Sept. 5, 1944. K. W. MACDONALD 2,357,596

HEEL SEAT CONFORMING MACHINE

Filed March 7, 1942 5 Sheets-Sheet 1

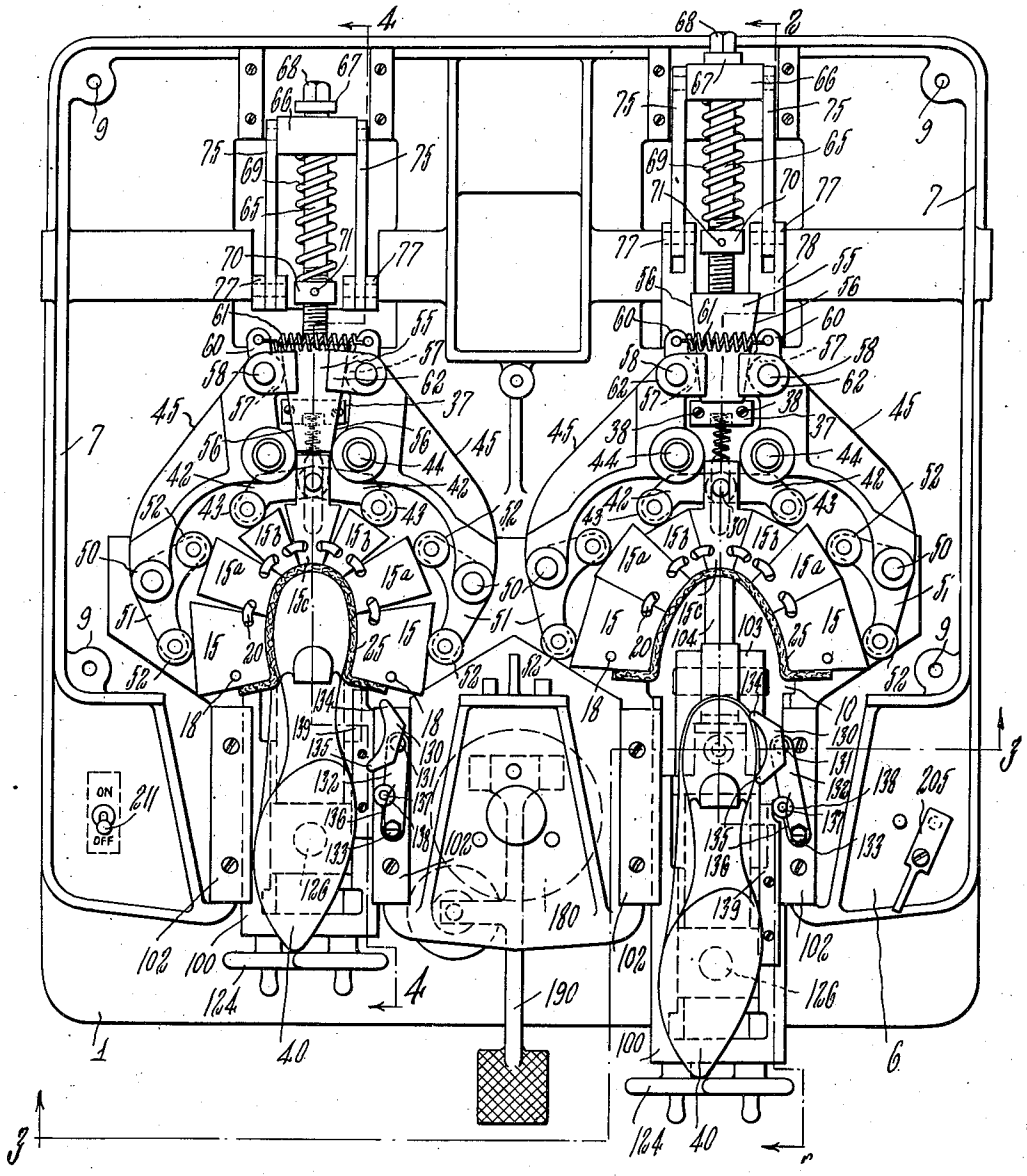


Fig. 1.

Inventor
Kenneth W. Macdonald
By Wright Brown Quinby & May
Attys.

