

July 13, 1943.

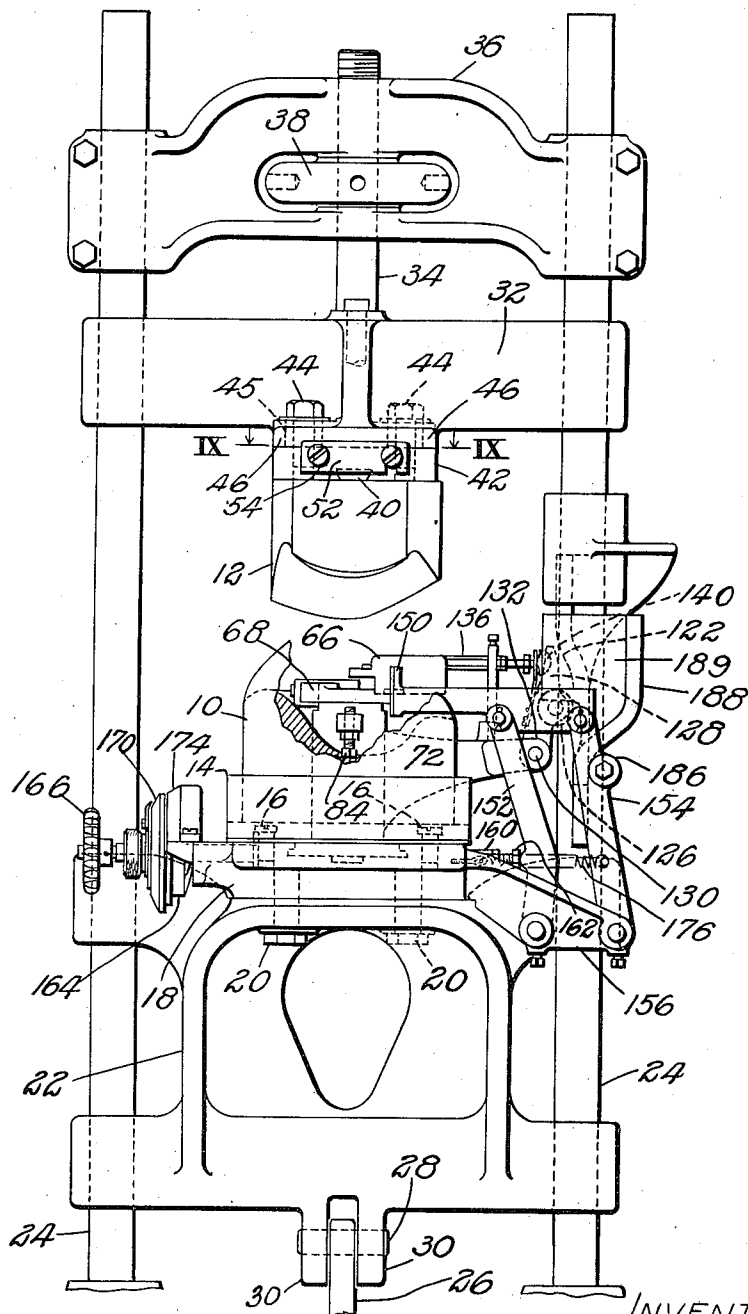
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2,323,933

MACHINE FOR SHAPING SHOE PARTS

Filed March 24, 1942

3 Sheets-Sheet 1



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July 13, 1943.

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2,323,933

MACHINE FOR SHAPING SHOE PARTS

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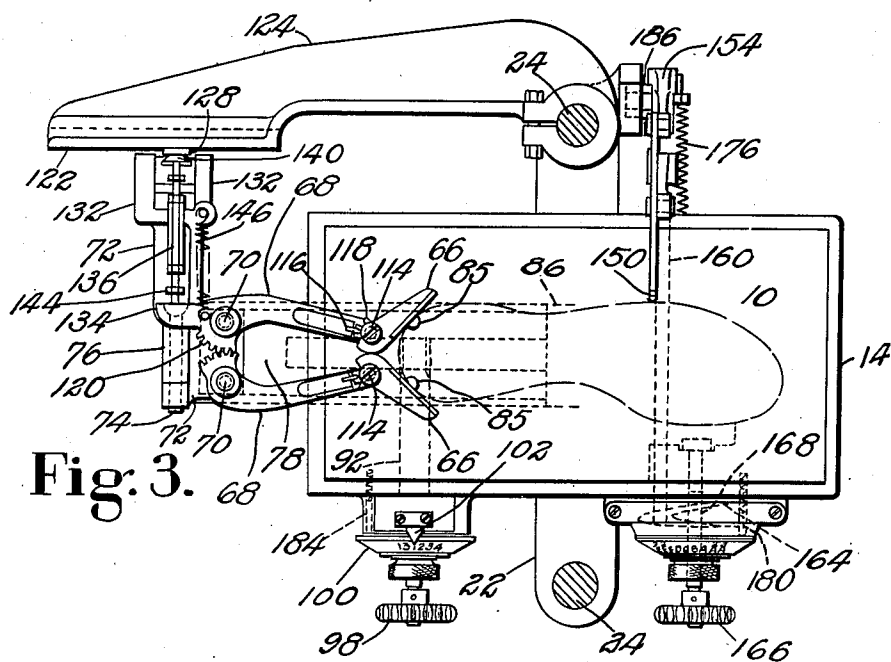


