March 10, 1942. J. W. ASHLEY 2,275,487

MEANS FOR USE IN SHAPING UPPERS OVER LASTS

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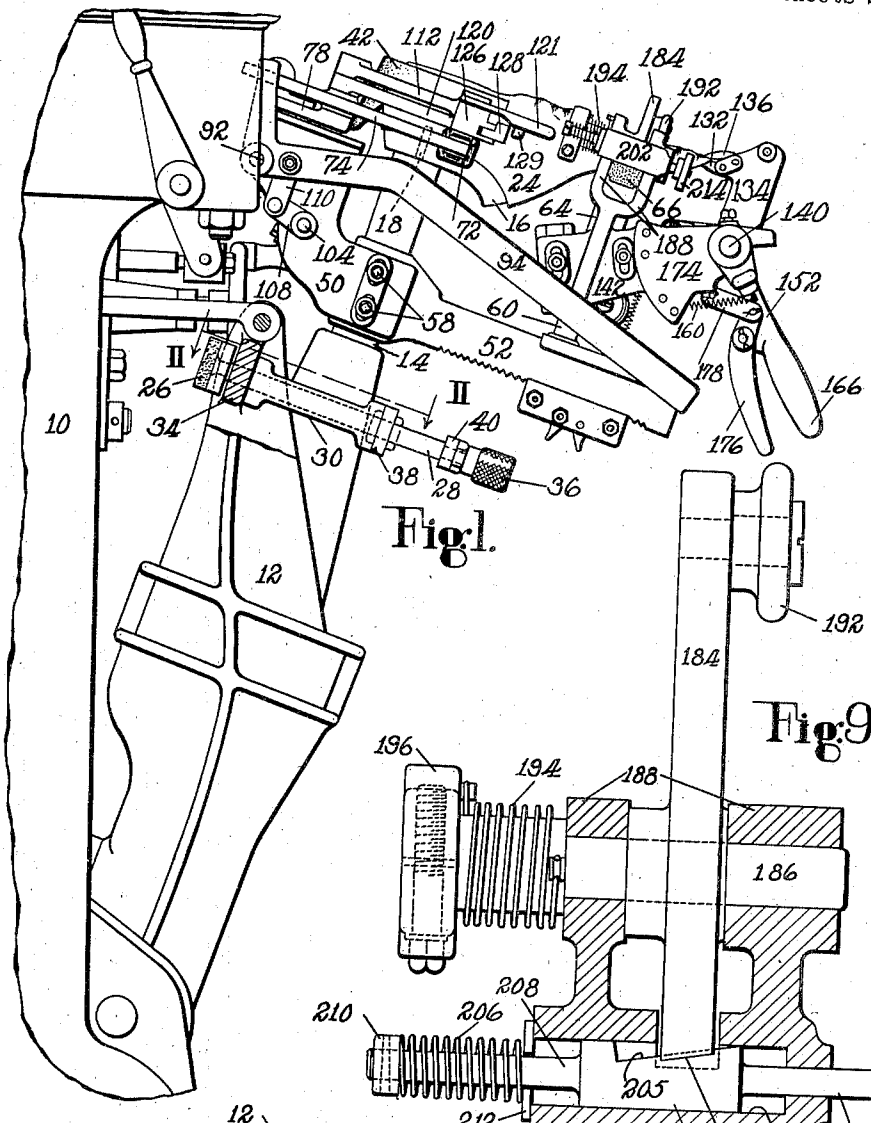


Fig. 1.

Fig. 9.

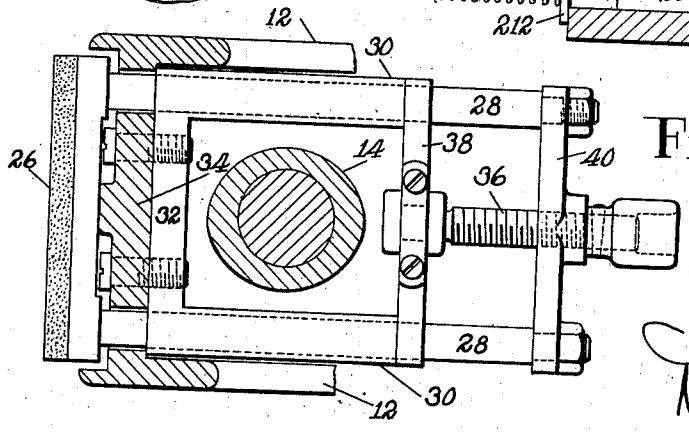


Fig. 2.