Sept. 5, 1944. K. W. MACDONALD 2,357,596

HEEL SEAT CONFORMING MACHINE

Filed March 7, 1942 5 Sheets-Sheet 2

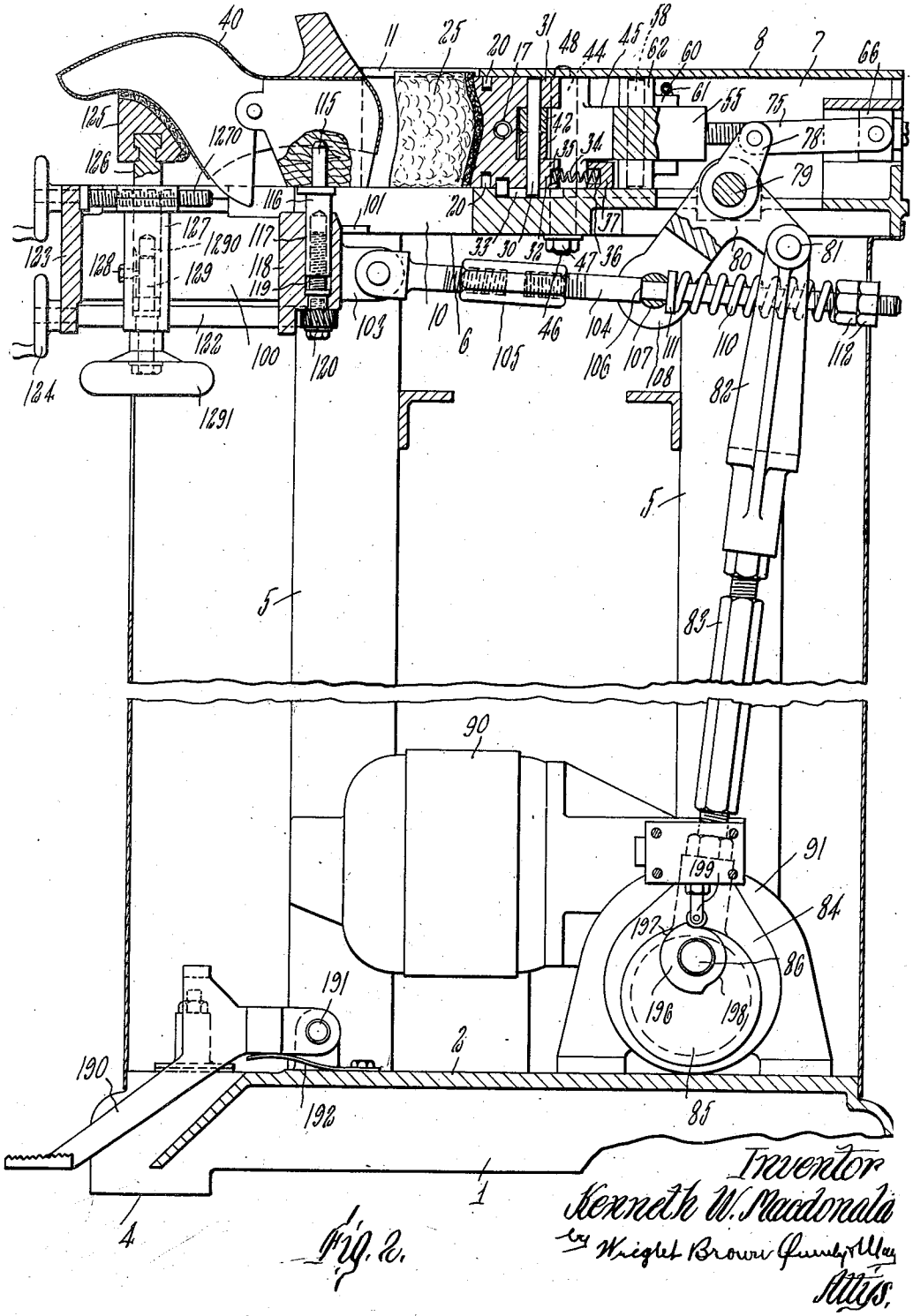


Fig. 2.

Inventor
Kenneth W. Macdonald
by Wright Brown Quinby & Mac
Attys.

Sept. 5, 1944. K. W. MACDONALD 2,357,596

HEEL SEAT CONFORMING MACHINE

Filed March 7, 1942 5 Sheets-Sheet 3

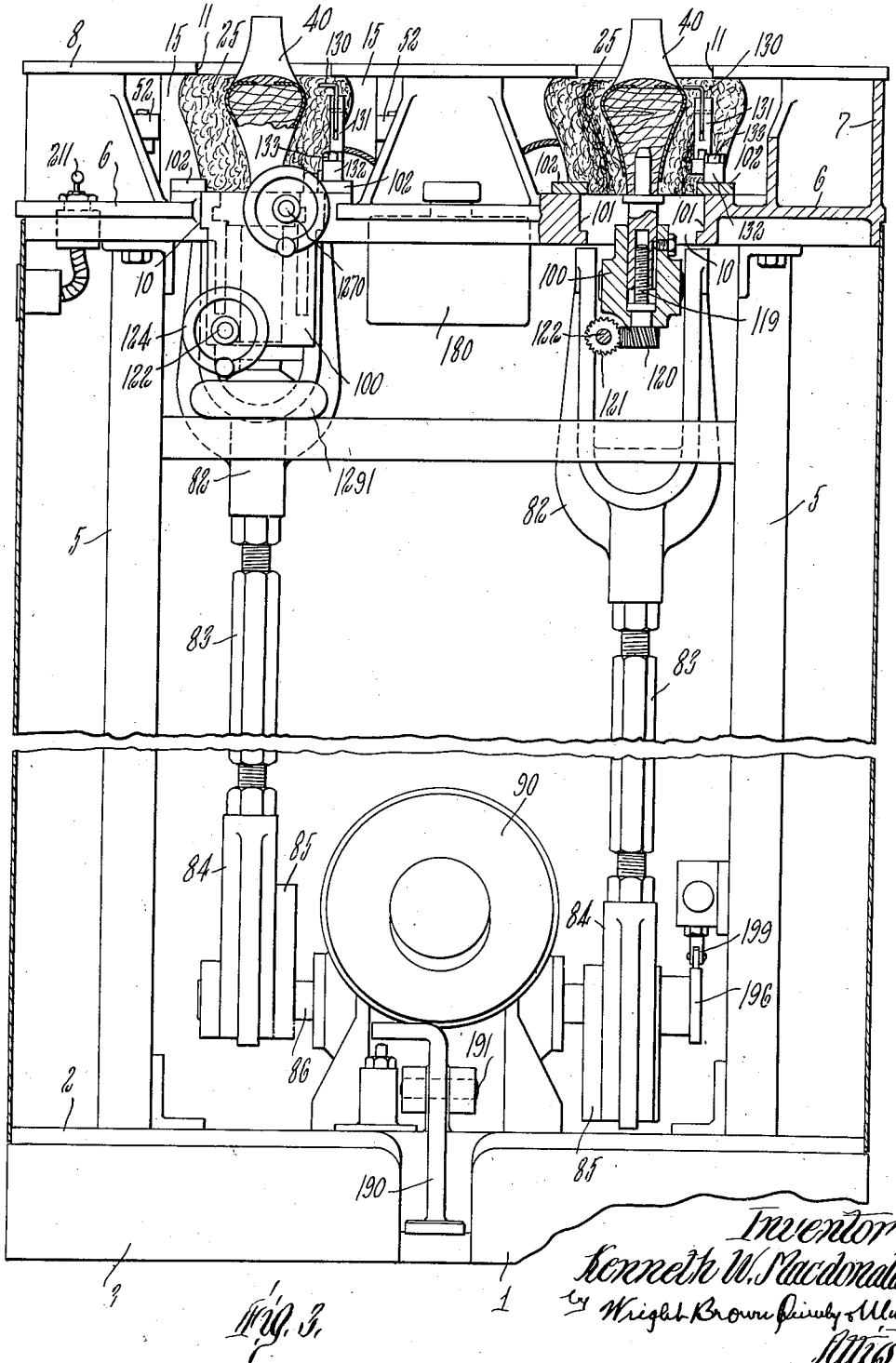


Fig. 3.

Sept. 5, 1944. K. W. MACDONALD 2,357,596

HEEL SEAT CONFORMING MACHINE

Filed March 7, 1942 5 Sheets-Sheet 4

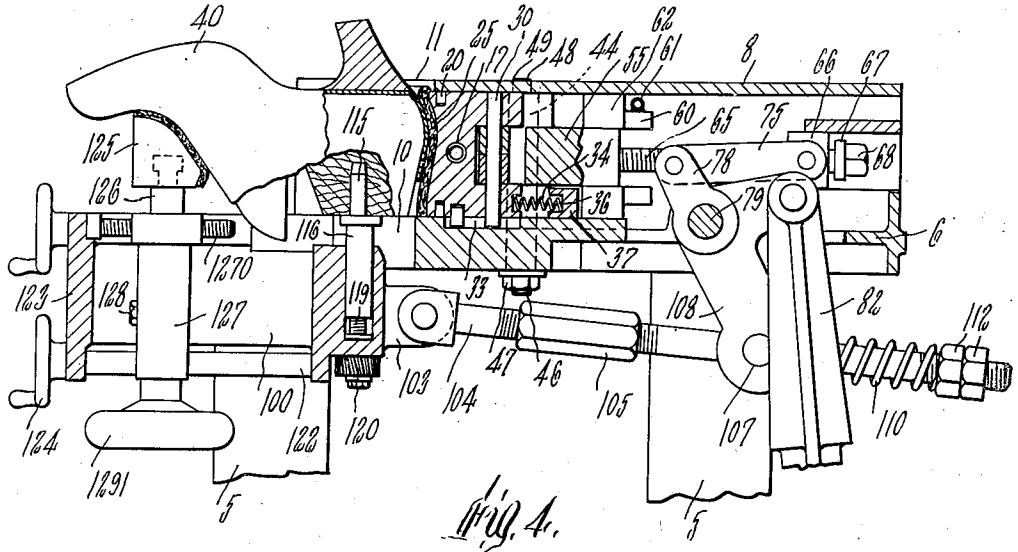


Fig. 4.

