Dec. 13, 1949 E. L. BUTLER ET AL 2,490,897

LASTING MACHINE

Filed May 25, 1948 5 Sheets-Sheet 1

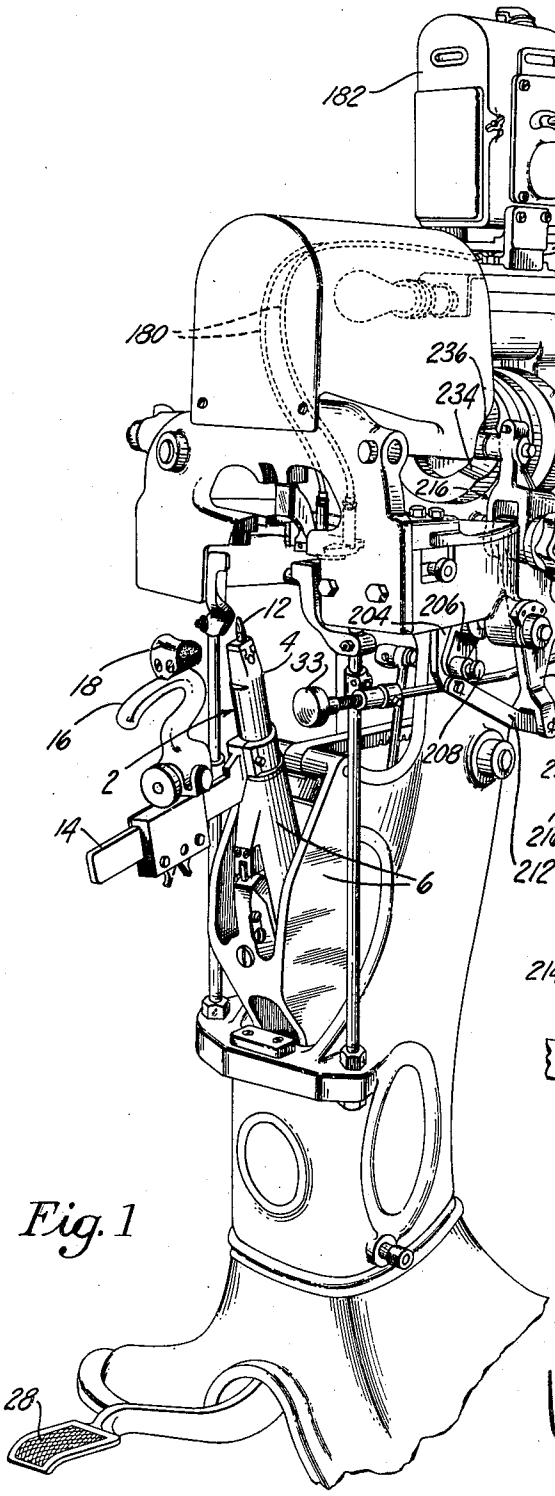


Fig. 1

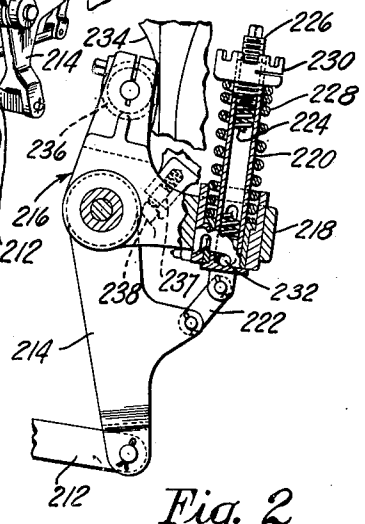


Fig. 2

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LASTING MACHINE

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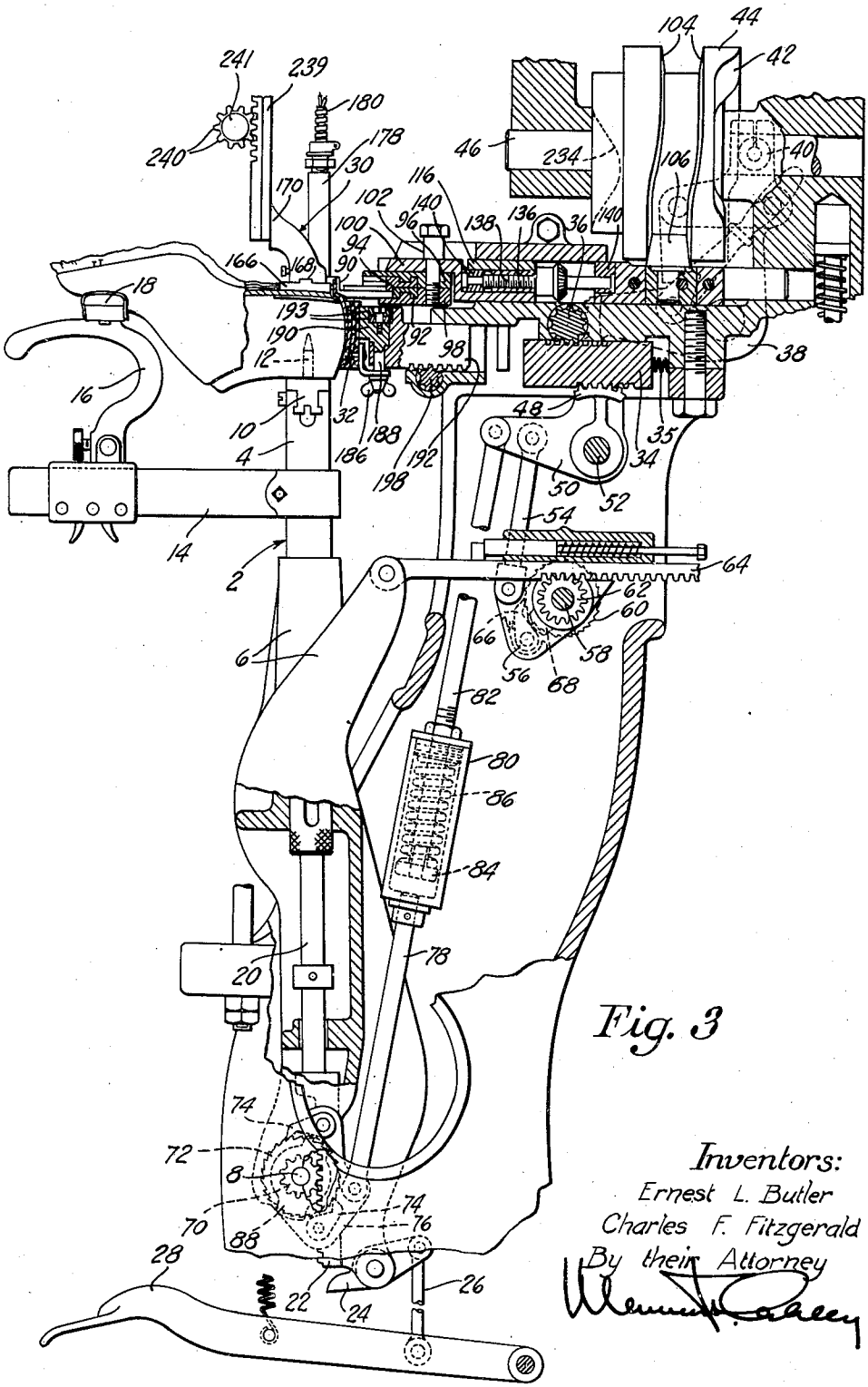


