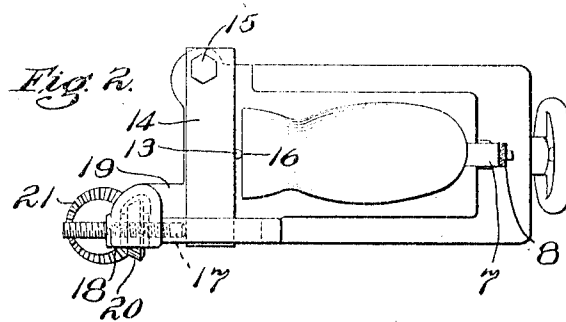
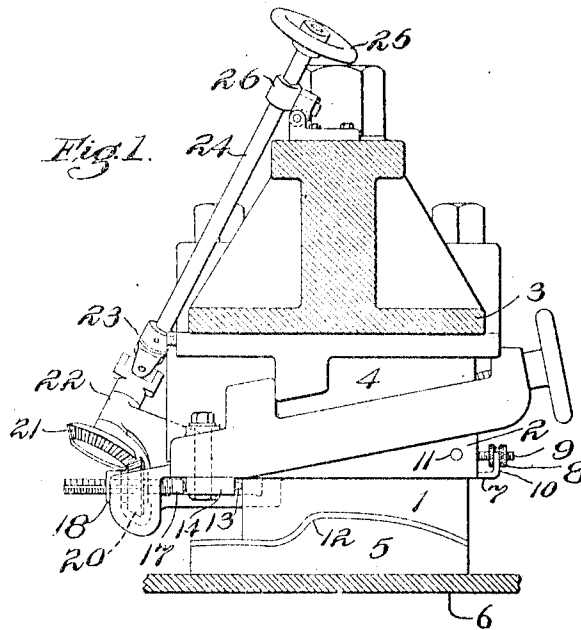


E. N. PREBLE.
SOLE PRESSING MACHINE.
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1,048,579.

Patented Dec. 31, 1912.



Witnesses:

Roswell F. Hatch

K. D. McPhail

Inventor

Edwin N. Preble

by
Phillips Van Emmer & Fitch
Attys

UNITED STATES PATENT OFFICE.

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

SOLE-PRESSING MACHINE.

1,048,579.

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

Machines of this class are usually provided with upper fixed forms and lower forms which are movable vertically to and from the upper forms, and are also reciprocated horizontally from and toward a position of presentation into and out of alignment with the upper forms. The forms are held on the fixed and movable form carriers so that they may be readily removed and replaced to adapt the machine for operating upon different styles or widely varying sizes of shoes. The horizontal position of the upper form is usually determined by devices which may be adjusted to bring the ball line of the form into position to register with the ball line of the reciprocating lower form. It is necessary to apply very heavy pressure to the soles in order to properly shape and mold them, and the shape of the molds is frequently such that the horizontal component of the pressure sustained by the fixed mold puts a heavy strain upon the adjusting devices by which the mold is positioned. The horizontal component of the pressure upon the mold which tends to move it longitudinally is increased and becomes excessive in case the upper mold is slightly out of adjustment, as is frequently the case. The heavy strain put upon the mold positioning devices is liable to injure them and render them defective, so that the operator is unable to properly position the fixed mold in the machine, or can secure the proper adjustment only with difficulty.

It is accordingly the object of the present invention to provide means for relieving the mold positioning devices from the strain due to the heavy pressure between the molds,

and it is a further object to provide means of this character which may be readily and conveniently adjusted by the operator to properly cooperate with the different molds which are placed in the machine, so that the proper adjustment of the devices may be secured without loss of time and consequent reduction in the amount of work turned out by the operator. To these ends the invention contemplates the provision in a sole pressing machine which is provided with adjustable devices for determining the position of the fixed mold, of an adjustable abutment engaging the mold and sustaining the longitudinal component of the molding pressure. With this construction the adjustable abutment forms a firm and rigid support for resisting the pressure tending to move the mold longitudinally and relieves the mold positioning devices from the strain tending to bend or injure them.

