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BOTTOM ROUGHING EQUIPMENT FOR SLIP SHOES

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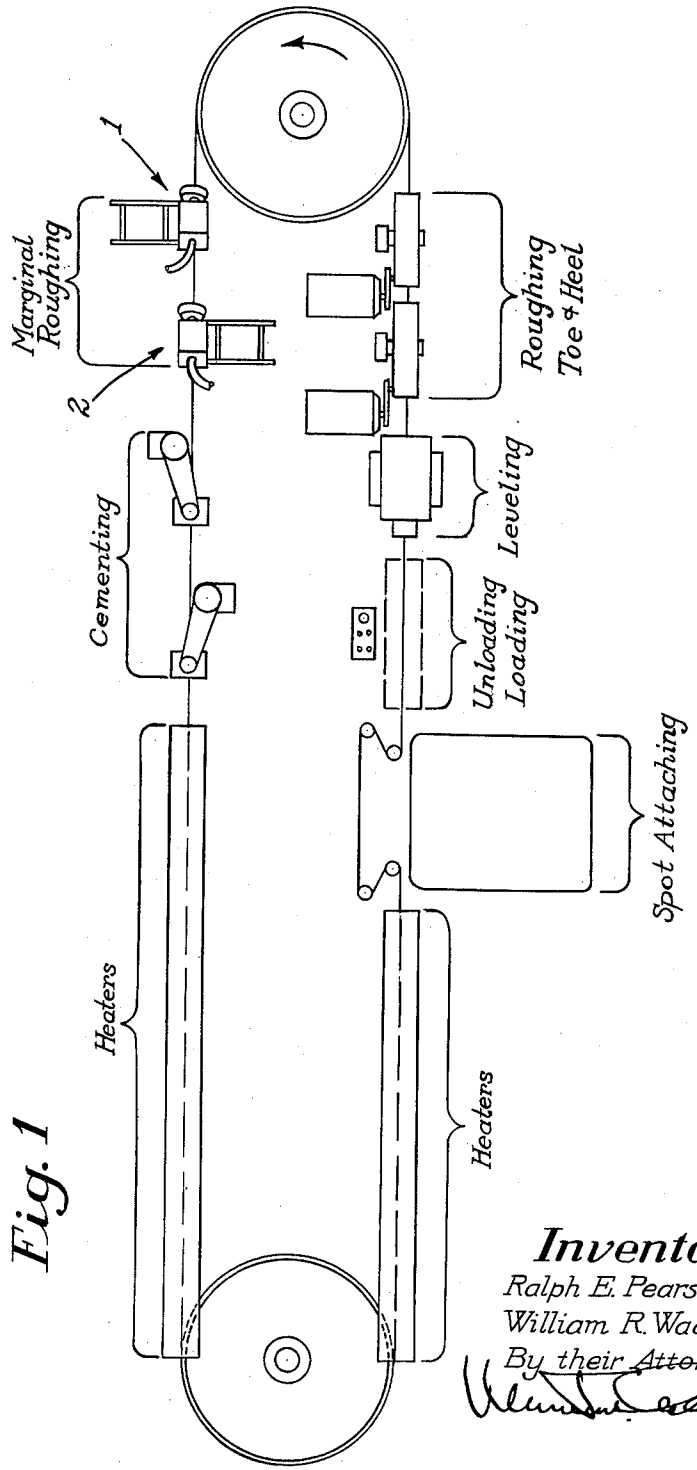