Fig. 3

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LASTING MACHINE

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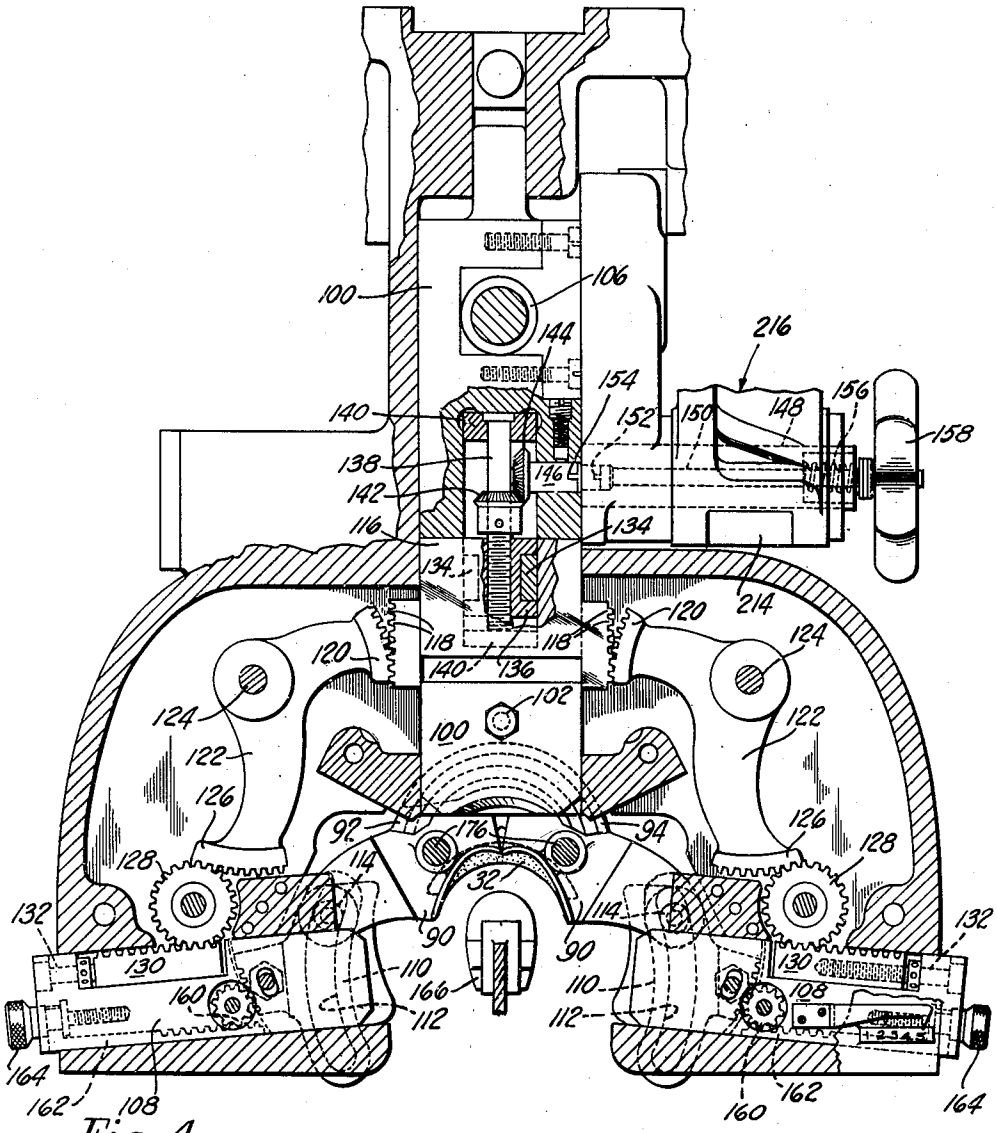


Fig. 4

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LASTING MACHINE

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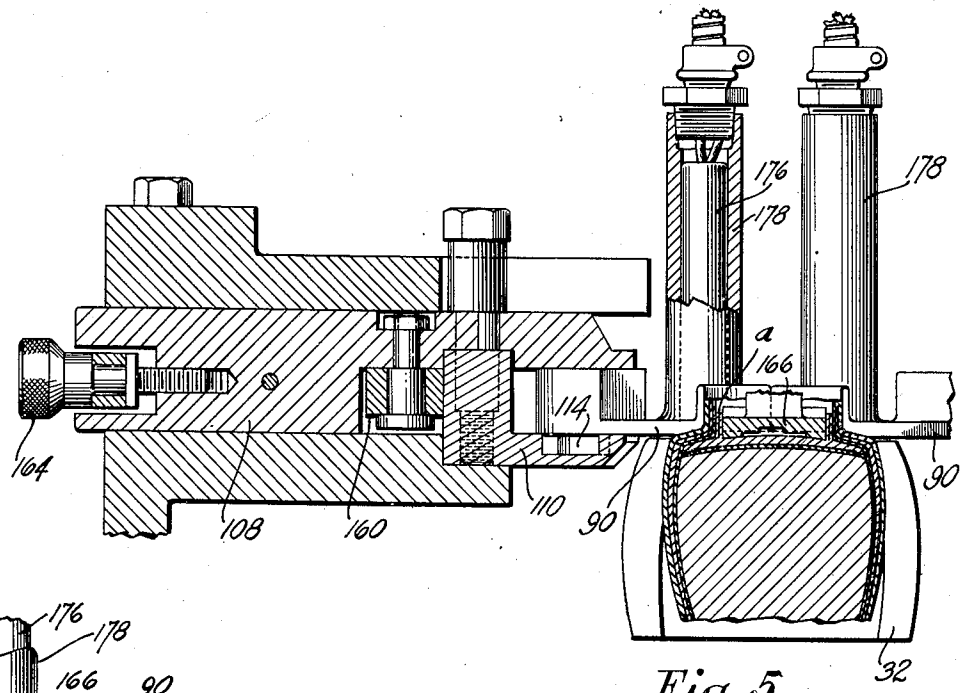


