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SHOE BOTTOM ROUGHING MACHINES
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ABSTRACT OF THE DISCLOSURE
A machine for roughing the bottoms of shoes having a pair of roughing tools and a support for a shoe during relative movement between the tools and the support to cause the shoe to pass by the tools and a template for positioning the tools in which the template is automatically adjusted in both lengthwise and widthwise directions to accommodate shoes of different sizes and is automatically reversed by rotation about its longitudinal axis, to accommodate right or left shoes in accordance with the size and character of the shoe on the support. The shoe support also embodies an abutment for determining the heightwise position of the toe end of each shoe placed thereon and a heel support movable in response to the engagement of the heel end of a shoe therewith for actuating control means to initiate an automatic operating cycle of the machine.

BACKGROUND OF THE INVENTION
This invention relates to machines for performing operations along the marginal portions of the bottoms of shoes and as therein illustrated is embodied in a machine for performing a roughing operation on the bottom of a shoe of the same general type as that disclosed in U.S. Letters Patent No. 3,233,438, issued Feb. 8, 1966 on an application filed in the names of Peter Tore Hansen and Sveind Jorgen Hansen.

A machine of the aforementioned type comprise a pair of rotary tools, e.g., wire brushes for operating, in tandem, along opposite marginal portions of a bottom of a shoe on a support as relative movement between the support and the tools is effected to cause the bottom of the shoe to pass by the tools. During such relative movement, the roughing tools are positioned in directions extending widthwise of the shoe by means including a template mounted on the support. In the particular arrangement disclosed in the above-mentioned patent, the template is also utilized to position the roughing tools in directions extending heightwise of the shoe. However, in subsequent modifications of the patented machine, a flat two-dimensional template is used and the roughing tools are positioned heightwise of the shoe bottom as a result of direct engagement thereof under the influence of gravity.

As is disclosed in an application for U.S. Letters Patent Ser. No. 749,662, filed Aug. 2, 1968 in the names of Herbert W. Boot and Allan C. Wood, this two-dimensional template is mounted on the shoe supporting means for rotation about its longitudinal axis to reverse its position and adapt it for use with either a right or a left shoe. In accordance with the right position of the mentioned application, the shoe supporting means is provided with means for sensing the character of the shoe thereon, i.e., a right or a left, and there is associated with the rotatable template means for sensing its position. The arrangement is such that operation of the machine cannot be continued until the template is positioned in accordance with the character of the shoe on the supporting means, as is more particularly described in the mentioned application.

However, even with the aforementioned modifications, the output of prior machines of this type is greatly reduced and their operation rendered more difficult and time-consuming by the necessity of changing templates for operating on shoes of different sizes, as well as because of the care required in placing each shoe on the supporting means with the toe end of its bottom surface in proper position relatively to the operating tools.

It is, therefore, an object of this invention to provide a novel and improved machine of the above-mentioned type whereby the above difficulties are effectively eliminated or substantially reduced. With this object in view, and in accordance with a feature of the invention, the herein illustrated machine which has a pair of roughing tools for operating along the marginal portions of the bottom of a shoe and means for supporting a shoe during relative movement between the tools and the supporting means to cause the bottom of the shoe to pass by the tools is provided with a template which is set on the supporting means for adjustments in lengthwise and widthwise directions thereby to accommodate shoes of different sizes, together with means on the supporting means for sensing the size of a shoe thereon and for affecting corresponding lengthwise and widthwise adjustments of the template. More particularly, the sensing means comprises a toe support which is movable from a retracted position into engagement with the toe end of a shoe on the supporting means and which is operatively connected to the adjustable template.

Preferably, and in accordance with another feature of the invention, the toe support is provided with an inclined surface for engaging and elevating the toe end of the shoe and with a retractable abutment member for engaging the bottom of the shoe at the toe end thereof, thus to limit the elevation of the toe end of the shoe to a predetermined level relative to the operating tools.

