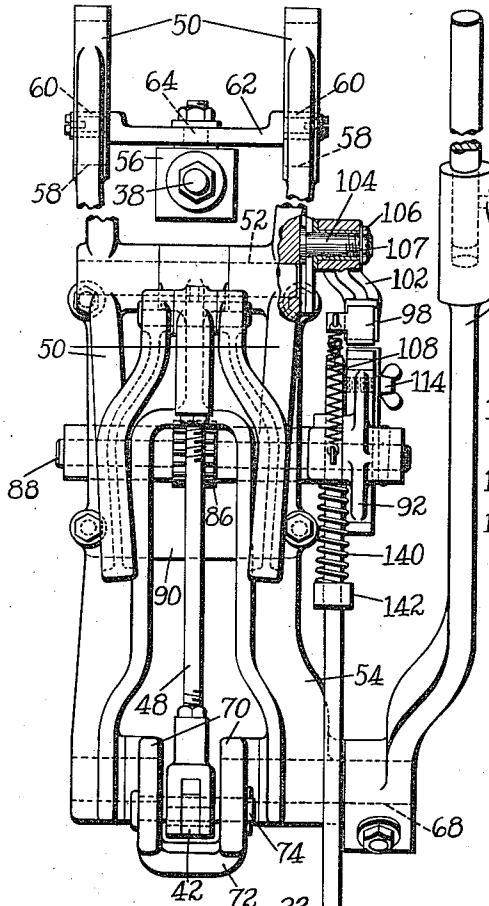
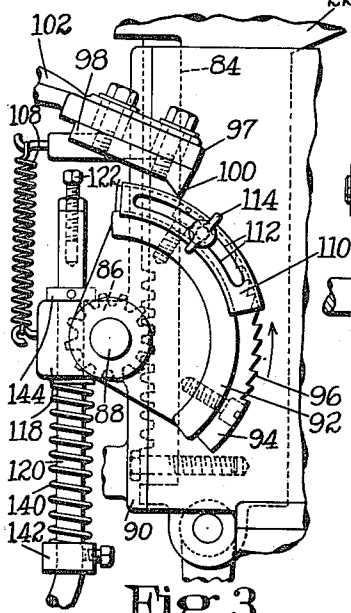


Fig. 3.



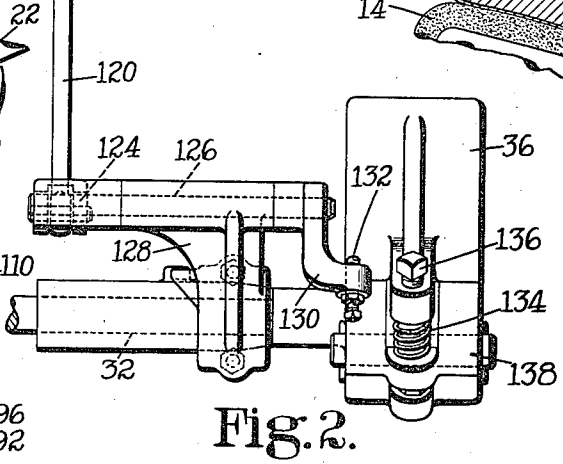


Fig. 2.

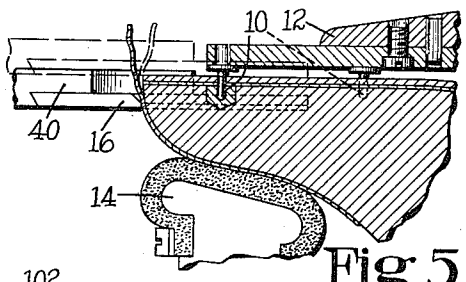


Fig. 5.

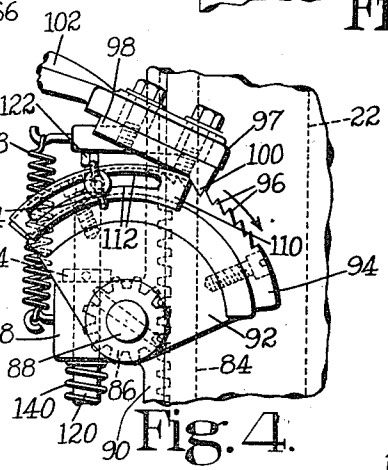


Fig. 4.