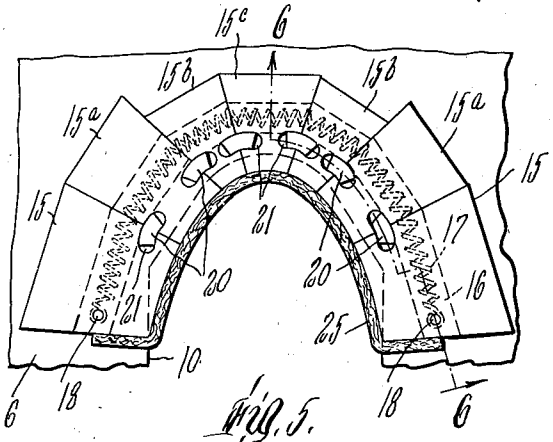


Fig. 5.

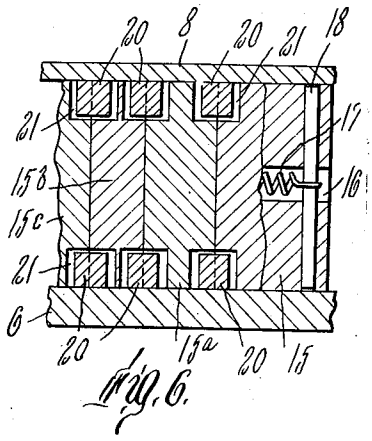


Fig. 6.

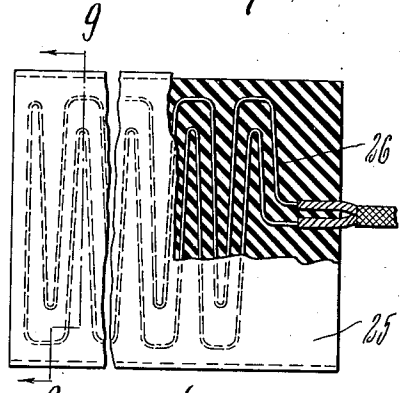


Fig. 8.

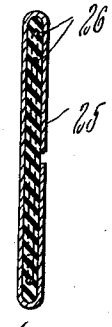


Fig. 9.



Fig. 7.

Inventor
Kenneth W. Macdonald
by Wright Brown Quinby & Ulby
Attys.

Sept. 5, 1944. K. W. MACDONALD 2,357,596

HEEL SEAT CONFORMING MACHINE

Filed March 7, 1942 5 Sheets-Sheet 5

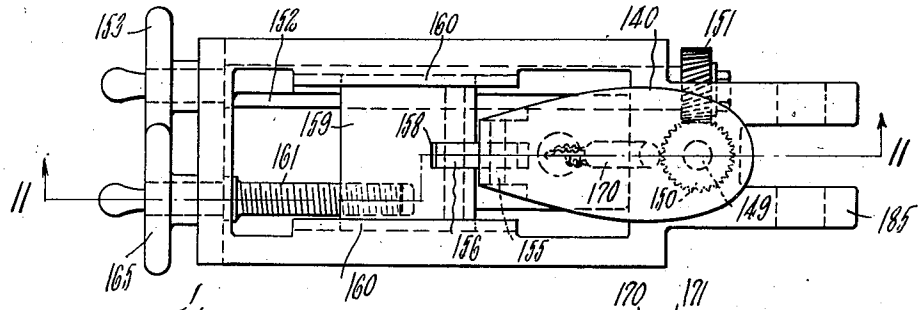


Fig. 10.

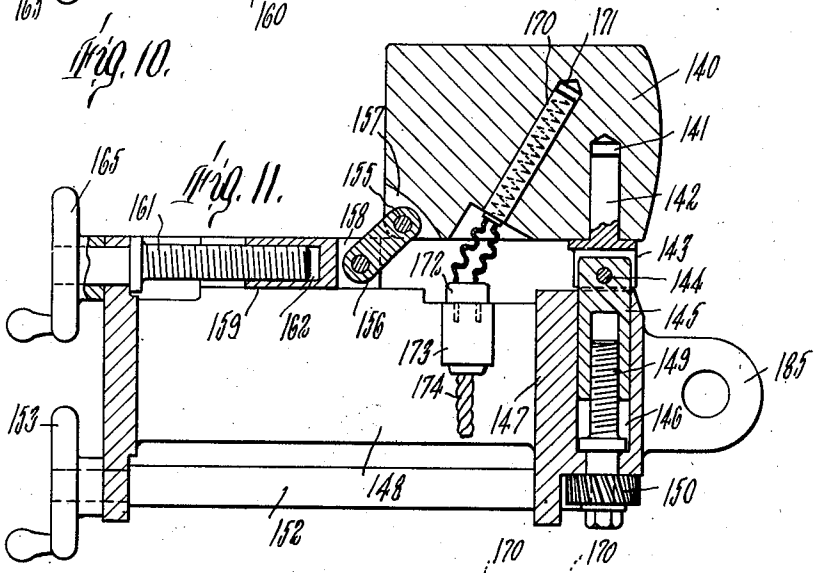


Fig. 11.

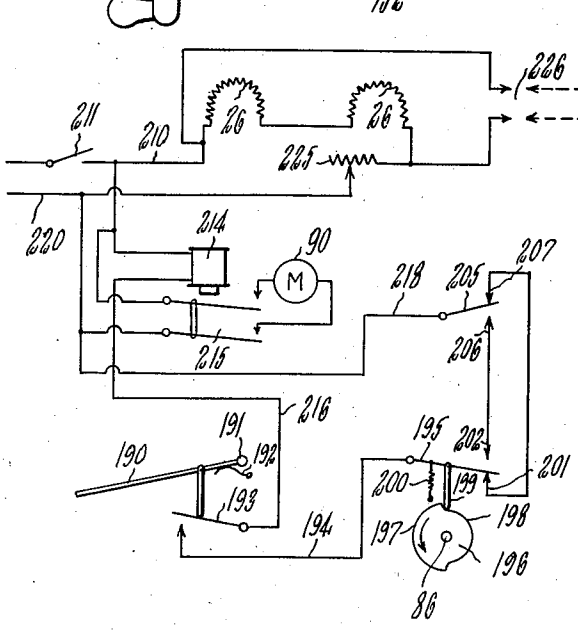


Fig. 12.

Inventor
Kenneth W. Macdonald
by Wright Brown Quinby & Clay
Attys.