The means for supporting the shoe in the herein-illustrated machine includes a heel support for engaging the heel seat portion of the bottom of the shoe, a member for clamping the heel end of the shoe against the heel support, a V-shaped heel abutment and a toe support and power means are provided for operating the clamping means and for moving the toe support. To facilitate the operation of the machine, particularly the loading of shoes thereinto, there is provided, in accordance with another feature of the invention, control means for initiating the operation of the mentioned power means, this control means being responsive to the engagement of the heel seat portion of the bottom of a shoe with the heel support. More particularly, the heel support is mounted for limited pivotal movement from an inoperative position to an operative position and the control means includes a member actuated as a result of such movement.

As is pointed out above, in prior machines of the type shown in the mentioned patent, and as modified in the manner described in the mentioned application, the two-dimensional template is mounted on the shoe support means with rotation to reverse its position thus to adapt it for use with either a right or left shoe. Also, means are provided for effecting a 180° rotation of the template at the conclusion of each operating cycle. Thus, if right and left shoes are presented to the machine in succession, the template will be automatically turned to the right position before it is placed in the machine. However, should it happen that two or more shoes for the same foot are to be handled in succession, when the second shoe is placed on the supporting means and clamped in place, continued operation of the machine is prevented until the position of the template is reversed in response to the manual operation of a control device by the operator.

To avoid the delay involved in such a procedure in the herein-illustrated machine, there is provided as still another feature of the invention, means for automatically ef-
fecting rotation of the template with 180° and thus to reverse its position in response to means for sensing the change in the position of the supporting means and for sensing the position of the template, when these sensing means indicate that the template is improperly positioned for use with the particular shoe on the supporting means. More particularly, the sensing means are similar to those provided in the machine of the above-mentioned application and include a V-shaped heel abutment 52 and a pair of side clamp levers 54 and 56. An adjustable stop screw 58 is provided for limiting the swinging movement of the lever 50 in one direction against the resistance of a compression spring 60. One end of this lever is provided with a projection 62 adapted to hold the plunger of a valve V, as illustrated in FIG. 4. A spring 82 is arranged to return the lever to its rest position shown in FIG. 1. The plunger of this valve is released in the spring and is received to the left, FIG. 4, for the purpose which will appear below.

For clamping the heel end of a shoe against the heel support lever 50, there is pivotally mounted on the side plate 36, 38 a bell crank lever 70 on one arm of which there is pivotally mounted for limiting swinging movement a clamping plate 72. Connected to the other arm of this lever is the rod of a piston P-2 contained within a cylinder C-2 supported on the post-like member 34, FIG. 4. The side clamp levers 54, 56 are operated by means of a piston P-3 contained within a cylinder C-3, FIG. 4. Carried by the rod of this piston is a wedge member 76, FIG. 1, which acts on two plungers 78, 80. FIG. 2. A coil spring 82 is arranged to hold the levers in engagement with these two plungers.

As in the machine disclosed in the above-mentioned application, the V-shaped heel abutment 52 is pivotally mounted for swinging movement about an axis extending transversely of the shoe in the machine and is thus adapted to assume different angular positions for right and left shoes. Associated with this heel abutment member are a pair of push rods 90, 92 adapted to actuate, respectively, the plungers of a pair of sensing valves S-1 and S-2, see FIGS. 2 and 4, for a purpose which will presently appear.

Slidably mounted on the plate 42 is a smaller plate 100 which carries a toe supporting block 102. This block is provided with an inclined V-shaped groove formed by a pair of wear plates 104, 106 and is adapted to engage and to position the toe of the shoe on the supporting structure. For moving this toe supporting block from a retracted position to the operative position in which it is shown in FIG. 1, there is supported on the post-like member 34 a cylinder C-4 in which there is a piston P-4, see FIG. 4. This piston has a rod which is secured to and extends through a cross head 110, the upper end of which is connected to the plate 100 by means of a link 112.