Fig. 1

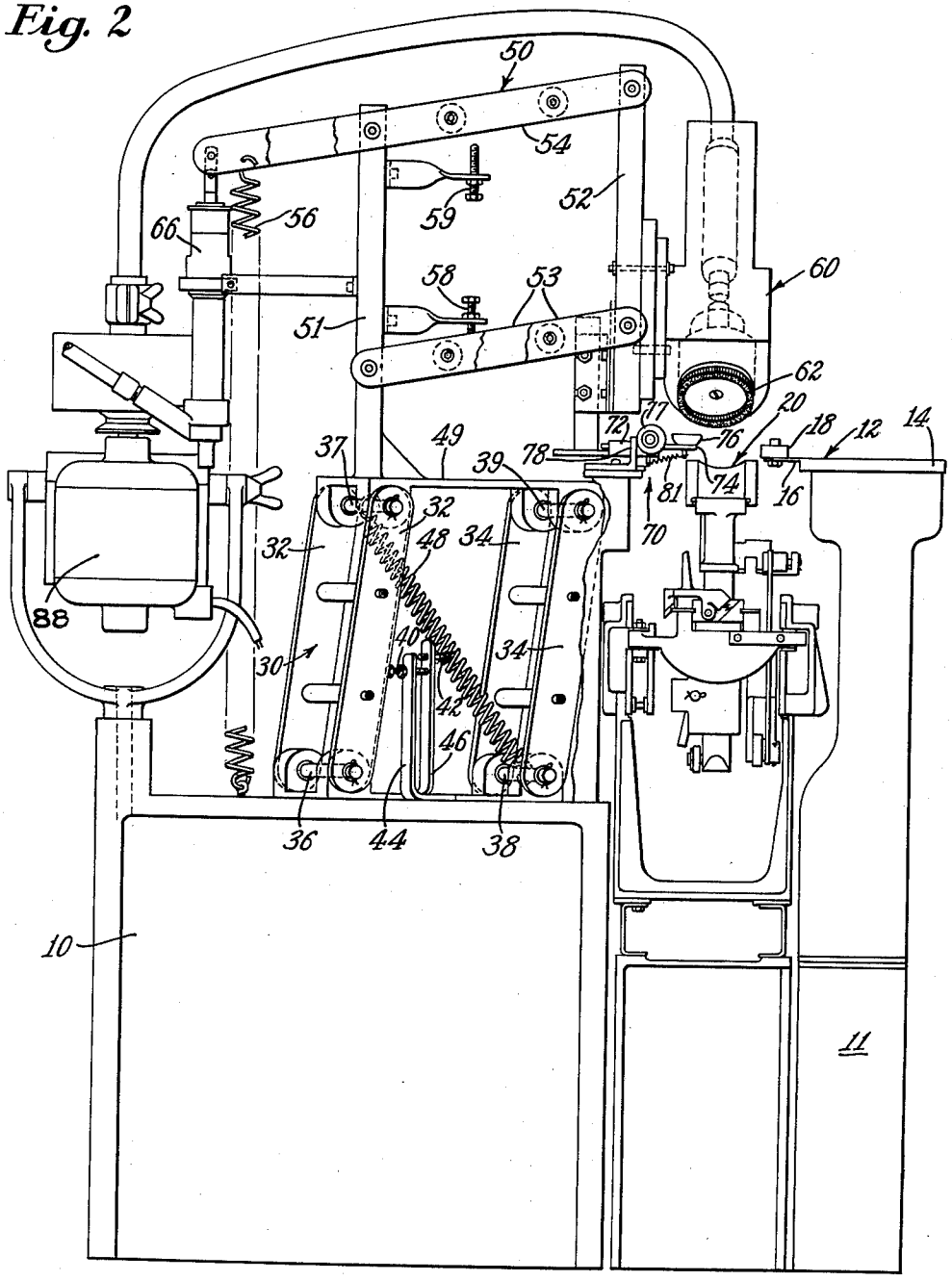
Inventors
Ralph E. Pearsall
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By their Attorney

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Fig. 2



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BOTTOM ROUGHING EQUIPMENT FOR SLIP SHOES

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Fig. 3

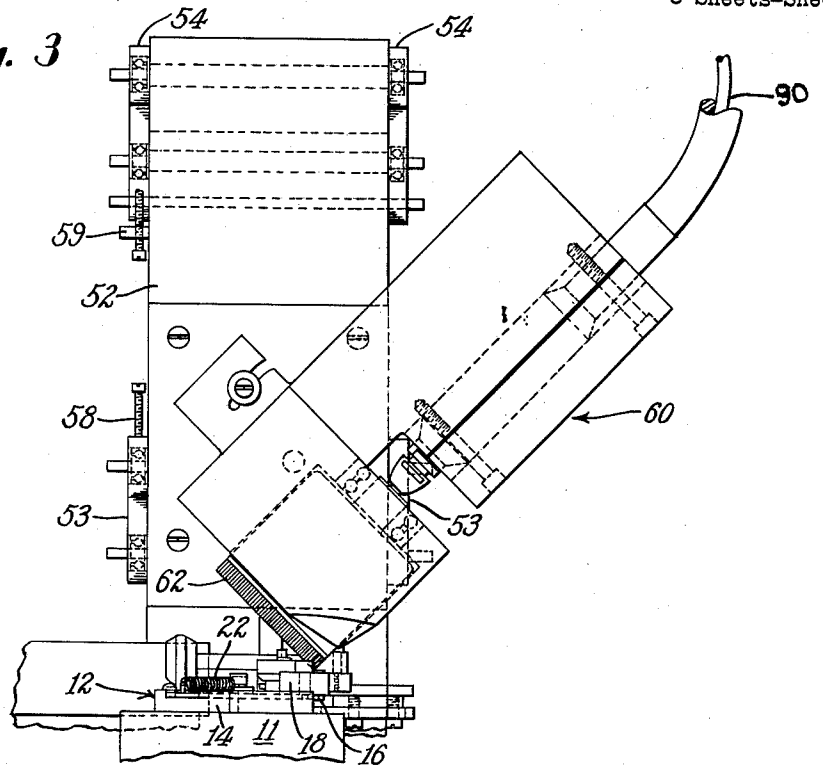
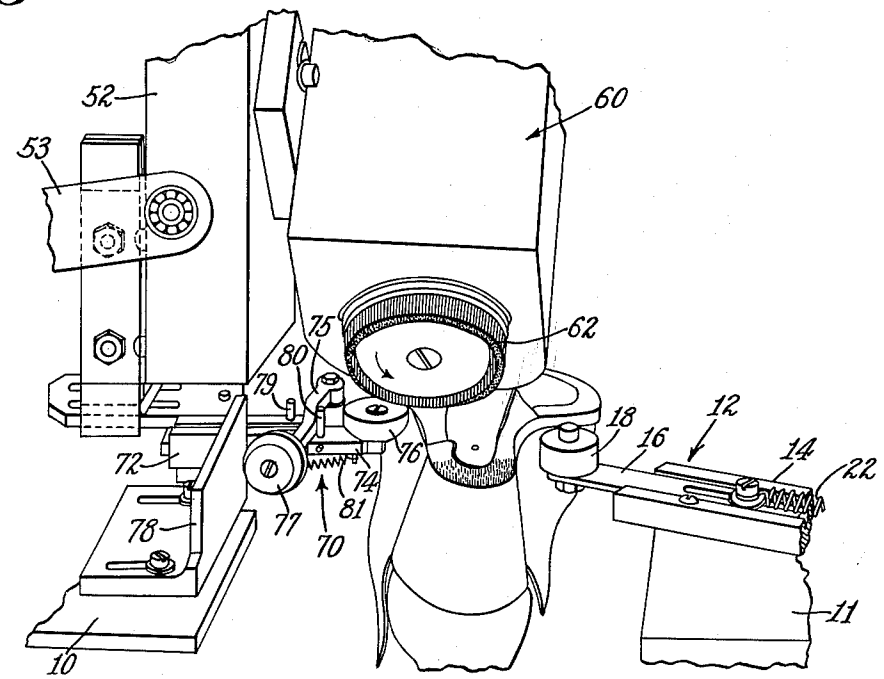


