E. N. PREBLE.

SOLE PRESSING MACHINE.

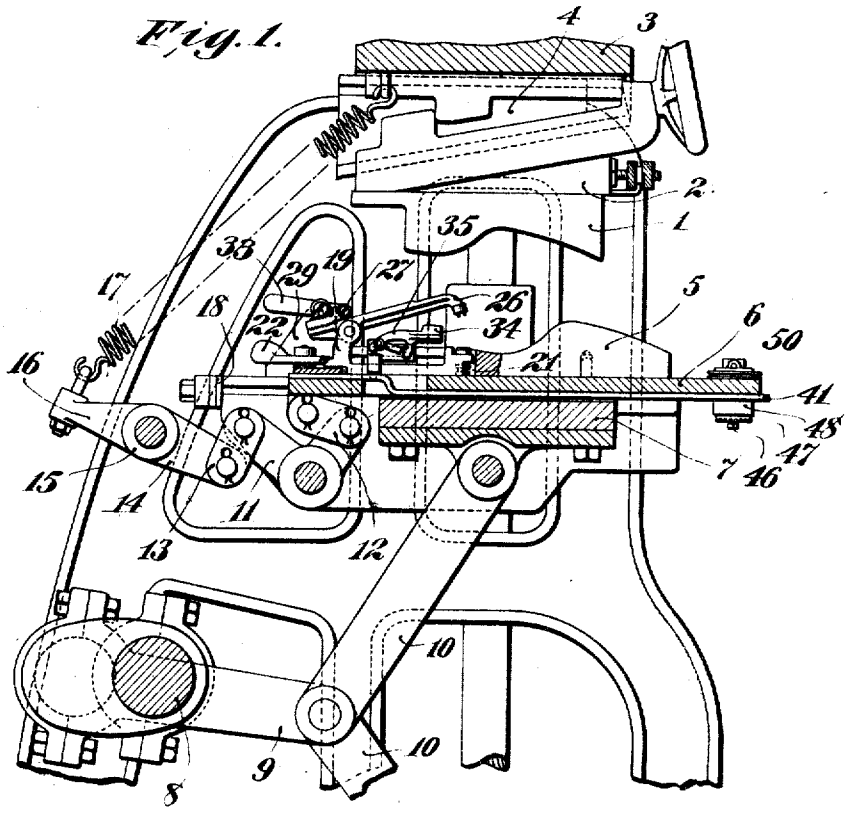
APPLICATION FILED OCT. 19, 1908.

1,004,075.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

E. C. Durdeman

M. L. Gilman

Inventor:

Edwin N. Preble

by his Attorneys

Phillips Van Everen & Fish

E. N. PREBLE.

SOLE PRESSING MACHINE.

APPLICATION FILED OCT. 19, 1908.

1,004,075. Patented Sept. 26, 1911.