Fig. 5

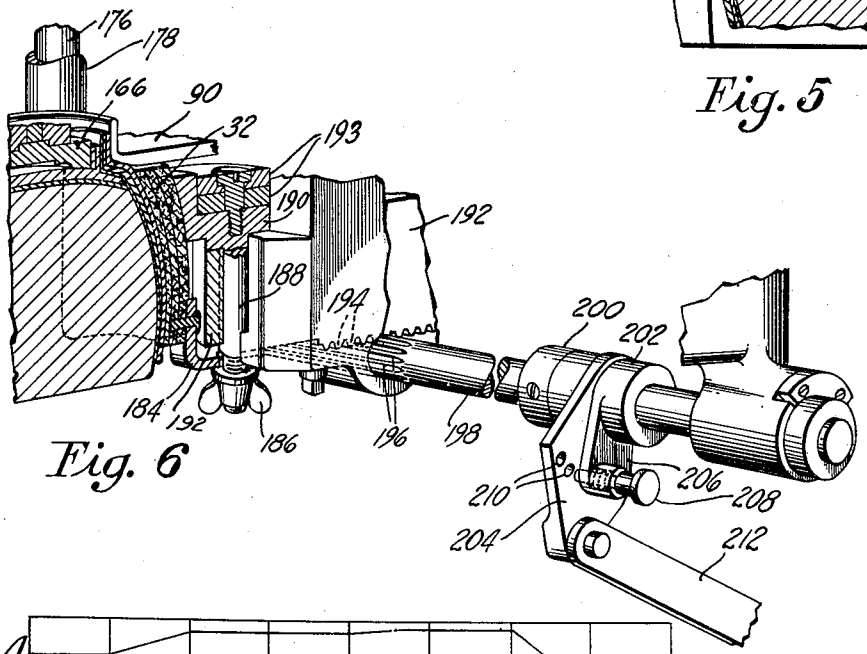


Fig. 6

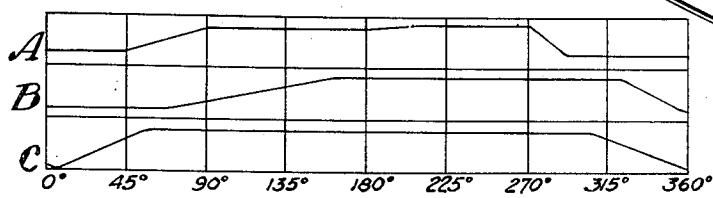


Fig. 7

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LASTING MACHINE

Filed May 25, 1948 5 Sheets-Sheet 5

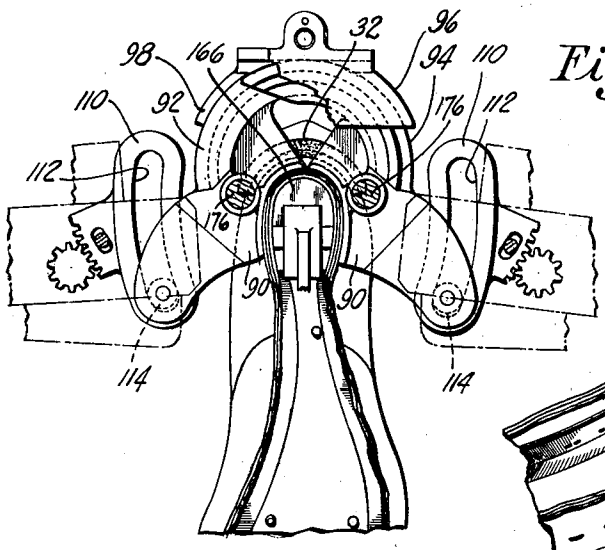


Fig. 8

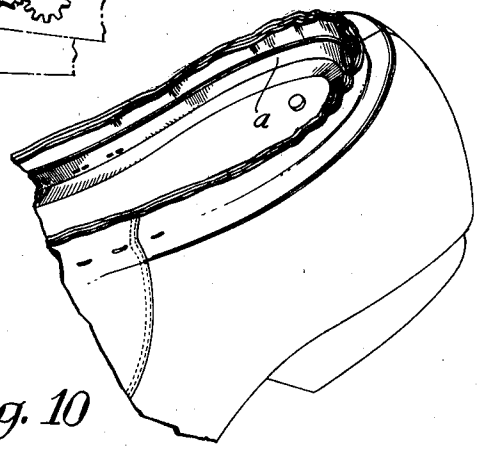


Fig. 10

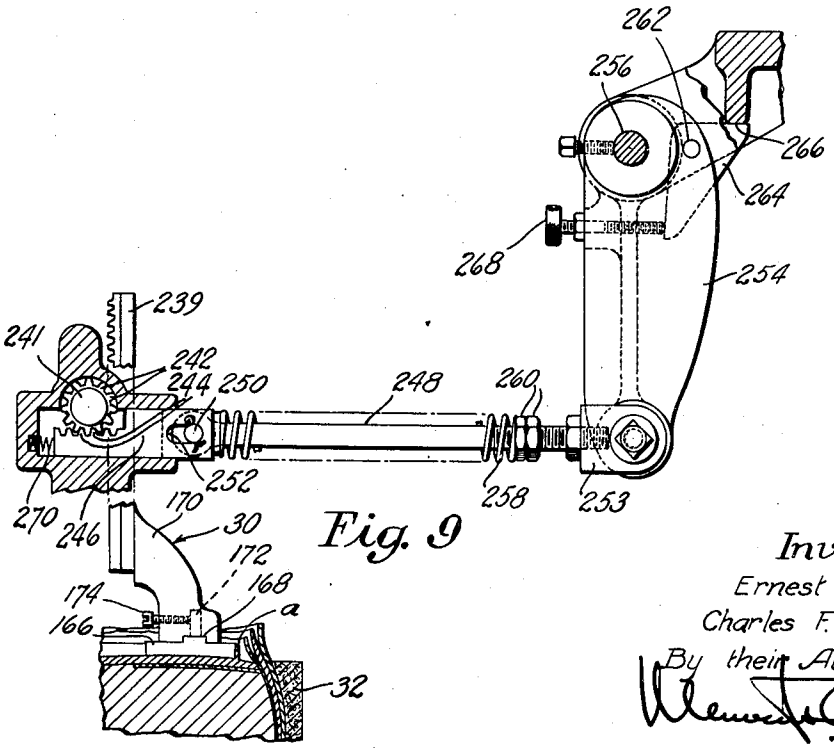


Fig. 9

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Patented Dec. 13, 1949

2,490,897

UNITED STATES PATENT OFFICE

2,490,897

LASTING MACHINE

Ernest L. Butler, Lynn, and Charles F. Fitzgerald, Beverly, Mass., assignors to United Shoe Machinery Corporation, Flemington, N. J., a corporation of New Jersey

Application May 25, 1948, Serial No. 29,074

14 Claims. (Cl. 12—12.5)

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This invention relates to lasting machines, and has especially in view the provision of improved means for lasting the heel ends of welt shoes of that type in which the insole has a lip extending around its heel end as well as along other portions thereof against which a portion of the margin of the upper is lasted in upstanding position. The invention is herein shown as embodied in a modification of a power-operated heel-end-lasting machine of a well-known type constructed generally as disclosed in United States Letters Patent No. 1,558,737, granted on October 27, 1925, on an application of R. F. McFeely's, but modified in some respects as shown in other Letters Patent hereinafter mentioned. It is to be understood, however, that the invention is not limited to this particular embodiment.

A machine of the type above referred to includes a shoe support arranged to be swung rearwardly by the operator to carry the shoe to a position in which its heel end is within a heel band and is under a holddown, and a treadle for then raising the shoe support to engage the heel end of the insole with the holddown prior to the starting of the cycle of operations of the machine. Shortly after the starting of the machine the shoe support is controlled automatically and is operated to force the shoe back in the heel band and more firmly up against the holddown, the heel band being closed about the heel end of the shoe early in the cycle. In the course of the cycle, moreover, wipers are operated repeatedly to wipe the margin of the upper inwardly over the insole, after which tacks are driven to fasten it in lasted position. In time relation to the operations of the wipers the holddown and the shoe support are so controlled as to cause the shoe to be depressed within the heel band prior to the first wiping action of the wipers on the margin of the upper and thereafter to be raised between the first and second inward wiping movements of the wipers.

To adapt a machine constructed as above outlined for purposes of the present invention, various changes have been made, including the omission of the tacking mechanism and the provision of means for moving the wipers inwardly only once to wipe the margin of the upper over the feather of the insole and to press a portion thereof in upstanding position against the lip on the insole. The wipers are maintained in a heated condition and by the heat and pressure which they apply to the upper the latter is formed so effectively in the angle between the feather and the lip of the insole as to eliminate