Fig. 4



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BOTTOM ROUGHING EQUIPMENT FOR SLIP SHOES

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13 Claims. (Cl. 69—6.5)

This invention relates to a roughing apparatus and control means therefor employed in the roughing of a shoe bottom to facilitate the subsequent application of a sole thereto by cementing. The subject apparatus and control means therefor are particularly adapted for use in the automatic shoemaking system disclosed in a prior copending application for United States Letters Patent Serial No. 23,280 filed April 19, 1960 in the name of William P. Hidden et al. The utilization of this invention is not, however, limited to application in said shoemaking system.

In the manufacture of shoes, particularly of the type having an outsole which is attached to the shoe by cement, it is the normal procedure to project the upper leather over the outer surface of the shoe bottom prior to the application of an outsole. This projection or overlast of the upper leather forms a margin along the periphery of the shoe bottom which must be roughed in order to remove irregularities therefrom and, also, to condition said marginal overlast for the application of cement thereto.

Heretofore, the conventional method of roughing the overlasted marginal portions of the upper in automatic machines has resulted in intermittent roughing and non-uniform penetration of the marginal portion. The inability to properly and automatically position the roughing means has necessitated relatively deep penetration of certain portions of the overlasted margin in order to accomplish a complete roughing of the margin. Further, the failure of prior automatic machines to properly align and position the roughing means has commonly resulted in the failure of certain portions of the overlasted margin to be completely and properly exposed to the roughing means.

The alignment and positioning of the roughing means must be predicated upon three major considerations. The position of the roughing means must be varied relative to the shoe bottom in accordance with peripheral configuration of the shoe bottom. It must also be varied to compensate for the transverse arcuate contour of the shank and forepart portions of the overlasted margin and the longitudinal contour of the last bottom.

The principal object of the present invention is to provide a roughing apparatus having control means which facilitate the automatic positioning of the roughing means in response to the varying configuration and contour of the overlasted marginal portion of a shoe such that continuous roughing and uniform penetration is attained.

To this end and in accordance with a feature of this invention, there is provided a roughing apparatus comprising two separate but identical machines and control means therefor adapted sequentially to rough the opposite marginal portions of a shoe part, each of said machines having a cup-shaped roughing brush, means mounting said roughing brush for movement relative to a shoe part to be operated upon, and control means to effectuate and regulate lateral movement of said roughing brush relative to said shoe part in response to changes in configuration and contour thereof.

The above and other features of the invention, including novel details of construction and combinations of parts, will now be described in the following specification and will be pointed out in the appended claims.

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In the drawings,

FIG. 1 is a schematic view of a shoe making system incorporating the subject invention;

FIG. 2 is a side elevation of the machine designated 1 in FIG. 1;

FIG. 3 is a front elevation of the machine illustrated in FIG. 2; and

FIG. 4 is a perspective view of the control means for the machine illustrated in FIG. 2.

The illustrated apparatus comprises two roughing machines or stations generally designated 1 and 2 (FIG. 1).

The subject machines are shown located in the automatic shoemaking system disclosed in the above-referenced copending applicaton. The desirability of successively roughing the marginal portions of a shoe bottom along opposite sides of the shoe without imparting rotational movement to the pallet conveying the shoe dictates the sequential location of the individual machines included in the subject apparatus. However, the illustration and description of the component machines as functioning in sequential order is not indicative of exclusive use of said machines in combination. Only one of the machines will be described, it being understood that the two machines are identical in physical and operative features.

