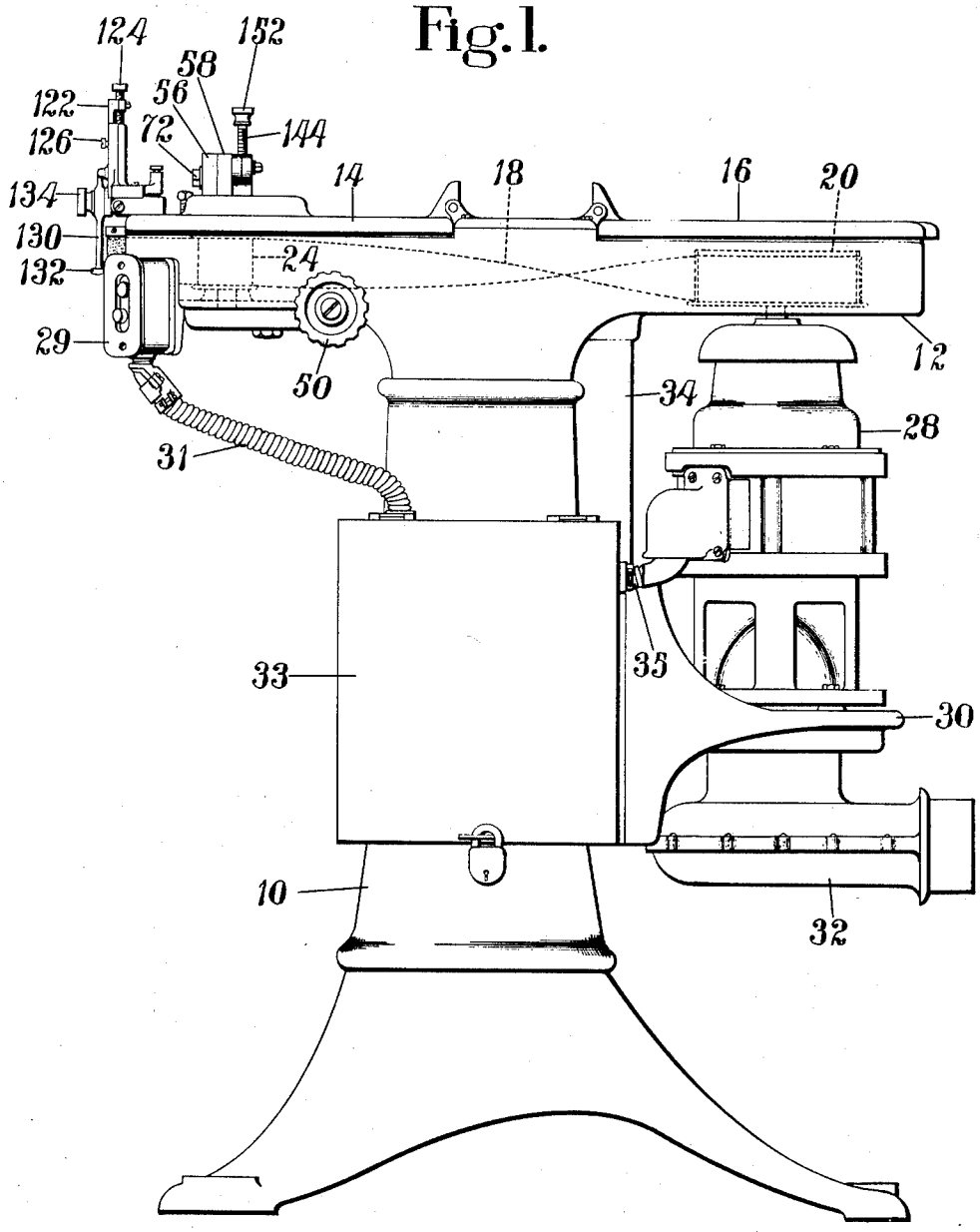
April 10, 1934. F. ASHWORTH 1,954,035

FINISHING MACHINE

Filed Aug. 1, 1930 5 Sheets-Sheet 1

Fig. 1.



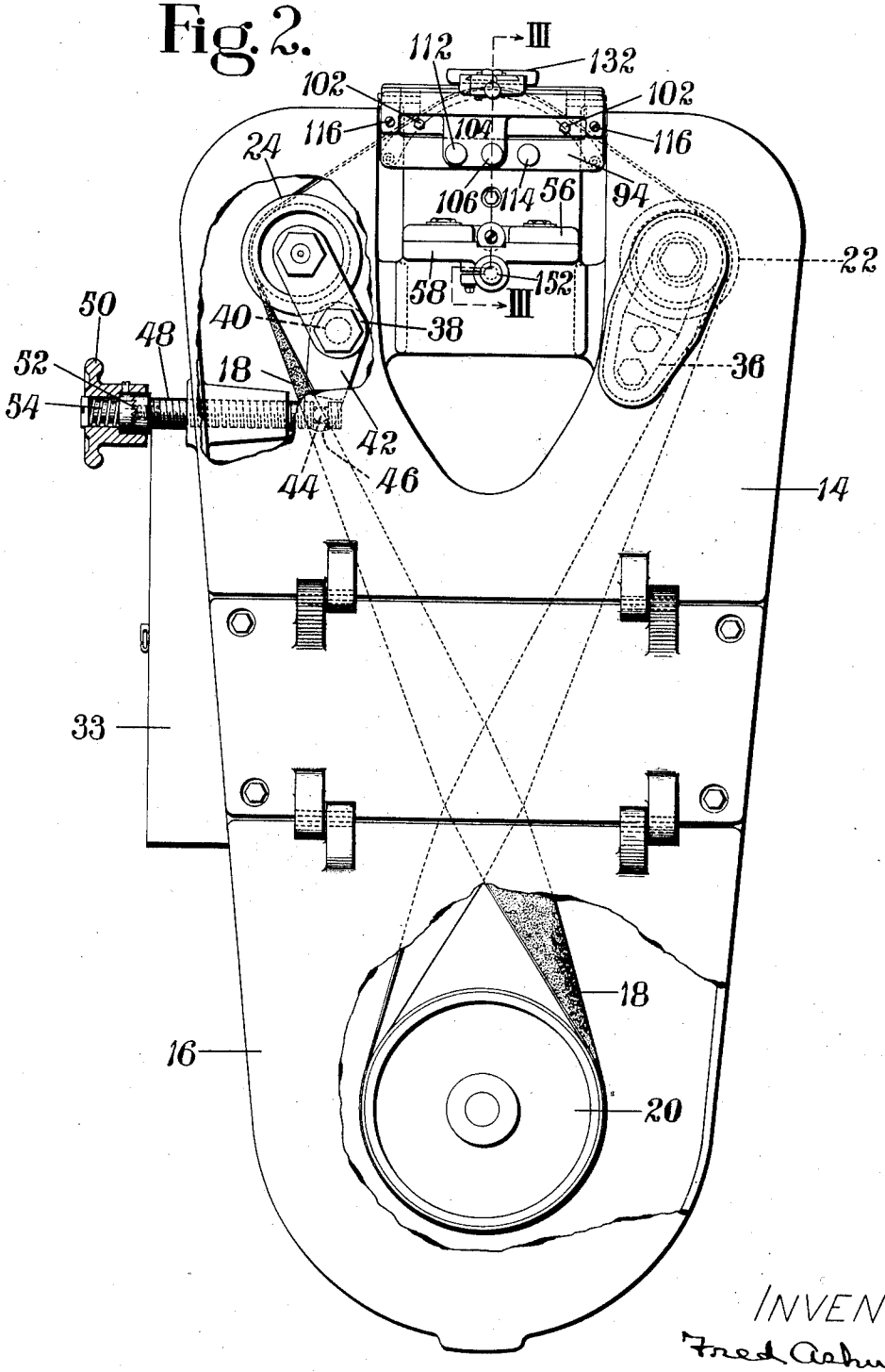
INVENTOR.
Fred Ashworth
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Harlow M. Davis