Fig. 3.

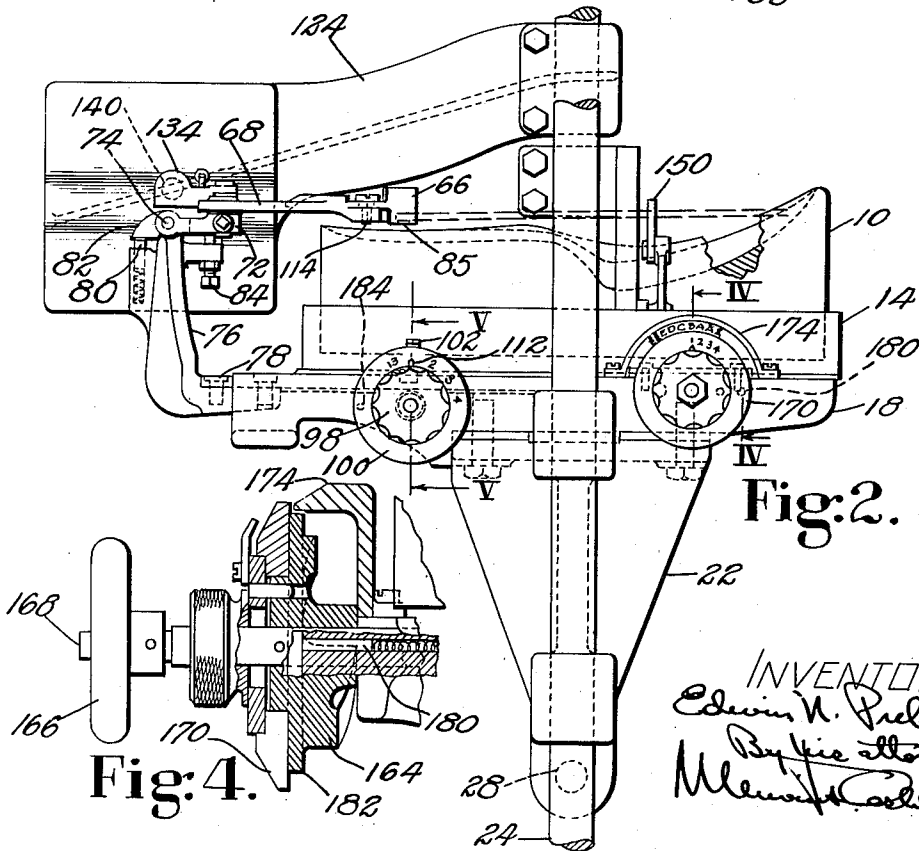


Fig:2.

Fig: 4.