The component machine generally designated 1 (FIGS. 1 and 2) has two base members 10 and 11 disposed on opposite sides of a conveyorized rink or similar shoe carrying means 20. The base member 11 has a spring controlled follower means 12 (FIGS. 2, 3 and 4) secured directly thereto on the upper surface thereof. The follower means 12 comprises a slotted member 14 secured to the base 11 and extending at an acute angle to the median line of the shoe carrying means 20, a second member 16 slidable within the slotted member, and a spring 22 connected between the member 16 and a screw passing through a slot in the member 16 and threaded into the member 14. The slidable member 16 has a rotatable disk 18 mounted thereon. The follower means 12 is so positioned that the rotatable disk 18 will contact a shoe when such is initially introduced to the machine, thereby resulting in the application of a retaining force on said shoe due to the action of the spring 22. The follower means 12 functions to retain the lasted shoe in its proper position on a pallet and, also, to counterbalance the force applied by an oppositely disposed control means, to be hereinafter described.

The base member 10 has mounting means located thereon to which a roughing means is secured. The mounting means comprises two four-bar linkages 30 and 50 positioned to synergetically facilitate both vertical and lateral movements of a roughing means 60.

The four-bar linkage 30 (FIG. 2) is rotatably mounted on ears secured to the base 10. The linkage 30 has two co-operating sets of upwardly extending links 32, 32 and 34, 34 rotatably carried on pins 36, 38 respectively, which are fixed in the ears. Pins 37, 39 connect the upper ends of the links to a mounting platform 49. Rotational movement of the links 32, 32 and 34, 34 is translated into substantially rectilinear movement of the mounting platform 49 and lateral movement of the roughing means 60. The terminal positions of the four-bar linkage 30 are adjustably determined by contact of the links 32 and 34 with stop screws 40 and 42, respectively, mounted on L-shaped members 44 and 46 carried by the base 10. The four-bar linkage 30 is urged toward a forward position, as illustrated in FIG. 2, by a spring 48 extending diagonally from the pin 37 at the upper end of the links 32, 32 to the pin 38 which carries the links 34, 34. The spring 48 normally retains the linkage 30 in said forward position. When the linkage 30 is displaced to the rear of said position a sufficient distance, the rearward gravita-

tional force thereon will urge the linkage 30 into a rearward position against the force of the spring 48 and the linkage 30 will thereafter retain itself in said rearward position. Removal from the rearward position is accomplished by manually displacing the linkage 30 from the rearward position to a point where the spring 48 will urge the linkage 30 forward. The linkage 30 is placed in its rearward position to facilitate maintenance of the roughing means.

The second four-bar linkage 50 is affixed to the mounting platform 49. The linkage 50 comprises an upwardly extending member 51 which is secured to said mounting platform 49, two co-operating sets of links 53, 53 and 54, 54 (FIGS. 2 and 3) pivoted to the member 51, and a mounting member 52 pivotally carried on the forward ends of the links 53, 53 and 54, 54 in a plane parallel to that of the member 51. The mounting member 52 has the roughing means 60 secured thereto, said roughing means 60 including a cup-shaped brush 62 such as disclosed in United States Letters Patent No. 2,936,472, granted May 17, 1960 on an application filed in the names of R. E. Pearsall and William R. Wade. The pivotal movement of the links 53, 53 and 54, 54 imparts vertical translation to the mounting member 52 and, consequently, to the roughing means 60, thereby rendering the roughing means movable in a direction generally perpendicular to the shoe conveying means. Pivotal movement of the links 32, 32 and 34, 34 causes movement of the linkage 50 and, consequently, movement of the roughing means 60 laterally of the shoe conveying means. The roughing brush is thus movable vertically into engagement with a shoe part mounted on the shoe conveying means and laterally thereof.

The mounting member 52 of the four-bar linkage 50 and the roughing means 60 carried by it are normally retained in an elevated inoperative position, displaced from the shoe conveying means 20, by a spring 56 (FIG. 2) stretched between the base 10 and a rearward extension of one of the upper links 54. The rearward extension of the upper link 54 also has a fluid pressure operated motor 66 attached thereto for imparting movement to the links of the linkage 50 and, therefore, to the roughing means 60. The motor 66 which is carried by the member 51 may be controlled by any suitable actuating means, such as a photocell or microswitch (not shown), located on the shoe conveying means 20, said actuating means being operative in response to the approach of a shoe. Thus, the roughing brush is movable vertically from an inoperative to an operative position in response to the approach of a shoe on said shoe conveying means. The terminal positions of the linkage 50 are adjustably determined by stop screws 58 and 59 threaded into brackets secured to the member 51.