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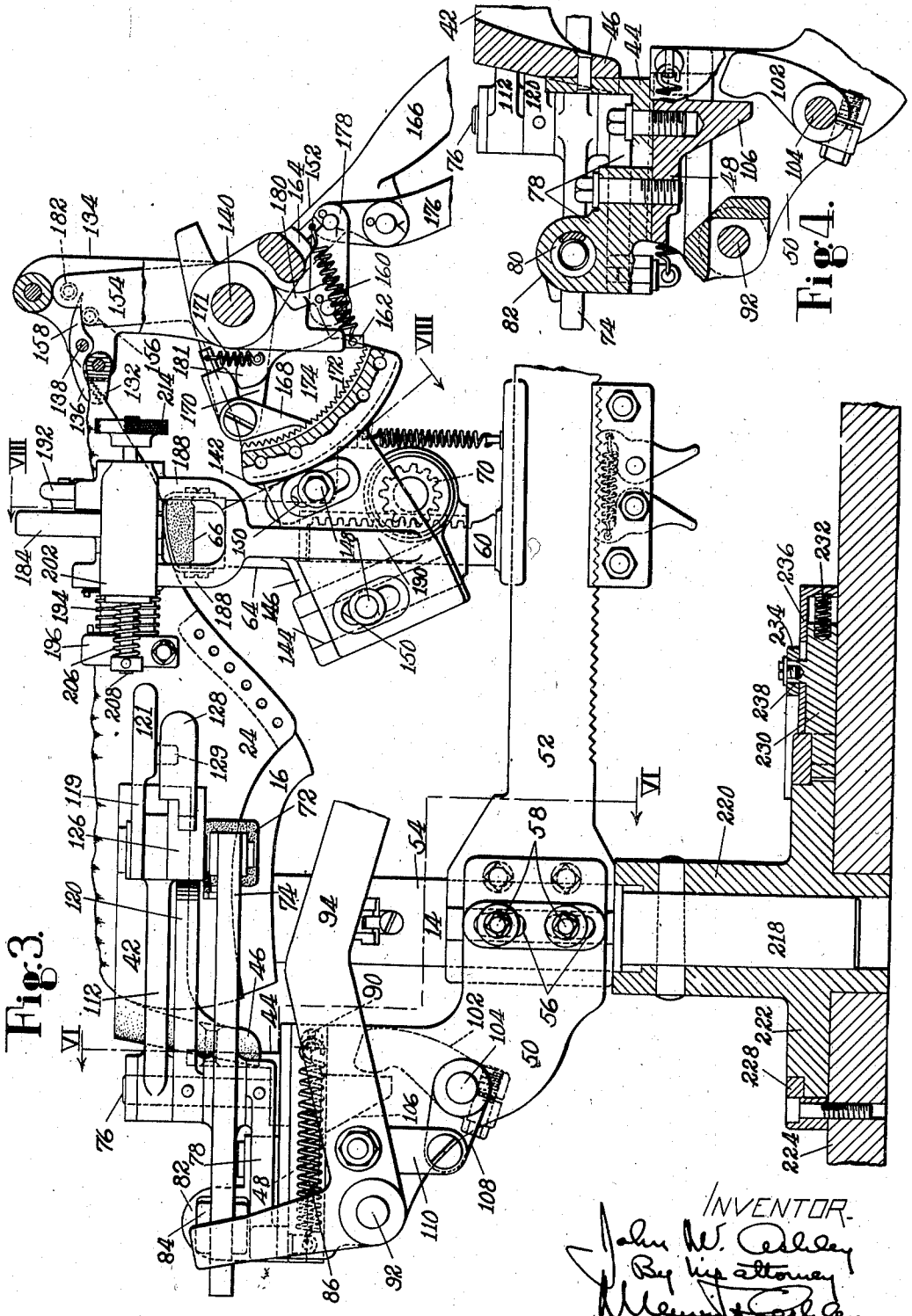


Fig. 3.

Fig. 4.

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MEANS FOR USE IN SHAPING UPPERS OVER LASTS

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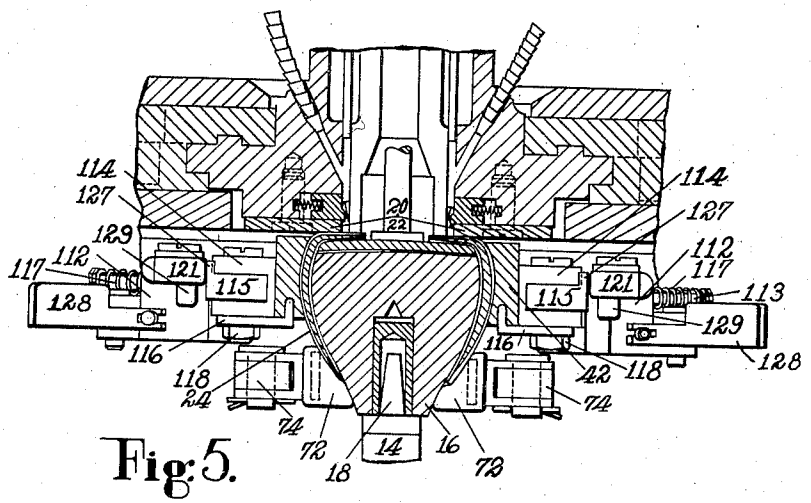


Fig. 5.

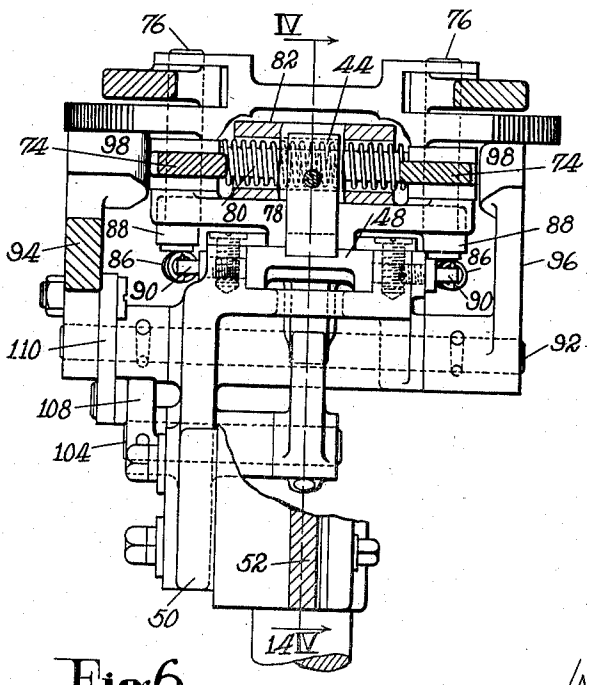


Fig. 6.

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MEANS FOR USE IN SHAPING UPPERS OVER LASTS

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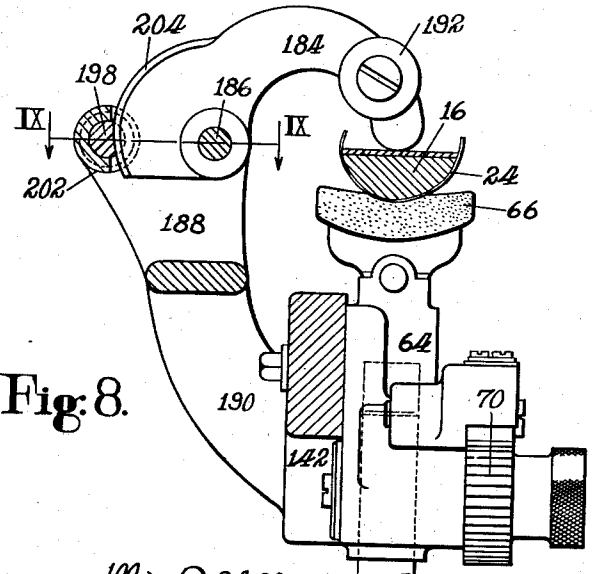


Fig. 8.