4 SHEETS—SHEET 2.

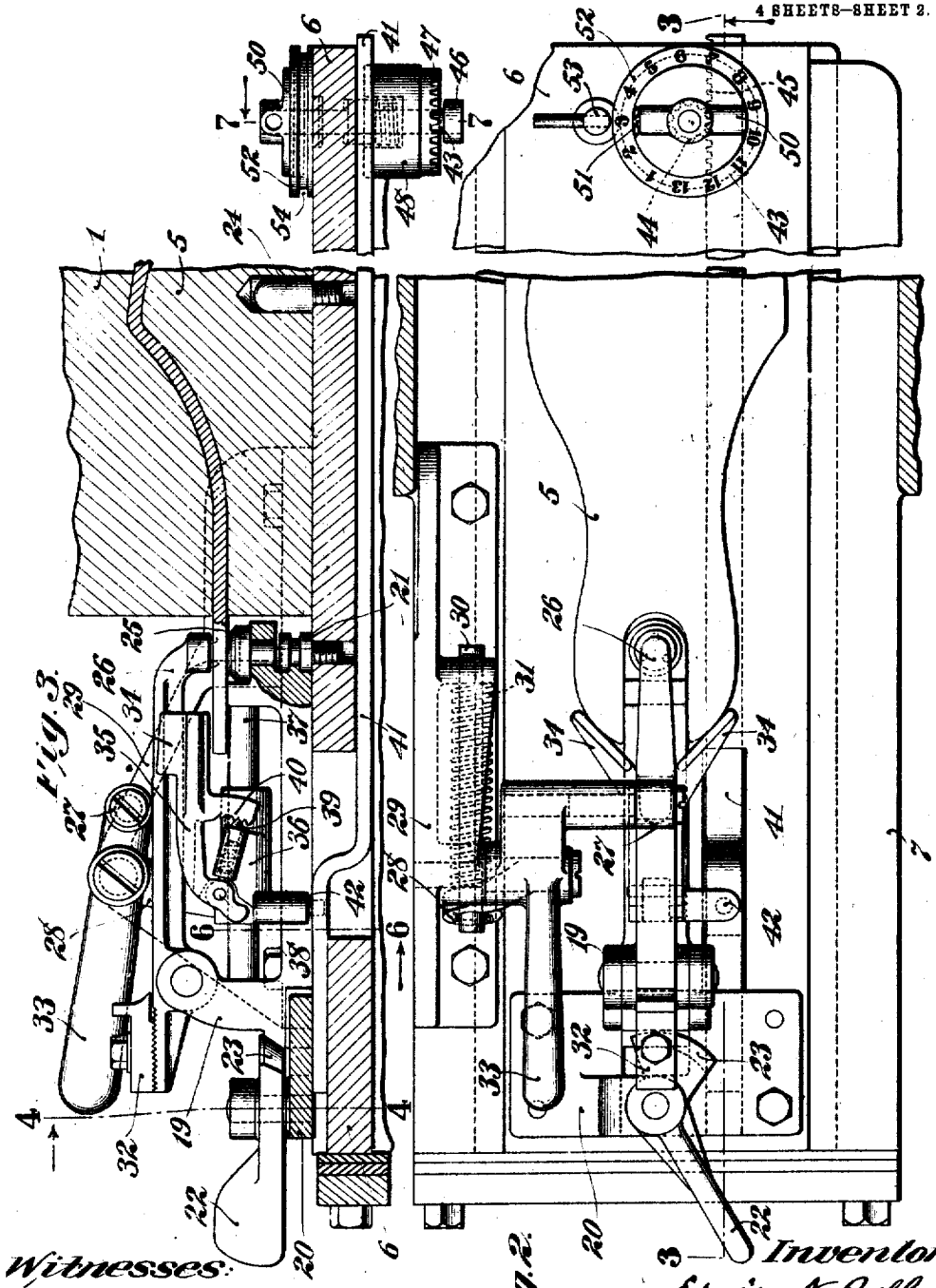


Fig. 2.

Witnesses:

E. C. Burdeman

M. L. Silman

Inventor

Edwin N. Preble

by his Attorneys

Phillips Van Everen & Cook

E. N. PREBLE.

SOLE PRESSING MACHINE.

APPLICATION FILED OCT. 19, 1908.

1,004,075.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 3.

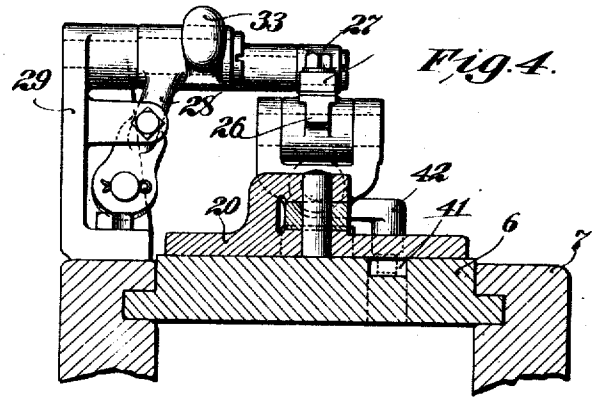


Fig. 4.