The motor 66 is also utilized to maintain continuous contact at a constant pressure between the roughing brush and the overlasted marginal portion of a shoe being operated on. Pressure regulating means (not shown) are associated with the motor 66 for varying the pressure applied by it and thereby controlling the depth of roughing penetration for the various materials to be operated on. The operative vertical location of the roughing brush at any point in an operation pass is determined by the applied pressure and the longitudinal contour of the last bottom. The changing longitudinal contour of the last bottom produces a correlated movement of the roughing brush and, therefore, of the linkage 50 due to the ability of the motor 66 to exert only a constant pressure of predetermined magnitude at any point on a particular shoe. Thus, the vertical location of the roughing brush is automatically adjusted to accommodate the changing longitudinal contour of the last bottom.

The mounting member 52 has control means 70 (FIGS. 2 and 4) attached thereto for causing adjustment of the lateral position of the roughing brush as the shoe passes thereby, to follow the marginal contour of the shoe and to insure substantially uniform roughing regardless of the inclination or transverse contour of the bottom marginal portion along the shoe.

The control means 70 includes a grooved member 72 secured to and extending from said mounting member 52 in a direction generally perpendicular to the median line of the shoe conveying means 20, a second member 74 slidable within said grooved member 72, and a lever arm 75 pivotally mounted on said grooved member 72 and extending transversely to said slidable member 74. The slidable member 74 has a rotatable follower or sensing disk 76 mounted on a terminal portion thereof, said follower disk 76 being adapted and positioned to contact the peripheral portion of the overlasted margin of a shoe carried on the shoe conveying means 20. The lever arm 75 carries at its outer end a rotatable disk 77 positioned to contact a plate 78 adjustably secured to an extension of the base 10. The plane of rotation of the disk 77 is substantially perpendicular to the face surface of the plate 78 and the disk 77 is, therefore, rotatable vertically thereon when the disk 77 and the plate 78 are in contact. A pin 79, carried by the grooved member 72, determines the normal terminal position of the arm 75, the arm 75 being held in contact with the pin 79 when the linkage is lowered into operative position, by a second pin 80, carried by the slidable member 74, which is retained in contact with the arm 75 by a spring 81 stretched between the grooved member 72 and the slidable member 74. When the linkage 50 initially lowers the roughing means into operative position, the control means 70 will simultaneously be lowered into position.

The essential function of the control means 70 is the controlled conversion of the relative displacement of the follower disk 76 resulting from said disk's contact with a shoe carried by the shoe conveying means to a correlated displacement of the mounting platform 49 and, consequently, the roughing means 60.

When the control means 70 is initially lowered into operative position the disk 77 is displaced from the plate 78 and the disk 76 is positioned to contact the peripheral portion of the overlasted margin of a shoe to be operated one, the linkage 30 being located in its normal forward position. The initial displacement of the disk 76, as a result of the movement of a shoe into engagement therewith, produces a corresponding displacement of the grooved member 72 due to the contact of the pins 79 and 80 with the lever arm 75. The displacement of the grooved member 72 is transmitted through the linkage 50 to the platform 49 and is manifested in rotational movement of the linkage 30. Thus, the rotational movement of the linkage 30 facilitates the lateral displacement of the disk 76 in accordance with the peripheral configuration of a shoe. The spring 48 and the gravitational force on the linkage 30 exert a force opposed to the force causing the rotation of the linkage 30 and the displacement of the disk 76. This opposite force is utilized to retain the disk 76 in contact with the shoe during movement of the shoe past the disk. As stated hereinabove, rotational movement of the linkage 30 is translated into lateral movement of the roughing means 60. The displacement of the disk 76 is thus converted into a corresponding displacement of the roughing means 60 as long as the disk 77 is out of contact with the plate 78.

The initial rearward displacement of the grooved member 72 results in a corresponding displacement of the lever arm 75, and, consequently, the disk 77 attached thereto, all parts of the control means moving as a unit. This continues until the disk 77 is moved into contact with the plate 78. The arm 75 will thereafter function as a lever to regulate the displacement of the platform 49 and roughing brush 62 in a predetermined ratio to the subsequent rearward displacement of the disk 76. The disk 76 and the pin 80 are secured to the slidable member 74 in a fixed spacial relationship and, therefore, displacement of the disk 76 results in a corresponding displacement of the

pin 80. The subsequent rearward displacement of the pin 80 imparts rotational movement to the lever arm 75 due to contact of the disk 77 carried thereby with the fixed plate 78. The plate 78 acts to establish a fulcrum for the lever arm 75 and, thus, the more distant a particular point on the lever arm 75 is from the plate 78, the greater will be its relative displacement. Accordingly, when the pin 80 is displaced and imparts rotational movement to the lever arm 75, the grooved member 72 will be displaced a greater distance than the pin 80 and the follower disk 76. The exact ratio between the displacement of the disk 76 and the grooved member 72 can be regulated by control of the relative position of the pin 80 laterally on the lever arm 75. At noted hereinabove, the displacement of the grooved member 72 results in a corresponding displacement of the platform 49 and the roughing means 60. Thus, the displacement of the disk 76 will result in a correlated displacement of the roughing means 60 of a greater magnitude when the disk 77 is in contact with the plate 78. Also, as previously noted, the spring 48 will retain the disk 76 in contact with the shoe and effectuate reverse movement of the roughing means 60 when the force causing the rearward displacement of the disk 76 is removed.