Patented Sept. 5, 1944 2,357,596

UNITED STATES PATENT OFFICE

2,357,596

HEEL SEAT CONFORMING MACHINE

Kenneth W. Macdonald, Watertown, Mass., assignor to Compo Shoe Machinery Corporation, Boston, Mass., a corporation of Delaware

Application March 7, 1942, Serial No. 433,739

24 Claims. (Cl. 12—51)

This invention relates to machines for treating the counter portions of shoes, and more particularly of shoes having heels of the wood heel type wherein the top margin of the heel directly engages the shoe upper, so that the surface of the counter portion of the upper will merge gradually into the contour of the outer face of the heel, eliminating bulging of the shoe upper adjacent to the heel.

One object of the present invention is to provide for power actuation of the pressing means, previous machines for the purpose having been operator actuated either by hand or foot pressure, or both.

A further object is to provide improved pressure-applying mechanism.

Another object is to provide readily adjustable means for supporting and positioning a shoe correctly related to the pressing mechanism, taking account not only of size and style differences, but also whether the shoe is a right or left, the latter adjustment being substantially automatic.

A further object is to provide for treating the shoe either on the last or on a form after the last has been removed.

Another object is to improve the construction and control of the pressure mechanism.

Further objects and advantages will appear from a more complete description of embodiments of the invention shown in the accompanying drawings in which

Figure 1 is a top plan view of the top plate removed of a twin machine embodying the invention, one pressing mechanism being shown in idle position and the other in pressing position.

Figures 2, 3 and 4 are vertical sectional views on correspondingly numbered lines of Figure 1, Figure 4 being fragmentary.

Figure 5 is a fragmentary view similar to a portion of Figure 1, but to a larger scale and showing certain parts by dotted lines not shown in Figure 1.

Figure 6 is a detail section on line 6—6 of Figure 5.

Figure 7 is a perspective view of a key element.

Figure 8 is a plan view, partly broken away and in section of a pressure mechanism facing pad.

Figure 9 is a detail section on line 9—9 of Figure 8.

Figure 10 is a fragmentary top plan of a shoe support provided with a shoe-receiving form in place of the last.

Figure 11 is a vertical section on line 11—11 of Figure 10.

Figure 12 is a wiring diagram of the electrical apparatus of the machine.

Referring first to the construction shown in Figures 1 to 4, inclusive, the machine comprises a machine base 1 provided with an elevated platform 2 and side wall members 3 having suitable feet 4 (see Figure 2) by which the machine may be supported. Upon the platform 2 are secured the lower ends of uprights 5 which support at their upper ends a table 6. This table may be provided with a marginal upstanding flange 7 which may support a suitable cover member 8 shown in Figures 2, 3, 4 and 6, which may be secured in position by screws or other fastening means passing into the threaded holes 9 at the corners of the wall portion 7. This cover plate may extend over the major portion of the operating mechanism supported on the table 6.

Between the top of the table 6 and the cover plate 8 is mounted the shoe pressing mechanism, and as shown, two such identical mechanisms are employed, the machine being a twin machine. The forward edges of the table 6 and the cover plate 8 are matingly recessed as at 10 and 11 to form openings into which the heel end portion of a shoe may be projected, and partially surrounding the shoe so projected is a shoe pressing mechanism adapted to engage the counter portion of the shoe, and to exert pressure thereon, more particularly adjacent to the shoe heel seat where the top edge of the heel is designed to contact therewith.

As shown best in Figures 1 and 5, each of these presser mechanisms comprises a series of blocks 15, 15a, 15b and 15c, there being a single block 15c centrally of the series and two of each of the blocks 15b, 15a and 15. These blocks are of general wedge shape and the shorter side of each forms a pressing face. The blocks 15 are the end blocks of the series, while next to them are the blocks 15a, and back of the blocks 15a are the blocks 15b on either side of the central block 15c. These blocks are held in arcuate arrangement and for this purpose each may have a perforation therethrough as 16, shown in dotted lines in Figure 5. through which extends a spiral spring 17. The ends of this spring 17 are anchored on pins 18 extending through the end blocks 15. These blocks are further held with their adjacent inner edges in juxtaposition with each other by arcuate keys 20. As shown the top and bottom faces of the blocks are provided

with arcuate sockets 21, the sockets of each block being concentric with the adjacent side edge of the pressing face of the block. The keys 20 are held in the sockets by the top and bottom plates comprising the cover plate 8 and the top of the table 6. These keys prevent relative displacement of adjacent blocks transverse to their pressing faces so that the side edges of these pressing faces are held into contact, although the blocks themselves may be separated somewhat at their rear edges as shown at the left in Figure 4, when the end blocks 15 are pressed toward each other and toward the sides of a shoe in position to be treated. Preferably in order to prevent any possibility of the blocks marring the shoe upper at their side edges and to cause pressure to be applied to the shoe in a continuous curve, the pressing faces of the blocks act against the back face of a lining 25 which may be of rubber faced with leather or other suitable facing material, the forward ends of the lining being preferably turned away from each other and secured by any suitable means to the front walls of the end blocks 15. The lining 25 may be provided with an electric heating element 26 embedded therein, if desired.

When the shoe is in operative relation in the machine, the inner face of the lining 25 is disposed inwardly of the margin of the cut out portion 10 so that the table and the top plate do not contact with the shoe.

The pressing mechanism is permitted a limited motion with respect to the table and to this end a pivot pin 30, which is anchored in a pair of spaced upper and lower rearward projections 31 and 32 of the central block 15c, extends below the projection 32 and into a channel 33 in the top face of the table 6. This central block 15c is normally pressed forwardly toward the shoe support as by means of a spring 34 having its ends seated in sockets 35 and 36, the socket 35 being located in the projection 32 and the socket 36 being located in a block 37 secured to the top face of the table 6 as by means of screws 38. This central block 15c is therefore permitted a rearward motion from the position shown in Figure 2 and in the right hand portion of Figure 1, by the rearward pressure of a shoe 40 supported by mechanism presently to be described, and which may be thrust rearwardly against the lining 25 forwardly of the central block 15c. On the pivot pin 30 between the projections 31 and 32 are pivoted, one above the other, a pair of arms 42 each carrying a roller 43 at its forward end which bears against the rear face of the corresponding block 15b, and as the central block 15c is pushed rearwardly by pressure of the shoe, these arms 42 impinge upon fixed stops 44 which causes a forward rocking motion of the arms 42, producing a corresponding pressure on the blocks 15b tending to rock them from the position shown in the right hand portion of Figure 1, and in Figure 5, toward the position shown in the left hand portion of Figure 1, separating the rear ends of these blocks 15b from the central block 15c and tending to close in the blocks 15b to decrease the width of the opening into which the shoe end is thrust. As shown these fixed abutments 44 also have another purpose, these abutments being formed as pivot studs for a pair of levers 45.