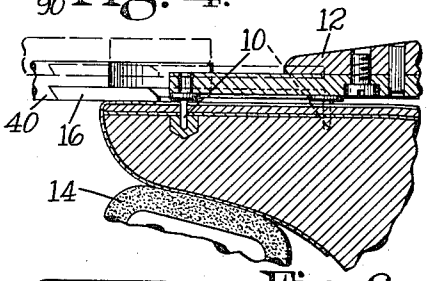


Fig. 6.

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UNITED STATES PATENT OFFICE

2,011,682

LASTING MACHINE

Bernhardt Jorgensen, Beverly, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application September 24, 1934, Serial No. 745,226

17 Claims. (Cl. 12—14)

This invention relates to lasting machines, and is herein illustrated as applied to means for lasting the toe ends of shoes, although it is to be understood that in its more general aspects it is not limited to toe-lasting means.

In United States Letters Patent No. 1,833,092, granted on November 24, 1931 upon an application of Arthur F. Pym there was disclosed, in a toe-end lasting machine, wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers about the toe end of a shoe and to impart to them movement heightwise of the shoe in the upwiping direction, the wiper-operating mechanism being movable by the operator and controlled by the shoe in such manner that upwiping movement of the wipers was effected against yielding resistance by reason of the greater resistance of the shoe to their advancing and closing movements and thereafter they were moved inwardly over the shoe bottom by reason of the decrease in the resistance to their advancing and closing movements as they passed the edge of the shoe bottom in the upwiping operation. The upwiping and overwiping operations were thus properly correlated as determined by the shoe, so that the overwiping operation would begin as soon as the wipers passed the edge of the shoe bottom without danger of any undesirable loss of control of the upper between the different operations. To insure adequate pressure of the edges of the wipers against the upper in the upwiping operation, there were provided springs which acted in conjunction with the weight of the wipers and their movable supporting means to oppose a substantial resistence to their upwiping movement and therefore to render the above-mentioned operating mechanism effective to press them firmly inward against the shoe in that movement, these springs serving thereafter to press the wipers down upon the shoe bottom as they were moved inwardly over the shoe bottom.

The present invention, in one aspect, provides an improvement in an organization of the character above described, whereby increased insurance is afforded, especially in operating upon comparatively heavy upper materials, that the movements of the wipers inwardly over the shoe bottom will begin as soon as the wipers in their upwiping movement arrive in proper position for the overwiping operation and that the wipers will apply adequate pressure to the upper upon the shoe bottom, especially at the beginning of the overwiping operation, without the necessity that the above-mentioned springs be of such strength as to render it unduly difficult to operate the wipers. For the purpose in view, the construction herein shown comprises means which becomes effective to oppose increased resistance to the upwiping movement of the wipers as soon as they are in proper position to begin the overwiping operation, so as to insure that they will not be moved too far in the upwiping direction by reason of the resistance of comparatively heavy upper materials to their overwiping movements, this means, as illustrated, being arranged to limit positively the upwiping movement of the wipers. In accordance with a further feature, moreover, such limiting means in the construction herein shown is movable by the wiper-operating mechanism to increase the pressure of the wipers upon the shoe bottom as they are moved inwardly over the shoe bottom. In order to permit the operator to move the wipers away from the shoe bottom, by means provided for that purpose, before withdrawing them from over the shoe, the construction shown further includes mechanism whereby the above-mentioned limiting means may be rendered inoperative at the proper time in the operation of the machine.

While the invention, for the purposes above described, is herein shown as applied to an organization of the character disclosed in the above-mentioned Letters Patent, it will be recognized that in various aspects, especially with respect to the means for limiting the upwiping movement of the wipers and for increasing their pressure on the shoe bottom, it is not limited to an organization including wiper-operating mechanism having, as therein disclosed, a constant tendency both to advance and close the wipers and to move them in the upwiping direction.

The above and other features of the invention including various novel details of construction and combinations of parts, will now be more particularly described by reference to the accompanying drawings and pointed out in the claims.

In the drawings,

Fig. 1 is a view in front elevation of a machine in which the invention is embodied;

Fig. 2 is a view in left-hand end elevation of a portion of the structure shown in Fig. 1, parts being broken away;

Fig. 3 is a front view on an enlarged scale of certain parts shown in Fig. 1;

Fig. 4 is a front view of a portion of the structure shown in Fig. 3 with the parts in different positions; and

Figs. 5 and 6 are sectional views illustrating respectively the positions of the toe wipers in the upwiping operation and in the overwiping operation.