A shoe to be operated on enters the roughing station and engages the follower disk 76 heel first and bottom-up. The overlasted margin in the heel area will present an essentially flat surface to the roughing brush 62. The cup-shaped roughing brush 62 must therefore be automatically and continuously positioned at the longitudinal median line of the overlasted margin, as said overlasted margin is progressively introduced thereto, in order to attain maximum roughing with minimum penetration in the heel area of the overlasted margin. The correlation between the longitudinal median line of the overlasted margin and the peripheral configuration of the shoe permits the use of the control means 70 to attain such automatic positioning of the roughing brush 62. When operating on the heel area, the roughing brush 62 must be displaced a distance equal to that which the disk 76 is displaced in order to accomplish uniform roughing along the longitudinal median line. Roughing of the heel area is, therefore, completed with the disk 77 out of contact with the plate 78. Thus, when the roughing brush is initially positioned to contact the overlasted margin at the longitudinal median line, it will thereafter be maintained in alignment with said median line as a result of the operation of the control means 70 until the disk 77 contacts the plate 78.

The transverse arcuate contour of the shank and forepart portions of the overlasted margin necessitates adjustment of the relative positioning of the roughing brush. Maximum roughing with minimum penetration in these areas is accomplished by alignment of the radii of the cup-shaped brush 62 and the arcuate contour of the overlasted marginal portion such that the circular characteristics of said brush are utilized to rough the arcuate contour of the overlasted margin. The most advantageous position of the roughing brush is, therefore, at a point intermediate the longitudinal median line and the peripheral portion of the overlasted margin. The roughing brush must, therefore, have a correlated displacement of greater magnitude than the displacement of the disk 76 in order to place the roughing brush on the outside of the longitudinal median line of the overlasted margin in the shank and forepart areas. This is accomplished by roughing the shank and forepart areas with the disk 77 in contact with the plate 78. The roughing brush is thereby positioned to compensate for the transverse arcuate contour of the roughing brush by appropriate adjustment of the ratio of movement of the disk 76 to movement of the roughing means 60.

A cycle of operation of the subject machine is initiated by the approach of a shoe mounted on suitable carrying means. The linkage 30 must be initially located in its forward position, as illustrated in FIG. 2. The approach of a shoe actuates the motor 66 whereby the linkage 50 is pivoted and the roughing brush 62 lowered into operative position. The roughing brush is driven by a motor 88 through a flexible shaft 90. As previously noted, a shoe is introduced to the control means 70 heel first, the disk 77 being displaced from the plate 78. The roughing brush is initially positioned to rough the heel portion of a shoe. As the shoe is progressively moved past the disk 76, the roughing brush will be automatically adjusted as described hereinabove. The control means will effectuate and regulate lateral movement to compensate for the peripheral configuration and transverse arcuate contour of the overlasted margin and the operative vertical location of the roughing brush will be automatically adjusted by movement of the linkage 50 to compensate for the longitudinal contour of the last bottom.

The second of the two machines illustrated in FIG. 1 functions in the same manner as the first, as above described, but roughs the opposite marginal portion.

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

1. In a machine for roughing the marginal portions of shoe bottoms, a roughing tool, means mounting said tool for vertical and lateral movements relative to the bottom of a shoe presented thereto, means for maintaining said tool in contact with the bottom of said shoe, and control means to cause lateral movement of said tool in response to the peripheral configuration of said shoe, said control means having follower means positioned to contact the bottom edge of said shoe and means whereby displacement of said follower means is transmitted to said mounting means in different degrees along different portions of the shoe.

2. In a machine for roughing the marginal portions of the bottom of lasted shoes, a roughing tool, means for presenting a shoe bottom-up to said tool and feeding it past the tool, means for maintaining the tool in contact with the marginal portion of the shoe bottom, means for sensing the curvature along the edge of the shoe bottom, means operated by said sensing means for moving the tool widthwise of the shoe bottom during feeding of the shoe to accommodate the edge curvature of the shoe, and means modifying the action of the sensing means along certain portions only of the shoe bottom.

3. In a shoe bottom roughing machine, a roughing tool, means for feeding a shoe in a straight line past said tool, means for maintaining the tool in engagement with the marginal portion of the shoe bottom, and means for moving the tool widthwise of the shoe bottom to accommodate the edge curvature of the shoe, said last named means comprising a movably mounted edge follower, and means operative in response to movement of said edge follower for moving the tool directly in accordance with the follower along narrow portions of the shoe and at a higher rate along other portions of the shoe.