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any need for fastening means. To support the lip against the pressure of the wipers, the holddown is provided with a member formed to engage the inner face of the lip around the heel end of the insole. Instead of the heel band used heretofore, the construction herein shown provides a pad arranged to engage the heel-end face of the shoe to limit the rearward swinging movement of the shoe support, the pad being so positioned that when the shoe support is moved upwardly by the treadle the above-mentioned holddown member will seat itself on the insole without engaging the top of the lip. In order to insure that the holddown member will be close against the lip around the extreme end of the insole in position to support the lip effectively against the pressure of the wipers, mechanism is provided for moving the pad yieldingly in a forward direction and for thereby imparting a forward thrust to the shoe at the beginning of the power operation of the machine. Later in the operation of the machine, when the wipers are in pressure-applying relation to the upper over the insole, additional force in an upward direction is applied to the shoe support to raise the shoe slightly and thus to increase the pressure of the wipers on the upper, the holddown being controlled by a spring which is yieldable at that time to permit the holddown to move upwardly with the shoe and thus prevent it from interfering with such increase of pressure on the upper. This spring is of such strength as to prevent any upward movement of the holddown in response to pressure of the shoe against it until the time in the cycle when the additional force is applied to the shoe support as above described.

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

In the drawings,

Fig. 1 is a perspective view of the machine in which the invention is shown as embodied;

Fig. 2 is a view in right-hand side elevation of a portion of the structure shown in Fig. 1, with parts broken away;

Fig. 3 is a view partly in right-hand side elevation and partly in section of the greater portion of the machine, with the parts as they appear when the wipers are in pressure-applying relation to the overwiped margin of the upper;

Fig. 4 is a view on an enlarged scale, partly in

plan and partly in section, showing the wipers and their operating mechanism;

Fig. 5 is a view of a portion of the structure partly in front elevation and partly in section, showing the wipers in the same positions as in Fig. 3;

Fig. 6 is mainly a perspective view of a portion of the mechanism for controlling the pad which engages the heel end of the shoe, with parts broken away;

Fig. 7 is a chart illustrating the timing of certain operations performed by the machine;

Fig. 8 is a plan view showing the wipers in the same positions as in Figs. 3 and 5;

Fig. 9 is a view mainly in right-hand side elevation of the holddown and its controlling mechanism; and

Fig. 10 is a perspective view of the heel-end portion of a shoe after it has been operated upon by the machine.