April 10, 1934. F. ASHWORTH 1,954,035

FINISHING MACHINE

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Fig. 2.



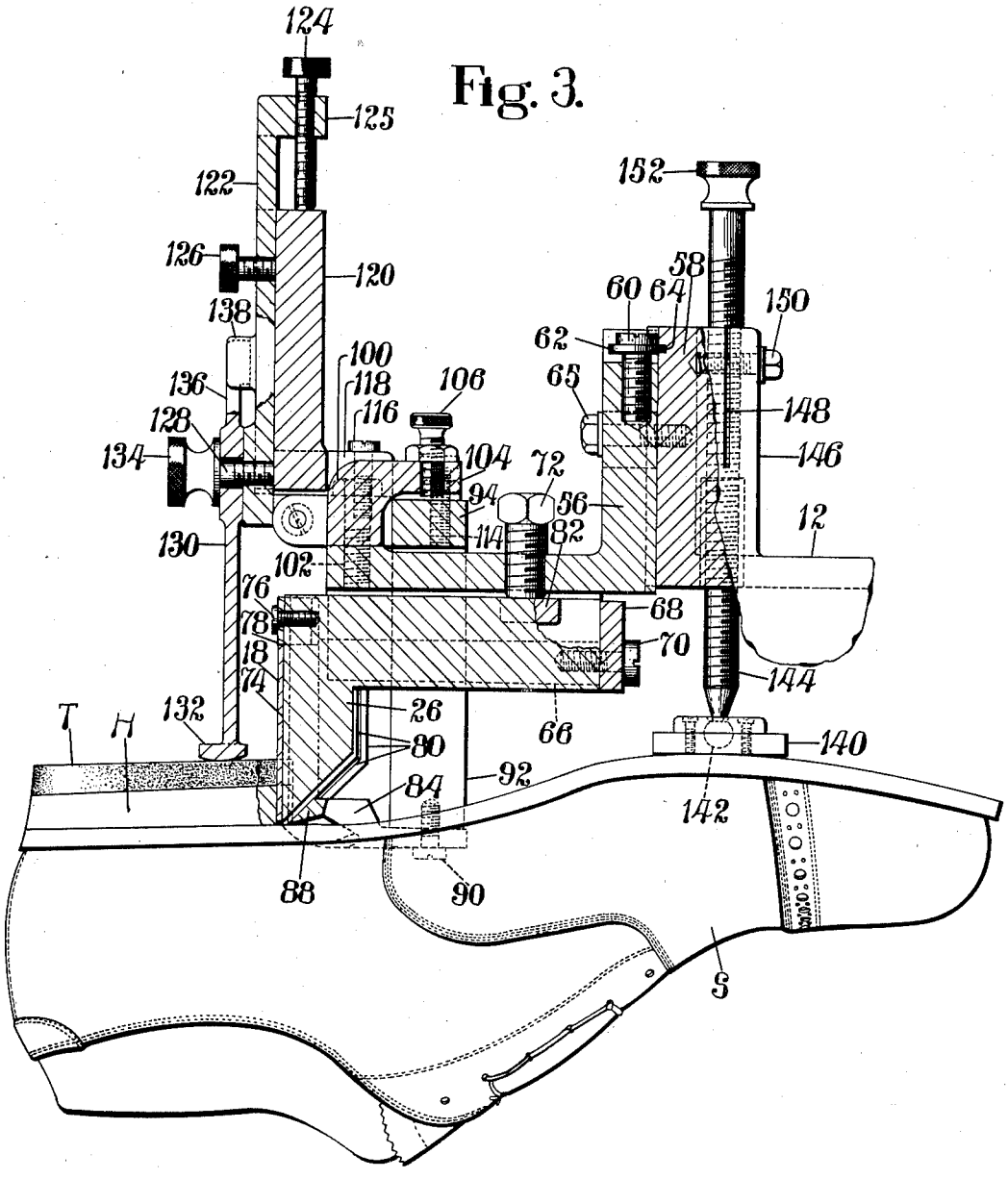
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FINISHING MACHINE

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Fig. 3.