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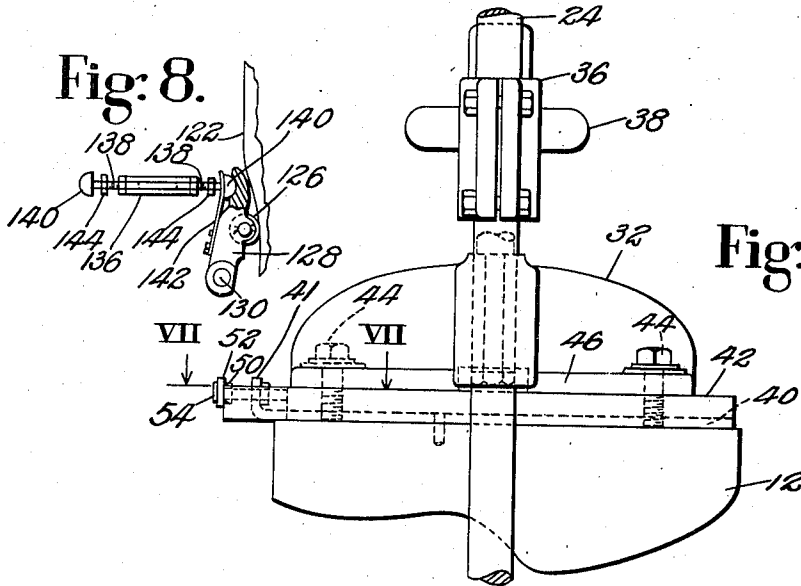
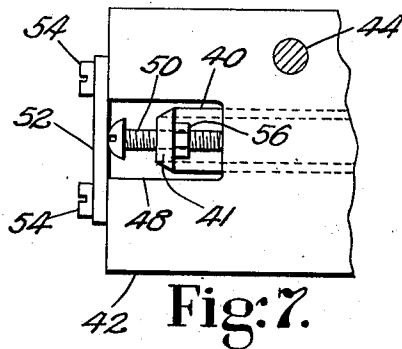
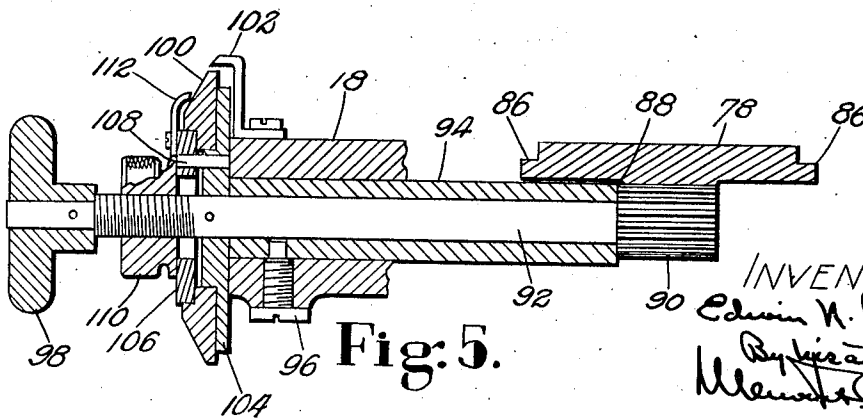
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MACHINE FOR SHAPING SHOE PARTS

Filed March 24, 1942

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,323,933

MACHINE FOR SHAPING SHOE PARTS

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Application March 24, 1942, Serial No. 435,999

21 Claims. (Cl. 12—21)

This invention relates to machines for shaping shoe parts and is herein illustrated as embodied in a machine for molding insoles or outsoles. The invention is also applicable, however, to machines for molding other objects such, for example, as reinforced insole units and the term "sole" as used herein is intended to cover any of the above.

An object of the present invention is to provide improved gaging mechanism for locating a work-piece on a mold. In the accomplishment of this object and as a feature of the invention a pair of gages are located above a sole-supporting mold for locating the heel end of a sole lengthwise and widthwise of the mold, these gages being adjustable as a unit lengthwise of the mold to accommodate soles of different lengths. Another gage located above the mold is engageable with the forepart of the sole for locating it widthwise of the mold and this gage is also adjustable to accommodate soles of different widths. An upper mold cooperates with this mold to shape the sole and, to avoid interference with the molds during relative movement thereof into pressing relationship, provision is made for swinging the heel-end gages and the forepart gage outwardly to positions removed from the sole-engaging face of the mold. The heel gages are held above the sole-engaging face of the mold when in operative positions, so that they will clear the mold when they are swung outwardly. In order that the sole may be supported in contact with these gages, and in accordance with another feature of the invention, flanges are carried by the gages and are arranged to underlie the sole to support it above the sole-engaging face of the mold at a sufficient height so that it will contact the gages and not lie below them, thereby insuring proper gaging of the heel end of the sole. To facilitate rapid and easy adjustment of the gages and in accordance with a further feature of the invention, the adjusting means for the heel-end gages and the forepart gage are located in proximity to each other at the front of the mold so as to be readily accessible. Retraction of the gages is effected by cam followers connected to the gages and which ride over cams during relative movement of the molds into cooperative relationship. The forepart gage is so mounted that it is moved rectilinearly in a path normal to the longitudinal center line of the lower mold as it is adjusted widthwise of the mold. By so mounting this gage, its position lengthwise of the mold is not varied as the gage is adjusted, so that, upon operating on soles of the same lengths but of

different widths, the gage will contact the soles at the same positions lengthwise of them, thereby permitting accurate locating of the soles on the mold.