A machine of the type in which the invention is herein shown as embodied is provided with a shoe support 2 (Figs. 1 and 3) comprising a post 4 which is slidingly mounted for upward and downward movements in a casting 6 mounted for forward and rearward swinging movements about a shaft 8 near the base of the machine. The post 4 carries a block 10 which supports the heel end of the last and which is provided with a pin 12 arranged to enter the usual spindle hole in the last, the block being movable relatively to the post in such manner as to permit the last to tip laterally. The post also has fast thereon a forwardly extending bar 14 on which is mounted for adjustment in directions lengthwise of the shoe a bracket 16 provided with a toe rest 18 for supporting the shoe under its toe end. At its lower end the post 4 is supported by a rod 20 extending upwardly from a rack bar 22 the lower end of which rests initially on the front end of a short lever 24 pivotally mounted between its ends on a downward extension of the casting 6. By means of a link 26 the rear end of the lever 24 is connected to a treadle 28. Initially the post 4 occupies a forwardly inclined position to receive a shoe, as shown in Fig. 1, and prior to the starting of the power operation of the machine the operator swings it with the casting 6 rearwardly by hand to carry the heel end of the shoe to a position under a holddown 30, this swinging movement being limited by engagement of the heel-end face of the shoe with a member 32. The operator then depresses the treadle 28 and thereby moves the post 4 upwardly to carry the bottom of the heel end of the shoe into engagement with the holddown 30 and to press it against the holddown, after which he starts the power operation of the machine by rearward movement of the usual starting member 33 (Fig. 1).

Near the beginning of the cycle of operations the machine automatically assumes control of the shoe support 2. For this purpose a slide 34 (Fig. 3) guided in the head of the machine is moved in a rearward direction against the resistance of a return spring 35 by a pinion 36 engaging rack teeth thereon, the pinion being operated by a bell-crank lever 38 provided with a roll 40 engaged by a face cam 42 formed on the rear end of a cam member 44 fast on a cam shaft 46. Other rack teeth on the slide 34 are in engagement with a gear sector 48 formed on one arm of a bell-crank lever 50 mounted on a shaft 52. The other arm of this bell-crank lever is connected by a link 54 to a pawl carrier 56 mounted to turn about a shaft 58 on which are also rotatably mounted a ratchet wheel 60 and a pinion 62 connected thereto. The pinion is in engagement with a rack bar 64 which is pivotally connected at its front end to the casting 6. A pawl 66 on the pawl carrier 56 is arranged to engage the ratchet wheel 60 and thereby to force the shoe support 2 in a rearward direction in response to rearward movement of the slide 34 to cause the heel end of the shoe firmly to engage the member 32, the pawl serving thereafter to lock the shoe support against forward movement. Initially the pawl is held out of engagement with the ratchet wheel 60 by a normally stationary pawl controller 68 which releases it to cause it to engage the ratchet wheel at a time in the movement of the pawl carrier 56 variably determined by adjustment of the controller about the shaft 58.

By its rearward movement the slide 34 also operates mechanism which assumes control of the shoe support 2 with respect to upward and downward movements. This mechanism includes a pinion 70 fast on the shaft 8 and engaging teeth on the rack bar 22, and a ratchet wheel 72 also fast on the shaft and arranged to be engaged by a pair of pawls 74 mounted on a pawl carrier 76 which may turn on the shaft. Connected to the pawl carrier is an upwardly extending rod 78 which has fast on its upper end a tubular casing 80, and slidingly mounted in the upper end of this casing is a rod 82 connected to the bell-crank lever 50. On the lower end of the rod 82 is a disk 84 in engagement with the lower end of a compression spring 86 confined in the casing 80. It will thus be seen that in response to rearward movement of the slide 34 the bell-crank lever 50 acts yieldingly through the spring 86 and the pawls 74 to apply upwardly directed force to the shoe support and to hold it against downward movement. Initially the pawls 74 are held out of engageemnt with the ratchet wheel 72 by a pawl controller 88 which by its adjustment about the shaft 8 determines variably the time in the movement of the pawl carrier 76 when the pawls are caused to engage the ratchet wheel.

For wiping the margin of the heel-end portion of the upper materials inwardly over the insole, the machine is provided with a pair of wipers 90 which are operated by mechanism constructed substantially as shown and described in Letters Patent No. 2,001,732, granted on May 21, 1935 on an application of J. C. Jorgensen's. As more fully disclosed in Letters Patent No. 1,852,015, granted on April 5, 1932 on an application of J. C. Jorgensen's, these wipers are provided respectively with arcuate rearward extensions 92 and 94 (Figs. 3, 4 and 8), the extension 94 on one wiper overlapping the extension 92 on the other wiper and both extensions being held between two clamp members 96 and 98 which have tongue-and-groove connections therewith. The two clamp members are secured together and to a forwardly and rearwardly movable slide 100 by means of a screw 102. The wipers are accordingly guided for swinging or closing movements widthwise of the shoe about an axis located substantially where their wiping edges meet. The slide 100 is operated to advance the wipers bodily lengthwise of the shoe by a groove cam 104 formed in the cam member 44, the cam engaging a roll 106 on the slide.

For imparting to the wipers their swinging or closing movements in time relation to their advancing movements, there are mounted in guideways in the opposite sides of the head of the machine slides 108, one for each of the wipers,

and each of these slides carries a plate 110 having therein a curved slot 112 in which lies a roll 114 mounted on the adjacent wiper underneath the wiper. For imparting operative movements to the wiper-closing slides 108 the wiper-advancing slide 100 carries a member 116 provided on each of its opposite sides with a series of rack teeth 118 in engagement with a gear sector 120 formed on one end of a lever 122 which is pivotally mounted at 124 on the head of the machine. Formed on the other end of each lever is a gear sector 126 in engagement with a pinion 128, the pinion engaging a rack member 130 adjustably secured by a screw 132 in a recess in the slide 108. It will thus be seen that as the slide 100 is moved forwardly to advance the wipers lengthwise of the shoe the slides 108 are moved inwardly to impart closing movements to the wipers by the action of the plates 110 on the rolls 114 carried by the wipers, the rolls at the same time advancing along the slots 112.