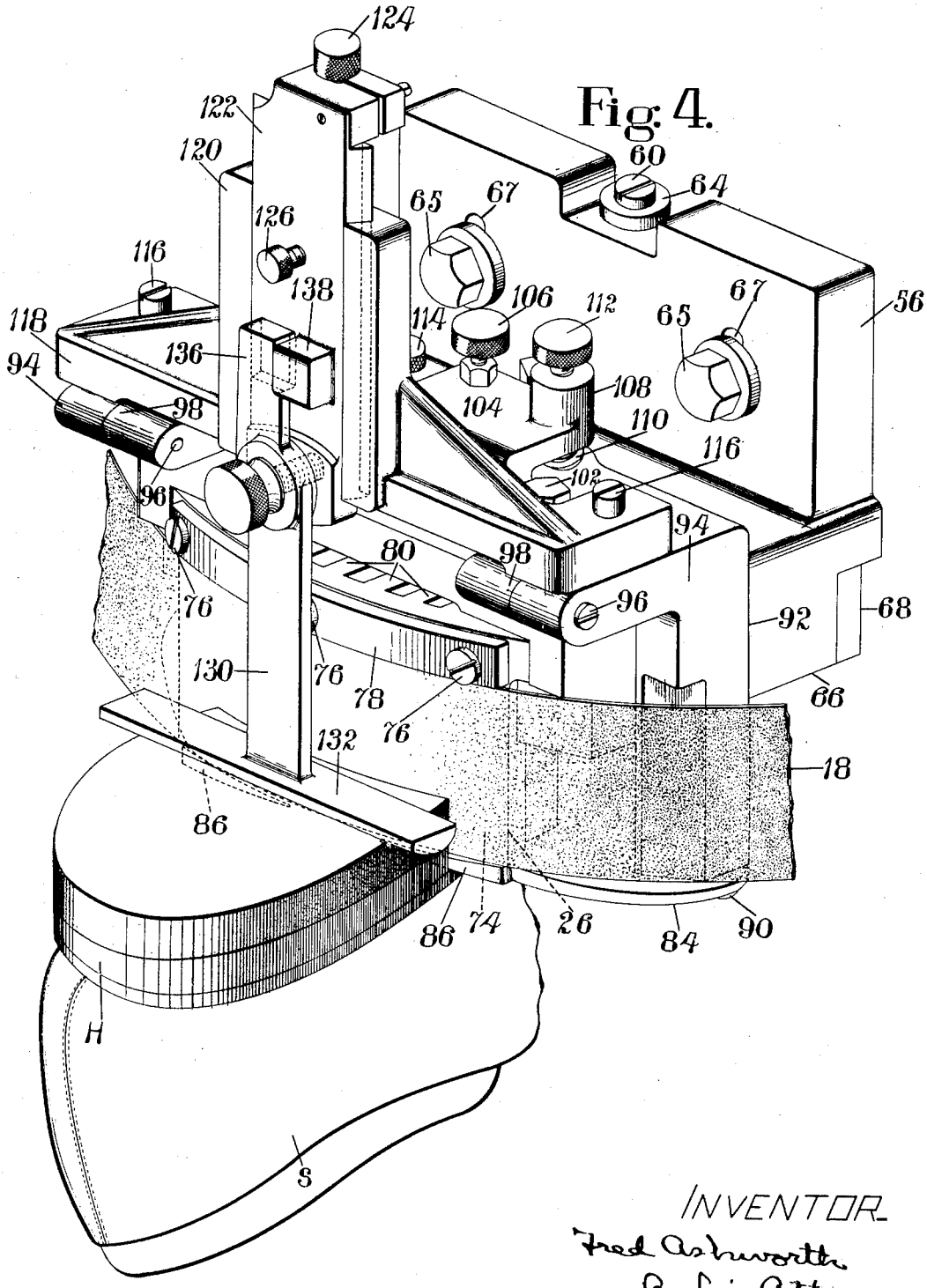
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April 10, 1934. F. ASHWORTH 1,954,035

FINISHING MACHINE

Filed Aug. 1, 1930 5 Sheets-Sheet 4

Fig. 4.



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Fred Ashworth

By his Attorney

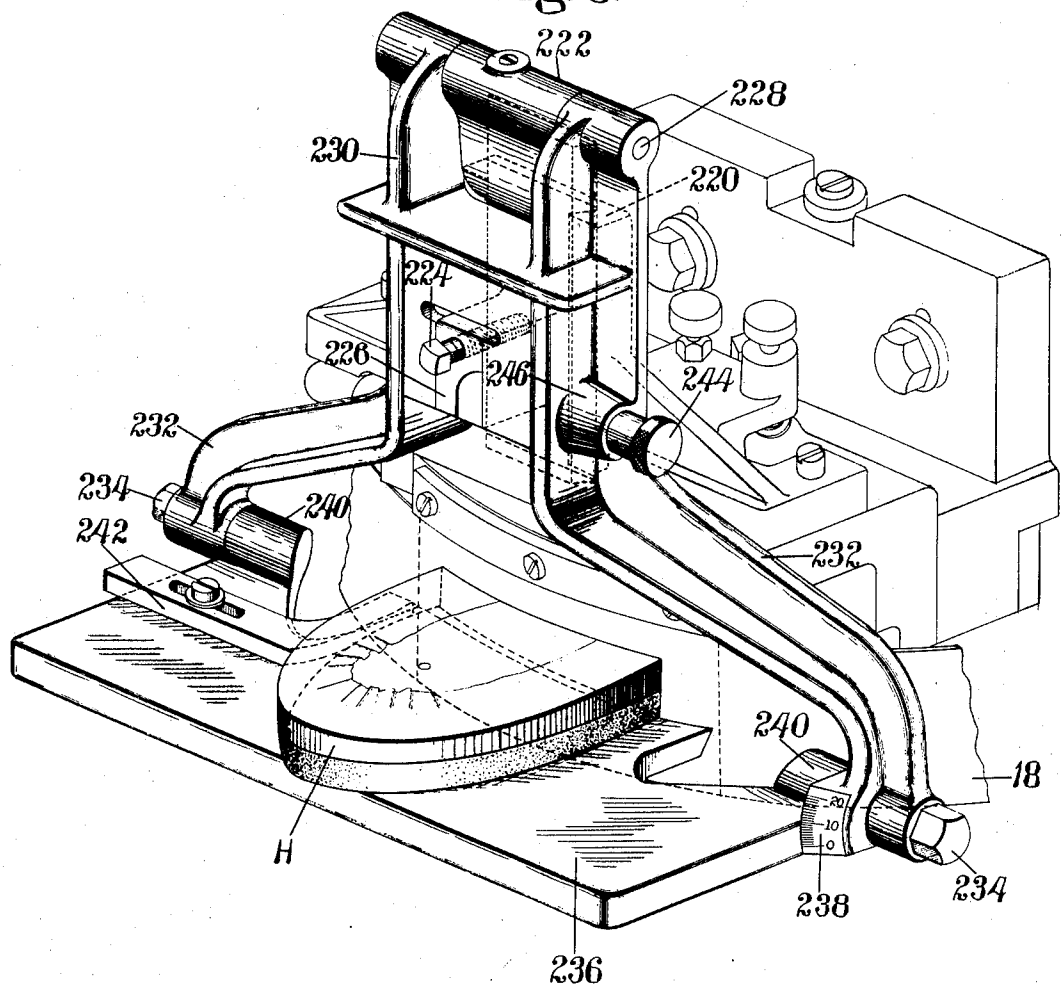
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April 10, 1934. F. ASHWORTH 1,954,035