As in the construction shown in the above-mentioned Letters Patent, the position of the last and shoe in the machine herein shown is determined by pins 10 (Figs. 5 and 6) which project through holes in the insole into sockets in the last, these pins being supported on a stationary bracket 12. It is to be understood, however, that the invention is not dependent upon the use of this partic-

ular means for positioning the work. The last and shoe are supported and held in the position thus determined by means of a toe rest 14 which is moved upwardly to clamp them against the pins. For wiping the upper heightwise of the toe and inwardly over the shoe bottom there are provided toe-embracing wipers 16 mounted on a wiper holder 18 which is adjustably mounted on a slide 20 movable in directions lengthwise of the shoe on the top of another slide or wiper support 22 which has a depending portion vertically movable in guideways in the frame of the machine. The slide 20 is moved toward the right (Fig. 1) to carry the wipers 16 preliminarily toward the shoe from an initial retracted position by means of a power-operated cam 24 which acts on a lever 26 connected to the slide. The vertically movable slide 22 is connected at its lower end by a link 28 to a crank arm 30 fast on a rock shaft 32 controlled by a double-acting treadle comprising two arms 34 and 36 whereby the operator is enabled to increase the downward pressure of the wipers 16 on the shoe in the overwiping operation and thereafter to raise the wipers prior to their retractive movement from over the shoe bottom. The wipers 16 are advanced and closed about the toe end of the shoe and inwardly over the shoe bottom by a plunger 38 acting on wiper carriers 40 (Figs. 5 and 6) in a manner more fully disclosed in the previously mentioned Letters Patent, upwiping movement of the wipers prior to their movements inwardly over the shoe bottom being effected by upward movement of the slide 22.

For thus operating the slide 22 to impart to the wipers their upwiping movement, and for also operating the plunger 38 to impart to them their advancing and closing movements, there is provided, as in the construction shown in the above-mentioned Letters Patent, a floating lever 42, i. e., a lever mounted for bodily movements in addition to swinging movements. This lever is connected at its right-hand end (Fig. 1) to the link 28 through a coupling member 44 having a recess into which the end of the lever extends and provided with slots to receive a pin 46 carried by the lever. At its left-hand end the lever 42 is connected by a link 48 to a bell-crank lever 50 fast on a rock shaft 52 which is supported on a bracket 54 on the frame of the machine, the upper end of the bell-crank lever 50 being connected to a block 56 which is fast on the outer end of the plunger 38. As shown in Fig. 2, the bell-crank lever 50 is made double and has arms extending upwardly at opposite sides of the plunger 38 and provided at their upper ends with vertical slots 58 in which are mounted rolls 60 carried by a cross-bar 62 connected centrally to the block 56 by means of a pivot stud 64. It will thus be seen that through the provision of the slots 58 operative relation is maintained between the bell-crank lever 50 and the plunger 38 in all positions of vertical movement of the slide 22 and the wipers 16. For operating the floating lever 42 there is provided a hand lever 66 which is fast on a rock shaft 68 mounted in the bracket 54, this rock shaft having also fast thereon a double lever 70 the two arms of which are connected by a web 72 and extend along the opposite sides of the lever 42, these arms being connected to the lever 42 by a pin 74. The pin 74 may be inserted in any one of a number of holes 76 in the lever 42 and corresponding holes 78 in the two arms 70 to vary the ratio between the effective forces applied through the lever 42 to the slide 22 and the plunger 38 by the movement of the hand lever 66.