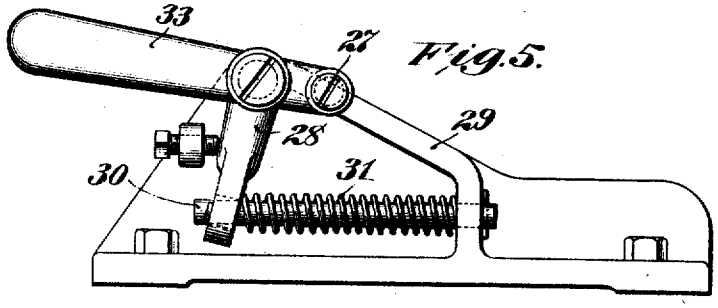


Fig. 5.

Fig. 6.

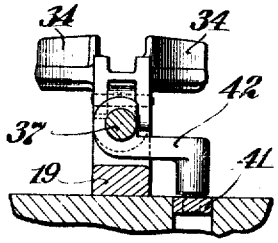


Fig. 7.

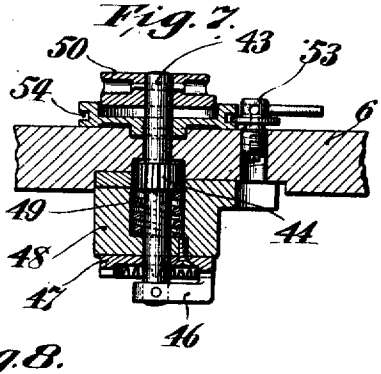
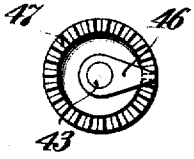


Fig. 8.



Witnesses:

E. A. Burdeman

M. L. Gilman.

Inventor.

Edwin N. Preble

by his Attorneys

Phillips Van Emmi & Fish

E. N. PREBLE.

SOLE PRESSING MACHINE.

APPLICATION FILED OCT. 19, 1908.

1,004,075.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 4.

Fig. 9.

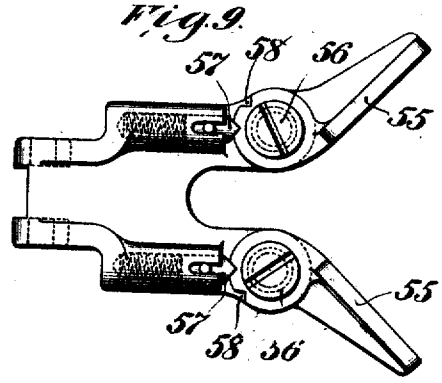


Fig. 10.

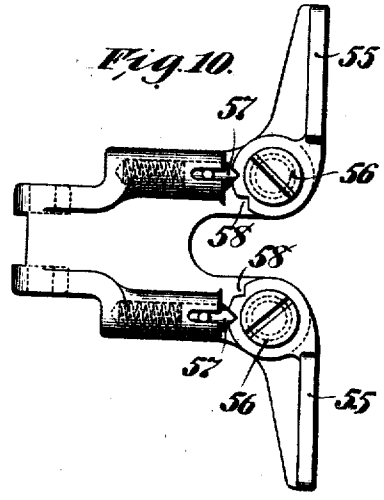
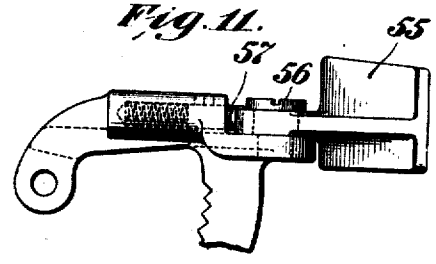


Fig. 11.



Witnesses:

E. C. Burdeman

M. L. Gilman.

Inventor:

Edwin N. Preble

by his Attorneys

Phillips Van Orman & Cook

UNITED STATES PATENT OFFICE.

EDWIN N. PREBLE, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SOLE-PRESSING MACHINE.

1,004,075. Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed October 19, 1908. Serial No. 458,329.

To all whom it may concern:

Be it known that I, EDWIN N. PREBLE, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Pressing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to sole pressing machines of that class which comprise coöperating sole pressing forms adapted to operate upon a sole before it is incorporated in a shoe.

Machines of the class above referred to have been provided with sole gaging and gripping devices associated with one of the forms to enable the sole to be placed in the desired position with relation to the forms and to prevent the sole from being displaced during the action of the forms thereon.