FINISHING MACHINE

Filed Aug. 1, 1930 5 Sheets-Sheet 5

Fig. 5.



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Patented Apr. 10, 1934 1,954,035

UNITED STATES PATENT OFFICE

1,954,035

FINISHING MACHINE

Fred Ashworth, Wenham, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application August 1, 1930, Serial No. 472,460

29 Claims. (Cl. 51—135)

This invention relates to finishing machines and is herein illustrated as embodied in a heel-breast-scouring machine of the type utilizing a driven scouring belt which passes over a fixture adapted to support the belt against the pressure of the work. In various of its aspects, however, the invention is not limited to machines provided with a finishing tool of the type above referred to.

One object of this invention is to provide a finishing machine having improved means for controlling the presentation of a work piece to a finishing tool. As herein illustrated and in accordance with a feature of the invention, a finishing tool and a gage member are mounted for relative movement from an inoperative position wherein the gage holds the work piece out of contact with the finishing tool during the presentation of the work piece to the gage member, to an operative position wherein the work piece is in engagement with the finishing tool. An advantage of this arrangement resides in the fact that the work piece can be presented to the gage member while the gage member and the finishing tool are in the inoperative position, thereby avoiding any finishing action upon the work piece during the preliminary positioning thereof relatively to the gage member and until the work piece has been properly positioned by the gage member with respect to the finishing tool. In the illustrated machine the gage is constructed and arranged for engagement with the breast surface of a heel to position the heel-breast surface in face-to-face relation to the operative surface of the finishing tool, and a yieldable support is provided for the gage to enable the gage to move relatively to the finishing tool while maintaining the orientation of the gage and thereby of the heel as the heel-breast surface is moved against the operative surface of the finishing tool. A stop may conveniently be provided for determining the operative position of the gage with respect to the finishing tool. As illustrated, both the finishing tool and the gage have their working surfaces curved to a form substantially complemental to that of the heel-breast to be treated. The finishing tool of the illustrated machine consists of a scouring belt supported against the pressure of the work by a form block shaped to impart the desired convex curvature to the scouring belt.

In accordance with another feature of the invention, a second gage, which extends transversely of the heel, is provided for substantially line contact with the tread surface of the heel to prevent transverse tilting of the heel while permitting the inclination of the heel to be varied in a direction which is heightwise and lengthwise of the heel. This second gage serves also to determine the heightwise extent of the heel-breast surface to be presented to the finishing tool. A third gage may also be provided, as in the illustrated machine, for engaging the tread surface of the forepart of the shoe to insure accuracy in the angle of presentation of the heel-breast surface to the finishing tool.

The invention further consists in various features of construction and combinations of parts herein disclosed and claimed, the advantages of which will be apparent to those skilled in the art from the foregoing description, reference being had to the accompanying drawings, in which

Fig. 1 is a side elevation of the machine embodying the invention;

Fig. 2 is a plan view of the machine;

Fig. 3 is a sectional view taken on the line III—III of Fig. 2;

Fig. 4 is a perspective view of the parts shown in Fig. 3; and

Fig. 5 is a perspective view showing an alternative form of the heel-positioning member.

The supporting structure of the machine consists of a standard 10 carrying at its upper end a hollow frame member 12 which supports the operative instrumentalities of the machine. Hinged cover plates 14 and 16 provide access to the interior of the frame 12 at each end thereof respectively. The frame 12 houses an abrading belt 18 which passes over a drive pulley 20, a pair of idler pulleys 22 and 24, respectively, and a form block 26. The drive pulley 20 is mounted upon the upper end of the vertically disposed shaft of a motor 28 carried by a bracket 30 which is supported by the standard 10 below the frame 12, and the upper end of this shaft extends within the frame 12. The drive of the motor 28 is controlled by a switch 29 positioned upon the forward end of the frame 12 and connected by a conduit 31 to a control box 33 mounted upon the standard 10, the control box 33 being connected to the motor 28 by a conduit 35. Beneath the motor 28 and also supported by the bracket 30 is a casing 32 having an exhaust blower. A rotary blower member within the casing 32 is driven by the lower end of the shaft of the motor 28. The suction created by the blower is communicated to the interior of the housing 12 by a conduit 34 leading from the housing 12 to the inlet side of the blower casing 32. The dust which arises from the abrading action of the belt 18 upon the work will be conveyed by the draft

passing through the housing 12 and discharged through the exhaust end of the casing 32 into a dust-collecting conduit.

The idler pulley 22 (Fig. 2) is journaled in a bracket 36 which is mounted in the housing 12. The idler pulley 24 is journaled in a bracket 38 which is in the form of a bell crank pivotally mounted in the housing 12 upon a fulcrum pin 40. An arm 42 of the bracket 38 carries a short upstanding pin 44 which enters a groove 46 in a horizontally disposed screw 48 which is threaded in a boss formed in the side wall of the housing 12. The adjusting screw 48 is operated by a hand-wheel 50 through a clutch 52 comprising a pair of members having interengaging teeth which are so inclined as to slip when excessive resistance to the adjusting screw 48 is encountered. A spring 54 maintains the clutch members 52 yieldingly in operative engagement. The turning of the adjusting screw 48 to move the arm 42 towards the right, as viewed in Fig. 2, serves to move the pulley 24 to the left, thereby increasing the tension in the belt 18. The extent, however, to which the belt 18 may thus be tensioned is limited by the slipping of the clutch 52.