In accordance with another feature of the invention, one of the molds is mounted for horizontal adjustment both widthwise and lengthwise relatively to the other mold and is also mounted for vertical adjustment. The molds are so mounted in the machine that they may be readily replaced by other molds to adapt the machine to operate upon different types of soles. The mounting of one of the molds for horizontal adjustments in two directions is particularly advantageous as it enables the molds to be accurately positioned with respect to each other properly to shape the work, and thus compensation can be made for any variations that may occur in the relative positions of the molding surfaces in the molds of any pair that may be used. Variations in the heights of the molds are readily taken care of by the vertical adjustability of one of the molds, and this adjustability also provides for variations in the pressure applied to the work during the shaping operation.

These and other features of the invention will now be described in detail and pointed out in the claims.

In the drawings,

Fig. 1 is a view in end elevation of the head of a machine in which the present invention is embodied;

Fig. 2 is a view in front elevation of a portion of the head of the machine shown in Fig. 1, illustrating the lower mold and the gages associated therewith;

Fig. 3 is a plan view of the lower mold and the associated gages;

Fig. 4 is a section on the line IV—IV of Fig. 2;

Fig. 5 is a section on the line V—V of Fig. 2;

Fig. 6 is a view in front elevation of the upper mold and its supporting means;

Fig. 7 is a section on the line VII—VII of Fig. 6; and

Fig. 8 is a detail view illustrating a cam follower and the means by which it is connected to one of the heel-end gages.

The illustrated machine comprises a lower mold 10 (Fig. 1) upon which a sole to be operated upon is placed and a cooperative upper mold 12 toward and away from which the lower mold is moved. The lower mold may be made of rubber or other suitable material and is carried by a holder 14 secured by screws 16 to a support 18 which is in turn fastened by screws 20 to a verti-

cally movable cross-head 22. This cross-head is supported for vertical movements by a pair of posts 24 and is thus moved by mechanism including a toggle link 26 pivotally connected by a pin 28 to arms 30 depending from the cross-head 22. The toggle link 26 may be operated by any suitable mechanism such as that illustrated by Letters Patent of the United States 1,549,243 granted August 11, 1925 on an application of E. E. Winkley.

The upper mold 12, which may be of unyielding material such as wood or metal, is adjustably supported above the lower mold 10. The mold 12 is carried by a cross-head 32 adjustable vertically on the posts 24. A screw 34 extends upwardly from the cross-head 32 and passes through a cross-head 36 rigidly secured to the posts 24. A nut 38, held against vertical movement in the cross-head 36, threadedly receives the screw 34 and provides easy and accurate vertical adjustment of the cross-head 32 and the mold 12.

The mold 12 is mounted on the cross-head 32 for adjustment lengthwise and widthwise of the lower mold to permit it to be positioned in proper relation to the lower mold 10. Secured to the upper surface of the mold 12 is a dovetail-shaped strap 40 which is arranged slidably to engage a similarly shaped groove formed in the lower surface of a support 42. This support is secured to the cross-head 32 by screws 44 which pass through elongated openings 45 in flanges 46 on the cross-head 32. The elongated openings permit widthwise adjustment of the mold on the cross-head upon loosening the screws 44. To control the lengthwise adjustment of the mold 12 the strap 40 is provided with an upwardly extending end portion 41 that projects through a recess 48 (Fig. 7) in the support 42. The portion 41 is threaded to receive a screw 50, the inner end of which engages the support 42 and the head of which bears against a plate 52. The plate 52 is secured to the adjacent end of the support 42 by screws 54. By turning the screw 50 the strap 40 will be moved lengthwise of the screw to effect a corresponding adjustment of the upper mold. To facilitate turning the screw 50 one of the screws 54 passes through a slot in the plate 52 (Fig. 1) so that upon loosening these screws the plate 52 may be turned upwardly to expose the head of the screw 50. Unintentional rotation of the screw 50 is prevented by a lock nut 56 which bears against the inner surface of the turned-up part of the strap 40.

It will thus be seen that the mounting of the upper mold is such as to permit ready adjustment heightwise, widthwise and lengthwise. The heightwise adjustment enables a variation in the pressure exerted on the work and permits the use of molds of different heights in the machine, the mounting of the molds being such as to permit rapid substitution of different types of molds. Accurate alinement of the molds is permitted by the mounting of the upper mold for widthwise and lengthwise adjustment.