The objects of the present invention are to provide sole molding machines of the class above referred to with sole gaging and gripping devices which are simpler in construction and more durable than those which have heretofore been devised, and to arrange and actuate the sole gaging and gripping devices in an improved manner so that they are more efficient in operation and so that the forms can be more readily removed from and inserted in the machine.

With the above objects in view, the present invention consists in the devices, combinations and arrangement of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

In the drawings accompanying this application the present invention is illustrated as applied to a sole molding machine of that type in which the lower sole molding form, in addition to a reciprocating movement toward and from the upper form to produce pressure and clearance, also has a horizontal transverse movement into and out of alinement with the upper form, from and toward a position of presentation, that is, a position conveniently accessible by the operator for the removal and insertion of soles. It is to be understood, however, that certain features of the invention are not limited to use in this type of sole molding machine, nor is the invention, except as defined in the claims, limited to any particular construction or arrangement of parts.

The several features of the present invention will be clearly understood from an inspection of the accompanying drawings in which—

Figure 1 is a longitudinal vertical sectional view of a portion of a well-known type of sole molding machine with sole gaging and gripping devices embodying the several features of the present invention in their preferred form applied thereto. Fig. 2 is a detail plan view, partly broken away, of one of the lower form carrying slides with a lower mold thereon together with sole gaging and gripping devices associated therewith. Fig. 3 is a longitudinal sectional view taken on the line 3—3, of Fig. 2. Fig. 4 is a cross sectional view taken on the line 4—4, of Fig. 3. Fig. 5 is a detail view in side elevation of the spring pressed bell crank lever and its supporting bracket by which the movable jaw of the gripping device is actuated. Fig. 6 is a detail sectional view taken on the line 6—6, of Fig. 3, illustrating particularly the manner in which the heel gage is mounted and the connection between the heel gage and its adjusting mechanism. Fig. 7 is a detail sectional view of a portion of the mechanism for actuating the heel gage and indicating its position, taken on the line 7—7, of Fig. 3. Fig. 8 is an underneath plan view of a portion of the mechanism illustrated in Fig. 7. Fig. 9 is a detail plan view of a modified form of heel gage adapted for use with either completely rounded soles or with what are known in the art as block soles, the heel ends of which present a straight instead of a rounded edge. Fig. 10 is a detail plan view similar to Fig. 9 but showing the arms of the heel gage in position to coöperate with a block sole and Fig. 11 is a detail view in side elevation of the parts illustrated in Fig. 9.

The machine, a portion of which is illus-

trated in Fig. 1, is a double machine, being provided with two sets of coöperating sole pressing forms, the upper forms being stationary and the lower forms being reciprocated simultaneously in opposite directions toward and from the upper forms and also being reciprocated horizontally from and toward a position of presentation into and out of alinement with the upper forms. Both lower forms are mounted and actuated in the same manner, and the sole gaging and gripping devices associated with each lower form are duplicates of each other. Accordingly but a single set of forms has been illustrated in the drawings.

The upper form illustrated in the drawings is indicated at 1 and is removably secured in the usual manner upon a carrier 2 which is supported from the stationary cross head 3, so as to be adjustable vertically, by means of an adjusting wedge 4. The lower form is indicated at 5 and is removably mounted upon a slide 6 which reciprocates in a horizontal guideway formed on a vertical reciprocating cross head 7. Reciprocating movements are imparted to the cross head 7 from a crank shaft 8 by means of a link 9 and toggle levers 10. Reciprocating movements are imparted to the slide 6 transversely to the reciprocating movements of the cross head 7 by means of a bell crank 11 which is mounted upon the cross head 7 and has one arm connected to the slide 6 by means of a link 12, the other arm of the bell crank being connected by a link 13 to an arm 14 integral with a rock shaft or sleeve 15 journaled on the frame of the machine. An arm 16 extends rearwardly from the rock shaft 15 and is connected by a coiled spring 17 to the stationary cross head 3. During the rising and falling movements of the cross head 7 the bell crank 11 is rocked and imparts inward and outward movements to the slide 6. The inward movement of the slide 6 is limited by a cross piece 18 at the rear end of the guideway of the slide. The form carrying slide on the opposite side of the machine, corresponding to the slide 6, is actuated by a similar bell crank which is connected to another arm rigid with the rock shaft 15, the arrangement of the bell cranks and slides being such, as will be apparent from an inspection of Fig. 1, that the reciprocating movements of the slides take place during the lower half of the reciprocations of the cross head 7 and its corresponding cross head in each direction.