The form block 26 (Fig. 3) is carried by a bracket 56 which has an upstanding portion which is slidable in a vertical guideway formed in an upstanding portion 58 of the frame 12. A vertically disposed adjusting screw 60 is threaded into the upper end of the upstanding portion of the bracket 56 and has formed upon it a flange 62 which enters a slot 64 formed in the upstanding portion 58 of the frame. The vertical position of the screw 60 is determined by the engagement of the flange 62 with the slot 64 so that rotation of the screw 60 will effect an upward or downward adjustment of the bracket 56. The bracket 56 is clamped in its adjusted position by means of clamping screws 65 passing through vertically disposed slots 67 (Fig. 4) formed in the upwardly extending portion of the bracket 56 and threaded into the upwardly extending portion 58 of the frame 12. The form block 26 is slidably mounted between and supported by a pair of flanges 66 extending downwardly from a horizontal portion of the bracket 56, and an end plate 68 is secured to the rear ends of the flanges 66 by a pair of screws 70 and serves as a rearward stop for the form block 26. A binding screw 72 threaded into the horizontally extending portion of the bracket 56 engages the upper surface of the form block 26 and screws it firmly in position with respect to the bracket 56. The form block 26 has a vertically disposed operative face 74 which is shaped to a curvature complemental to that of the desired contour of the breast surface of the heel to be scoured, and it provides a backing for the scouring belt 18 and causes the scouring belt 18 to assume the desired shape. Secured upon the upper portion of the operative face 74 by screws 76 is a plate 78 which abuts the upper edge of the scouring belt 18 and prevents the scouring belt 18 from slipping upwardly in its travel across the operative face 74. The operative face 74 of the form block 76 is polished and offers relatively little friction to the scouring belt 18. In order, however, to insure that any heat generated by such friction will be rapidly dissipated, the form block 26 is the illustrated machine is composed of metal and is provided with a plurality of heat-radiating fins 80. In order to insure a contacting surface for the binding screw 72, a bridge member 82 extends crosswise of the fins 80.

A gage member 84 is provided for determining the position of a heel with reference to the plane of the tread surface of the heel relatively to the operative surface of the abrading belt 18 as it passes over the form block 26. The gage member 84 has a pair of operative surfaces 86 (Fig. 4) for engaging portions of a heel-breast surface of each side, respectively, of a heel, the surfaces 86 tapering as they approach the central portion of the heel-breast surface and each being formed to a curvature substantially complemental to the heel-breast surface which it is to engage. The gage member 84 has a central portion 88 which bridges the two operative portions and which is offset to avoid contact with the central portion of the heel-breast surface. An advantage of the tapered construction above described resides in the fact that in most instances the shank of the shoe intended to be operated upon is arched, and the work-engaging surfaces 86 may engage those portions of a heel-breast surface adjacent to the shank of a shoe and included between the surface of the shank and a plane which is tangent to the shank at its central portion. The gage member 84 thus leaves exposed for scouring action all that portion of the heel-breast surface which lies between the plane of tangency of the central portion of the shank and the tread surface of the heel. The gage member 84 is rigidly secured by screws 90 to the ends, respectively, of a pair of downwardly extending arms 92 of a yoke member 94 which is pivotally mounted upon fulcrum pins 96 mounted in ears 98 (Fig. 4) formed upon a cross-piece 100 (Fig. 3) which is rigidly secured by means of screws 102 upon the forward end of the bracket 56. Formed upon the cross-bar 100 is a rearwardly extending lug 104 which extends over the yoke member 94. Threaded into the lug 104 is a vertically disposed adjusting screw 106 which engages the upper surface of the yoke member 94 and thus limits the extent of rearward movement of the gage member 84, thereby determining the depth of the scouring action. Formed in the lug 104 is a boss 108 (Fig. 4) having a cylindrical bore in which is mounted a compression spring 110 which bears upon the upper surface of the yoke 94 and urges the gage 84 outwardly and away from the operative surface 74 of the form block. An adjusting screw 112 is threaded into the upper end of the boss 108 and acts through a disk or plunger to regulate the compression of the spring 110. Threaded into the yoke 94 is a vertically disposed adjusting screw 114 which bears against the upper surface of the forwardly extending portion of the bracket 56 and limits the outer movement of the gage member 84.

Rigidly secured upon the upper surface of the yoke 94 by means of screws 116 is a cross member 118 which carries a vertically disposed guideway 120. Mounted in the guideway 120 is a slide 122. A vertically disposed adjusting screw 124 is threaded through a lug 125 formed upon the upper end of the slide 122 and bears against the upper end of the guideway 120. The rotation of the adjusting screw 124 determines the position of vertical adjustment of the slide 122, and the slide 122 is then clamped in adjusted position by means of a binding screw 126 which is threaded through the slide 122 and bears against the guideway 120. Pivotally mounted upon a fulcrum pin 128 which is threaded in the slide

122 is a gage member 130 which has formed upon its lower end a cross-bar 132 having its under surface formed to a convex curvature. The fulcrum pin 128 is provided with a knurled head 134 rotation of which serves to advance the threaded portion of the pin 128 into the slide 122 and thus to bind or clamp the gage member 130 in its operative position. An upwardly extending portion 136 of the gage member 130 engages a lug 138 formed upon the slide 122 to determine the operative position of the gage 130. When it is desired to remove or replace the form block 26, it is only necessary to turn the knurled head 134 sufficiently to loosen the gage member 130 whereupon the latter may be swung upwardly out of the way.