Pivotally mounted on the toe supporting block 102 is a U-shaped member 120, the base portion 122 of which is provided with a rounded surface adapted to engage the extreme toe end of the bottom of a shoe when the parts are in the operative positions shown in FIG. 1. For swinging this U-shaped member, which serves as an abutment for locating the toe end of the shoe in a heightwise direction, between the operating position in which it is shown and the inoperative position indicated in broken lines, a piston P-5 contained within a cylinder C-5, FIG. 4, is provided. This cylinder is mounted on the plate 100 and has a rod which is connected to one of the arms of the U-shaped member 120, FIG. 1.

Mounted for rotation by means of trunnion shafts 122 and 124, which are journaled in bearings provided in the lower portions of the post-like member 32, is a template support 130 which has a flat surface 132, uppermost when the support is in the position shown in FIG. 1, and which is shaped as shown in dotted lines in FIG. 3. The trunnion shaft 124 extends beyond and to the left of the member 34 and carries a pinion 136, FIG. 3. This pinion meshes with a vertically extending rack 138 which is connected to the rod of a piston P-6.
contained within a cylinder C–6, FIG. 4. By means of this piston, the template support 130 may be rotated through an angle of 180° from the position shown in FIG. 1 and as determined by the engagement of an ear 140 with a stop member 142 to its other position as determined by the engagement with the ear with a second stop 144.

The template assembly which is indicated generally by the reference character T comprises a base plate 150 on which there are pivotally mounted, by means of a pivot pin 151, two template sections 152, 154, shaped as shown in FIG. 3. The inner edges of these template sections are cut away to form oppositely facing wedging surfaces 156, 158. When the template assembly is on the support 130, a coil spring 160 yieldingly urges the template sections toward each other to the extent determined by the engagement of the wedging surfaces 156, 158 with a stud 162 fixed to the support 130 and extending upwardly therefrom through a slot 164, formed in the base plate 150. A flat headed stud 166 overruns the template sections 152, 154 as shown in FIGS. 1 and 3.

Slidably mounted in a groove 170, formed on the support 150 is a block 172 which carries a pin 174 having an enlarged head 176. This block is connected to the rod of a piston P–7 by means including a plate 178, FIG. 3. This plate is contained within a cylinder C–7 and when fluid under pressure is admitted to the right hand end of this cylinder as viewed in FIG. 1, the block 172 is urged to the left, thus to cause the pin 174 to bear yieldingly against the bottom of a notch 180, FIG. 3, formed in the right hand end of the base plate 150. The action urges the whole template assembly to the left, FIG. 1, thus holding the bottom of a notch 182, formed in the left hand end of the base plate, yieldingly against a block 184. The block 184 is formed on the right hand end of a rod which is slidably mounted in the right hand end of another rod 186 which extends through the post-like member 34 which is secured to the lower portion of the cross head 110.

Formed on the end of the rod 188 is an S-shaped arm 190 on which there is pivotally mounted one end of a lever 192. This lever is connected, by means of a pin and slot arrangement, to the block 184. Thus, the forces yieldingly exerted on the template assembly by the piston P–7 tends to swing the lever 192 in a counterclockwise direction, FIG. 3, to the extent permitted by the engagement of the other end of the lever with a stop pin 194 carried by a plate 196, secured to the template supporting member 130. On the other hand, when pressure is exhausted from the cylinder C–7, the whole template assembly may be easily released for removal from the support by sliding the block 172 to the right by means of the headed pins 174, 176.

Secured to, and extending downwardly from, the lower side of the plate 42 is a bracket 200. This bracket is formed with a guide way 202 through which the left hand end portion of the piston rod 108 extends on its lower side. This portion of the piston rod is provided with ratchet teeth 204 and slidably mounted within this bracket for upward movement into locking engagement with these teeth is a pawl member 206. This pawl member is connected to the rod of a piston P–8 contained within a cylinder C–8, FIG. 4. As shown in FIG. 1, this cylinder is mounted on the lower portion of the bracket member 200.