Accurate positioning of the heel end of a sole on the lower mold 10 is effected by a pair of heel-end gages 66 (Fig. 3). These gages are mounted at the inner ends of arms 68 pivoted for swinging movement about vertical axes by pins 70 which are in turn carried by a support 72. This support is mounted for swinging movement about a horizontal axis by a pin 74 mounted in the upper end of an arm 76 (Fig. 2) extending

upwardly from a slide 78. The pin 74 permits heightwise adjustment of the heel-end gages 66 so that they will be at the correct height to engage the heel end of a sole placed on the lower mold. The arm 76 carries a spring-pressed plunger 80 which acts on an extension 82 of the support 72 to rotate the support around the pin 74 in a direction to move the gages 66 toward the lower mold. A stop screw 84 threaded through a bracket on the arm 76 engages the under side of the support 72 to limit this downward movement of the gages. Thus, by turning the screw 84 the heightwise position of the gages relatively to the lower mold may be varied as desired to meet different conditions of work. The gages are held slightly above the surface of the lower mold so that they may clear the mold as they are swung outwardly. So that the heel end of the sole may rest in contact with the gages, they are provided with flanges 85 which hold the heel end of the sole slightly above the adjacent surface of the mold. In the absence of these flanges, the sole might be slipped beneath the gages and would not be correctly positioned.

The slide 78 by which the heel-end gages are carried is mounted for movement lengthwise of the mold 10, thus permitting adjustment of the gages as a unit lengthwise of the mold to accommodate soles of different lengths. The slide 78 (Fig. 5) is provided with flanges 86 received by grooves formed in the upper surface of the support 18 directly below the holder 14. Rack teeth 88 formed on the under surface of the slide 78 are engaged by a pinion 90 fast on the inner end of an adjusting shaft 92. The shaft 92 is journaled in a bushing 94 which is in turn secured by a screw 96 within a bore formed in the support 18. To the outer end of the shaft 92 is pinned a handle 98 to enable turning of the shaft and adjustment of the gages.

The shaft 92 carries an indicator 100 which cooperates with a pointer 102 secured to the support 18 so that the adjusted position of the gages may be readily ascertained. The indicator is adjustably secured to the shaft 92 so that the reading for any position of the heel-end gages may be varied. This adjustment is provided inasmuch as soles of different styles but of the same size may require a different position of the heel-end gages. Accordingly, by properly adjusting the indicator 100 in accordance with the style of sole being operated upon, the correct position of the heel-end gages for any size sole of that style may be obtained by setting them according to the size indicia on the indicator. The indicator is mounted between a plate 104 pinned to the shaft 92 and a disk 106 secured by a pin 108 against rotative movement relatively to the plate 104. A nut 110, threaded on the shaft, provides means for moving the disk 106 toward the plate 104 firmly to clamp the indicator therebetween. However, upon loosening the nut 110 the indicator is free to be turned relatively to the plate 104 and the shaft 92 so that it may be set as desired. The disk 106 carries a pointer 112 to facilitate positioning the indicator 100 on the shaft in accordance with the particular style of sole.

The gages 66 are adjustably secured to the arms 68 by pins 114 (Figs. 2 and 3) so that they may be swung relatively to the arms to any position desired. They are restrained against swinging movement relatively to the arms by detents 116 engageable between teeth 118 formed in the

gages adjacent to the pins 114. The ends of the gage-supporting arms 68 adjacent to the pins 70 (Fig. 3) are formed with intermeshing gear teeth 120 so that, upon movement of one of the arms 68 to swing its gage 66 laterally of the mold, an equal and opposite movement will be imparted to the other gage. Means are provided for swinging the arms 68 during upward movement of the lower mold 10 so that the gages 66 will be swung away from each other and separated sufficiently to avoid interference with the molds. For this purpose a vertical plate having a cam surface 122 is formed at the end of an arm 124 secured to one of the supporting posts 24. A cam roll 126 (Figs. 1 and 3) is journaled in an arm 128 which is in turn pivoted at 130 between spaced arms 132 (Fig. 3) extending rearwardly from the support 72. The arm 128, carrying the cam roll, is connected to an extension 134 of one of the gage-supporting arms 68, so that the arm is swung in a direction to move the gage outwardly of the mold as the roll moves upwardly over the cam surface 122 upon upward movement of the mold. The extension 134 is adjustably connected to the arm 128 by a turnbuckle 136 into the outer ends of which are threaded rods 138 having spherical heads 140. One of these heads is held by a leaf spring 142 in engagement with a correspondingly shaped recess at the upper end of the arm 128 and the other head is similarly connected to the extension 134 of the arm 68. Hexagonal washers 144 are fixed to the rods 138 to receive wrenches so that the rotation of the rods may be prevented upon turning the turnbuckle 136 to vary the normal position of the gages 66 widthwise of the mold 10. The gages are maintained in operative positions by a spring 146 (Fig. 3) secured between the support 72 and one of the arms 68 so that the cam roll 126 is held in engagement with the cam surface 122.