A gage member comprising a plate 140 (Fig. 3) is mounted for universal movement by means of a ball-and-socket joint 142 upon the end of a downwardly extending adjusting screw 144 which is threaded through a boss 146 formed upon the upwardly extending portion 58 of the frame 12. A longitudinal slit 148 is formed in the boss 146, and a clamping screw 150 serves to tighten the boss 146 about the adjusting screw 144. A knurled head 152 is provided for turning the adjusting screw 144 to insure upward or downward movement of the gage member 140.

In the operation of the machine, a shoe S having a heel base H, as shown in Figs. 3 and 4, is presented to the gage member 84 which serves to hold the heel breast of the shoe S out of contact with the abrading belt 18 until the correct position of the heel breast, i. e., a face-to-face relation with respect to the operative portion of the scouring belt, has been established. The operative surfaces 86 of the gage member determine the angular position of the heel in substantially the plane of the tread surface of the heel, that is, a plane which extends lengthwise and widthwise of the heel. The gage member 84 thus orientates the heel in relation to the scouring tool. The gage member 132 serves to determine the heightwise position of the heel H, while the gage member 140, which engages the tread surface of the forward portion of the shoe S, acts in conjunction with the gage member 84 to determine the vertical and lengthwise inclination of the heel-breast surface with respect to the operative position of the abrading belt 18. In the operation illustrated in Figs. 3 and 4, substantially the entire heel breast excepting those portions engaged by the operative surface of the gage 84 is to be scoured. The gage member 132 is, therefore, adjusted upwardly a distance sufficient to permit the heel H to extend upwardly until the lower edge of the scouring belt 18 is almost tangent to but out of contact with the shank portion of the shoe S. Such adjustment of the gage member 132 prevents marring of the shank by the lower edge of the scouring belt. In many instances, however, and particularly in the case of a heel provided with a rubber or composition top lift T, it is not necessary to scour a considerable portion of the heel breast but only the breast surface of the top lift T, and in such cases the gage 130 may be adjusted downwardly to insure that only the breast surface of the top lift T will overlap and come into engagement with the abrading belt 18. Assuming now the shoe S to have been presented to the gages 84, 132 and 140, the operator presses upon the shoe, causing the gage 84 to yield rearwardly and bringing all portions of the surface to be scoured simultaneously into engagement with the scouring belt 18. The yielding of the gage member 84 allows the scouring action to proceed until the screw 106 prevents further yielding. The scouring action is then complete, and any further pressure upon the heel will be resisted by the gage member 84, which thus determines the position of the heel lengthwise of the heel with respect to the scouring belt. As previously stated, the adjustment of the screw 106 determines the depth to which the heel breast can be scoured. In the case of heels provided with top lifts, the unfinished breast surface to the top lift usually extends slight beyond the breast surface of the heel base, and, when it is desired to finish the breast surface of the top lift only, the screw 106 may be so adjusted as to cause the finished breast surface of the top lift to be continuous with the breast surface of the heel base. It will be noted that, as the gage 84 yields rearwardly from inoperative position, the gage member 130 moves with it so that there will be no relative movement between the tread surface of the top lift T and the cross-bar 132. An advantage in avoiding such relative movement resides in the fact that many top lifts are provided with irregular non-slipping tread surfaces, and, if such relative movement were permitted to occur, it might vary the relative vertical relation between the tread surface of the top lift T and the cross-bar 132. The convex under surface of the cross-bar 132 enables it to accommodate any angular position of the tread surface of the top lift T which may be imposed upon the shoe by the gage 140. It also serves to effect substantially line contact with the tread surface of the top lift T and thus avoids unnecessary contact with surface irregularities of the character above referred to. It will be noted that the gage 130 not only determine the heightwise position of the heel H but also prevents accidental transverse inclination of the shoe. In other words, it serves to determine the position of the heel in a plane which is heightwise and transverse of the shoe S. The gage 140 in conjunction with the gage member 130 serves to determine the angular position of the shoe in a plane which is vertical and longitudinal with respect to the shoe.

The machine, in the form above described, may also be used for the scouring of heels prior to their attachment to shoes. For work of this character, however, it may be more convenient to adopt the modification shown in Fig. 5, wherein the guideway 120 is removed and a guideway 220 is substituted therefor. A slide 222 is vertically movable in the guideway 220 and may be clamped in any desired position of vertical adjustment with respect thereto by means of a binding screw 224 which is threaded into a forwardly extending lug 226 of the slide 222 and which bears against the guideway 220. Journaled upon a pin 228 which is carried by the upper portion of the slide 222 is a downwardly extending yoke member 230 having a pair of outwardly extending yoke arms 232 which carry trunnion pins 234 upon which is journaled a plate or work table 236. A gage 238 which may be calibrated in degrees is secured upon one of the arms 232 and enables the operator to adjust the plate 236 to obtain the desired angular relation between the heel-breast surface and the scouring belt. The trunnion pins 234 have their ends threaded into bosses 240 formed in the plate 236 and serve upon rotation to clamp the plate 236 in adjusted position. To prevent any swinging movement of the yoke member 94 about its trunnion pins 96, the screw 112 may be loosened, or the screw 112 and the spring may be removed, and the adjusting screws 116 and 114 tightened to clamp the yoke member 94 in such a position that

the edge of the plate 236 just clears the abrading belt 18. A gage 242 which is mounted upon the operative position of the work plate 236 facilitates the centering of the heel H and serves to hold the heel H against the sidewise drag of the scouring belt 18. When employing the work plate 236 for the scouring of unattached heels, it is more convenient, as shown in Fig. 5, to rest the tread surface of the heel upon the work plate 236. When it is desired to remove and replace the form block 26, the yoke 230 may be swung upwardly by the plate 236. It may be secured in its operative position by a binding screw 244 which is threaded through a boss 246 formed in one side of the yoke member 230, the end of the binding screw bearing against the side of the lug 226.

It is evident from the foregoing description that the illustrated machine is not limited to operations upon complete heels but may be employed upon heel bases to which top lifts have not yet been applied, and also upon top lifts alone. The modified form of the machine shown in Fig. 5 can very conveniently be employed to scour top lifts alone. In the following claims, therefore, as well as elsewhere in the specification, the term "heel" is employed, for convenience, to denote not only a complete heel but a heel base or a top lift as well, and it is understood that the term "heel" is to be taken in this generic sense except where a more restricted meaning is necessarily implied by the context.