As shown best in Figures 2 and 4, each of the pivot studs 44 extends downwardly through the table 6 to receive on a reduced diameter threaded extremity 46 thereof, a securing nut 47. The upper ends of these studs are of reduced diameter as at 48 and project through mating holes 49 in the cover plate 8. Each of the levers 45 has pivoted at 50 at its forward end an equalizing lever 51 provided with rolls 52 at opposite extremities, the forward one of which bears against the back face of a forward block 15, and the other of which bears against the back face of the adjacent block 15a. By rocking these levers 45 about their studs 44 from the position shown in the right hand portion of Figure 1 to that shown in the left hand portion, the forward ends of the series of pressure blocks are closed in toward the sides of a shoe in position therein as is clearly shown in these figures, the rear extremities of the blocks 15 and 15a being separated, while their forward edges remain in juxtaposition, being prevented from separating by the arcuate keys 20. Likewise the rear ends of the blocks 15a and 15b are separated as the series of blocks are closed in around the shoe end.

This rocking of the levers 45 to close the forward ends of the series of blocks about the shoe is produced, as shown, by forward motion of a wedge block 55 having inclined side faces 56 which engage the peripheries of a pair of rollers 57 journaled on pins 58 at the rear ends of the levers 45. These levers 45 have rearward extensions 60 which are connected together by a spring 61, so as to hold the rollers against the sides of the wedge block 55, and guide elements 62 above and below the wedge block 55 hold the wedge block in the proper relation to the arms 45. Extending from the rear end of each of the wedge blocks 55 is a thrust rod 65 which extends through a slide block 66. Back of the slide block each thrust rod 65 carries a collar 67, held in place as by a nut 68. A coil spring 69 surrounds the thrust rod 65 and reacts between the forward face of the slide block 66 and a collar 70 threaded onto the forward portion of the rod 65 and held in adjusted position as by means of a locking pin 71. Forward motion of the slide block 66 thus acts through the spring 69 to produce a yielding forward pressure on the rod 65 and consequently upon the wedge block 55. Compression of the spring 69 permits the corresponding rod 65 to slide rearwardly through the block 66 as shown at the left hand portion of Figure 1.

Forward and backward motion of each of the blocks 66 is produced through a pair of links 75 pivoted at their rear ends to opposite sides of the slide block 66 and at their forward ends between jaws 77 of a pair of rock arms 78 fixed to a rock shaft 79. Each of the rock shafts 79 is fixed to a bell crank lever 80. One arm 81 of each of these bell crank levers is pivoted between the sides of a yoke 82 which is connected through an adjustable turnbuckle connection 83 with the strap 84 of an eccentric 85 fixed to an actuating shaft 86. This actuating shaft extends crosswise of the machine to both of the pressure actuating mechanisms, but the two eccentrics 85 are positioned 180° apart so that as one of the yokes 82 is raised, the other is lowered so that when one of the presser mechanisms is closed about the shoe end, the other is opened.

This shaft 86 is rotated by a motor 90 which is shown as arranged with its axis extending from front to back of the machine, and it is connected through any suitable form of reduction gearing, the casing for which is indicated at 91, to the shaft 86. The motor and reduction gear-

ing are conveniently supported from the machine base 1. Besides acting to open and close the presser mechanisms around the shoe, the raising and lowering of each yoke 82 is also caused to move a shoe support toward and from the corresponding presser mechanism, so timed as to present the shoe on the support with its heel end pressed against the back or middle portion of the presser mechanism and with the side portions of the presser mechanism pressed inwardly against the sides of the shoe. The presser mechanism is vertically concaved.

The shoe may be supported on the last, if desired, or on a separate form if the last has been removed. In Figures 1, 2, 3 and 4 the shoe is shown as supported on the last, while in Figures 10 and 11 a separate form for supporting the shoe is illustrated. When the shoe is supported on the last, the shoe support consists of a slide 100 guided between a pair of ways 101 formed in the table 6 and extending forwardly at opposite sides of the opening 10 of the table above which each of the pressing mechanisms is positioned. Cover strips 102 overlying the ways 101 serve to hold each slide 100 in position. The forward end of each slide is provided with a pair of spaced ears 103 between which is pivoted the forward end of a link 104 adjustable in length by means of a turnbuckle 105, the rear end of this link being of reduced diameter to form a shoulder 106, this shoulder bearing against the forward face of a perforated pivot 107 connecting the forked extremities of the arm 108 of the bell crank lever 80. A spring 110 reacts between a collar 111 surrounding the rod 104, and bearing against the opposite face of the pivot 107 and against a pair of check nuts 112 threaded upon the rear extremity of the rod 104, provides a yielding connection between the bell crank lever 80 and the slide 100. Thus as the bell crank lever is rocked in a direction to move the slide 100 rearwardly, it also acts to move the block 66 and the wedge block 55 forwardly so that when the shoe end has been inserted between the sides of the pressing mechanism by rearward motion of the slide 100, the pressing mechanism is closed in about the rear and sides of the shoe upper, both these actions being effected through yielding connections. It will be noted that rocking the bell crank lever 80 in closing direction moves the shoe rearwardly and the center block 15c of the pressing mechanism forwardly, and that it also closes in the sides of the pressing mechanism against the shoe. By adjustment of the turnbuckle 83, therefore, the pressure exerted on both the back and sides of the shoe may be increased or decreased together. This one adjustment thus controls the two pressures which may be kept constant.

The slide 100 is provided with a last pin 115 to receive the pin hole of the last and this pin is vertically adjustable so as to present the shoe at the proper height for treatment by the mechanism at the rear end of the shoe. This last pin 115, therefore, is formed as the upper portion of an enlarged diameter post 116 vertically slidable in a socket 117 in a cross member 118 of the slide 100. This post 116 is internally threaded and receives therein the upper threaded extremity of a shaft 119 journaled in the lower portion of the cross member 118 and to the lower end of which is fixed a spiral gear 120. This gear is in mesh with a similar gear 121 at the rear end of a horizontal shaft 122, the forward end of which extends through a front plate 123 of the slide 100 and carries on its forward reduced diameter extremity an actuating hand wheel 124. By the turning of this hand wheel, it is evident that the last pin 115 may be raised or lowered as desired.

The toe portion of the shoe is supported by a pad 125 freely slidable laterally as by a T head and slot on the upper end of a vertically adjustable post 126. This post 126 is mounted for vertical motion in a slide 127 movable from and toward the cross member 118 which carries the last pin post. The post 126 is held against angular motion, as by means of a key screw 128 working in a suitable slot in the post 126 and it is vertically adjustable by rotation of a threaded shaft 129 engaging in a threaded socket 1290 in the post and having a hand wheel 1291 secured to its lower end, the arrangement being generally similar to that for adjusting the last pin post 116. The slide 127 is adjustable forwardly and rearwardly by means of a screw shaft 1270 journaled in the slide 100 and engaging an internally threaded portion of the slide 127. The forward and rearward adjustment of the post 126 provides for different sizes and styles of last so as to bring the pad 125 to the proper distance from the last pin opening, and the pad 125 being freely slidable laterally, permits application of either right or left hand lasts to either shoe support as may be desired. The independent vertical adjustments of the last pin and the toe support 125 permit height adjustment of the shoe and also angular adjustment about a horizontal axis, tilting the shoe forwardly or backwardly so that the sole face of the shoe, which is in inverted position, may be adjusted for various sizes and styles of shoe to bring the marginal part of the heel seat portion of the shoe into proper relation to the pressing mechanism when the shoe is in pressing position.