For adjusting the wipers toward or from each other as required by shoes of different widths, the member 116 is mounted in a recess in the slide 100 to permit it to be moved lengthwise of the shoe relatively to the slide and is provided with a pair of downwardly extending lugs 134 which fit in recesses formed in a block 136 also movable relatively to the slide 100 in a recess in the slide. The block 136 has threaded therein a shaft 138 rotatably mounted at its opposite ends in blocks 140 inserted in the slide 100. Fast on the shaft 138 is a bevel gear 142 in engagement with another bevel gear 144 having a cylindrical portion 146 rotatably mounted in the slide 100. By turning the gear 144, therefore, the member 116 may be moved relatively to the slide 100 to adjust the wipers toward or from each other. For thus turning the gear when the slide 100 is in its initial position, there is mounted in a cylindrical bearing member 148 projecting from the head of the machine a shaft 150 having on its inner end a tongue 152 arranged to enter a groove 154 in the cylindrical portion 146 of the gear 144 when the shaft is moved inwardly against the resistance of a spring 156. Fast on the outer end of the shaft is a hand wheel 158 for thus moving it inwardly and for turning it.

As further disclosed in Letters Patent No. 2,001,732, there is also provided means for varying independently the amount of closing movement imparted to each of the wipers. For this purpose the plates 110 (Fig. 4) in which the slots 112 are formed are mounted for adjusting movements relatively to the slides 108 about vertical axes so located that such adjustment of the plates has no effect on the initial positions of the wipers. For thus adjusting each plate, there is provided a pinion 160 in engagement with teeth on the plate, the pinion being engaged by a rack member 162 slidingly movable in a recess in the slide 108 by means of a screw 164 threaded in the slide. It will be understood that in accordance with the adjustment of each plate 110 more or less closing movement will be imparted to the corresponding wiper, in addition to the closing movement imparted to it by the slide 108, by reason of the movement of the roll 114 along the slot 112 in the plate as the wipers are advanced lengthwise of the shoe.

As thus far described the construction of the machine is in most respects substantially the same as that of prior machines of the type in which the invention is shown as embodied. The tacking mechanism used heretofore is, however,

omitted and the wipers 90 are devoid of any tack-receiving openings. The groove cam 104 is, moreover, so formed that the wipers are advanced and closed only once in the course of the cycle of operations. To support the lip *a* on the insole against the inward pressure of the wipers, so that the marginal portion of the upper materials will be effectively shaped in the angle between the lip and the feather of the insole, the holddown 30 includes a plate 166 formed to engage the inner face of the lip around the heel end of the insole. The plate has a tongue 168 (Fig. 9) extending into a corresponding groove in a supporting member 170 and also a stem 172 engaged by a setscrew 174 in the member 170 to hold the plate detachably in place.

To increase the effectiveness of the wipers in shaping the upper as above described, they are maintained in a heated condition by electrical heating units 176, one for each wiper, each unit being mounted in a holder 178 which in the construction shown is welded on the top face of the wiper. The units are supplied with current by wires which extend through flexible cables 180 leading to a switch box 182 (Fig. 1). The member 32, previously referred to as means for engaging the heel end of the shoe to limit the rearward swinging movement of the shoe support 2, consists of a pad which takes the place of the heel band used heretofore. The pad is curved to engage the heel-end face of the shoe and is confined substantially to engagement with the shoe in that location, the band-closing mechanism heretofore provided being omitted. The pad is preferably made of leather and, similarly to the above-mentioned heel band, is secured to an angular clip 184 which is fastened by a wing nut 186 to the lower end of a stem 188 extending downwardly from a block 190 mounted for limited upward and downward movements in the front end of a horizontally movable slide 192, the block 190 serving as a backing for the central upper portion of the pad. Portions of the pad at opposite sides of the block 190 are backed up by arms 193, contiguous ends of which are shown in section in Fig. 6, these arms corresponding to arms 100 shown in Letters Patent No. 1,583,044, granted on May 4, 1926 on application of C. H. Hoyt's.

It will be evident that when the operator raises the shoe support 2 by means of the treadle 28, as hereinbefore described, the holddown plate 166 should engage the insole farther inwardly from the edge of the insole than the lip *a*, and to insure that the plate will not engage the top of the lip at the rear end of the insole when the shoe is thus raised the pad 32 which positions the shoe lengthwise is so positioned initially as to provide for ample clearance between the plate and that portion of the lip. When the wipers are operated, however, that portion of the lip should be close against the plate. Mechanism, therefore, is provided for moving the pad in a forward direction at the beginning of the cycle of operations of the machine and for thereby imparting a short forward thrust to the shoe. For this purpose the slide 192 has on its lower face rack teeth 194 (Fig. 6) engaged by gear teeth 196 formed on a shaft 198 rotatable in the head of the machine. Confined between collars 200 and 202 fast on the shaft 198 is an arm 204 relatively to which the shaft may be turned to adjust the pad 32 in directions lengthwise of the shoe. Formed on the collar 202 is an arm 206 by which the shaft may thus be turned, this

arm being provided with a spring-pressed pin 208 arranged to enter one or another of a plurality of holes 210 in the arm 204 to lock the two arms together after adjustment of the pad. The arm 204 is connected by a link 212 to the lower end of an arm 214 (Fig. 2) which is mounted at its upper end to swing about the previously mentioned cylindrical member 148 (Fig. 4). Also mounted to swing about this member is a bell-crank lever 216 having a rearwardly extending arm 218 through which extends a hollow rod 220 connected by a link 222 to the arm 214. Mounted in the hollow rod 220 is a spring 224 seated at its upper end on a screw 226 threaded in the rod, and surrounding the rod is another spring 228 seated at its upper end on a nut 230 on the rod. Upon movement of the bell-crank lever 216 in a counterclockwise direction with reference to Fig. 2 a pin 232 carried by the arm 218 of the lever acts either through the spring 224 alone or through both springs 224 and 228 combined, depending upon an adjustment, to swing the arm 214 in the direction to impart forward movement to the pad 32 and the shoe and thus to insure that the portion of the lip at the rear end of the insole will be close against the holddown plate 166. It will be understood that one or both springs will yield when engagement of the holddown plate with the lip prevents any further forward movement of the shoe. The spring means thus provided for transmitting force from the bell-crank lever 216 to the arm 214, including provision for the above-mentioned adjustment to render one or both springs effective, is of the same construction as means shown for a different purpose in Figs. 28 and 29 of Letters Patent No. 1,583,044 which may be consulted for a better understanding of details. The operative movement of the bell-crank lever 216 is effected by a face cam 234 on the cam member 44 in engagement with a roll 236 on the lever, the roll being held at all times against the cam by a spring-pressed pin 237 mounted in the head of the machine and engaging a lug 238 on the lever.