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

1. A heel-breast-scouring machine comprising a gage member adapted to position a heel by engagement with the heel-breast surface, and a scouring tool, said gage member and said scouring tool being mounted for relative movement with respect to each other from an inoperative relative position wherein said gage member holds the heel out of contact with said scouring tool during the presentation of the heel to said gage member, to an operative relative position wherein the breast surface of the heel is in engagement with said scouring tool.

2. A heel-breast finishing machine comprising an abrading tool, a gage constructed and arranged by engagement with the breast surface of a heel to position the heel with the heel-breast surface in face-to-face relation to the operative surface of said abrading tool, and a yieldable support for said gage constructed and arranged to enable the gage to be moved relatively to the abrading tool and to maintain the orientation of the gage and thereby of the heel as the heel-breast surface is moved against the operative surface of the abrading tool.

3. A heel-breast finishing machine comprising an abrading tool, a gage constructed and arranged by engagement with the breast surface of a heel to position the heel with the heel-breast surface in overlapping relation to but spaced from the operative surface of said abrading tool, and a yieldable support for said gage constructed and arranged to enable the gage to be moved relatively to the abrading tool and to maintain the orientation of the gage and thereby of the heel as the heel-breast surface is brought into engagement with the abrading tool.

4. A heel-breast finishing machine comprising a driven scouring tool, a gage constructed and arranged by engagement with the breast surface of a heel to orientate the breast surface of the heel relatively to the operative surface of said scouring tool, and a yieldable support for said gage constructed and arranged to enable the gage to be moved relatively to the abrading tool and to maintain the orientation of the gage and thereby of the work piece and to enable the gage to move to a position laterally offset from the scouring tool as the heel-breast surface is brought into contact with the scouring tool.

5. A heel-breast finishing machine comprising an abrading tool, a gage member having a working surface which is substantially complemental to the transverse curvature of the breast surface of a heel to be scoured, and supporting means for said gage member constructed and arranged to enable said gage member to be moved relatively to said abrading tool from an inoperative position wherein the heel-breast surface, during presentation to the gage member, is out of contact with said abrading tool to an operative position wherein the heel-breast surface engages said scouring tool.

6. A heel-breast-scouring machine comprising a gage member adapted to engage the breast surface of a heel, a scouring tool, said gage member and said scouring tool being mounted for relative movement from an inoperative position wherein the heel is held out of contact with said scouring tool during the presentation of the heel to said gage member, to an operative position wherein the breast surface of the heel is in engagement with said scouring tool, and a stop for determining said operative position of said gage member and said scouring tool.

7. A heel-breast-finishing machine comprising a finishing tool and a gage member, each having a curved working surface substantially complemental to a portion, respectively, of the breast surface of a heel to be scoured, said finishing tool and said gage member being constructed and arranged for relative movement with respect to each other from an inoperative relative position wherein said gage member holds the heel out of contact with said finishing tool during the presentation of the heel to said gage member, to an operative relative position wherein a portion of the breast surface of the heel is in engagement with said finishing tool.

8. A heel-breast-scouring machine comprising a scouring tool, a gage constructed and arranged by engagement with the breast surface of a heel to position the breast surface of the heel with respect to said scouring tool, means for mounting said gage for movement toward and from said scouring tool, and resilient means for holding said gage away from said scouring tool to prevent contact between the heel and said scouring tool during the presentation of the heel to said gage, said resilient means being yieldable to permit the positioned heel-breast surface to be brought into engagement with said scouring tool.

9. A heel-breast-scouring machine comprising a scouring tool, a gage member constructed and arranged to determine the position of a heel by engagement with a portion of the heel-breast surface, and means for mounting said gage member for movement from an inoperative position away from said scouring tool, at which inoperative position a heel breast may be presented to said gage member without contacting with said scouring tool, to an operative position adjacent to and laterally offset from said scouring tool, in which operative position a portion of the heel-breast surface engages said scouring tool.

10. A heel-breast-scouring machine comprising a scouring tool having a curved working surface complemental to the desired shape of a finished heel breast, a gage member having a work-engaging surface substantially complemental to a portion of the breast surface of a heel to be scoured, and means for mounting said gage member for movement from an inoperative position away from said scouring tool, at which inoperative position a heel breast may be presented to said gage member without contacting with said scouring tool, to an operative position adjacent to and laterally offset from said scouring tool, at which operative position a portion of the heel-breast surface engages said scouring tool.

11. A machine for scouring the breast surfaces of heels, comprising a scouring tool, a gage member formed for substantially complemental engagement with a portion of the breast surface of a heel adjacent to the base of the heel, means for mounting said gage member for movement toward and from said abrading tool, and means for holding said gage member away from said scouring tool to prevent contact between the heel and said abrading tool during the presentation of the heel to said gage member, said holding means being yieldable to permit the breast surface of the positioned heel to be brought into engagement with said scouring tool.

12. A machine for scouring the breast surfaces of heels, comprising a scouring tool, a gage member formed for substantially complemental engagement with a portion of the breast surface of a heel adjacent to the base of the heel, means for mounting said gage member for movement toward and from said scouring tool, means for holding said gage member away from said scouring tool to prevent contact between the heel and said scouring tool during the presentation of the heel to said gage member, said holding means being yieldable to permit the breast surface of the positioned heel to be brought into engagement with said scouring tool, and a stop for limiting the movement of said gage member toward said scouring tool to limit the depth to which the breast surface of the heel may be scoured.

13. A machine for finishing the breast surfaces of heels, comprising a finishing tool, a gage member formed for substantially complemental engagement with a portion of the breast surface of a heel, a gage member constructed and arranged to engage the tread surface of the heel to determine the heightwise position of the heel, and a common support for said gage members movable from an inoperative position away from said finishing tool to enable the heel to be presented to said gage members without engaging said finishing tool, to an operative position adjacent to said tool to bring the breast surface of the heel into engagement with said finishing tool.