For sensing the position of the template support 130 and also of the template assembly thereon, there are mounted on a portion of the trunnion shaft 122 which extends to the right of the member 32, a pair of indicator cams 210, 212. These cams are adapted to actuate the plungers of two sensing valves S–3 and S–4, FIGS. 3 and 4, generally in the same manner as the cams 70, 72 of the afore-mentioned application.

Referring again to the U-shaped toe abutment member 120, there is formed in its rounded shoe engaging surface an orifice 220 which leads to a cross passage 222, see FIGS. 2 and 4. When it is in its retracted position, shown in broken lines in FIG. 1, one of the arms of this toe abutment member is adapted to shift the plunger of a control valve V–15 to the left from the position in which it is shown in FIG. 4 of the drawings.

When the machine is idle, the heel abutment lever 50 is swung downwardly to the broken line position shown in FIG. 1, the side clamp levers 54 and 56 are released, the clamping plate 72 is in a lowered position and the toe supporting block 102 is retracted to a position to the left of that shown in FIG. 1. To use the machine, the operator takes a shoe, for example a left shoe, and places its heel end beneath the heel supporting lever 50, between this lever and the clamping plate 72, with its toe end pointing generally toward the toe supporting structure and with its heel end in engagement with the heel block 52, and elevates the heel end of the shoe to swing the lever 50 in a clockwise direction to the solid line position shown in FIG. 1. Such movement of the lever 50 permits the plunger of the valve V–1 to be shifted to the left by its spring, thus piloting a valve V–2.

Fluid under pressure, e.g., compressed air, now passes through the valve V–2 to the cylinder C–4 causing the piston P–4 to move the toe supporting block 102 to the right. During this movement of the toe supporting block, the toe end of the shoe enters, and is positioned in a widthwise direction by, the inclined groove provided by the plate 104, 106. Also, the toe end of the shoe is elevated to a heightwise position determined by its engagement with the rounded surface on the toe abutment member 120. As shown in FIG. 4, the cross passage 222 in the toe abutment member 120 is connected to the same line which leads to the cylinder C–4 so that air flows freely out through the orifice 220 until this orifice is closed by the toe end of the shoe, which builds up in a line leading to a pilot valve V–3 which is shifted so as to pilot three valves V–4, V–5 and V–6.

Pressure fluid now flows from the manifold line M through the valve V–4 to cylinder C–8 causing the piston P–8 to move the pawl 208 into engagement with the teeth 204 on the rod 108, thus locking the toe support and the rod 188 against movement to the left, FIG. 1. Pressure fluid also flows through the valve V–5 to pilot a valve V–9 and also to a series of valves V–10, V–11, V–12, the latter two of which are associated with the pneumatic control, circuit for effecting engagement between the shoe supporting means and the tools 14 and 16. After a slight delay, valve V–6 moves to a position to shut off the flow of pressure fluid to the valve V–2.

The driving of the valve V–9 permits pressure fluid from the manifold to be admitted to the cylinders C–2, C–3 and C–7. The side clamps 54, 56 are now actuated by the piston P–3 and shortly thereafter the clamping plate 72 is elevated to clamp the heel end of the shoe against the heel supporting lever 50 by the action of the piston P–2 and the template assembly is yieldingly urged to the left and held in engagement with the block 184 by the piston P–7. Pressure fluid directed to the cylinder C–2 also flows to the sensing valves S–1, S–2, S–3 and S–4. As stated above, the operator had placed a left shoe in the machine and as shown in FIG. 3, the template assembly is in proper position for a left shoe so that the valve S–4 will be in the closed position shown in FIG. 4. Accordingly, when the side clamps 54 and 56 were moved in against the shoe in the machine, its heel end swung the heel abutment block 52 to the position shown in FIG. 2, thereby shifting the plunger of the valve V–2 to the left in FIG. 4. Pressure fluid now flows through the valves V–2 and V–4 and another shuttle valve V–13 to pilot the valve V–14 and another valve V–14.