The parts so far described and the other parts not hereinafter specifically referred to are the same in construction and mode of operation as corresponding parts of a sole molding machine which has heretofore been devised and in and of themselves form no part of the present invention.

The sole gaging and gripping devices, illustrated in the drawings as embodying the several features of the present invention, comprise a heel gage to determine the position of the sole with relation to the lower form, and a sole gripping device which engages opposite surfaces of the sole at the heel end and holds the sole in position during the operation of the forms thereon. It is often desirable, and when certain kinds of soles are to be operated upon it is necessary, to use a sole molding machine without heel gaging and gripping devices. The heel gage and gripping device illustrated in the drawings are accordingly removably mounted in the machine, and to enable the gage and gripping devices to be removed without disturbing the relative position of the gage, which is adjustable for soles of different sizes, and the gripping devices, the gage and gripping devices are mounted upon a single carrier. This carrier is indicated in the drawings at 19, and to permit the lower form to be readily removed and a form of a different size or style substituted therefor without disturbing the heel gage and gripping device, the carrier 19 is secured to the form carrying slide 6 independently of the lower form. The carrier 19 extends longitudinally of the slide 6 and its rear end is received in a slot formed in a plate 20 bolted to the rear end of the slide. The carrier is removably held in position on the slide by means of a pin 21, engaging a recess in the front end of the carrier, and by means of a hand operated clamping lever 22 mounted upon the plate 20 and provided with an inclined cam surface 23 engaging a correspondingly inclined surface on the rear end of the carrier. A movement of the lever 22 in one direction securely clamps the carrier 19 in position, while a movement of the lever in the opposite direction releases the carrier and permits it to be moved to the rear and raised from the form carrying slide.

It is desirable in sole molding machines to use a complete lower form in preference to a lower form having the heel portion cut away or omitted, since the heel portion of a complete form presents a support for the heel portion of the sole while being placed in position and also the heel portion of the form affords a means by which the form can be more securely held upon the form carrying slide. The heel gaging and gripping devices illustrated in the drawings are accordingly constructed and arranged to cooperate with a complete lower form and to enable the gage and gripping devices to be placed in the desired position with relation to the form, the form is provided at its heel end with a longitudinal slot. The forward end of the carrier 19 projects into this slot and snugly fits the slot so that the forward end of the carrier serves as a means for securing the heel end of the form to the slide.

The carrier for the heel gage and gripping device thus performs the function of one of the usual form retaining pins projecting from the form carrying slide. The other retaining pin is indicated at 24.

The sole gripping device illustrated in the drawings comprises a stationary jaw, 25, consisting of the head of a pin mounted in the forward end of the carrier 19, and a movable jaw 26 pivotally mounted between ears projecting upwardly from the rear end of the carrier. The movable jaw 26 is opened and closed during the reciprocating movements of the form carrying slide so that the sole is gripped before the lower form comes into alinement with the upper form and is released by the time the lower form reaches its position of presentation. To actuate the jaw 26 during the movements of the form carrying slide, an arm carrying a roll 27 is provided, which roll is arranged to rest upon the upper surface of the jaw 26 and to travel along the jaw during the reciprocating movements of the slide. The arm carrying the roll 27 projects laterally from the horizontal arm of a bell crank 28 pivotally mounted on a bracket 29 secured to the cross head 7. A rod 30 is mounted at one end in a flange of the bracket 29 and at its other end extends through a hole in the lower end of the vertical arm of the bell crank. A coiled spring 31 surrounds the rod 30 and is interposed between the vertical arm of the bell crank and a flange on the bracket 29 so that the spring acts to hold the roll 27 yieldingly in engagement with the gripping jaw 26. During the backward movement of the form carrying slide the roll 27 holds the gripping jaw yieldingly pressed against the sole. During the outward movement of the form carrying slide the roll 27 travels along the gripping jaw 26 and passes from one side of its pivot to the other so that the pressure of the spring 31 is no longer operative to keep the jaw closed. To open the jaw a stop in the form of a block 32 is mounted upon the rear end of the gripping jaw in position to be engaged by the roll 27 as the form carrying slide reaches the limit of its outward movement. To regulate the distance to which the jaw is raised in being opened the block 32 is adjustably secured to the jaw. A hand lever 33 projecting rearwardly from the hub of the bell crank 28 serves as a convenient means for raising the roll 27 from engagement with the jaw 26 when the carrier 19 is to be removed from the machine.