4. In a machine for roughing the marginal portions of shoe bottoms, a roughing tool, means mounting said tool for movement relative to the bottom of a shoe presented thereto, said mounting means being movable to adjust the vertical operative position of said tool relative to the bottom of said shoe in response to the changing longitudinal configuration thereof and to adjust the lateral position of the tool relative to the shoe bottom, and control means to effect and regulate movement of said mounting means whereby the lateral position of said roughing tool relative to a shoe is adjustably controlled, said control means having follower means positioned to contact the peripheral marginal portion of a shoe introduced to said roughing tool and means whereby displacement of said follower means imparts a correlated displacement of automatically adjusted magnitude to said mounting means.

5. In an automatic shoemaking system, two sequentially positioned machines for successively roughing the oppositely disposed overlasted marginal portions of a shoe fed

thereby, each of said machines having a roughing brush, means mounting said roughing brush for vertical and lateral movements relative to a shoe presented thereto, said mounting means being movable to adjust the vertical operative position of said roughing brush relative to the bottom of said shoe in response to the changing longitudinal configuration thereof, and control means to effect and regulate movement of said mounting means whereby the lateral position of said roughing brush relative to a shoe is adjustably controlled, said control means having follower means positioned to contact the peripheral marginal portion of a shoe introduced to said operating tool and means whereby displacement of said follower means imparts a correlated displacement of automatically adjusted magnitude to said mounting means.

6. In a shoe bottom roughing machine, a roughing tool, means for feeding a shoe in a straight line past said tool, means for maintaining the tool in engagement with the marginal portion of the shoe bottom, and means for moving the tool widthwise of the shoe bottom to accommodate the edge curvature of the shoe, said last named means comprising a movably mounted edge follower, means providing a direct connection between the follower and the tool whereby movements of the follower are communicated directly to the tool, and means operative automatically during engagement of the follower with certain portions of the shoe for interrupting said direct connection and causing the tool to move at a higher rate than the follower.

7. In a machine for roughing the overlasted marginal portion of a shoe bottom, a roughing brush, means mounting said roughing brush for vertical and lateral movements relative to a shoe presented thereto, and control means for causing adjustment of the lateral position of said roughing brush relative to said shoe in accordance with the peripheral marginal configuration thereof, said control means comprising a follower means positioned continually to contact said shoe at the peripheral marginal portion as said shoe is progressively introduced to said roughing brush, lever means connecting said follower means and said mounting means, means including said lever means providing a direct connection between said follower means and said mounting means during operation on one part of the shoe, and means rendering said lever means effective during operation on another part of the shoe for causing movement of the mounting means at a rate different from that of the follower means.

8. In a machine for roughing the overlasted marginal portion of a shoe bottom, a roughing tool, means mounting said tool for vertical and lateral movements relative to a shoe presented thereto, said mounting means being movable to place said tool in an initial operative position in response to the approach of a shoe, means connecting said tool and said movable mounting means whereby movement is imparted to said mounting means in response to contact of said tool with the shoe bottom in response to movement of the shoe lengthwise of the tool thereby to adjust the vertical operative location of said tool, and control means for causing adjustment of the lateral position of said tool relative to said shoe in accordance with the peripheral marginal configuration thereof, said control means comprising a follower means positioned continuously to contact said shoe at the peripheral marginal portion as said shoe is progressively introduced to said tool, lever means connecting said follower means and said mounting means, means including said lever means providing a direct connection between said follower means and said mounting means during operation on one part of the shoe, and means rendering said lever means effective during operation on another part of the shoe for causing movement of the mounting means at a rate different from that of the follower means.

9. In a machine for roughing the marginal portions of shoe bottoms, a roughing tool, means mounting said tool for movement relative to a shoe presented thereto, and control means for effecting and regulating movement of said mounting means whereby the lateral position of said tool relative to a shoe is adjustably controlled, said control means comprising a first member fixed to said mounting means, a second member slidable on said first member, said second member having follower means located thereon positioned continuously to contact said shoe as said shoe is progressively introduced to said tool whereby said follower means is displaced in accordance with the peripheral marginal configuration of the bottom of said shoe, a lever arm rotatably mounted on said first member and extending transversely to said second member, stop means mounted on said first member to determine a terminal position of said lever arm, means establishing a fulcrum for the terminal portion of said lever arm displaced from said first member, means mounted on said second member in contact with said lever arm whereby displacement of said follower means is transmitted through said lever arm and said stop means to said first member when the lever arm is displaced from said fulcrum and whereby displacement of said follower means imparts rotational movement to said lever arm when said lever arm is in contact with said fulcrum thereby to effect a correlated displacement of said first member, said lever arm being movable into and out of contact with said fulcrum by displacement of said follower means.