Pressure fluid now flows through the valve V–14 to the cylinder C–5 causing the piston P–5 to swing the toe abutment member 120 to its retracted position. Such
movement of the toe abutment member shifts the valve V-15 to pilot a valve V-16. The valves V-11 and V-12 being at this time open, pressure fluid flows through the valve V-10 to pilot a valve V-15.

As a result of the piloting of the valve V-17, an operating cycle of the machine is started. During this operating cycle the work supporting structure 8 is moved back and forth on the frame 12, thereby to cause the bottom of the shoe thereon to pass by the tools 14 and 16.

The work supporting structure is effected by means of fluid pressure actuated mechanism which is generally like that shown in the above-mentioned patent which forms no part of the present invention. At the conclusion of this operating cycle the several control valves mentioned above are reset to their original positions. Thus, side clamps 14, 16 are released, the clamping plate 72 is lowered, the pawl 206 is retracted to release the rod 108 and the toe supporting block 102 is retracted, thereby releasing the shoe for removal by the operator. Also, the toe abutment is returned to its operative position. Pressure fluid is, however, still admitted to the cylinder C-7. For relieving such fluid pressure, thus to facilitate removal of the template assembly, a manually operable exhaust valve V-18 is provided, FIG. 4.

Assuming now that the operator next places a right shoe in the machine, thereby causing the heel abutment block to be swung to a position to shift the valve V-13 and to leave the valve S-2 in the closed position shown, pressure fluid cannot reach the shuttle valve V-13 either through valves S-1 and S-3 or valves S-2 and S-4 inasmuch as the template assembly is in a position for a left shoe and valve S-3 is closed. However, pressure fluid now passing through valve S-3, flows to the cylinder C-6 thereby causing the piston P-6 to rotate the template assembly to the proper position for a right shoe. Valve S-3 is now opened by cam 210 and an operating cycle is initiated in the manner described above. A similar action will occur when a left shoe is placed on the supporting structure when the template assembly is in a position for a right shoe. Under these conditions, pressure fluid flowing through the valve S-2, but blocked by the valve S-4 would flow to the cylinder C-6 and cause the piston P-6 to rotate the template assembly to the proper position for a left shoe.

For the convenience of the operator, a manually operable valve V-19 is provided for his use in reversing the position of the template assembly.

During the operating cycle of the machine the tools 14 and 16 are positioned in directions extending wide of the shoe S by the action of the template on the carriages 24, 26 generally in the same manner as in the prior machines, such, for example, as that shown in the above-mentioned patent. However, whereas in the prior machines it is necessary to change the template for shoes of different sizes, the arrangement herein illustrated avoids this difficulty entirely. Thus, when the toe supporting block 102 is moved to the right and into engagement with the toe end of the shoe which the operator has placed in the machine, and is brought to a stop by the engagement of the toe end of the shoe with the toe abutment member 120, the size of the shoe is automatically sensed.

At the same time, the rod 188 which moves with the toe supporting block effects lengthwise and wide of adjusting movements of the template assembly in the following manner.

One end of the lever 192 is carried along by the arm 190 for a fair part of the right hand end of the rod 188 and on which the lever is pivotally mounted. The stop pin 194 limits swinging movement of this lever in a counterclockwise direction. Thus the block 184 is moved to the right, but by an amount which is less than the distance moved by the rod 188 because of the proportioning action provided by the leverage arrangement. The purpose of this is to compensate for the difference in the overall foreshortening of shoes of different sizes and the foreshortening which exists from the toe end of the shoe back to the ball portion thereof. Thus, for a particular style of last, the overall foreshortening was found to be 3/4" while the corresponding foreshortening from the toe end back to the ball portion was only 1 3/8", 3/4" 3/4", for a full run shoe.

Accordingly, the leverage arrangement for this style of last was designed to provide for a loss of 3/4" in the movement of the block 184 during the 3/4" movement of the rod 188 which occurs as the toe supporting block 102 moves between a position in engagement with the toe end of a size 11 shoe and a position in engagement with the toe end of a size 3 1/2 shoe. In this way, the template assembly is automatically adjusted in a lengthwise direction in accordance with the size of the shoe placed on the shoe supporting structure and as sensed by the movement of the toe supporting block.

