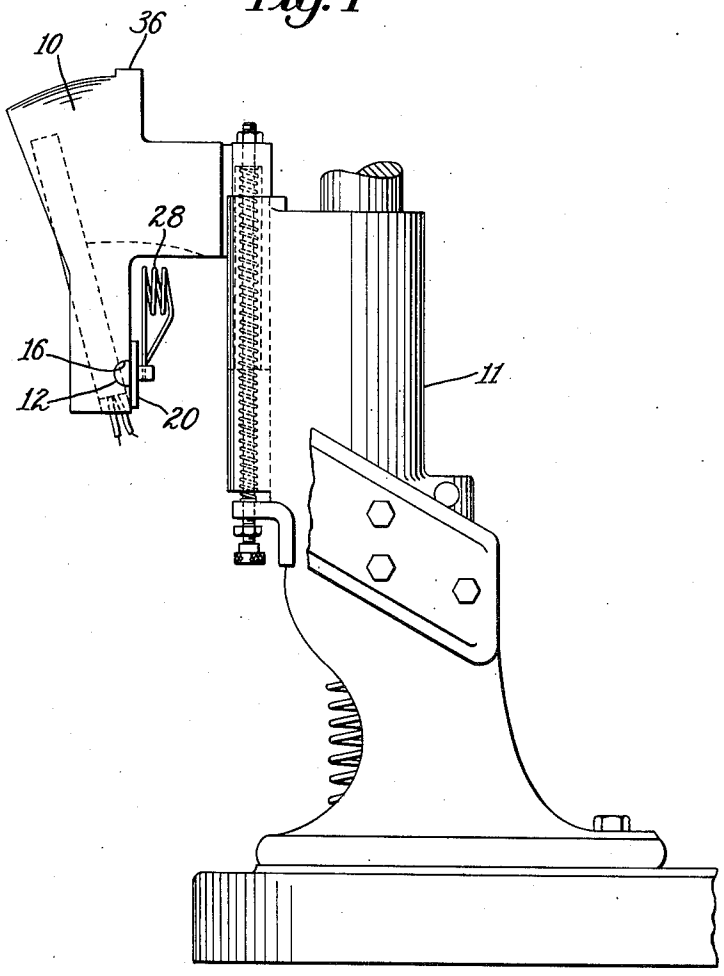
June 12, 1962 R. H. ROACH 3,038,183

SHOE SHAPING MACHINE-EDGE GAGE

Filed March 3, 1961 2 Sheets-Sheet 1

Fig. 1



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Filed March 3, 1961 2 Sheets-Sheet 2

Fig. 2

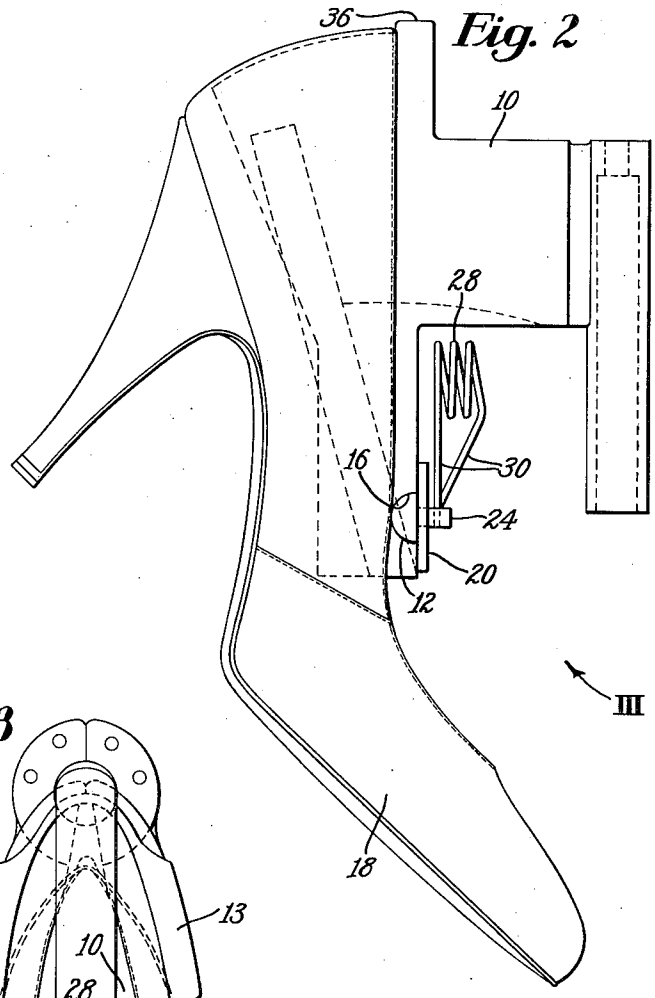
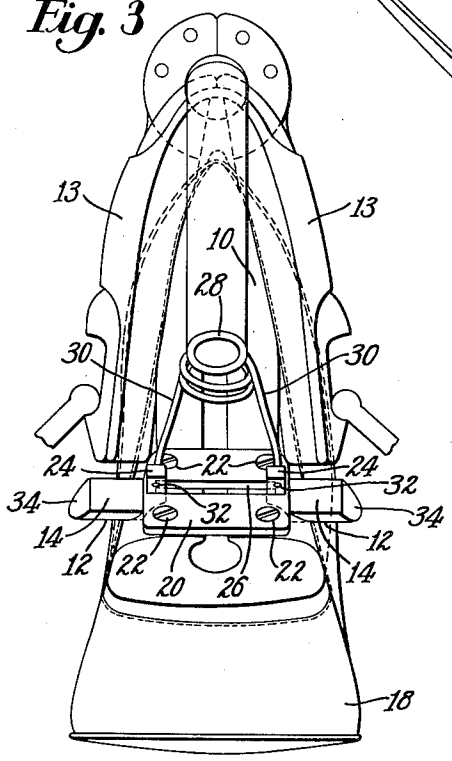