The heel gage illustrated in the drawings, consists of two arms 34 angularly disposed with relation to each other, as best shown in Fig. 2, and projecting from a block 35. The block 35 is carried upon a block 36 which is mounted to slide on a rod 37 forming a part of the carrier 19 so as to be capable of adjustment to adjust the heel gage for soles of different sizes. To enable the heel gage to be adjusted vertically to bring it into the desired position with relation to forms of different thickness, the block 35 is mounted upon a horizontal pivot 38 on the block 36 so as to be capable of swinging vertically. A spring pressed locking pin 39, mounted in the block 36 and arranged to engage a series of teeth 40 on a downward projection from the block 35, locks the block and heel gage in adjusted position.

In the machine illustrated in the drawings the sole molding forms are placed in the machine with their toe ends toward the front. The heel gage is thus remote from the operator and is not conveniently accessible for adjustment. To enable the heel gage to be adjusted readily by the operator without loss of time, mechanism is provided connected to the heel gage and extending to a point at the front of the lower form. This mechanism includes a longitudinally movable rod or bar 41 which extends longitudinally beneath the form carrying slide 6 and projects upwardly through a slot at the rear of the slide into position to engage a projection from the block 36 upon which the heel gage is mounted as is clearly shown in Fig. 3. The projection from the block 36 which is engaged by the rod 41 is indicated at 42 and is best shown in Fig. 6. This projection extends laterally from the block 36 and then downwardly and is provided at its lower end with a pin which enters a hole in the rod 41 so that the projection is readily disengaged from the rod when the carrier 19 is removed from the machine and the removal of the carrier is permitted without disturbing the gage adjusting mechanism. The mechanism for adjusting the heel gage also includes a shaft 43 mounted in the forward end of the form carrying slide in a vertical position at right angles to the rod 41. This shaft is provided with a pinion 44 which meshes with a series of teeth 45 on the forward end of the rod 41, the construction being such that a rotation of the shaft 43 moves the rod 41 longitudinally to adjust the heel gage. To lock the heel gage in adjusted position means are provided for locking the gage actuating mechanism against movement. These means, as illustrated in the drawings and best shown in Figs. 7 and 8, consist of a locking arm 46 projecting laterally from the lower end of the shaft 43 and a series of locking teeth 47, arranged to be engaged by the arm, formed on a plate rigidly secured to a stationary block 48 on the under side of the slide 6. The shaft 43 is mounted so as to be capable of moving longitudinally and is pressed upwardly in a direction to cause the arm 46 to engage the teeth 47 by means of a spring 49 coiled around the shaft and seated between the bottom of a recess in the block

48 and the lower surface of the pinion 44. A knob 50 secured to the upper end of the shaft 43 affords a convenient means for moving the shaft 43 to disengage the arm 46 from the teeth 47 and for rotating the shaft to adjust the heel gage.

In addition to the sole gripping and gaging devices hereinbefore described, the machine illustrated in the drawings is provided with an improved means for indicating the size of sole for which the heel gage is adjusted. This means is extremely simple and compact in construction and efficient in operation and comprises a pointer 51 formed on the knob 50 and an annular scale plate 52 surrounding the knob and provided with a series of numerals indicating the various sizes of shoe soles. This scale plate is mounted on the form carrying slide 6 concentric with the shaft 43 as best shown in Fig. 7, and is capable of adjustment to bring the numerals into the required position with relation to the knob 50 to indicate the sizes of soles of different kinds. The plate is held in adjusted position on the form carrying slide by means of a locking pin 53 screwing into the slide and provided with a flange extending into a circumferential groove 54 formed in the edge of the plate.