The mechanism operated by the cam 42 for controlling the shoe support 2 not only presses the shoe firmly up against the holddown plate 166 near the beginning of the cycle of operations, as hereinbefore described, but also, by reason of the shape of the cam, forces the shoe more firmly up against the wipers after the wipers have wiped the upper inwardly over the insole to increase the pressure of the wipers on the overwiped portion of the upper. To facilitate such increase of pressure of the wipers on the upper the holddown 30 is so controlled as to permit it to be forced upwardly by the shoe at this time. For this purpose a portion of the member 170 of the holddown is in the form of a vertically extending rack bar 239 (Fig. 3) in engagement with gear teeth 240 which are formed on a shaft 241 extending widthwise of the shoe and rotatable in the head of the machine. Also formed on this shaft are gear teeth 242 (Fig. 9) in engagement with rack teeth 244 formed on a slide 246 which is mounted for forward and rearward movements in the head. Extending rearwardly from this slide is a rod 248 provided at its front end with a pin 250 which extends through slots 252 in the slide, the front end of the rod lying in a recess in the slide between the slots. At its rear end the rod 248 is threaded in a block 253 pivotally mounted on the lower end of an arm 254 which is mounted at its upper end on a pin 256 on the head. Surrounding the rod 248 is a spring 258 confined between the rear end of the slide 246 and nuts 260 on the rod. This spring is under compression and holds the rod and the slide 246 normally in the relation to each other as shown in Fig. 9 with the pin 250 at the rear ends of the slots 252. Pivotally mounted at 262 on the arm 254 is a triangular plate 264, a rearwardly extending portion of which is arranged to engage a shoulder 266 on the head of the machine and a downwardly extending portion of which is engaged by a screw 268 threaded in the arm 254. In this manner rearward swinging movement of the arm is positively limited. A spring 270 in engagement with the front end of the slide 246 tends to move the slide and the rod 248 in a rearward direction and thereby holds the arm 254 at all times in the position determined by the plate 264 and the screw 268. When the shoe is forced upwardly as above described to increase the pressure of the wipers on the upper the holddown is forced upwardly by the shoe against the resistance of the spring 258, causing the slide 246 to move relatively to the rod 248 as permitted by the slots 252 in the slide. The spring is of such strength as to prevent upward movement of the holddown until the time in the cycle when the pressure of the wipers on the upper is thus increased. That is, it prevents upward movement of the holddown when the operator moves the shoe support upwardly by the treadle 28 prior to the starting of the machine and when the shoe is pressed more firmly up against the holddown by the cam 42 near the beginning of the cycle prior to the operation of the wipers on the upper. Insurance is thus afforded that the shoe will be at the proper height for the wipers to wipe the upper inwardly. It will be evident that the screw 268 serves as convenient means for varying the initial height of the holddown.

The manner of operation of the machine will now be briefly summarized, with reference especially to the chart (Fig. 7) which illustrates the relative timing of different operations. On this chart the line A has reference to the automatic control of the shoe support, the line B to the operation of the wipers and the line C to the operation of the pad 32. The operator mounts a shoe on the shoe support when the latter is in its lowered and forwardly inclined position, in which it is shown in Fig. 1, and swings the support rearwardly by hand to carry the heel-end face of the shoe into engagement with the pad 32 which serves as an abutment to limit the swinging of the support. By the treadle 28 he then raises the shoe support to carry the bottom of the heel end of the insole into engagement with the holddown plate 166, the shoe being so positioned lengthwise by the pad 32 as to insure sufficient clearance between the plate and the portion of the lip *a* on the insole located at the rear end of the insole. While thus holding the shoe against the pad and the holddown plate the operator starts the power operation of the machine by rearward movement of the starting member 33. Immediately after the starting of the machine, while the operator is still controlling the shoe support, the pad 32 is moved forwardly by the cam-operated mechanism shown in Figs. 2 and 6 to thrust the shoe in a forward direction and thereby to seat the portion of the lip at the rear end of the insole firmly against the holddown plate 166, the shoe support moving forwardly with the shoe. When the shoe can

be moved no farther forwardly by reason of engagement of the lip with the holddown plate any further movement of the bell-crank lever 216 results in compression of one or both of the springs 224, 228. Immediately thereafter the cam 42 causes the pawl-and-ratchet mechanisms shown in Fig. 3 to assume control of the shoe support, the pawl 66 locking the support against forward movement and the pawls 74 locking it against downward movement while pressing the shoe more firmly up against the holddown plate. Thereafter the wipers are advanced and closed to wipe the margin of the upper materials inwardly over the feather of the insole and to press a portion of the margin in upstanding position against the lip of the insole which is supported by the holddown plate against the inward pressure of the wipers. After the wipers have completed their inward movements, a short rise on the cam 42 serves, as indicated on the chart, to apply additional upwardly directed force through the spring 86 and the pawls 74 to the shoe support and thus to force the shoe more firmly up against the wipers to increase the pressure of the wipers on the upper heightwise of the shoe. By such upward movement as the shoe receives in this operation, accompanied by upward movement of the pad 32 and the block 190 by reason of engagement of the shoe with the pad, the holddown is lifted against the resistance of the spring 258 (Fig. 9) which up to this point in the cycle has not yielded. It will be evident that as the increased upwardly directed force is thus applied to the shoe support the pawl 66 acts also to force the heel end of the shoe more firmly back against the pad 32. Near the end of the cycle the cam 42 first releases the shoe support to relieve the pressure of the shoe on the wipers and on the pad 32, after which the wipers are returned to their starting positions and the cam 234 arrives in position to cause return movement of the pad. After the shoe support has swung forwardly to its initial position the operator removes the shoe therefrom, the heel end of the shoe being then in the lasted condition illustrated in Fig. 10 with the marginal portion of the upper materials effectively shaped by the pressure and heat in the angle between the feather and the lip of the insole.

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

1. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, and means for moving the shoe lengthwise relatively to said member in engagement with the insole to force the lip of the insole against said member before the marginal portion of the upper is wiped inwardly by the wiping means.

2. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, an abutment arranged to engage the heel-end face of the shoe, and means for yieldingly operating said abutment to move the shoe lengthwise relatively to said member in engagement with the insole and thereby to force the lip of the insole against said member before the marginal portion of the upper is wiped inwardly by the wiping means.

3. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support mounted for movement to carry the shoe lengthwise to a position in which the bottom of the heel end of the insole is opposite said holddown member, means for effecting relative movement of the shoe support and the holddown member in a direction heightwise of the shoe to cause said member to engage the insole after the shoe has thus been positioned, and additional means for thereafter moving the shoe reversely lengthwise relatively to the holddown member to force the lip of the insole against said member.

4. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support mounted for movement to carry the shoe lengthwise to a position in which the bottom of the heel end of the insole is opposite said holddown member, an abutment arranged to engage the heel end of the shoe to limit that movement of the shoe support, means for effecting relative movement of the shoe support and the holddown member in a direction heightwise of the shoe to cause said member to engage the insole after the shoe has thus been positioned, and means for thereafter operating said abutment to move the shoe reversely lengthwise relatively to the holddown member and thereby to force the lip of the insole against said member.

5. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support mounted for movement to carry the shoe into position to cause the holddown member to engage the heel end of the insole, and means for moving the shoe lengthwise with the shoe support relatively to the holddown member in engagement with the insole to force the lip of the insole against said member.

6. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a holddown member constructed and arranged to engage the

bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support mounted for movement to carry the shoe into position to cause the holddown member to engage the heel end of the insole, means for moving the shoe lengthwise with the shoe support relatively to the holddown member in engagement with the insole in a direction to force the lip of the insole against said member, and means for thereafter locking the shoe support against further movement in that direction.

7. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support mounted for movement to carry the shoe lengthwise to a position in which the bottom of the heel end of the insole is opposite said holddown member and also for movement to carry the shoe heightwise into engagement with said member, and means for moving the shoe reversely lengthwise relatively to the holddown member after such heightwise movement thereof to force the lip of the insole against said member.

8. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole in the course of a cycle of power operations of the machine, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support movable by the operator to carry the shoe lengthwise to a position in which the bottom of the heel end of the insole is opposite said holddown member and also to carry it heightwise into engagement with said member prior to the starting of the power operation of the machine, and automatic means for moving the shoe reversely lengthwise relatively to the holddown member after the starting of the machine to force the lip of the insole against said member before the marginal portion of the upper is wiped inwardly by the wiping means.

9. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole in the course of a cycle of power operations of the machine, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support movable by the operator to carry the shoe lengthwise to a position in which the bottom of the heel end of the insole is opposite said holddown member and also to carry it heightwise into engagement with said member prior to the starting of the power operation of the machine, an abutment arranged to engage the heel end of the shoe to limit such lengthwise movement thereof, and automatic means for operating said abutment yieldingly after the starting of the machine to move the shoe reversely lengthwise relatively to the holddown member and thereby to force the lip of the insole against said member before the marginal portion of the upper is wiped inwardly by the wiping means.

10. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last and against a lip on the insole in the course of a cycle of power operations of the machine, a holddown member constructed and arranged to engage the bottom face of the heel end of the insole farther inwardly from the edge of the insole than the lip and also to engage the inner face of the lip to support the lip against the pressure of the wiping means, a shoe support movable by the operator to carry the shoe into position to cause the holddown member to engage the heel end of the insole prior to the starting of the power operation of the machine, means for moving the shoe lengthwise with the shoe support relatively to the holddown member in a direction to force the lip of the insole against said member after the starting of the machine, and automatic means for thereafter locking the shoe support against further movement in that direction.

11. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last, a holddown for engaging the heel end of the insole to position the shoe heightwise relatively to said wiping means prior to the wiping operation, means for moving the shoe heightwise relatively to the wiping means when the wiping means is over the insole to increase the pressure of the wiping means on the overwiped marginal portion of the upper, and a spring arranged to control the holddown and yieldable in response to pressure of the shoe on the holddown when the shoe is thus moved heightwise to permit the holddown to move with the shoe.

12. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last, a holddown for engaging the heel end of the insole to position the shoe heightwise relatively to said wiping means prior to the wiping operation, means for moving the shoe heightwise relatively to the wiping means when the wiping means is over the insole to increase the pressure of the wiping means on the overwiped marginal portion of th upper, and means including a spring for maintaining the holddown in a fixed position until the wiping means is thus over the insole, said spring being yieldable in response to pressure of the shoe on the holddown when the shoe is thus moved heightwise to permit the holddown to move with the shoe.

13. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last, a holddown for engaging the heel end of the insole to position the shoe heightwise relatively to said wiping means, a shoe support, means for operating said shoe support to press the shoe heightwise against the holddown prior to the wiping operation and thereafter to move the shoe heightwise relatively to the wiping means when the wiping means is over the insole to increase the pressure of the wiping means on the overwiped marginal portion of the upper, and a spring arranged to control the holddown and

yieldable in response to pressure of the shoe on the holddown when the shoe is thus moved heightwise to increase the pressure on the upper to permit the holddown to move with the shoe, said spring being strong enough to prevent it from yielding when the shoe is pressed against the holddown prior to the wiping operation.

14. In a lasting machine, wiping means for wiping the marginal portion of an upper around the heel end of a last inwardly over an insole on the last in the course of a cycle of power operations of the machine, a holddown for engaging the heel end of the insole to position the shoe heightwise relatively to said wiping means, a shoe support movable by the operator to press the shoe heightwise against the holddown prior to the starting of the power operation of the machine, means for operating said shoe support after the starting of the machine to press the shoe more firmly heightwise against the holddown prior to the wiping operation and thereafter to move the shoe heightwise relatively to the wiping means when the wiping means is over the insole to increase the pressure of the wiping means on the overwiped marginal portion of the upper, and a spring arranged to control the holddown and yieldable in response to pressure of the shoe on the holddown when the shoe is thus moved heightwise to increase the pressure on the upper to permit the holddown to move with the shoe, said spring being strong enough to prevent it from yielding until the shoe is thus moved heightwise to increase the pressure on the upper.

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No references cited.