Moreover, as the template assembly is thus adjusted in a lengthwise direction to bring the ball portion of the template into proper lengthwise position for the particular size shoe in the machine, the action of the stud 162 on the inclined wedge surfaces 156 and 158 effects a wide adjusting movement of the template sections 152 and 154 to correspond to the variations in the width of shoes of different sizes. Thus, when a shoe of the largest size of the run, e.g., size 11, is in the machine, the block 184 will assume its extreme left hand position and the template sections will be swung apart the greatest amount. On the other hand, when a shoe of the smallest size of the run, e.g., size 3 1/2, is in the machine, the block 184 will be shifted to the right a maximum distance (i.e. 3 3/8") and the template sections will be swung together by the spring 160 to the greatest extent to reduce the width of the template to correspond to the smallest size shoe.

The template assembly is readily removable for replacement with another similar assembly designed for use with a run of sizes of shoes of a different style in the following manner. While there is pressure fluid in the manifold M the template assembly in yielding urged to the left by the action of the piston P-7. By actuating the manually operable valve V-18, cylinder C-7 may be connected to exhaust thus relieving pressure on the template assembly. The block 172 and pinion 174 may now be moved to the right by means of the enlarged head 176, thus releasing the template assembly for removal and replacement.

With the novel arrangement described above, the operation of the machine is greatly facilitated and the output thereof correspondingly increased. Thus, all the operator has to do after seeing that the proper template assembly for the particular style of shoe to be handled is installed on the supporting member 130, is to place successive shoes on the supporting structure and by elevating their heel ends to initiate the operating cycle by actuating the valve V-1, and at the conclusion of the operating cycle to remove the shoe and place another in the machine. The sensing valves S-1, S-2, S-3, S-4 compare the particular shoe, i.e., a right or a left with the position of the template assembly and, if required, effect automatic rotation of the assembly to the proper position for that shoe. At the same time, appropriate lengthwise and wide of adjusting movements of the template assembly are effected in accordance with the size of the shoe as sensed by the toe supporting block and the toe end of the shoe is automatically brought to the proper heightwise position by engagement with the toe abutment 120.

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

1. In a machine for performing operations along marginal portions of the bottoms of shoes having a tool for operating on marginal portions of the bottom of a shoe and means for supporting a shoe during relative movement between the supporting means and said tool to cause the bottom of the shoe to pass by said tool, a template
on the supporting means for positioning the tool relatively to the bottom of a shoe on the supporting means in a direction extending widthwise thereof as the bottom of the shoe passes by the tool, means mounting said template for adjustment in a direction extending widthwise relatively to the supporting means and a shoe thereon to position the template in accordance with the size of the shoe, and means on the supporting means for sensing the size of a shoe thereon and for effecting a corresponding lengthwise adjustment of said template on the supporting means.

2. A machine as set forth in claim 1, wherein said means for sensing the size of the shoe and for effecting said lengthwise adjustment of the template comprises a toe support movable from a retracted position into engagement with the toe end of a shoe on the support and means operatively connecting the toe support to said template.

3. In a machine as set forth in claim 1 wherein said template is also adjustable in a widthwise direction to accommodate shoes of different sizes in response to said lengthwise adjustment thereof.

4. In a machine as set forth in claim 2 wherein said template is also adjustable in a widthwise direction to accommodate shoes of different sizes in response to said lengthwise adjustment thereof.

5. In a machine for performing operations along marginal portions of the bottoms of shoes having a pair of tools for operating on marginal portions of the bottom of a shoe and means for supporting a shoe during relative movement between the supporting means and said tools to cause the bottom of the shoe to pass by said tools, a template on the supporting means for positioning the tools relatively to the bottom of a shoe on the supporting means in directions extending widthwise thereof as the bottom of the shoe passes by the tools, means mounting said template for adjustment in a direction extending lengthwise relatively to the supporting means and a shoe thereon to position the template in accordance with the size of the shoe, and means on the supporting means for sensing the size of a shoe thereon and for effecting a corresponding lengthwise adjustment of said template on the supporting means.