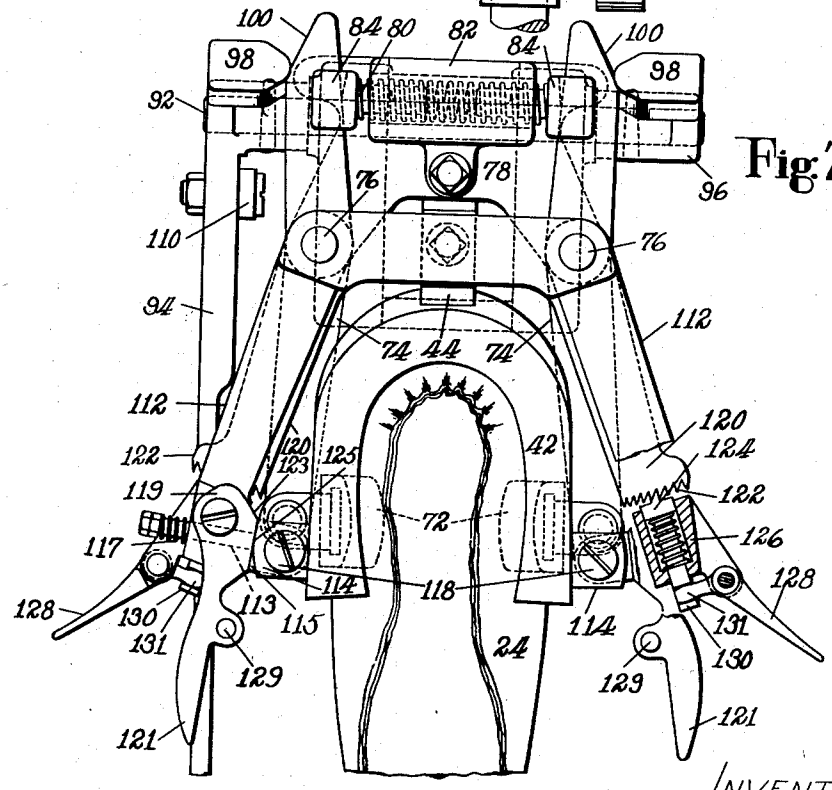


Fig. 7.

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UNITED STATES PATENT OFFICE

2,275,487

MEANS FOR USE IN SHAPING UPPERS OVER LASTS

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Application September 20, 1940, Serial No. 357,565

32 Claims. (Cl. 12—4)

This invention relates to means for use in shaping uppers over lasts and is herein illustrated in its application to means particularly adapted for use in lasting the breast line portions of uppers.

The breast line lasting operation consists in pulling up the quarter linings to eliminate any wrinkles which may have occurred therein and to cause them to lie smoothly against the last, adjusting the counter wings heightwise in order to locate them correctly with relation to the last, and it may involve also tensioning the breast line portion of the upper heightwise and securing the lining, counter and upper to the insole. It has been the usual practice to last the breast line portions of shoe uppers after the upper has been tensioned lengthwise and tacked to the forepart of the last by the pulling-over machine. The performance of the breast line lasting operation after the upper has been pulled over is rendered difficult and inconvenient by the heavy lengthwise tension imparted to the upper in the pulling-over operation and also by reason of the fact that a sufficient time interval often transpires between the assembling of the upper and the counter and the breast line lasting operation to permit the counter adhesive to set sufficiently to require the bond between the counter wings and the upper to be broken before the breast line lasting operation can be performed.

It is an object of the present invention to provide means for use in positioning the upper and holding it for the breast line lasting operation which will enable the operator to perform the breast line lasting operation efficiently on an upper not previously pulled over. With this object in view the illustrated invention provides members herein illustrated as pads constructed and arranged to grip the top marginal portion at the rear part of an Oxford upper against its last in order to hold the rear part of the upper against heightwise movement on the last, an end embracing band operable to grip the bottom marginal portion at the rear part of the upper against the last in order to hold the upper in lasted position, means for advancing the band into end embracing position, devices operating independently of each other to close the end portions of the band on the upper, and means herein illustrated as a toe gripper for tensioning the upper lengthwise in order to insure a close contact of the rear part of the upper and counter with the rear end portion of the last said gripper being operated before bringing the band into gripping engagement with opposite sides of the upper. In order to insure a proper positioning of the rear part of the upper on the last for the breast line lasting operation means is provided for bringing the pads into gripping engagement with the top marginal portion of an Oxford upper and for bringing the band into gripping engagement with the rear end portion of the upper while the side portions of the band are spaced away from the upper, and means herein illustrated as a hand lever is provided for controlling the operation both of the band and the pads.

In performing the breast line lasting operation with the aid of the means herein illustrated, the operator, after first gripping the rear end portion and the top margin of the sides of the counter portion of the upper against the last, pulls up the breast line portion at one side of the upper, for example, by means of hand pincers, and while holding the upper under heightwise tension brings the band into clamping engagement with the upper in order to hold the upper in the position into which the pincers have brought it, and then repeats the operation on the other side of the breast line portion of the upper. With this operation in view, the illustrated heel band, in accordance with a feature of the invention, is provided with independently operable devices for bringing opposite side portions of the heel band into clamping engagement with the upper, said devices, as herein illustrated, comprising cams which act against mechanism for locking the band against outward movement. For independently operating said cams, each cam is provided with a hand lever, and to facilitate the release of the upper from the band each lever is constructed and arranged for an additional movement after unclamping the band from the upper to release said locking mechanism and permit the side portions of the band to swing outwardly away from the upper. The illustrated end embracing band is mounted on a slide movable lengthwise of the upper and mounted on said slide are carriers for the end portions of the band, arms which carry the top margin gripping pads, and means for locking the band carriers against movement away from the upper.

For applying lengthwise tension to the upper there are provided, in accordance with a further feature of the invention, a pair of gripper jaws, a carrier for said jaws, pawl and ratchet mechanism for locking said carrier in order to prevent movement of the jaws in one direction while permitting movement in another direction for applying tension to the upper, a member oper-

able to open the gripper jaws and separate the pawl and ratchet, and means operable automatically upon release of said member to close the gripper jaws on the upper and to render the pawl and ratchet mechanism effective. In order to hold the last against heightwise movement during the lengthwise tensioning of the upper a novel holddown is mounted to swing on an axis extending generally lengthwise of the shoe, said holddown being provided with means for yieldingly urging it away from the last, and means for positively holding it in operative position, said last-mentioned means comprising a cam member constructed and arranged to operate against an eccentric surface on the holddown, said cam member being readily operable to permit the automatic return of the holddown to its inoperative position.