The proper position of the shoe is determined by a gage 130. This gage is fulcrumed at 131 on an arm 132 pivoted at 133 to a fixed point, as on one of the cover plates 102. This gage has a pair of gaging portions or elements 134 and 135 spaced lengthwise of the shoe and when the shoe is in its forward position and properly adjusted as to height and angularity, both gaging portions engage the shoe at the juncture of the heel 40 as shown at the right hand portion of Figure 1. This gage is pressed toward the shoe as by a spring 136 which engages the journal 137 of a cam roller 138 carried by the arm 132. When the shoe is moved rearwardly into pressing position, the cam roller 138 rides up on a fixed cam plate 139, this swinging the arm 132 and withdrawing the gage from the shoe as shown at the left of Figure 1.

The pressing mechanism contoured to properly engage the shoe heel portion, presses the shoe, particularly adjacent to the heel seat, into substantially smooth contour with the adjacent face of the shoe heel.

If the shoe has been removed from the last before the operation to be performed by this machine has been effected, the shoe may be placed over a heel shaped form such as is shown in Figures 10 and 11. Such a heel shaped form is indicated at 140 and it may be of metal and provided with means for heating it. As shown it is provided with a vertical hole 141 so that it may be placed over a pin 142. This pin 142 is provided with an enlarged vertically slotted lower end portion 143, the top of which forms a stop to limit the downward motion of the rear end of the

block 140, and across the slot between the forked portions extends a lateral pivot 144. This post 145 is vertically slidable in a socket 146 in the cross frame member 147 of the sliding carriage 148, and it is internally threaded for engagement with external threads of a shaft 149 projecting into the socket 146 and carrying at its lower end a spiral gear 150 which meshes with a similar gear 151 on a horizontal shaft 152 carried by the slide 148. This shaft 152 is provided at the forward face of the slide with a hand wheel 153 by which it may be turned, thus to adjust vertically the post 145 and the rear end of the form 140. The forward end of the form 140 has pivoted thereto at 155 the rear end of a link 156 which rides in a slot 157 in the form. The lower forward end of this link is pivoted within a slot 158 of a slide 159 mounted between ways 160 of the slide 148. A screw shaft 161 journaled in the slide 148 is threaded into a socket 162 of the slide 159 and is provided at its forward end on the forward face of the slide 148 with a hand wheel 165. The adjustment of the slide 159 by turning the hand wheel 165 acts to raise and lower the front portion of the form 140 and to determine the angularity of this form about the pivot 144, thus providing for both the vertical and angular adjustment of the shoe so that the shoe, regardless of its style and size, may be properly positioned relative to the pressing mechanism so that when it is moved back into operative relation thereto the pressing mechanism will properly act thereon.

The means shown for heating the form 140 consists of an electric heating unit 170 which may be inserted into a socket 171 therein, its conductor wires leading to a pronged plug 172, the prongs of which may be inserted into a socket member 173. This socket member 173 has leading thereto a suitable conducting cord 174 which may be plugged into an electrical control box shown somewhat diagrammatically at 180. This main slide 148 is provided with a rearwardly extending forked portion 185 for securement to the rod 104 shown in Figures 2 and 4 and may be used interchangeably with the last supporting slide 100 shown in Figures 1, 2, 3 and 4.

In Figure 12 is shown diagrammatically the electrical control mechanism. At 190 (Figures 1, 2 and 12) is shown a treadle fulcrumed at 191 and normally held elevated as by a spring 192. This treadle, when depressed, closes a switch arm 193, this switch arm being in series through a lead 194 with a switch arm 195 actuated by a cam 196 mounted on the shaft 86. This cam has two arcuate portions 197 and 198 of unequal diameters, each extending substantially one half of the circumference of the cam. A cam follower 199 normally held pressed against the periphery of the cam, as by a spring 200 and attached to the switch arm 195, causes the switch arm to close and so maintain a connection to the contact 201 while the cam follower is riding on the portion 198 of the cam, and to swing the switch arm 195 to break connection with the contact 201 and establish and maintain connection with a contact 202 while the cam follower is riding on the portion 197 of the cam. Located in a convenient position to the operator, as on the table 6, is a manually operated switch 205 which may be brought selectively into engagement with either of a pair of contacts 206 and 207.

Assuming the treadle 190 as depressed so as to close the switch 193, electrical connection is made from the supply line 210, the main switch 211 having been closed, through the switch closing coil 214 of the main motor control switch 215, through the lead 216, switch 193 and lead 194 to the switch arm 195. When the switch arm 195 connects with the contact 201 and the switch 205 connects with contact 207, the circuit is completed through the lead 218 to the opposite line 220. Thus the motor controlled switch 215 is closed, starting the motor 90. This motor continues to operate until the cam 196 reaches the point where the follower 199 rides up onto the portion 197 of the cam which opens the circuit at the contact 201, causing the motor switch magnet to be de-energized, whereupon the switch 215 opens and the motor 90 stops. In this position the shoe, which was previously treated by its pressing mechanism, has been released and drawn forwardly into shoe loading and unloading position, and that shoe which was previously in loading and unloading position has been moved backward into cooperative relation to its pressing mechanism and this pressing mechanism has been brought into pressing engagement with the shoe upper. The operator then moves the switch 205 to its opposite position, opening the contact at 207 and closing the contact at 206, and as the contact 202 is now closed by the switch arm 199, the circuit is again completed through the motor switch coil 214 so that the motor is again started and operates until the cam portion 198 becomes again effective, whereupon the circuit is opened by opening the contact at 202. The motor then stops and can be restarted when the treadle is down only by throwing the switch 205 to its other position to close the contact at 207. The switches 205 and 195 are thus double throw switches and both have to be in definite relationship to each other to complete the circuit to maintain the motor in operation. The switch 195 which may be of the well known spring ratchet type is thrown from one to the other of its positions automatically at the end of each half revolution of the shaft 86, and it is then necessary to throw the manually operated switch 205 to again start the motor.

The heating element of the pad linings for the two presser mechanisms may derive their supply of current from the lines 210 and 220, being arranged in series and with an adjustable resistor 225, and when the metal form shown in Figures 10 and 11 is to be employed, the heaters for the two forms may also be plugged in parallel with the heating elements 26 at the plug connection 226 shown diagrammatically in Figure 12.

In operation, a shoe to be treated is placed on the shoe supporting slide which is forwardly presented, and adjusted for proper height and angularity as shown by the gage. The motor is then started, this causing the shoe so placed and adjusted to be moved rearwardly into pressing position and the presser mechanism is closed about it, while the other pressing mechanism is opened and the supporting slide is moved forwardly to unloading position and the machine stops. A shoe to be treated is then placed on this forward support and the machine again started, moving the shoe to be treated into pressing position and returning the shoe last treated to the loading and unloading position for removal from the machine.