6. In a machine as set forth in claim 5 wherein said template comprises a base member mounted on the shoe-supporting means for lengthwise adjustment and a pair of template portions carried on the base member.

7. In a machine as set forth in claim 6 wherein the template portions are mounted on the base member for widthwise adjustment.

8. In a machine for performing operations along the marginal portions of the bottoms to shoes having a tool for operating on marginal portions of the bottom of a shoe and means for supporting a shoe during relative movement between the tools and a supporting means to cause the bottom of a shoe to pass by said tool, said supporting means comprising a heel support for engaging the heel seat portion of the bottom of a shoe, a heel abutment for gauging the heel end of a shoe, a toe support member mounted for movement toward the heel support and heel abutment for engaging and elevating the toe end of a shoe to a predetermined level relatively to said tool and means for moving said toe-supporting member.

9. In a machine as set forth in claim 8 wherein said toe-supporting member is provided with an inclined surface for engaging and elevating the toe end of a shoe.

10. In a machine as set forth in claim 8 wherein said toe-supporting member is provided with a retractable abutment member for engaging the bottom of the shoe at the toe end thereof to limit the elevation of the toe end of the shoe by the supporting member in accordance with the size of the shoe, and wherein means are provided for retracting said abutment member prior to relative movement of the shoe-supporting means and the tool.

11. In a machine as set forth in claim 8 wherein said toe-supporting member is provided with a concave groove for engaging and positioning the toe end of a shoe laterally on the shoe-supporting means.

12. In a machine as set forth in claim 8 wherein said toe-supporting member is further provided with a concave groove in its inclined surface for engaging and positioning the toe end of a shoe laterally on the shoe-supporting means.

13. In a machine as set forth in claim 9 wherein said toe-supporting member is further provided with a concave groove for engaging and positioning the toe end of a shoe laterally on the shoe-supporting means.

14. In a machine for performing operations along the marginal portions of the bottoms of shoes having a tool for operating along the marginal portions of the bottom of a shoe and means for supporting a shoe during relative movement between the tools and the supporting means to cause the bottom of the shoe to pass by said tool, said supporting means comprising a heel support for engaging the heel seat portion of the bottom of a shoe, a member for clamping the heel end of the shoe against said heel support, a heel abutment for engaging the heel end of the shoe and a toe-supporting member for movement toward said heel abutment, power means for operating said clamping means and for moving the toe-supporting member and control means responsive to the engagement of the heel seat portion of the bottom of a shoe with the heel support for initiating operation of said power means.

15. In a machine as set forth in claim 14 wherein said heel support comprises a member mounted for limited movement from an inoperative position to an operative position by the engagement of the heel seat portion of the bottom of a shoe thereon with wherein said control means is responsive to such movement of the heel support.

16. In a machine for performing operations along the marginal portions of the bottoms of shoes having a tool for operating on the marginal portions of the bottoms of shoes, means for supporting a shoe during relative movement between the tool and the supporting means to cause the bottom of a shoe thereon to pass by said tool and a template on the supporting means for positioning the tool relatively to the bottom of a shoe on the supporting means in a direction extending widthwise thereof as the shoe passes by the tool, said template being mounted for rotation about its longitudinal axis to reverse its position to adapt it for use with a right or a left shoe, means for rotating the template and means for controlling the operation of said template rotating means to position the template for use with a particular shoe on the supporting means including means for sensing the character of the shoe on the supporting means and means for sensing the position of the template.

17. In a machine as set forth in claim 16 wherein means for sensing the character of the shoe comprises a heel abutment block moveable to one position by the heel end of a right shoe and to another position by the heel end of a left shoe and a separate sensing member adapted to be actuated by the heel abutment block in each of its two positions.

18. In a machine as set forth in claim 16 wherein the means for sensing the position of the template includes a pair of cam members rotatable with the template.

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