These and other features of the invention will now be described with reference to the accompanying drawings and pointed out in the appended claims.

In the drawings,

Fig. 1 is a side elevation illustrating the work-supporting mechanism of the present invention applied to the jack of a shoe machine, certain parts being broken away and other parts shown in section;

Fig. 2 is a section on the line II—II of Fig. 1;

Fig. 3 is a side elevation showing the work-supporting mechanism mounted on a bench standard, certain parts being broken away and other parts shown in section;

Fig. 4 is a section on the line IV—IV of Fig. 6;

Fig. 5 is a front elevation illustrating the work-supporting mechanism together with certain operating parts of a heel seat lasting machine, partly in section, in a plane common to the foremost tack drivers;

Fig. 6 is a section on the line VI—VI of Fig. 3;

Fig. 7 is a plan view showing the rear part of the work support with a shoe therein;

Fig. 8 is a front elevation, partly in section on the line VIII—VIII of Fig. 3, illustrating the holddown mechanism; and

Fig. 9 is a plan view, partly in section on the line IX—IX of Fig. 8.

The illustrated upper gripping and tensioning device is shown in Fig. 1 applied to a heel end lasting machine of the type illustrated, for example, in United States Letters Patent No. 2,085,755, granted July 6, 1937, on an application of J. C. Jorgensen, and in Fig. 3 the device is shown mounted on a bench standard. Referring to Fig. 1, the numeral 10 indicates the frame of the lasting machine and 12 indicates the jack which is mounted for swinging movement and carries a post 14 which moves heightwise of a last 16 supported on a last pin 18 at the upper end of the post. Referring to Fig. 5, the illustrated machine is provided with the usual heel seat lasting wipers 20 and a holddown 22 which limits upward movement of the jack post and positions the last and an upper 24 mounted thereon relatively to the wipers 20. Inasmuch as the rear part embracing band herein illustrated is carried by the jack and therefore cannot serve to position the upper longitudinally in the machine as does the rear part embracing band in the machine illustrated in the patent to Jorgensen, above referred to, the illustrated construction includes means herein illustrated as a bumper 26 (Figs. 1 and 2) for positioning the last and upper longitudinally relatively to the operating instrumentalities of the machine. The illustrated bumper is a leather faced plate 26 secured to parallel bars 28 slidably mounted in parallel, hollow arms 30 of a bracket 32 secured to a crosshead 34 in the upper portion of the jack 12. The bumper 26 is positioned relatively to the crosshead 34 by an adjusting screw 36 swiveled in a crosshead 38 connecting the ends of the arms 30 and threaded through a crosshead 40 connecting the ends of the bars 28. It will be understood that the bumper 26 will be adjusted in accordance with the length of that portion of the last from the thimble to the heel end which length varies somewhat in different lasts.

For gripping the rear part of the upper against the last, the illustrated device is provided with a flexible rear part embracing band 42, the back part of which has substantially the same heightwise dimension as an upper 24 of an Oxford shoe while the height of the opposite side portions is substantially reduced by cutting away the lower part of the band to leave the top marginal portion of the upper uncovered by the band (Fig. 3). The heel band is supported by a bracket 44 (Fig. 4) which is riveted to the downwardly extending portion 46 of the heel band, said bracket being secured to a slide 48 mounted in a groove extending longitudinally of the upper through the head of a bracket 50 which is clamped to the head of a horizontal arm 52 which, in turn, is clamped to the post 14 which carries the last pin. To afford heightwise adjustment of the heel band for different heights of lasts, the bracket 50 is provided with slots 56 through which extend clamping screws 58 which secure the bracket to the arm 52. For supporting the toe portion of the last and upper the illustrated machine is provided with mechanism similar to that illustrated in the patent to Jorgensen above referred to, said mechanism comprising a standard 60 slidably mounted on the arm 52, a vertical slide 64 mounted on the standard and a toe rest 66 swiveled on the slide 64. The slide 64 is adjusted by turning a pinion 70 carried by the slide and arranged to mesh with rack teeth in the standard 60.

For holding the rear part of the upper against heightwise movement while the breast line portion of the upper is manually shaped over the last, a pair of gripper members or pads 72 (Figs. 3 and 5) are arranged to engage the top marginal portion of the upper at opposite sides of the rear part of the upper. The pads 72 are swiveled at the forward ends of arms 74 which are pivoted substantially midway between their ends on pins 76 (Figs. 3 and 7) secured to and extending upwardly from the forward ends of a generally V-shaped bracket 78 secured to the slide 48 (Fig. 4). The pads are yieldingly urged against the upper by a spring 80 (Figs. 4 and 7) mounted in a bore in a boss 82 extending upwardly from the bracket 78, said spring acting against heads 84 on the arms 74.

For urging the rear part of the band 42 against the back-seam portion of the upper at a point adjacent to the lasting margin, two springs 86 (Figs. 3 and 6) are secured at their rear ends to studs extending downwardly from arms 88 extending outwardly from the slide 48 and at their forward ends to studs 90 extending outwardly from the head of the bracket 50. When there is no shoe on the work support, the heel band 42 and the pads 72 are held in their retracted positions by mechanism now to be described. A cross-shaft 92 journaled in the bracket 50 has secured to one end a bell crank hand lever 94 and to the