In certain constructions of sole molding machines the upper fixed mold is the female mold, and the molds are arranged with their heel ends toward the rear of the machine. In these machines the horizontal component of the pressure between the molds tends to move the upper mold toward the rear, and the adjustable abutment should therefore be arranged at the rear of the mold in position to bear against the heel end of the mold. When so arranged, the abutment is in position where it is not conveniently accessible to the operator. A further feature of the invention accordingly contemplates the provision in a machine arranged as above set forth, of an adjustable abutment arranged to engage the rear end of the mold, and actuating devices accessible to the operator while at the front of the machine, for adjusting the abutment.

The features of invention above referred to, as well as the further features of the invention which relate more or less to the specific construction and arrangement of the parts, will be readily understood from an inspection of the accompanying drawings, and the following detailed description of the devices illustrated therein.

In the drawings Figure 1 is a sectional elevation showing the preferred form of the present invention, and so much of a sole pressing or molding machine as is necessary to illustrate the application of the invention

thereto, and Fig. 2 is a bottom plan view with the lower mold removed.

The machine, a portion of which is illustrated in the drawings, is a double machine provided with two sets of cooperating 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 to bring them alternately into a position of presentation, and into alinement with the upper forms. The devices cooperating with each upper form are the same, and accordingly but a single set of forms and the devices associated therewith have been shown in the drawings.

As shown in the drawings, the upper form 1 is removably secured upon a form carrier 2 which is supported from the stationary cross-head 3, and may be adjusted vertically by means of an adjusting wedge 4 in the usual manner. The lower form 5 is removably secured in the usual manner upon a slide 6 which is mounted to reciprocate horizontally upon a vertically reciprocating head in the usual and well-known manner. The upper fixed form 1 is the female form, and the forms are arranged with their heel ends toward the rear of the machine. The lower form, when moved away from the upper form, is also moved forward into a position of presentation where the operator, who stands at the front of the machine, may readily remove the molded sole and place another sole in position on the form. The sole may be held in position on the lower form by positioning and gripping devices of usual construction (not shown).

The upper form 1 is provided on its upper face with a dove-tail bar or rib 7 adapted to engage a corresponding groove formed in the under face of the carrier 2, so that the form may be readily removed and another form secured in its place. The position of the form on the form carrier is determined by a nut 8 which is threaded on a bolt 9, and is provided with an annular groove arranged to be engaged by the up-turned end 10 of the bar 7. The bolt 9 is pivoted at 11 to the carrier, so that the bolt may be readily swung up to disengage it from the bar 7 when the mold is to be removed, and may be readily swung down into position to engage the bar when the mold is inserted in the machine. By turning the nut 8 on the bolt, the position of the mold 1 may be adjusted to bring the ball line into proper alinement with the ball line of the corresponding lower mold 5.

In cases where the molds are provided with a considerable curve or spring 12 in the shank, the pressure of the lower mold toward the upper mold applies a heavy pressure to the upper mold, tending to move it longitudinally toward the rear. If this

force is resisted by the mold positioning devices, the bolt 9 is liable to become bent so that the positioning devices are ineffective to secure the proper positioning of the different molds used in the machine. In the construction illustrated, the strain upon the mold positioning devices is relieved by providing an abutment in the form of a back-stop 13 which is arranged to engage the rear end of the upper mold. This back-stop, in the construction shown, comprises a horizontal bar 14 which is pivoted at 15 to the mold carrier 2, and is provided with a lug 16 for engaging the rear end of the mold substantially in line with its longitudinal axis. The free end of the bar 14 is engaged by the end of an adjusting screw 17 mounted in bearings 18 formed in a bracket 19 at the rear end of the mold support 2. The screw is provided with a keyway engaged by a key in one of the bearings 18, so that the screw is held from turning, but is free to move longitudinally through the bearings. A gear 20 is mounted upon the screw between the bearings 18, and is provided with a screw thread engaging the thread of the screw so that the pinion forms a nut for adjusting the screw and through it the stop bar 14. In order that the stop bar 14 may be readily adjusted by the operator while standing at the front of the machine, devices are provided for actuating the gear 20, which are readily accessible to the operator when in this position. These devices comprise a bevel gear 21 engaging the gear 20 and secured to a short shaft which is mounted in the bearings 22 on the rear of the mold support 2. The end of the gear carrying shaft is connected by a universal joint 23 with a shaft 24 which extends up over the cross-bar 3, and is provided at its upper end with an operating wheel 25. The upper end of the inclined shaft 24 is mounted in a bearing 26 which is pivotally supported upon the cross-bar 3.