As thus far described the machine is constructed substantially as disclosed in the above-mentioned Letters Patent. It will be seen that by swinging the hand lever 66 toward the right (Fig. 1) upwardly directed force is applied to the floating lever 42 between its opposite ends, and that when thus operated the lever 42 tends both to raise the slide 22 to move the wipers 16 upwardly and also to operate the plunger 38 to impart to the wipers advancing and closing movements. The construction, however, is such that there is normally greater resistance to the upward movement of the slide 22 then to the movement of the plunger 38, due to the weight of the slide and the parts thereon and also to the fact that, as likewise disclosed in the above-mentioned Letters Patent, there are provided springs 80 connected at their lower ends to the frame of the machine and at their upper ends to a cross-bar 82 which bears downwardly on the slide 20. As a result of this resistance to the upward movement of the slide 22 the lever 42 swings first about its connection with the coupling member 44 on the link 28 and thus through the bell-crank lever 50 advances and closes the wipers 16 about the toe end of the shoe, the wipers being positioned at that time below the edge of the shoe bottom, as illustrated in Fig. 5. As a result of the resistance of the shoe to further advancing and closing movements of the wipers the lever 42 then swings about its connection with the link 48 to lift the slide 22 and thus to impart upwiping movement to the wipers, the latter being held in firm engagement with the upper during this operation by reason of the force applied simultaneously by the lever 42 to the bell-crank lever 50 and the plunger 38. Such force, it will be evident, results in part from the resistance of the springs 80 to the upwiping movement. When the wipers in their upwiping movement pass the edge of the shoe bottom, the resistance of the shoe to their advancing and closing movements becomes less than the resistance to their upward movement, so that the wipers begin to advance and close inwardly over the shoe bottom by reason of the action of the lever 42 on the plunger 38, the springs 80 holding the wipers down upon the shoe bottom as they are moved inwardly. It will thus be seen that the wiper-operating mechanism, while tending constantly to impart to the wipers both upward movement and advancing and closing movements, is controlled at all times by the resistances to these movements, so that the upwiping and overwiping operations are effected in a sequence determined by the shoe without special attention on the part of the operator.

For better insurance that the wipers will not be moved too far in the upwiping direction in operating on comparatively heavy upper materials, and that they will apply adequate downward pressure to the shoe, especially at the very beginning of the overwiping operation, without the necessity for using springs 80 of such strength as to make it unduly difficult to manipulate the lever 66, the present invention provides for additional control of the vertically movable slide 22. To this end, there is fast on the slide 22 a rack bar 84 (Figs. 3 and 4) engaged by a pinion 86 secured to a shaft 88 which is mounted in bearings in a plate 90 on the frame of the machine. Also fast on the shaft 88 is a segment member 92 on which is secured a curved bar 94

provided with ratchet teeth 96. Arranged to cooperate with these ratchet teeth is a pawl 97 comprising a plate 98 having a tooth 100 thereon for engaging the teeth 96, the plate being adjustably secured to an arm 102 pivotally supported by a stud 104 (Figs. 1 and 2) carried by the bell-crank lever 50. Formed in this bell-crank lever is a T-slot 105 along which the correspondingly shaped head of the stud 104 is adjustable upwardly or downwardly, the stud being held in adjusted position by a nut 106 threaded on its outer end and acting on a sleeve 107 which bears on the outer face of the bell-crank lever. With the parts positioned as shown in Fig. 1, the stud 104 is located a little above the axis of swinging movement of the bell-crank lever 50, although the stud may by adjustment be positioned in alinement with this axis. The pawl 97 is urged in a downward direction by a spring 108 connected thereto. When the parts are positioned as shown in Figs. 1 and 3, prior to the upward movement of the slide 22, the pawl 97 is held out of engagement with the ratchet teeth 96 by a plate 110 mounted on the side of the bar 94 and curved similarly to the bar, the tooth 100 of the pawl 97 resting upon the smooth edge of this plate. The plate 110 has a slot 112 extending lengthwise thereof and through which extends the shank of a clamping screw 114 threaded in the bar 94, so that the plate may be adjusted lengthwise of the bar, the plate being clamped in adjusted position by the screw.

It will be understood that when the slide 22 is moved upwardly in response to movement of the lever 66 to impart upwiping movement to the wipers, the segment member 92 is turned by the slide in the direction of the arrow on Fig. 3, and the plate 110 is so adjusted that just as the wipers arrive in proper position to begin the overwiping operation the pawl 97 slips off the end of the plate 110 and engages the ratchet teeth 96. At this point in the operation of the wipers the pawl accordingly acts as a stop to lock the slide 22 against the upwardly directed force applied thereto by the floating lever 42, so that the wipers are held positively in the proper position to begin the overwiping operation, thus insuring that under any conditions they will not lose proper control of the upper between the upwiping and overwiping operations and that they will apply sufficient downward pressure to the upper as they wipe it over the edge of the insole. Furthermore, with the stud 104 on which the arm 102 of the pawl is mounted positioned a little above the axis of the bell-crank lever 50, as shown in Fig. 1, the bell-crank lever is rendered effective through the pawl and the segment member 92 to impart to the slide 22 a short progressive downward movement as the wipers are advanced and closed inwardly over the shoe bottom, thus increasing the downward pressure of the wipers on the upper in the overwiping operation. Under some conditions this will render it unnecessary for the operator to depress the treadle arm 34 at all, although he may depress it, if desired, to increase still further the pressure of the wipers on the upper. If the stud 104 is adjusted in alinement with the axis of the bell-crank lever 50, no downward movement will be imparted to the slide 22 by the bell-crank lever, but the slide will nevertheless be locked as above described against any possibility of upward movement beyond the position in which the wipers are in the proper overwiping plane.