10. In a machine for roughing the marginal portions of shoe bottoms, a roughing tool, means mounting said tool for movement relative to a shoe presented thereto, means connecting said tool and said movable mounting means whereby movement is imparted to said mounting means in response to contact of the tool with the longitudinal contour of a shoe bottom thereby to adjust the vertical operative location of said operating tool, and control means for effecting and regulating movement of said mounting means whereby the lateral position of said operating tool relative to a shoe is adjustably controlled, said control means comprising a first member fixed to said mounting means, a second member slidable on said first member, said second member having follower means located thereon positioned continuously to contact said shoe as said shoe is progressively introduced to said tool whereby said follower means is displaced in accordance with the peripheral marginal configuration of the bottom of said shoe, a lever arm rotatably mounted on said first member and extending transversely to said second member, stop means mounted on said first member to determine a terminal position of said lever arm, means establishing a fulcrum for the terminal portion of said lever arm displaced from said first member, means mounted on said second member in contact with said lever arm whereby displacement of said follower means is transmitted through said lever arm and said stop means to said first member when the lever arm is displaced from said fulcrum and whereby displacement of said follower means imparts rotational movement to said lever arm when said lever arm is in contact with said fulcrum thereby to effect a correlated displacement of said first member, said lever arm being movable into and out of contact with said fulcrum by displacement of said follower means.

11. In an automatic shoemaking system, two sequentially positioned machines for successively roughing the oppositely disposed overlasted marginal portions of a shoe fed thereby, each of said machines having a roughing brush, means mounting said roughing brush for vertical and lateral movement relative to a shoe presented thereto, means connecting said roughing brush and said movable mounting means whereby movement is imparted to said mounting means in response to contact of the roughing brush with the longitudinal contour of a shoe bottom thereby to adjust the vertical operative location of said roughing brush, and control means to effect and regulate movement of said mounting means whereby the lateral position of said roughing brush relative to a shoe is adjustably controlled, said control means comprising a

first member fixed to said mounting means, a second member slidable on said first member, said second member having follower means located thereon positioned continuously to contact said shoe as said shoe is progressively introduced to said roughing brush whereby said follower means is displaced in accordance with the peripheral marginal configuration of the bottom of said shoe, a lever arm rotatably mounted on said first member and extending transversely to said second member, stop means mounted on said first member to determine a terminal position of said lever arm, means establishing a fulcrum for the terminal portion of said lever arm displaced from said first member, means mounted on said second member in contact with said lever arm whereby displacement of said follower means is transmitted through said lever arm and said stop means to said first member when the lever arm is displaced from said fulcrum and whereby displacement of said follower means imparts rotational movement to said lever arm when said lever arm is in contact with said fulcrum thereby to effect a correlated displacement of said first member, said lever arm being movable into and out of contact with said fulcrum by displacement of said follower means.

12. In a machine for roughing the marginal portions of shoe bottoms, a roughing tool, means mounting said tool for movement relative to the bottom, of a shoe presented thereto, said mounting means comprising two four-bar linkages, one of said four-bar linkages being movable to cause vertical movement of said operating tool and the second four-bar linkage being movable to cause lateral movement of said operating tool relative to said shoe, said first four-bar linkage having means thereon operative in response to the approach of a shoe whereby said first linkage is rotated to vertically translate said tool into operative position, means connecting said tool and said first linkage whereby movement is imparted to said first linkage in response to contact of said tool with the longitudinal contour of a shoe bottom thereby to adjust the vertical operative location of said tool, and control means for effecting and regulating movement of said second four-bar linkage whereby the lateral position of said tool relative to said shoe is adjustably controlled, said control means having follower means positioned to contact the peripheral marginal portion of a shoe introduced to said roughing tool and means whereby displacement of said follower means is adjustably transmitted to said second linkage.

13. In an automatic shoemaking system, two sequentially positioned machines for successively roughing the oppositely disposed overlasted marginal portions of a shoe fed thereby, each of said machines having a roughing brush, means mounting said roughing brush for movement relative to a shoe presented thereto, said mounting means comprising two four-bar linkages, one of said four-bar linkages being movable to cause vertical movement of said roughing brush and the second four-bar linkage being movable to cause lateral movement of said roughing brush relative to said shoe, said first four-bar linkage having means thereon operative in response to the approach of a shoe whereby said first linkage is rotated to vertically translate said roughing brush into operative position, means connecting said roughing brush and said first linkage whereby movement is imparted to said first linkage in response to contact of said roughing brush with the longitudinal contour of a shoe bottom thereby to adjust the vertical operative location of said roughing brush, and control means to effect and regulate movement of said second linkage whereby the lateral position of said roughing brush relative to a shoe is adjustably controlled, said control means comprising a first member fixed to said mounting means, a second member slidable on said first member, said second member having follower means located thereon positioned continuously to contact said shoe as said shoe is progressively introduced to said roughing brush whereby said follower means is displaced in accordance with the peripheral marginal configuration of the bottom of said shoe, a lever arm rotatably mounted on said first member and extending transversely to said second member, stop means mounted on said first member to determine a terminal position of said lever arm, means establishing a fulcrum for the terminal portion of said lever arm displaced from said first member, means mounted on said second member in contact with said lever arm whereby displacement of said follower means is transmitted through said lever arm and said stop means to said first member when the lever arm is displaced from said fulcrum and whereby displacement of said follower means imparts rotational movement to said lever arm when said lever arm is in contact with said fulcrum thereby to effect a correlated displacement of said first member, said lever arm being movable into and out of contact with said fulcrum by displacement of said follower means.

No references cited.