Fig. 3



United States Patent Office

3,038,183

Patented June 12, 1962

3,038,183

SHOE SHAPING MACHINE-EDGE GAGE

Ralph Henry Roach, Leicester, England, assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey

Filed Mar. 3, 1961, Ser. No. 93,165
Claims priority, application Great Britain Mar. 18, 1960
1 Claim. (Cl. 12—53.5)

This invention relates to machines for shaping the uppers of shoes and is herein illustrated in its application to machines which perform a shaping operation on the top margin of the upper around the ankle opening after the shoe is removed from its last.

A machine of this type is disclosed in United States Letters Patent No. 2,274,063, granted February 24, 1942, on an application filed in the name of George Hazelton. Machines of this type are provided with an inner form adapted to receive the ankle portion of a shoe and to support the shoe in a vertical position by its heel end portion. A pair of outer forms are constructed and arranged to cooperate with the inner form to apply heat and pressure to the top marginal portion of the upper about the ankle opening.

In order that the desired shape may be imparted to a shoe it is important that the shoe be positioned on the inner form in predetermined relation thereto. In the machine disclosed in the Hazelton patent, above referred to, the shoe is located on the inner form by bringing the inner surface of the heel seat portion of the shoe into contact with a flat surface formed in an extension of the inner form. This provision for gaging the location of a shoe on the inner form is not entirely satisfactory since the same form is used for shoes having different dimensions height-wise thereof at their heel end portions. Furthermore, in shoes with certain types of insole materials it has been found undesirable to permit the heated form to come in contact with the insole because of consequent staining or marking of the insole. It has also been found that the gaging means provided by the Hazelton machine does not always insure a correct angular disposition of the shoe on the inner form—such angular disposition being dependent to a large degree upon the skill and judgment of the operator.

It is an object of the present invention to provide, in a machine of the type above referred to, simple and convenient means for predetermining the position of a shoe on the inner form without bringing the inner surface of the heel seat into contact with the inner form.

With this object in view the present invention contemplates the provision in a shoe machine having an inner form upon which the top marginal portion of the upper of a shoe is shaped and a pair of outer forms for pressing the upper against the inner form of a pair of gage members against which the top edge of the upper at opposite sides of the shoe is located thereby to determine the position of the shoe height-wise thereof relatively to the inner form. The inner form has a groove extending widthwise thereof in which the gage members are slidably mounted for movement between an expanded position and a contracted position. The gage members are normally held in their expanded position by yielding means illustrated in the drawings as a torsion spring and are moved from their expanded position to their contracted position by the closing movement of the outer forms thus to permit the outer forms to advance into intimate contact with the outer surface of the top marginal portion of the upper and to press said top marginal portion against the inner form.

The invention will now be described with reference to

the acompanying drawings and pointed out in the appended claim.