With this construction the operator may conveniently adjust the back-stop bar 14 without moving from the position which he occupies during the operation of the machine, and may bring the stop-bar into engagement with the rear end of the mold 1 after the mold has been properly positioned by the adjustment of the positioning nut 8. During the operation of the machine the longitudinal pressure imparted to the mold 1 is sustained by the rigid bar 14 which directly engages the rear end of the mold, and the mold adjusting or positioning devices are not subjected to any strain tending to injure them or render them defective.

While it is preferred to employ the construction and arrangement shown and described, it will be understood that this construction and arrangement is not essential, except so far as it is referred to in the

claims, and may be varied and modified without departing from the broader scope of the invention.

Having explained the nature and object of the invention, and specifically described one construction in which it may be embodied, what I claim is:—

1. A sole pressing machine, having, in combination, sole pressing molds, a carrier upon which one of the molds is removably secured, adjustable devices for determining the position of the removable mold, and an adjustable abutment on the carrier engaging the end of the mold and sustaining the longitudinal component of the sole molding pressure, substantially as described.

2. A sole pressing machine, having, in combination, sole pressing molds arranged with their heel ends toward the back of the machine, a back-stop engaging the rear end of the female mold, and actuating devices accessible to the operator while at the front of the machine for adjusting the back-stop, substantially as described.

3. A sole pressing machine, having, in combination, sole pressing molds arranged with their heel ends toward the back of the machine, mold positioning devices at the front end of the female mold for retaining the mold in position longitudinally, and an adjustable back-stop engaging the rear end of the female mold for sustaining the longitudinal component of the sole molding pressure, substantially as described.

4. A sole pressing machine, having, in combination, sole pressing molds arranged with their heel ends toward the back of the machine, devices at the front end of the female mold for determining its longitudinal position, a back-stop engaging the rear end of the mold, and actuating devices accessible to the operator while at the front of the machine for adjusting the back-stop, substantially as described.

5. A sole pressing machine, having, in combination, an upper fixed female mold, a cooperating lower mold, adjustable devices

for removably securing the upper mold in position, and a permanent adjustable back-stop engaging the rear end of the upper mold for sustaining the longitudinal component of the sole molding pressure, substantially as described.

6. A sole pressing machine, having, in combination, a fixed mold and a cooperating movable mold, a back-stop engaging the rear end of the fixed mold for sustaining the longitudinal component of the sole molding pressure, and actuating devices accessible to the operator while at the front of the machine for adjusting the back-stop, substantially as described.

7. A sole pressing machine, having, in combination, sole pressing molds, devices for removably securing one of the molds in position, and an adjustable abutment mounted independently of the mold so as to permit independent removal of the mold and arranged to engage the end of the mold to sustain the longitudinal component of the sole molding pressure, substantially as described.

8. A sole pressing machine, having, in combination, sole pressing molds, a stop bar 14 for engaging the end of one of the molds and sustaining the longitudinal component of the sole molding pressure, an adjusting screw 17 engaging the bar, and devices for actuating the screw, substantially as described.

9. A sole pressing machine, having, in combination, sole pressing molds, a stop bar 14 for engaging the end of one of the molds and sustaining the longitudinal component of the sole molding pressure, an adjusting screw 17 engaging the bar, and actuating devices for the screw extending into position to be operated by the operator when at the front of the machine, substantially as described.

EDWIN N. PREBLE.

Witnesses:

CHESTER E. ROGERS,
LAURA M. GOODRIDGE.