For positioning the forepart of the sole widthwise of the lower mold 10 there is provided, as illustrated, a gage 150 which is mounted above the mold on a pair of links 152 and 154 (Fig. 1). These links are pivoted at their upper ends to the gage 150 and at their lower ends to a bracket 156 extending rearwardly from the support 18 so that they form a parallel linkage connection between the gage and the support. This arrangement permits the gage 150 to be adjusted widthwise of the lower mold in a straight line which is substantially normal to the longitudinal center line of the mold. By so moving the gage as it is adjusted, it is always effective at the same location lengthwise of the mold so that, upon operating on soles of the same lengths, the gage will contact the soles at the same points lengthwise of them regardless of variation in width. This permits much more accurate gaging than in prior construction in which the side gage has been mounted for swinging adjustment about a vertical axis, inasmuch as this type of adjustment causes the gage to swing in an arc and move both lengthwise and widthwise of the mold at the same time.

For adjusting the gage 150, a rod 160, having at its inner end an adjustable abutment screw 162 (Fig. 1) engaging the link 152, is arranged to be moved widthwise of the mold. The outer end of the rod 160 engages a cam 164 (Fig. 3) which is arranged to be rotated by an adjusting knob 166. The knob and the cam are both pinned to a shaft 168 (Fig. 4) rotatably carried by the support 18. The shaft carries an indica-

tor 170 adjustably secured to the shaft in the same manner as the indicator 100 associated with the heel-gage-adjusting mechanism. The indicator 170 may carry length markings as shown in Fig. 2, and width markings may be carried by a semicircular casing 174 secured to the support 18 and partially enclosing the cam 164. The adjustment of the gage 150 is effected by turning the knob 166 so that the proper length marking on the indicator 170 coincides with the proper width marking on the casing 174. The link 152 is maintained in engagement with the rod 160 by a tension spring 176 connected between the arm 154 (Fig. 1) and the bracket 155.

Unintentional rotation of the shaft 168 and adjustment of the gage 150 is prevented by a spring-pressed plunger 180 which acts against a flange 182 of the cam 164. A similar spring-pressed plunger 184 (Fig. 3) acts against the plate 104 associated with the indicator 100 to prevent unintentional rotation of the shaft 92 and adjustment of the heel-end gages.

The side gage 150 is moved rearwardly out of the path of upward movement of the mold 10 during the operation of the machine to prevent interference with the upper mold 12. For this purpose the arm 154 carries a cam roll 186 which is engageable with a cam surface 188 on a plate 189 secured to the adjacent post 24. During upward movement of the crosshead 22 the cam roll 186 is moved rearwardly by the cam surface 188 to cause rearward movement of the links 152 and 154 by which the gage 150 is carried so that the gage will be swing rearwardly simultaneously with the outward movements of the heel-end gages 66. The plates on which the cam surfaces 122 and 188 are formed may both be adjusted vertically on the posts 24 to vary the time during the upward movement of the mold 10 when the gages are retracted. This time is not varied however by the adjustments of the gages relatively to the mold.

The adjusting means for the heel-end gages and the side gage are located in proximity to each other at the front of the support 18 and the mold 10 so that adjustment of the gages for different sizes of soles may be easily and quickly effected. Molds of other shapes for different kinds of soles may readily be substituted for the molds 10 and 12. The mold 10 may be removed and replaced merely by lifting it from the holder 14 and placing another mold therein. To remove the mold 12, the plate 52 is swung upwardly whereupon the mold may be removed by sliding it lengthwise until it is completely withdrawn from the support 42. Molds of different types for the shaping of soles of various styles may thus be easily and rapidly placed in the machine. The correct relative positioning of the molds to insure the proper shaping of the sole therebetween is readily effected by the adjustable mounting of the upper mold, which thus contributes to the adaptability of the machine to use molds of various shapes and sizes. The vertical adjustment of the upper mold not only permits the use of molds of different heights in the machine, but also provides for variations in the pressure applied to the work in the shaping operation.