From the foregoing description of certain embodiments of this invention, it should be evident to those skilled in the art that various changes and modifications might be made without departing from the spirit or scope of this invention.

I claim:

1. Shoe upper pressing means comprising

spaced top and bottom plates having mating edge recesses within which a shoe end may be inserted, a plurality of pressure blocks arranged in series and slidable between said top and bottom plates and having pressing faces, means for retaining said blocks with their pressing faces disposed in juxtaposition, said blocks having arcuate recesses struck about centers at adjacent edges of said front faces, and annular segmental keys in the recesses bridging adjacent blocks.

2. Shoe upper pressing means comprising a supporting plate recessed in one edge to receive the end portion of a shoe, seven pressure blocks on said plate, means holding said blocks with pressing faces arranged edge to edge in an arcuate series for closing and opening motion about a shoe end positioned in said recess, a pair of levers fulcrumed back of said blocks at either side of the center of said series, equalizing arms fulcrumed on said levers for operative engagement at opposite ends with the two blocks one at each end of said series and the others next adjacent to said end blocks, lever arms fulcrumed on the central block of said series and having ends in operative engagement with the next adjacent blocks to said central block, a wedge member engageable between rearwardly extending arms of said levers for forcing the forward ends of said levers toward each other on the forward motion of said wedge member, a fixed abutment back of said central block, and a spring reacting between the rear face of said central block and said abutment, said pressing means including abutments against which said lever arms engage when said central block is pushed rearwardly to rock said next adjacent blocks toward each other and against the end of a shoe pressed rearwardly against said central block.

3. Shoe upper pressing means comprising a supporting plate recessed in one edge to receive the end portion of a shoe, seven pressure blocks on said plate, means holding said blocks with pressing faces arranged edge to edge in an arcuate series for closing and opening motion about a shoe end positioned in said recess, a pair of levers fulcrumed back of said blocks at either side of the center of said series, equalizing arms fulcrumed on said levers for operative engagement at opposite ends with the two blocks one at each end of said series and the others next adjacent to said end blocks, lever arms fulcrumed on the central block of said series and having ends in operative engagement with the next adjacent blocks to said central block, a wedge member engageable between rearwardly extending arms of said levers for forcing the forward ends of said levers toward each other on the forward motion of said wedge member, a fixed abutment back of said central block, a spring reacting between the rear face of said central block and said abutment, said pressing means including abutments against which said lever arms engage when said central block is pushed rearwardly to rock said next adjacent blocks toward each other and against the end of a shoe pressed rearwardly against said central block, means for supporting a shoe with its heel end partly enclosed by said series of blocks, and means for forcing said shoe rearwardly against said central block.

4. Shoe upper pressing means comprising a supporting plate recessed in one edge to receive the end portion of a shoe, seven pressure blocks on said plate, means holding said blocks with pressing faces arranged edge to edge in an arcuate series for closing and opening motion about a shoe end positioned in said recess, a pair of levers fulcrumed back of said blocks at either side of the center of said series, equalizing arms fulcrumed on said levers for operative engagement at opposite ends with the two blocks one at each end of said series and the others next adjacent to said end blocks, lever arms fulcrumed on the central block of said series and having ends in operative engagement with the next adjacent blocks to said central block, a wedge member engageable between rearwardly extending arms of said levers for forcing the forward ends of said levers toward each other on the forward motion of said wedge member, a fixed abutment back of said central block, a spring reacting between the rear face of said central block and said abutment, said pressing means including abutments against which said lever arms engage when said central block is pushed rearwardly to rock said next adjacent blocks toward each other and against the end of a shoe pressed rearwardly against said central block, means for supporting a shoe with its heel end partly enclosed by said series of blocks, and means for forcing said shoe rearwardly against said central block and for swinging said levers to bring said blocks controlled by said equalizing arms into pressing engagement with side portions of said heel end.

5. A machine of the class described, comprising a supporting plate having a recess in one edge within which an end portion of a shoe may be extended, said supporting plate having a giudeway at opposite sides of said recess, a slide movable along said guideway, means carried by said slide for supporting a shoe for motion to project one end of said shoe into said recess or to retract said shoe therefrom, shoe pressing mechanism slidably mounted on said plate with a portion intermediate to its ends in position to be engaged when the shoe is moved into said recess, means actuable to move the end portions of said mechanism toward and from each other to press against the sides of said shoe end portion or to relieve pressure thereon, and means for moving said slide and said end portions in timed relation.

6. A machine of the class described, comprising a supporting plate having a recess in one edge within which an end portion of a shoe may be extended, said supporting plate having a guideway at opposite sides of said recess, a slide movable along said guideway, means carried by said slide for supporting a shoe for motion to project one end of said shoe into said recess or to retract said shoe therefrom, shoe pressing mechanism slidably mounted on said plate with a portion intermediate to its ends in position to be engaged with the shoe is moved into said recess, means actuatable to move the end portions of said mechanism toward and from each other to press against the sides of said shoe end portion or to relieve pressure thereon, a movable member, connections from said movable member to said slide and to said end portions for moving said slide and end portions in timed relation, and means actuable to move said member.

7. A machine of the class described, comprising a supporting plate having a recess in one edge within which an end portion of a shoe may be extended, said supporting plate having a guideway at opposite sides of said recess, a slide movable along said guideway, means carried by said slide for supporting a shoe for motion to project one end of said shoe into said recess or to retract said shoe therefrom, shoe pressing mechanism slidably mounted on said plate with

a portion intermediate to its ends in position to be engaged when the shoe is moved into said recess, means actuable to move the end portions of said mechanism toward and from each other to press against the sides of said shoe end portion or to relieve pressure thereon, a bell crank lever, connections from one arm of said bell crank lever to said slide, connections from the other arm of said bell crank lever to said end portions, and means actuable to rock said bell crank lever.

8. A shoe support, comprising a base, a last pin vertically adjustable with respect to said base, a toe support mounted for motion from and toward said last pin and vertically adjustable, and means actuable from one end portion of said base for adjusting said last pin and toe support vertically and said toe support from and toward said last pin.

9. A shoe support comprising a base, a vertically adjustable post carried by said base, a pin pivoted to the upper end of said post for rocking motion lengthwise of said support, a form over which a shoe may be placed and having a socket to receive said pin, a slide adjustable longitudinally with respect to said base toward and from said post, and a link pivotally connected at poposite ends to said slide and form, respectively.

10. A shoe support comprising a base, a vertically adjustable post carried by said base, a pin pivoted to the upper end of said post for rocking motion lengthwise of said support, a form over which a shoe may be placed and having a socket to receive said pin, a slide adjustable longitudinally with respect to said base toward and from said post, a link pivotally connected at opposite ends to said slide and form, respectively, and means located at the forward end of said support for adjusting said post vertically.