The soles which are operated upon by a sole molding machine are either completely rounded so that the edge of the heel end of the sole is curved, or are what are known in the art as block soles, the heel ends of which present a straight edge at right angles to the longitudinal axis of the sole. In Figs. 9, 10, and 11 is illustrated an improved form of heel gage adapted for use with either of these classes of soles. This heel gage is similar in construction to the heel gage hereinbefore described with the exception that the arms forming the heel gage are pivotally mounted so that they can be swung back into line with each other. In Figs. 9, 10, and 11 the two arms of the heel gage are indicated at 55 and are mounted upon separate vertical pivots 56 on the gage carrying block. The arms 55 are capable of being swung from the angular position illustrated in Fig. 9 to a position in which they are in line with each other, as illustrated in Fig. 10. To hold the arms in either position spring-pressed locking pins 57 are mounted in the gage carrying block and are adapted to engage notches 58 formed in the hubs of the arms. It will be noted that the pivots of the arms 55 are separated a considerable distance. By reason of this arrangement of the arms they are adapted to engage and determine correctly the position of a sole of a given size, whether the sole is a rounded sole or a block sole, without the necessity of any adjustment of the gage carrying block.

The several features of the present invention having been described, what is claimed is:-

1. A sole pressing machine, having, in combination, upper and lower sole molding forms, a sole gripping device, and a gage for the heel end of the sole adjustable to determine the position of the sole longitudinally with relation to the lower form, said gage having provision for vertical adjustment independently of the gripping device to adapt it for use with forms of different heights.

2. A sole pressing machine, having, in combination, upper and lower sole molding forms, a gage for the heel end of the sole to determine the position of the sole with relation to the lower form, a gage carrying block longitudinally movable to adjust the gage for soles of different sizes, and a connection between the gage and the block permitting vertical adjustment of the gage to adapt it for operation with forms of different thicknesses.

3. A sole pressing machine, having, in combination, upper and lower sole molding forms, a carrier removably mounted in fixed position with relation to the lower form but independently thereof so as to permit the independent removal of said form, and a heel gage and a sole gripping device mounted upon said carrier.

4. A sole pressing machine, having, in combination, upper and lower sole molding forms, said lower form being provided at its heel end with a longitudinal slot, a carrier mounted in fixed position with relation to the lower form but independently thereof so as to permit independent removal of said form and provided with a portion extending into the slot in the lower form, and a heel gage and a gripping device mounted on said carrier.

5. A sole pressing machine, having, in combination, upper and lower sole molding forms, a gage for the heel end of the sole to determine the position of the sole with relation to the lower form, mechanism including an actuating knob for adjusting the gage for soles of different sizes, a scale plate surrounding the knob provided with a series of numbers coöperating with said knob to indicate the size of sole for which the gage is set and means whereby said scale plate may be adjusted to adapt it for use with soles of different kinds.

6. A sole pressing machine, having, in combination, upper and lower sole molding forms, means for relatively moving the forms to produce pressure and clearance, a slide upon which the lower form is mounted movable to carry the lower form into and out of alinement with the upper form, a heel gage mounted on the slide to determine the position of the sole with relation to the lower form, a rod connected to the gage and

extending beneath the slide to a point at the front of the form, and means located at the front of the form for actuating the rod to adjust the gage for soles of different sizes.

7. A sole pressing machine, having, in combination, male and female sole molding forms, a heel gage to determine the position of the sole with relation to the forms, mechanism for adjusting the gage for soles of different sizes, means for locking said mechanism against movement to lock the heel gage in adjusted position, a scale plate provided with a series of numbers coöperating with the adjusting mechanism to indicate the size of sole for which the gage is adjusted, and means whereby the scale plate may be adjusted independently of the gage adjusting mechanism and locking means, to adapt it for use for soles of different sizes.