other end (Fig. 6) an arm 96 corresponding to the vertical arm of the bell crank lever. The bell crank lever 94 and the arm 96 carry inwardly directed cam members or heads 98 (Figs. 6 and 7) which engage diagonal cam faces 100 at the rear ends of the arms 74. In their position illustrated in Fig. 7, the cam members hold the rear portions of the arms 74 at or near the limit of their movement toward each other and maintain the pads 72 at the limit of their movement away from each other. For holding the band 42 in its retracted position, that is, at the limit of its rearward movement, a short arm 102 (Figs. 3 and 4) secured to a cross-shaft 104 is arranged to engage a downward extension 106 of the slide 48. For operating the arm 102, a short arm 108 (Fig. 3) is secured to the shaft 104 and connected to the bell crank hand lever 94 by a link 110. When the lever 94 is moved downwardly or in a clockwise direction, as seen in Fig. 3, the arm 102 engages the downward extension 106 of the slide 48 moving the slide and the band 42 rearwardly or to the left, as seen in Fig. 3, and, at the same time the heads 98 of the lever 94 and arm 96 move forwardly or to the right, as seen in Fig. 3, acting against the cam faces 100 of the arms 74 to move the pads 72 away from each other. It will be understood that an upward or counter-clockwise movement of the lever 94 permits the springs 86 to move the band 42 forwardly against the upper 24 and permits the spring 80 (Fig. 7) to force the pads 72 toward each other and against the top margin of the upper 24. During its forward movement, the band 42 is held in its wide open position by mechanism to be described so that its opposite side portions do not engage the upper and the band remains in its open position while the heel breast portions of the upper are manually tensioned heightwise. After each side of the breast line portion of the upper is tensioned, the band 42 at that side of the upper is brought into clamping engagement with the upper to hold it tensioned and held in clamping position by mechanism now to be described.

Referring to Figs. 3 and 7, two arms 112 are pivotally mounted on the pins 76 and extend divergently forward along opposite sides of the rear part of the upper 24. Mounted in the forward portion of each of the arms 112 and extending transversely thereof is a stem 113 having a rectangular head 115 (Fig. 5) which sets into a recess in a block 114 which, in turn, is secured to the forward portion of the band 42 by a clamp 116 having an upturned flange which is seated in a groove in the band. The clamp 116 is secured to the block 114 by a clamping nut and bolt 118 which also provides a pivotal connection of the head 115 to said block. The stem 113 carries a spring 117 which bears against the outer surface of the arm 112 and urges the block 114 against the inner surface of said arm. For clamping the end portions of the band 42 against the upper each arm 112 has pivoted to its forward end a cam member or eccentric 119 (Fig. 7) terminating in a handle 121, said eccentric having two surfaces 123 and 125 located at different distances from its fulcrum and arranged to engage alternatively an upward extension 127 (Fig. 5) of the head 115. The arms 112 are supported by forwardly and outwardly extending arms of a ratchet plate 120 mounted on the pins 76. For locking the arms 112 against outward movement, the plate 120 has ratchet teeth 122 at its forward ends and each of the arms 112 carries a spring-pressed detent 124 in a downwardly extending head 126 (Fig. 3). The surface 123 of the eccentric is in engagement with the extension 127 as the arm 112 is swung inwardly to bring the band 42 into engagement with the upper and after the arm 112 has been moved inwardly as far as possible and the detent 124 has engaged one of the teeth of the ratchet 122 to hold the arm against return movement, the handle 121 of the eccentric 119 is drawn inwardly to bring the surface 125 of the eccentric into engagement with the extension 127 of the head 115 thereby further advancing the arm 112 under relatively heavy pressure and pressing the band 42 forcibly into clamping engagement with the upper 24. When it is desired to release the band 42 from the upper, the handle 121 is swung outwardly relieving the pressure of the band against the upper, said outward movement of the handle 121 being continued after the pressure of the band against the upper has been released in order to cause a pin 129 extending downwardly from a lug on the handle to engage the bell crank lever 128 and swing it in a direction to cause the short arm 131 of said lever to withdraw the detent, the rounded end of said arm operating in an opening in the stem 130 of the detent. After the detent has been withdrawn further movement of the handle 121 swings the arm 112 outwardly into its fully retracted position. Thus, it will be seen that in a single motion of the handle 121 the eccentric is operated to relieve the pressure of the band against the upper, then to withdraw the detent, and finally to swing the arm 112 outwardly into its fully retracted position.

Before the band 42 is closed on the rear part of the upper, the upper is tensioned lengthwise by manually operated grippers comprising a fixed lower jaw 132 (Fig. 3) mounted between parallel arms 134 and a movable upper jaw 136 pivoted at 138 between the arms 134. The arms 134 extend upwardly from a common hub mounted on a cross-shaft 140 carried by a bracket 142 secured to the slide 64 and adjustable thereon in the path of an angular groove 144 in a rearward extension 146 of the slide 64 into which groove the bracket 142 is tongued, said groove being so directed that, as the gripper assembly is adjusted upwardly, it is also adjusted toward the heel end of the shoe. The bracket 142 is held in adjusted position by clamping screws 148 extending through parallel slots 150 in the bracket. For swinging the upper gripper jaw 136 in a counter-clockwise direction, as seen in Fig. 3, to close the gripper on the upper, a lever 152 is mounted on the shaft 140 and has an arm 154 extending upwardly from said shaft between the arms 134, said arm being provided at its upper end with a roll 156 which acts against the tail 158 of the upper gripper jaw, which is so arranged that clockwise movement of the lever 152 causes a counter-clockwise movement of the upper gripper jaw. The upper gripper jaw is normally held in its closed position, as shown in Fig. 3, by a spring 160 one end of which is secured to a downward extension 162 of the hub of the arms 134 and the other end of which is secured to a short arm 164 extending downwardly and rearwardly from the hub of the lever 152. The lever 152 is provided with a handle 166 which is moved downwardly to swing the gripper assembly in a direction to impart longitudinal tension to the upper. For holding the gripper assembly against return movement after the upper has been so tensioned,

a pawl 168 is pivoted to an arm 170 extending rearwardly from the hub of the lever 152 and is urged by a spring 171 against ratchet teeth 172 in a segment 174 formed in the bracket 142. For releasing the pawl 168 and opening the gripper jaws, a hand lever 176 is pivoted to the handle 166 and connected by a link 178 to an extension 180 of the arms 134, the upper portion 181 of said extension being arranged to engage the tail of the pawl 168 to release the pawl. The lever 176 also causes a relative movement of the arms 134 and 154 such that a roll 182 carried by the arm 154 engages the upper surface of the upper gripper jaw 136 and swings said jaw in a clockwise direction to open the grippers. After the grippers have been opened and the pawl 168 has been released, the gripper assembly may be swung freely to move the grippers out of upper-engaging position.