11. A shoe support comprising a base, a vertically adjustable post carried by said base, a pin pivoted to the upper end of said post for rocking motion lengthwise of said support, a form over which a shoe may be placed and having a socket to receive said pin, a slide adjustable longitudinally with respect to said base toward and from said post, a link pivotally connected at opposite ends to said slide and form, respectively, said form having a socket for receiving a heating element open from beneath between said link and said pin-receiving socket, and a heating element in said element-receiving socket.

12. The combination with a shoe treating mechanism, of a shoe support movable to and from a position to present a shoe on said support into treating relation to said mechanism, said shoe support being adjustable, and a gage positioned with relation to said support when said support is out of treating relation to said mechanism to determine a position of said shoe with reference to said support correct for the treating operation when said shoe support is in said position and to which said shoe may be brought by movement of said support.

13. The combination with a shoe treating mechanism, of a shoe support movable to and from a position to present a shoe on said support into treating relation to said mechanism, said shoe support being adjustable, a gage positioned with relation to said support when said support is out of treating relation to said mechanism to determine a position of said shoe with reference to said support correct for the treating operation when said shoe support is in said position and to which said shoe may be brought by movement of said support, and means actuated by the motion of said support to said position for retracting said gage from gaging position.

14. The combination with a shoe treating mechanism, of means for supporting a shoe in treating relation to said mechanism, said shoe supporting means including spaced shoe supporting elements adjustable independently to determine the angular position lengthwise and the placing of said shoe with respect to said supporting means, and a gage having a pair of shoe engaging portions spaced lengthwise of the shoe and acting to define the proper angular position and placing of the shoe for the treating operation.

15. The combination with a shoe treating mechanism, of means for supporting a shoe in treating relation to said mechanism, said shoe supporting means including spaced shoe supporting elements adjustable independently to determine the angular position lengthwise and the placing of said shoe with respect to said supporting means, a gage having a pair of shoe engaging portions spaced lengthwise of the shoe and acting to define the proper angular position and placing of the shoe for the treating operation, said gage being positioned to cooperate with the shoe when said shoe supporting means is out of said position and in a shoe loading and unloading position, and means actuated by the motion of said supporting means toward said treating position to move said gage away from the shoe.

16. The combination with a shoe treating mechanism, of means for supporting a shoe in treating relation to said mechanism, said shoe supporting means including spaced shoe supporting elements adjustable independently to determine the angular position lengthwise and the placing of said shoe with respect to said supporting means, a gage having a pair of shoe engaging portions spaced lengthwise of the shoe and acting to define the proper angular position and placing of the shoe for the treating operation, said gage being positioned to cooperate with the shoe when said shoe supporting means is out of said position and in a shoe loading and unloading position, a pivoted arm supporting said gage, and cooperating cam elements one fixed and one on said pivoted arm positioned to swing said arm in a direction to retract said gage from said shoe as said supporting means is moved to shoe treating position.

17. A machine of the class described, comprising a shoe pressing mechanism, a shoe support mounted for motion to present a shoe thereon and having a heel into and out of operative relation to said pressing mechanism, means for actuating said pressing mechanism to close in amout an end portion of the shoe in said operative relation and press the counter portion of said shoe into substantial continuity with the adjacent surface of the heel, a lever, connections from opposite arms of said lever to said support and actuating means such that swinging of said lever in one direction moves said support into position where a shoe thereon is in operative relation to said pressing mechanism and actuates said mechanism to close in about the shoe, and swinging of said lever in the opposite direction opens said pressing mechanism and removes the shoe from operative relation to said mechanism, and means for rocking said lever.

18. A machine of the class described, comprising a shoe pressing mechanism, a shoe support mounted for motion to present a shoe thereon

and having a heel into and out of operative relation to said pressing mechanism, means for actuating said pressing mechanism to close in about an end portion of the shoe in said operative relation and press the counter portion of said shoe into substantial continuity with the adjacent surface of the heel, a lever, connections from opposite arms of said lever to said support and actuating means such that swinging of said lever in one direction moves said support into position where a shoe thereon is in operative relation to said pressing mechanism and actuates said mechanism to close in about the shoe, and swinging of said lever in the opposite direction opens said pressing mechanism and removes the shoe from operative relation to said mechanism, and means for rocking said lever, certain of said connections including yielding means.

19. In combination, a pair of mechanisms for operating on shoes, a pair of shoe supports each movable toward and from one of said mechanisms, a rotary shaft, connections from said shaft to said supports causing the rotation of said shaft through successive half revolutions to move one of said supports toward its mechanism and the other of said supports away from its mechanism during one half revolution and said one support away from its mechanism and said other support toward its mechanism during the other half revolution, means for rotating said shaft by such half revolutions, and automatically acting means for stopping the rotation of said shaft at the end of each half revolution.

20. In combination, a pair of mechanisms for operating on shoes, a pair of shoe supports each movable toward and from one of said mechanisms, a rotary shaft, connections from said shaft to said supports causing the rotation of said shaft through successive half revolutions to move one of said supports toward its mechanism and the other of said supports away from its mechanism during one half revolution and said one support away from its mechanism and said other support toward its mechanism during the other half revolution, a motor for driving said shaft, a double throw switch for starting said motor, and a double throw switch controlled by the rotation of said shaft for stopping said motor at the end of each half revolution of said shaft.

21. A machine of the class described, comprising means for supporting a shoe having a heel, means for simultaneously pressing from end to end the outside of the counter portion of a shoe on said supporting means into substantial continuity with the adjacent face portion of the heel of such shoe, a source of power, operative connections between said source and said pressing means for actuating said pressing means by power from said source, and operator actuated means controlling the supply of power from said source to said pressing means.

22. A machine of the class described, comprising means for supporting a shoe having a heel, means for simultaneously pressing from end to end the outside of the counter portion of a shoe on said supporting means into substantial continuity with the adjacent face portion of the heel of such shoe, a shaft, power means for rotating said shaft, and operative connections between said shaft and pressing means causing rotation of said shaft to actuate said pressing means.

23. A machine of the class described, comprising shoe supporting means, means for pressing the back portion of the counter of a shoe supported on said supporting means, means for pressing the side portions of said counter, a rotary power shaft and single adjustable means through which power is applied from said shaft for said pressing means controlling by its adjustment the amount of pressure exerted by both of said pressing means.

24. A machine of the class described, comprising shoe supporting means, means for pressing the back portion of the counter of a shoe supported on said supporting means, means for pressing the side portions of said counter, and single adjustable means through which power is applied for said presser means, said single adjustable means including mechanism insuring constant relation between the pressures exerted by said back and side pressing means.

KENNETH W. MACDONALD.

CERTIFICATE OF CORRECTION.

Patent No. 2,357,596. September 5, 1944.

KENNETH W. MACDONALD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, second column, line 57, claim 6, for "with" read --when--; page 6, second column, line 58, claim 17, for "amout" read --about--; page 7, second column, line 31, claim 23, after the word "shaft" insert a comma; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 31st day of October, A. D. 1944.

Leslie Frazer

(Seal) Acting Commissioner of Patents.