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 molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, gage means arranged

to extend inwardly over the sole-engaging face of the lower mold and by engagement with the heel end of the sole to determine its position lengthwise of the mold, and means operative in response to such relative movement of the molds for moving said gage means out of engagement with the sole and into a position removed from over the sole-engaging face of the mold.

2. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, means engageable with the heel end of a sole for positioning it lengthwise on the lower mold, means engageable with the forepart of a sole for positioning the forepart widthwise of the mold, and means operative in response to such relative movement of the molds for moving said heel-end and forepart engaging means outwardly of the molds to avoid interference therewith.

3. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, and a gage associated with the lower mold, said gage having a vertical sole-engaging face and an inwardly extending flange arranged to underlie the sole and hold it above the sole-engaging face of the mold with the sole in contact with the vertical sole-engaging face of the gage.

4. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, gage means arranged to extend inwardly over the sole-engaging face of the lower mold and by engagement with the heel end of the sole to determine its position lengthwise of the mold, means for moving said gage means out of gaging position and into a position removed from over the sole-engaging face of the mold, and means on said gage means arranged to underlie the heel end of the sole to support it above the mold in engagement with said gage means.

5. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, a pair of gages arranged for engagement with the heel end of a sole to determine its position lengthwise of the lower mold, means mounting said gages for movement from positions above the sole-engaging face of the mold to positions displaced laterally from the mold, and flanges carried by said gages arranged to underlie the heel end of the sole to support it above the mold in engagement with said gages.

6. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, gage means arranged to extend inwardly over the sole-engaging face of the lower mold and by engagement with the heel end of the sole to determine its position lengthwise of the mold, means operative in response to such relative movement of the molds for moving said gage means out of engagement with the sole and into a position removed from over the sole-engaging face of the mold, and means on said gage means arranged to underlie the heel end of the sole to support it above the mold in engagement with said gage means.

7. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pres-

sure to a sole therebetween, a pair of gages normally overlying the lower mold and engageable at spaced points with the heel end of a sole for positioning it lengthwise and widthwise on the lower mold, means for adjusting said gages as a unit lengthwise of the mold to accommodate soles of different sizes, and means operative in response to such relative movement of the molds for separating said gages sufficiently to avoid interference with the molds.

8. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, a pair of gages engageable at spaced points with the heel end of a sole for positioning it lengthwise and widthwise on the lower mold, means interconnecting said gages for equal and opposite movements, and means connected to one of said gages for moving it outwardly of the lower mold in response to such relative movement of the molds.

9. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, a pair of gages engageable at spaced points with the heel end of a sole for positioning it lengthwise and widthwise on the lower mold, means interconnecting said gages for equal and opposite movements, means connected to one of said gages for moving it outwardly of the mold in response to such relative movement of the molds, and means for adjusting said gages as a unit lengthwise of the mold.

10. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, a pair of gages engageable at spaced points with the heel end of a sole for positioning it lengthwise and widthwise on the lower mold, a pair of arms for supporting said gages above said lower mold, means pivotally mounting said arms for movement widthwise of said mold, intermeshing gear segments carried by the ends of said arms adjacent to said means arranged upon movement of one of said arms to impart an equal and opposite movement to the other arm, and means connected to one of said arms arranged upon such relative movement of the molds to swing the arms and the gages carried thereby outwardly of the mold.

11. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, a pair of gages engageable at spaced points with the heel end of the sole for positioning it lengthwise and widthwise on the lower mold, a pair of arms for supporting said gages above said lower mold, a carriage supported below the lower mold for movement lengthwise of the mold, means pivotally mounting said arms on said carriage for movement widthwise of the mold, intermeshing gear segments carried by the ends of said arms adjacent to said means arranged upon movement of one of said arms to impart an equal and opposite movement to the other arm, means for moving said carriage lengthwise of the mold to adjust the lengthwise position of said gages relatively to the mold, and means connected to one of said arms arranged upon such relative movement of the molds to swing the arms and the gages carried thereby outwardly of the mold.

12. In a machine for molding shoe soles, a fixed upper mold, a lower mold, means for moving

said lower molds vertically toward and away from the upper mold, gages associated with said lower mold for positioning the heel end of a sole upon the mold, means interconnecting said gages for equal and opposite movements widthwise of the mold, a fixed cam, a cam follower engageable with said cam, and means connecting said follower to one of said gages, said cam being arranged to cause movement of said gages away from each other in response to upward movement of said lower mold.