For holding the toe portions of the last and upper against upward movement while the upper is being tensioned lengthwise by the operation of the gripper mechanism above described, a holddown member 184 (Figs. 3, 8, and 9) is fulcrumed on a pin 186 between upwardly extending arms 188 of an arm 190 on the bracket 142, said holddown having a handle 192 to facilitate swinging the holddown to its operative position illustrated in Fig. 8. The holddown is returned to its retracted position by a torsion spring 194 (Fig. 9) surrounding the head of the fulcrum pin 186 and anchored to a pin on a collar 196 secured to the head. For holding the holddown member 184 in operative position, a generally cylindrical wedge 198 is slidably mounted in a socket 200 provided in a crosshead 202 connecting the upper portions of the arms 188, and is arranged to engage an arcuate edge face 204 of the holddown member 184, said edge face being beveled for engagement with the surface 205 of the wedge and arranged in eccentric relation to the pin 186 to enable the wedge to hold the holddown against counter-clockwise movement (Fig. 8) from its operative position. For moving the wedge in a direction such that its engagement with the eccentric surface 204 is maintained while the holddown is swung into operative position, a compression spring 206 surrounds a stem 208 projecting axially from the wedge and is confined between a nut 210 and a washer 212 carried by said stem. When the holddown is to be retracted to permit removal of the shoe from the machine, the operator merely pulls on a knob 214 on a stem 216 projecting axially from the wedge through a bore in the crosshead 202 whereupon the torsion spring 194 returns the holddown member to its rest position.

Referring to Fig. 3, illustrating the work supporting mechanism mounted on a bench standard, the lower portion 218 of the spindle 54 is fixedly mounted in a tubular standard 220 extending upwardly from a base plate 222 and extending downwardly from the base plate into a suitable bore in a bench 224. The top margin of the base plate 222 is shouldered to receive a flanged ring 228 secured to the bench 224. The base plate 222 turns within the ring 228 to present the jack and a shoe mounted therein in various positions of orientation to the operator. To hold the work support in any selected position, a detent 230 is pressed by a spring 232 into one of a plurality of notches in the periphery of the base plate 222, and a manually operable eccentric 234 is pivoted to a detent housing 236 provided with a suitable slot through which a stud 238 extends upwardly from the detent.

In lasting the breast line portions of shoe uppers with the aid of the illustrated device, the upper parts may be assembled on the last and tacked to the rear part of the last in the usual manner preparatory to the breast line lasting operation or they may be loosely mounted on the last and held in place on the rear part of the last by the rear part embracing band 42. When the illustrated device is mounted on the jack of a heel end lasting machine, as illustrated in Fig. 1, the machine is preferably adjusted to drive tacks at three points only, namely, at the back seam and at the opposite ends of the heel breast line. It will be understood that when the device is mounted on a bench standard, as shown in Fig. 3, tacks are manually driven at the desired locations to secure the upper in breast line lasted position. In the operation of the device, a last with an upper thereon is mounted on the last pin 18 and the toe rest 66 while the band 42 is held at the limit of its rearward movement by the bell crank lever 94, and the pads 72 are held at the limit of their movement away from each other also by the operation of the bell crank lever 94. To grip the rear part of the upper against the last at the lower portion of the back seam and at the top margin at opposite sides of the rear part of the upper, the bell crank lever 94 is swung in a clockwise direction, as seen in Fig. 3, whereupon the springs 86 advance the band 42 bodily against the back-seam portion of the upper and the spring 80 (Fig. 7) acts against the arms 74 to press the pads 72 against the top margin at opposite sides of the rear part of the upper. The toe gripper mechanism, illustrated in Fig. 3, is now operated to tension the upper lengthwise and the pawl 168 holds the gripper assembly against return movement in order to maintain the lengthwise tension on the upper during the breast line lasting operation. The arms 112 (Fig. 7) are now swung inwardly to bring the forward portions of the band 42 into engagement with the breast line portion of the upper. This initial inward movement of the arms 112 presses the ends of the band relatively lightly against the upper, this pressure being sufficient to hold the upper against the last but not sufficient to interfere appreciably with heightwise tensioning of the upper. While the upper is so held, the operator performs the breast line lasting operation, customarily by means of hand pincers, first on one side and then the other. The breast line lasting operation, as it is usually performed, consists in pulling up the quarter lining at opposite sides of the upper in order to eliminate any wrinkles that may have formed therein, pulling up the wings of the counter, if necessary, in order to position them accurately on the last and finally applying heightwise tension to the upper itself to shape it to the last. When the device is mounted on the bench standard illustrated in Fig. 3, the breast line lasting operation is performed with one side of the upper facing the operator while the operator works on the side farthest from him. After that side has been breast line lasted, the upper and its supporting mechanism are turned 180° to bring the other side of the upper into position to be operated upon. It will be understood that if the device is fixed in one position of orientation, as shown in Fig. 1, the operator will stand facing the toe end of the upper and will operate his hand pincers first with one hand and then the

other in lasting opposite sides of the upper. After the lasting has been completed on one side of the upper, the eccentric 119 (Fig. 7) on that side is operated to clamp the band 42 firmly against the upper by swinging the handle 121 toward the upper and into its position illustrated in Fig. 7. Thereupon the opposite side of the upper is lasted and the end portion of the band at that side of the upper is similarly brought into clamping position. The upper is now secured to an insole on the last bottom. In the construction illustrated in Fig. 1, it will be understood that this is accomplished automatically in the usual operation of the heel end lasting machine, while in the construction illustrated in Fig. 3, tacks are manually driven to secure the lasting margin of the upper to the insole. After the tacks have been driven, the band 42 is unclamped from the side portions of the upper and moved away from the upper by a single motion of each lever 121 (Fig. 7) away from the upper. The bell crank lever 94 is then swung in a counter-clockwise direction, as seen in Fig. 3, to move the rear part of the band away from the upper and to move the pads 72 outwardly from the opposite sides of the upper. The toe gripper jaws are now released from the upper and the hold-down 184 is retracted leaving the shoe free to be removed from the work supports.

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

1. Means for use in shaping uppers over lasts comprising members constructed and arranged to grip the top marginal portion at the rear part of an upper against a last, an end embracing band for gripping the bottom marginal portion of the upper against the last, means for advancing the band into end embracing position, devices operating independently of each other to close opposite end portions of the band on the upper, and means for tensioning the upper lengthwise before bringing the end portions of the band into pressing engagement with opposite sides of the upper.