In order to release the segment member 92, so that the wipers may be raised from the shoe bottom prior to their retractive movement after the overwiping operation, there is slidingly mounted in a boss 118 on the plate 90 a rod 120 having adjustably mounted on its upper end a screw 122 arranged to engage and lift the pawl 97 upon upward movement of the rod. At its lower end the rod 120 is pivotally connected to an arm 124 which is fast on a rock shaft 126 mounted in a bearing in a bracket 128 (Fig. 2) on the frame, this rock shaft having also fast thereon another arm 130 which carries an upwardly extending screw 132. As the slide 22 is moved upwardly as hereinbefore described the treadle arm 36 is carried to a position substantially contiguous to the upper end of the screw 132, and accordingly when it is desired to lift the pawl 97 this may be conveniently done by a short downward movement of the arm 36. For this purpose the arm 36 is mounted for limited turning movement about the rock shaft 32 relatively to the other treadle arm 34 against the resistance of a spring 134. Such movement is limited by a screw 136 carried by the arm 36 and acting as a retainer for the spring 134, this screw being arranged to engage a member 138 fast on the rock shaft 32 to transmit movement from the arm 36 to the rock shaft for lifting the wipers from the shoe bottom by further depression of the arm 36 after the segment member 92 is released by the pawl 97. The upward movement of the rod 120 to lift the pawl is effected against the resistance of a spring 140 mounted between the boss 118 and a collar 142 fast on the rod, this spring acting to lower the rod again when permitted by the treadle arm 36. Downward movement of the rod 120 is limited by a collar 144 fast on the rod and engaging the boss 118.

Having described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, and positive means for preventing movement of the wipers in the upwiping direction beyond the proper position for beginning their inward movement over the shoe bottom.

2. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, means

for opposing yielding resistance to the upwiping movement of the wipers to render said operating mechanism effective to press the wipers firmly against the upper in the upwiping operation, and additional means arranged to act automatically to oppose further resistance to movement of the wipers in the upwiping direction as soon as they arrive in proper position to begin their movements inwardly over the shoe bottom.

3. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper-operating mechanism comprising a floating lever arranged to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, and mechanism comprising a stop member arranged to become effective as soon as the wipers arrive in proper position to begin their movements inwardly over the shoe bottom to prevent further movement of the wipers in the upwiping direction.

4. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, a member having teeth thereon and mounted for turning movement in response to the upwiping movement of the wipers, a pawl arranged to cooperate with said member to prevent movement of the wipers in the upwiping direction beyond the proper position to begin their inward movements over the shoe bottom, and adjustable means for holding said pawl normally out of engagement with said teeth and for releasing it at the proper time to render it operative.

5. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, a device arranged to prevent movement of the wipers in the upwiping direction beyond the proper position for beginning their inward movement over the shoe bottom, means to enable the operator at will to move the wipers heightwise of the shoe away from the shoe bottom, and means to render said device inoperative so as to permit such movement of the wipers by the operator.

6. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movements heightwise of the shoe, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, mechanism comprising a stop member arranged to become effective as soon as the wipers arrive in proper position to begin their movements inwardly over the shoe bottom to prevent further movement of the wipers in the upwiping direction, mechanism comprising a treadle for enabling the operator at will to move the wipers heightwise of the shoe away from the shoe bottom, and means controlled by said treadle for rendering said stop member inoperative so as to permit such movement of the wipers by the operator.

7. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, and a device movable by said wiper-operating mechanism to increase the pressure of the wipers on the upper heightwise of the shoe as the wipers are moved inwardly over the shoe bottom.

8. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of wiper operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to move them in the upwiping direction and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, a member having teeth thereon and mounted for turning movement in response to the upwiping movement of the wipers, and a pawl arranged to engage said teeth as soon the wipers in their upwiping movement arrive in proper position to begin their inward movement over the shoe bottom, said pawl being movable by said wiper-operating mechanism to increase the pressure of the wipers on the upper heightwise of the shoe as the wipers are moved inwardly over the shoe bottom.

9. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe positioned bottom upward, and a wiper support movable upwardly to impart to the wipers upwiping movement, of wiper-operating mechanism so constructed as to have a constant tendency in operation both to advance and close the wipers and to raise the wiper support and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, and a device including a member arranged to act as a stop to limit upward movement of the wiper support when the wipers arrive in proper position to begin their movements inwardly over the shoe bottom, said device being movable by said wiper-operating mechanism to impart downward movement to the wiper support for increasing the pressure of the wipers on the shoe as the wipers are moved inwardly over the shoe bottom.

10. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe positioned bottom upward, and a wiper support movable upwardly to impart to the wipers upwiping movement, of wiper-operating mechanism comprising a floating lever arranged to have a constant tendency in operation both to advance and close the wipers and to raise the wiper support and controlled by the shoe for effecting the upwiping operation by reason of resistance of the shoe to the advancing and closing of the wipers and for effecting movement of the wipers inwardly over the shoe bottom by reason of the decrease in that resistance as the wipers pass the edge of the shoe bottom in the upwiping operation, said wiper-operating mechanism including a second lever arranged to be operated by said floating lever to impart the advancing and closing movements to the wipers, and a device arranged to be operated by said second lever to impart to the wiper support downward movement and thus to increase the pressure of the wipers on the shoe as they are moved inwardly over the shoe bottom.

11. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of a member movable by the operator to advance and close the wipers inwardly over the shoe bottom after their upwiping movement, a device arranged to limit the upwiping movement of the wipers, and means for operating said device by the movement of said member to increase the pressure of the wipers on the upper heightwise of the shoe as they are moved inwardly over the shoe bottom.

12. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of means for imparting the upwiping movement to the wipers, a member arranged to act as a stop to limit said upwiping movement, and means for advancing and closing the wipers inwardly over the shoe bottom after their upwiping movement and for also operating said stop member to increase the pressure of the wipers on the upper heightwise of the shoe when the wipers are over the shoe bottom.

13. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe and also for upwiping movement heightwise of the shoe, of a member having teeth thereon and mounted for turning movement in response to the upwiping movement of the wipers, a pawl movable into engagement with said teeth at the end of the upwiping movement, and means for operating said pawl thereafter to increase the pressure of the wipers on the upper heightwise of the shoe when the wipers are over the shoe bottom.

14. In a lasting machine, the combination with end-lasting wipers, of a support for said wipers mounted for rectilinear movement heightwise of a shoe, a member movable by the operator to advance and close the wipers inwardly over the shoe bottom, and mechanism arranged to be operated by said member for moving the wiper support heightwise of the shoe to increase the pressure of the wipers on the shoe bottom in their inward movements over the shoe bottom.

15. In a lasting machine, the combination with end-lasting wipers, of a support for said wipers mounted for movement heightwise of a shoe, a member mounted for turning movement and connected to said wiper support, said member having teeth thereon, operating mechanism movable by the operator to advance and close the wipers inwardly over the shoe bottom, and a pawl arranged to engage said teeth and movable by said operating mechanism to impart to the wiper support movement heightwise of the shoe to increase the pressure of the wipers on the shoe bottom in their inward movements over the shoe bottom.

16. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe, of a support for said wipers movable in directions heightwise of the shoe, means for operating said wiper support to impart upwiping movement to the wipers, a member having teeth thereon and connected to the wiper support to be turned by movement of the support heightwise of the shoe, a pawl arranged to act on said member to limit the upwiping movement of the wipers, and means for holding said pawl normally out of engagement with said teeth and for releasing it to render it operative when the wipers are in proper position to be advanced and closed inwardly over the shoe bottom.

17. In a lasting machine, the combination with end-lasting wipers mounted for advancing and closing movements about an end of a shoe, of a support for said wipers movable heightwise of the shoe to impart upwiping movement to the wipers, a member having teeth thereon and connected to said wiper support to be turned by the movement of the support heightwise of the shoe, a pawl arranged to act on said member to prevent upwiping movement of the wipers beyond the proper position to be advanced and closed inwardly over the shoe bottom, means to enable the operator at will to impart further movement to said support to carry the wipers away from the shoe bottom, and means for moving said pawl to an inoperative position to permit such further movement of the support by the operator.

BERNHARDT JORGENSEN.