14. A machine for finishing the breast surfaces of heels attached to shoes, comprising a driven abrading tool, a pair of gages engageable, respectively, with the tread surfaces of the forepart and of the heel of a shoe, respectively, to determine the angular relation lengthwise and heightwise of the shoe of the heel breast surface with respect to said finishing tool, said members being mounted for relative heightwise adjustment with respect to each other to vary said angular relation, and means for controlling the position of presentation to said finishing tool of the heel while permitting the first mentioned members to maintain the heel with the heel-breast surface in said relation to the finishing tool.

15. A heel-breast-scouring machine comprising a scouring tool, a gage engageable with the heel-breast surface of a shoe to determine the position of the heel-breast surface relatively to said scouring tool with reference to the plane of the tread surface of the heel of the shoe, a gage for determining the position of the heel-breast surface with reference to a plane which is transverse and heightwise of the heel, and a gage engageable with the tread surface of the shoe forepart for determining the angular position of the heel-breast surface with reference to a plane which is longitudinal and heighthwise of the shoe.

16. A heel-breast-scouring machine comprising a scouring tool, and a gage member extending transversely of the heel to prevent transverse tilting of the heel, said gage member having a surface for substantially line engagement with the tread surface of the heel whereby the inclination of the heel in a direction heightwise and lengthwise of the heel may be varied.

17. A heel-breast-scouring machine comprising a scouring tool, a member engageable with the breast surface of a heel to determine the position of the heel relatively to said scouring tool, and a gage member constructed and arranged for transverse substantially line contact with the tread surface of the heel to prevent transverse tilting of the heel while enabling the heel-breast surface to be brought into proper angular relation to the scouring tool in a direction which is lengthwise and heightwise of the heel.

18. A heel-breast-scouring machine comprising a scouring tool, a gage member engageable with the breast surface of the heel of a shoe to determine the position of presentation to said scouring tool of the heel-breast surface of the shoe, and a gage engageable with the tread surface of the forepart of the shoe for controlling the angle of presentation of the heel-breast surface to said scouring tool.

19. A heel-breast-scouring machine comprising a scouring tool, a gage member extending transversely of the heel of a shoe and constructed and arranged for substantially line contact with the tread surface of the heel for determining the heightwise extent of the heel-breast surface to be presented to said scouring tool, and a gage member engageable with the tread surface of the forepart of the shoe to determine the angle of presentation of the heel-breast surface to said scouring tool.

20. A heel-breast-scouring machine comprising a scouring tool, a gage member engageable with a portion of the breast surface of the heel of a shoe to determine the position of presentation to said scouring tool of a different portion of the breast surface, said gage member and said scouring tool being mounted for relative movement from an inoperative position wherein the breast surface is held out of contact with said scouring tool during the presentation of the heel to said gage member, to an operative position wherein the breast surface is in engagement with said scouring tool, and a gage member engageable with the tread surface of the forepart of the shoe for controlling accurately the angle

of presentation to said scouring tool of said heel-breast surface.

21. In a machine for operating upon the breast surfaces of heels, a gage member having a pair of surfaces for engaging portions of the breast surface of the heel on each side respectively of the heel, said heel-breast-engaging surfaces tapering off as they approach the central portion of the heel-breast surface.

22. In a machine for operating upon the breast surfaces of heels, a gage member having a pair of surfaces for engaging portions of the breast surface of the heel on each side respectively of the heel, said heel-breast-engaging surfaces tapering off as they approach the central portion of the heel-breast surface, and each being formed to a curvature substantially complemental to the curvature of the portion of the heel-breast surface which it is intended to engage.

23. In a machine for operating upon the breast surfaces of heels, a gage member having a pair of surfaces for engaging portions of the breast surface of the heel on each side respectively of the heel, said heel-breast-engaging surfaces tapering off as they approach the central portion of the heel-breast surface, the central portion of said gage member being offset to avoid contact with the central portion of the heel-breast surface.

24. A heel-breast-scouring machine comprising a driven scouring belt, supporting means for said scouring belt including a form block adapted to support said scouring belt against the pressure of a heel breast to be scoured, a gage member engageable with the breast surface of a heel and constructed and arranged to guide the heel as the heel is moved against the scouring belt, and a stop for said gage to limit the depth to which the heel-breast surface can be scoured.

25. A heel-breast-scouring machine comprising a driven scouring belt, supporting means for said scouring belt including a form block adapted to support said scouring belt against the pressure of a heel breast to be scoured, said form block being shaped to cause said scouring belt to conform to the desired shape of a heel breast to be scoured, and a gage member constructed and arranged for substantially complemental engagement with a portion of the breast surface of a heel for determining the portion of presentation of a different portion of the heel-breast surface to said scouring tool.

26. A heel-breast-scouring machine comprising a driven scouring belt, supporting means for said scouring belt including a form block adapted to support said scouring belt against the pressure of a heel breast to be scoured, and a gage member constructed and arranged for transverse substantially line contact with the tread surface of a heel to prevent transverse tilting of the heel while permitting the heel to be presented in proper angular relation to the form block in a direction which is heightwise and lengthwise of the heel.

27. A shoe-scouring machine comprising a driven scouring belt, supporting means for said scouring belt including a member adapted to support said scouring belt against the pressure of a shoe part to be scoured, a support for said member mounted for adjustment widthwise of said scouring belt, and a gage member mounted upon said support for movement relative thereto and constructed and arranged to prevent a shoe part during presentation to said gage member from contacting with said belt and thereafter to yield as the shoe part is moved into engagement with said scouring belt.

28. A heel-breast-scouring machine comprising a driven scouring belt, supporting means for said scouring belt including a member adapted to support said scouring belt against the pressure of a heel breast to be scoured and a support for said member mounted for adjustment widthwise of said scouring belt, and a gage member carried by said support and constructed and arranged for substantially line contact with the tread surface of the heel to determine the position of the heel breast relatively to said scouring belt with reference to a plane which is transverse and heighthwise of the heel.

29. A heel-breast-scouring machine comprising a driven scouring belt, supporting means for said scouring belt including a removable form block adapted to support said scouring belt against the pressure of a heel breast to be scoured, a gage member extending in front of the operative face of said form block constructed and arranged for substantially line contact with the tread surface of the heel to determine the heightwise position of the heel with respect to said scouring belt, and a pivotal mounting for said gage member for enabling said gage member to be swung out of the path of said form block during removal and replacement thereof.

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