2. Means for use in shaping uppers over lasts comprising members constructed and arranged to grip the top marginal portion at the rear part of an upper against a last, an end embracing band for gripping the bottom marginal portion of the upper against the last, said band extending toewardly at least to a point in alinement, heightwise of the shoe, with the longitudinal position of said members on the shoe, and means for tensioning the upper lengthwise from its toe end.

3. Means for use in shaping uppers over lasts comprising members constructed and arranged to grip the top marginal portion at the rear part of an upper against a last, an end embracing band for gripping the bottom marginal portion of the upper against the last, means for tensioning the upper lengthwise, means for operating said upper gripping members, means for advancing the band lengthwise against the rear end portion of the upper, and an operating member for controlling the operation of said gripping members and the lengthwise movement of the band.

4. Means for use in shaping uppers over lasts comprising members constructed and arranged to grip the top marginal portion at the rear part of an upper against a last, an end embracing band for gripping the bottom marginal portion of the upper against the last, means for tensioning the upper lengthwise, means for advancing the band lengthwise of the upper against the rear end portion of the upper, and means for bringing opposite side portions of the band into gripping engagement with the upper independently of each other.

5. Means for use in shaping uppers over lasts comprising an end embracing band, means for advancing the band, with its sides spaced away from the upper, bodily lengthwise of the upper against its back-seam portion, means for bringing the end portions of the band into gripping engagement with the upper, and means acting against the top marginal portion of the upper to grip it against the last.

6. Means for use in shaping uppers over lasts comprising an end embracing band, means acting against the top marginal portion at opposite sides of an upper to grip it against a last, and means operable at the will of the operator for advancing the band, wtih its ends spaced from the upper, bodily lengthwise of the upper against its back-seam portion and for simultaneously actuating said top margin gripping means.

7. Means for use in shaping uppers over lasts comprising an end embracing band, a member for gripping the top marginal portion of an upper against a last, means for simultaneously operating the band and the member, and a hand lever for controlling the operation of the band and the member.

8. Means for use in shaping uppers over lasts comprising an end embracing band, a gripper constructed and arranged to operate against the top marginal portion of an upper on a last, means for advancing the band lengthwise of the upper with its end portions spaced away from the upper, means for actuating the top margin gripper, a manually operated member for controlling lengthwise movement of the band and the actuation of the gripper, and means for bringing opposite end portions of the band into gripping engagement with the upper independently of each other.

9. Means for use in shaping uppers over lasts comprising an end embracing band for gripping an upper against a last, members constructed and arranged to grip the top marginal portion of the upper against the last, means normally acting to urge the band against and end portion of the upper while the end portions of the band are spaced away from the upper and to hold said top margin gripping members in gripping engagement with the upper, and independently operable devices for bringing opposite sides of the band forcibly against the upper to clamp the upper against the last.

10. Means for use in shaping uppers over lasts comprising an end embracing band for gripping an upper against a last, members constructed and arranged to grip the top marginal portion of the upper against the last, means normally acting to urge the band against an end portion of the upper while the end portions of the band are spaced away from the upper and to hold said top margin gripping members in gripping engagement with the upper, a work support, and means for relatively adjusting the work support and the upper engaging members heightwise of the upper.

11. Means for use in shaping uppers over lasts comprising an end embracing band for gripping an upper against a last, members constructed and arranged to grip the top marginal portion of the upper against the last, means normally

acting to urge the band against an end portion of the upper while the end portions of the band are spaced away from the upper and to hold said top margin gripping members in gripping engagement with the upper, a work support, and a holder for the upper engaging members and the band mounted on the work support for adjustment heightwise of the upper.

12. Means for use in shaping uppers over lasts comprising an end embracing band for gripping an upper against a last, means normally acting to urge the band against an end portion of the upper while the end portions of the band are spaced away from the upper, independently operable devices for bringing opposite sides of the band into clamping engagement with the upper, and means for tensioning the upper lengthwise and holding the upper tensioned while the opposite sides of the band are brought into clamping engagement with the upper.

13. Means for use in shaping uppers over lasts comprising an end embracing band for gripping an upper against a last, means normally acting to urge the band against an end portion of the upper while the end portions of the band are spaced away from the upper, independently operable devices for bringing opposite sides of the band into clamping engagement with the upper, means for tensioning the upper lengthwise and holding the upper tensioned while the opposite sides of the band are brought into clamping engagement with the upper, a toe rest and a holddown for holding the toe portion of the last against heightwise movement during the upper tensioning operation.

14. Means for use in shaping uppers over lasts comprising pads constructed and arranged to grip top marginal portions at the rear part of an upper against a last, carriers for said pads, means for urging said carriers in a direction to press the pads against the upper, and a pair of cams for moving said carriers in the opposite direction.

15. Means for use in shaping uppers over lasts comprising pads constructed and arranged to grip top marginal portions at the rear part of an upper against a last, carriers for said pads, means for urging said carriers in a direction to press the pads against the upper, a pair of cams for moving said carriers in the opposite direction, and a hand lever for actuating said cams.

16. Means for use in shaping uppers over lasts comprising pads constructed and arranged to grip top marginal portions at the rear part of an upper against a last, carriers for said pads, means for urging said carriers in a direction to press the pads against the upper, a pair of cams for urging said carriers in the opposite direction, an end embracing band, a slide on which the band is mounted for movement lengthwise of the upper, a hand lever for actuating said cams and means operated by the hand lever for moving the slide in a direction to move the band away from the upper.

17. Means for use in shaping uppers over lasts comprising pads constructed and arranged to grip top marginal portions at the rear part of an upper against a last, carriers for said pads, means for urging said carriers in a direction to press the pads against the upper, a pair of cams for urging said carriers in the opposite direction, an end embracing band, a slide on which the band is mounted for movement lengthwise of the upper, a hand lever for actuating said cams, means operated by the hand lever for moving the slide in a direction to move the band away from the upper, and means operable at the will of the operator for forcing the opposite end portions of the band against the upper.