13. In a machine for molding shoe soles, a fixed upper mold, a lower mold, means for moving said lower mold vertically toward and away from the upper mold, gages associated with said lower mold for positioning the heel end of a sole upon the mold, means interconnecting said gages for equal and opposite movements widthwise of the mold, a fixed cam, a cam follower engageable with said cam, means connecting said follower to one of said gages, said cam being arranged to cause movement of said gages away from each other in response to upward movement of said lower mold, and means for adjusting said gages as a unit lengthwise of the mold.

14. In a machine for molding shoe soles, a fixed upper mold, a lower mold, means for moving said lower mold vertically toward and away from the upper mold to shape a shoe sole therebetween, gage means associated with said lower mold for positioning the heel end of the sole thereon, a side gage associated with said lower mold for positioning the forepart of the sole widthwise of the mold, fixed cam means, and cam followers connected to said gage means and said side gage operative to retract said gages in response to upward movement of the lower mold.

15. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, a gage engageable with the forepart of a sole for positioning it widthwise on the lower mold, means mounting said gage for rectilinear movement widthwise of the mold along a line substantially normal to the longitudinal center line of the mold, means for adjusting the normal position of said gage along said line to accommodate soles of different widths, and means operative in response to such relative movement of the molds for retracting said gage.

16. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, gage means for positioning the heel end of a sole lengthwise on the lower mold, means mounting said gage means for adjustment lengthwise of the mold, a gage for positioning the foremost of the sole widthwise on the mold, means mounting said gage for adjustment widthwise on the mold, a pair of adjusting means at one side of said lower mold in proximity to each other, means connecting one of said adjusting means to said heel-end gage means, and means connecting the other adjusting means to said forepart gage.

17. In a machine for molding shoe soles, upper and lower molds, means for effecting relative

movement of said molds to apply shaping pressure to a sole therebetween, gage means for positioning the heel end of a sole lengthwise on the lower mold, means mounting said gage means for adjustment lengthwise of the mold, a gage for positioning the forepart of the sole widthwise on the mold, means mounting said gage for adjustment widthwise on the mold, a pair of adjusting means at one side of said lower mold in proximity to each other, means connecting one of said adjusting means to said heel-end gage means, means connecting the other adjusting means to said forepart gage, and means operative in response to such relative movement of the molds for retracting the heel-end gage means and said forepart gage.

18. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, means mounting one of said molds for vertical adjustment to vary the pressure on the work when the molds are in pressing relationship, and means for mounting one of said molds for adjustment both lengthwise and widthwise in a horizontal plane to enable accurate alinement of the upper and lower molds.

19. In a machine for molding shoe soles, upper and lower molds, means for effecting relative movement of said molds to apply shaping pressure to a sole therebetween, means mounting one of said molds for widthwise and lengthwise adjustment in a horizontal plane, and means for adjusting said mold vertically to vary the pressure between the molds when they are in pressing relationship.

20. In a machine for molding shoe soles, a fixed upper mold, a lower mold, means for moving said lower mold vertically toward and away from said upper mold to apply shaping pressure to a work piece therebetween, supporting means for the upper mold, means for adjusting said supporting means vertically to accommodate molds of different heights, and means for securing said mold to said supporting means for adjustment in a horizontal plane both widthwise and lengthwise of the mold to enable accurate alinement of the upper and lower molds.

21. In a machine for molding shoe soles, a fixed upper mold, a lower mold, means for moving said lower mold vertically toward and away from said upper mold to apply shaping pressure to a work piece therebetween, supporting means for the upper mold, means for adjusting said supporting means vertically to accommodate molds of different heights, means for securing said mold to said supporting means for adjustment in a horizontal plane both widthwise and lengthwise of the mold to enable accurate alinement of the upper and lower molds, gages associated with said lower mold engageable with the heel end and the forepart of a sole for positioning it lengthwise and widthwise on the mold, means for adjusting said gages to accommodate soles of different sizes, and means operative in response to upward movement of the lower mold for retracting said gages to avoid interference with the upper mold.

EDWIN N. PREBLE.

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CERTIFICATE OF CORRECTION.

Patent No. 2,323,933.

July 13, 1943.

EDWIN N. PREBLE,

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 59, for "variation" read --variations--; line 61, for "construction" read --constructions--; page 5, first column, line 58, claim 16, for "foremost" read --forepart--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of September, A. D. 1943.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.