In the drawings,

FIG. 1 is a right side elevation illustrating an inner form embodying the gage mechanism of the present invention, the form being shown on the form-supporting standard of a machine of the type disclosed in the Hazelton patent hereinbefore referred to;

FIG. 2 is a right side elevation on a larger scale than FIG. 1 illustrating the inner form and a woman's pump-type shoe mounted thereon; and

FIG. 3 is an angular view looking in the direction of the arrow III in FIG. 2 showing the inner form and a shoe thereon, together with a pair of outer forms in their open position.

The invention is illustrated in the drawings as embodied in a machine of the type disclosed in the Hazelton patent hereinbefore referred to. The Hazelton patent discloses a turret type machine having a plurality of heated inner forms on each of which a completed shoe is mounted in a vertical position with its heel end uppermost and its sole arranged in confronting relation to the operator in the loading station. Machines of this type perform a molding or shaping operation on the top marginal portion of the upper around the ankle opening to correct any loss of shape which may have occurred in the last pulling operation. The inner form is shaped to receive in intimate contact the top marginal portion extending about the ankle opening of the shoe. In the operation of the machine a pair of outer forms move toe-wardly and height-wise of a shoe on the inner form while closing on the inner form to apply pressure to the top marginal portion of the shoe upper.

Referring to FIG. 1, an inner form **10** is mounted in a vertical position on a standard **11**, the construction of the standard and the connections between the standard and the inner form being the same as in the machine disclosed in the Hazelton patent hereinbefore referred to. For pressing the top margin of a shoe upper against the inner form, the present invention contemplates the provision of a pair of outer forms such, for example, as the outer forms **13** illustrated in FIG. 3, which are the same in their construction and operation as the outer forms illustrated and described in said Hazelton patent.

In order to insure the correct position of a shoe height-wise thereof on the inner form **10** and also to determine the angular disposition of the shoe both lengthwise and widthwise thereof on the form the illustrated inner form has incorporated therein means for gaging the position of a shoe thereon by engagement with the top edge of the shoe upper at three points, namely, at the junction of the top line and the back line and at opposite sides of the shoe substantially midway between its toe and heel. For positioning opposite sides of the mid-portion of the shoe the illustrated inner form is provided with a pair of gage members **12** (FIG. 3) extending widthwise of the form from opposite sides thereof and so constructed and arranged that they are readily displaced inwardly by the closing action of the outer forms **13** during the operation of the machine. The gage members **12** are cylindrical in structure with forward surfaces slabbed off as indicated at **14** in FIG. 3. For mounting the gage members the inner form **10** has formed therein a groove **16** (FIG. 2) complemental in shape to the gage members and extending widthwise of a shoe **18** mounted on the form. The gage members **12** are retained in the groove **16** for sliding movement therein by a plate **20** arranged to engage the slabbed off surfaces **14** of the gage members and secured to the form **10** by screws **22**. Movement of the gage members away from each other is limited by the engagement of lugs **24** carried by the gage members, re-

spectively, with the end walls of a slot **26** formed in the plate **20**. The gage members **12** are urged away from each other and normally held in their expanded or gaging position illustrated in FIG. 3 by a torsion spring **28** which terminates in two legs **30** mounted in suitable bores **32** in the lugs **24**. During the operation of the machine the outer mold members engage angular outer end faces **34** of the gage members and move the gage members toward each other against the action of the spring **28** into a position in which the end faces **34** lie substantially flush with the opposite side faces of the form **10**.

In the operation of the machine the operator presents the shoe to the inner form **10** and moves it downwardly to bring the inner surface at the heel end of the shoe into intimate contact with the upper end portion of the form while, at the same time, bringing the top line of the shoe at its junction with the back line into contact with a gage member herein illustrated as an abutment **36** (FIG. 2) in the form of an upward extension of the heel end portion of the inner form **10**. At the same time, opposite sides of the top line at the mid-section of the shoe are brought into contact with the gage members **12**, thereby determining the heightwise position of the mid-section of the shoe relatively to the form **10** and determining the angular disposition of the shoe both lengthwise and widthwise thereof relatively to the form. Having so positioned the shoe, the machine is operated to shape the top margin of the upper as described in the Hazelton patent hereinbefore referred to.

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

In a shoe shaping machine having an inner form on which the top marginal portion of the upper of a completed shoe is shaped and a pair of outer forms for pressing the upper against the inner form, a pair of gage members constructed and arranged to engage the top edge of the upper at opposite sides of its mid-portion, said inner form having a cross groove in which the gage members are slidably mounted for movement between an expanded position and a contracted position, said gage members being movable from their expanded position to their contracted position by the closing movement of the outer forms, and yielding means for moving the gage members from their contracted position to their expanded position during the opening movement of the outer forms.

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