18. Means for use in shaping uppers over lasts comprising an end embracing band, carriers for the end portions of the band movable in a direction to bring said end portions into engagement with an upper on its last, locking means for holding each carrier against return movement, and a member on each carrier operable against the locking means for urging the end portions of the band forcibly against the upper.

19. Means for use in shaping uppers over lasts comprising an end embracing band, carriers for the end portions of the band movable in a direction to bring said end portions into engagement with an upper on its last, locking means for holding each carrier against return movement, an eccentric on each carrier operable against the locking means for pressing the end portions of the band forcibly against the upper, and a hand lever for operating each eccentric and for unlocking the carriers.

20. Means for use in shaping uppers over lasts comprising an end embracing band, a slide to which the central portion of the band is secured, said slide being movable lengthwise of an upper on its last, means for moving said slide in a direction to force the band into engagement with the upper, carriers for the end portions of the band movable in a direction to force the end portions of the band against the upper, means for locking the carriers against return movement, and means operating against said locking means for clamping the end portions of the band against the upper.

21. Means for use in shaping uppers over lasts comprising an end embracing band, a slide to which the central portion of the band is secured, said slide being movable lengthwise of a supported upper on its last, means for moving said slide in a direction to force the band into engagement with the upper, carriers for the end portions of the band movable in a direction to force the end portions of the band against the upper, means for locking the carriers against return movement, and an eccentric on each carrier operable against said locking means to clamp the end portions of the band against the upper.

22. Means for use in shaping uppers over lasts comprising pads constructed and arranged to engage the top marginal portion at opposite sides of an upper on its last, a pair of levers on which said pads are mounted, an end embracing band, a pair of swinging arms to which the end portions of said band are secured, means including a ratchet member for locking said band in upper engaging position, a slide on which are mounted said levers, said arms, and said ratchet member, and means for moving said slide lengthwise of the upper.

23. Means for use in shaping uppers over lasts comprising work supporting means, and means for tensioning a supported upper consisting of a pair of gripper jaws, a carrier to which one of the jaws is fixed and on which the other jaw is arranged for opening and closing movement, pawl and ratchet mechanism for holding the carrier against movement in one direction, a member operable to open the gripper jaws and separate the pawl and ratchet, and means operable automatically upon release of said member to close the gripper jaws on the upper and to render the pawl and ratchet mechanism effective.

24. Means for use in shaping uppers over lasts

comprising work supporting means, and means for tensioning a supported upper consisting of a pair of gripper jaws, a carrier to which one of the jaws is fixed and on which the other jaw is arranged for opening and closing movement, pawl and ratchet mechanism for holding the carrier against movement in one direction, a member operable to open the gripper jaws and separate the pawl and ratchet, means operable automatically upon release of said member initially to close the gripper jaws on the upper and to render the pawl and ratchet mechanism effective, and an actuator operable to increase the gripping action of the gripper jaws on the upper and to move the carrier in a direction to tension the upper.

25. Means for use in shaping uppers over lasts comprising upper supporting means and means for tensioning a supported upper consisting of a fixed gripper jaw, a movable gripper jaw, a carrier for said jaws, a hand lever, a member on said lever operable by relative movement of the lever and the carrier in one direction to close said movable jaw, and another member on said lever operable by relative movement of said lever and carrier in the opposite direction to open the gripper jaw.

26. Means for use in shaping uppers over lasts comprising upper supporting means and means for tensioning a supported upper consisting of a fixed gripper jaw, a movable gripper jaw, a carrier for said jaws, a hand lever, a roll on said lever operable by relative movement of the lever and the carrier in one direction to close said movable jaw, and another roll on said lever operable by relative movement of said lever and carrier in the opposite direction to open the gripper jaw, means for locking said carrier against movement in one direction, and means for unlocking the carrier and effecting relative movement of the carrier and the lever to open the gripper jaws.

27. Means for use in shaping uppers over lasts comprising upper supporting means and means for tensioning a supported upper from its toe end consisting of a fixed gripper jaw, a movable gripper jaw, a carrier for said jaws, a hand lever, a roll on said lever operable by relative movement of the lever and the carrier in one direction to close said movable jaw, another roll on said lever operable by relative movement of said lever and carrier in the opposite direction to open the gripper jaw, means for locking said carrier against movement, means for unlocking the carrier and effecting relative movement of the carrier and the lever to open the gripper jaws, and yielding means for effecting relative movement of the lever and the carrier in a direction to close the gripper jaws.

28. Means for use in shaping uppers over lasts comprising upper supporting means and means for tensioning a supported upper consisting of a fixed gripper jaw, a movable gripper jaw, a carrier for said jaws, a hand lever, a roll on said lever operable by relative movement of the lever and the carrier in one direction to close said movable jaw, another roll on said lever operable by relative movement of said lever and carrier in the opposite direction to open the gripper jaw, means for locking said carrier against movement, means for unlocking the carrier and effecting relative movement of the carrier and the lever to open the gripper jaws, and yielding means for effecting relative movement of the lever and the carrier in a direction to close the gripper jaws and for rendering said locking means effective.

29. In combination with means for operating on a supported shoe, a holddown mounted to swing on an axis generally lengthwise of the shoe, a spring constantly urging the holddown away from the shoe and a cam member for locking the holddown in operative position, said holddown being provided with an eccentric surface against which the cam member is advanced automatically as the holddown is advanced.

30. In a heel end-lasting machine the combination with lasting wipers and a jack arranged for movement from shoe-receiving position to position the shoe relatively to the wipers, of means mounted on the jack comprising a heel end-embracing band, and devices operating independently of each other to bring the opposite side portions of the band into clamping engagement with a shoe on the jack.

31. In a machine for use in shaping uppers over lasts, operating means, a work support movable to and from position to present an upper on its last to the operating means, an end-embracing band carried by the work support, devices operating independently of each other to cause the opposite side portions of said band to press the upper against the last, and means for positioning the upper lengthwise relatively to the operating means comprising a bumper on the work support and a stop against which the bumper operates.

32. In a machine for use in shaping uppers over lasts, operating means, a work support movable to and from position to present an upper to the operating means, an end-embracing band carried by the work support, and means for positioning the upper lengthwise relatively to the operating means comprising a bumper on the work support and a stop against which the bumper operates, said bumper being adjustable lengthwise of the upper to vary the lengthwise position of the upper relatively to the operating means.

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