8. A sole pressing machine, having, in combination, upper and lower sole molding forms, a gage for the heel end of the sole to determine the position of the sole with relation to the lower form, a rod connected to the gage and longitudinally movable to adjust the gage for soles of different sizes, a longitudinally movable and rotatable shaft arranged transversely of the rod and provided with a pinion meshing with teeth on the rod, a knob on the shaft for actuating the shaft, an arm on the shaft and an annular series of teeth coöperating with the arm to lock the gage in adjusted position, arranged to be engaged and disengaged by the arm when the shaft is moved longitudinally.

9. A sole pressing machine, having, in combination, upper and lower sole molding forms, a gage for the heel end of the sole to determine the position of the sole with relation to the lower form, a rod connected to the gage and longitudinally movable to adjust the gage for soles of different sizes, a knob arranged to rotate on an axis extending transversely of the rod and connections between the knob and the rod for moving the rod longitudinally.

10. A sole pressing machine, having, in combination, male and female sole molding forms, a gripping device comprising a pivotally mounted jaw arranged to grasp a sole and hold it in position during the operation of the forms thereon, a spring pressed arm arranged to bear on the jaw and force it yieldingly against a sole, a stop on the jaw arranged to be engaged by the arm to open the jaw, and means for relatively moving the arm and jaw to transfer the point of contact of the arm along the jaw.

11. A sole pressing machine, having, in combination, male and female sole molding forms, a gripping device comprising a pivotally mounted jaw arranged to grasp a sole and hold it in position during the operation of the forms thereon, a spring pressed arm arranged to bear on the jaw at one side of its pivot and force the jaw yieldingly against a sole, and means for relatively moving the arm and jaw to transfer the point of contact of the arm from one side of the pivot of the jaw to the other and open the jaw.

12. A sole pressing machine, having, in combination, male and female sole molding forms, a gripping device comprising a pivotally mounted jaw arranged to grasp a sole and hold it in position during the operation of the forms thereon, a spring pressed bell crank lever, an arm projecting laterally from one end of the lever and arranged to bear on the jaw and force it yieldingly against a sole, means for relatively moving the lever and jaw to transfer the point of contact of the arm along the jaw, and means on the jaw arranged to be engaged by the arm to open the jaw.

13. A sole pressing machine, having, in combination, upper and lower sole molding forms, a carrier removably mounted in fixed position with relation to the lower form but independently thereof so as to permit the independent removal of said form, a heel gage and a sole gripping device mounted upon said carrier, and means including a cam lever for removably securing the carrier in position.

14. A sole pressing machine, having, in combination, upper and lower sole molding forms, and a heel gage and a sole gripping device mounted in fixed position with relation to the lower form but independently thereof so as to permit the independent removal of the lower form.

15. A sole pressing machine, having, in combination, upper and lower sole molding forms, a gage for the heel end of the sole to determine the position of the sole with relation to the lower form, said gage being adjustable for soles of different sizes, mechanism extending to a point at the front of the lower form conveniently accessible by the operator for adjusting the heel gage and means at the front of the form coöperating with said mechanism to lock the gage in adjusted position.

16. A sole pressing machine, having, in combination, male and female sole molding forms, a removable carrier, a sole gripping device mounted on the carrier, a heel gage also mounted on the carrier having provision for adjustment for different sizes of soles, mechanism for adjusting the gage mounted independently of the carrier and arranged to permit the independent removal of the carrier, and means independent of the carrier coöperating with said mechanism to lock the gage in adjusted position.

17. A sole pressing machine, having, in combination, male and female sole molding forms and a gage to determine the position of the sole longitudinally with relation to the forms comprising two arms mount-

ed upon separate pivots and capable of adjustment into different relative angular positions.

18. A sole pressing machine, having, in combination, upper and lower sole molding forms, and a pivotally mounted gage for the heel end of the sole to determine the position of the sole with relation to the lower form said gage having provision for vertical adjustment around its pivot to adapt it for use with forms of different heights.

In testimony whereof I affix my signature, in presence of two witnesses.

EDWIN N. PREBLE.

Witnesses:
FRED O. FISH,
ANNIE C. RICHARDSON.