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E. GALTERIO

SHOE STRETCHING LAST

Filed July 25, 1927

2 Sheets-Sheet 1

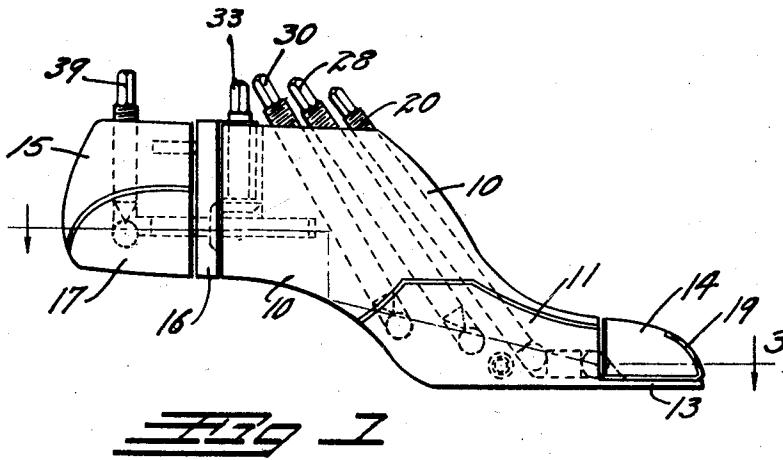


FIG 1

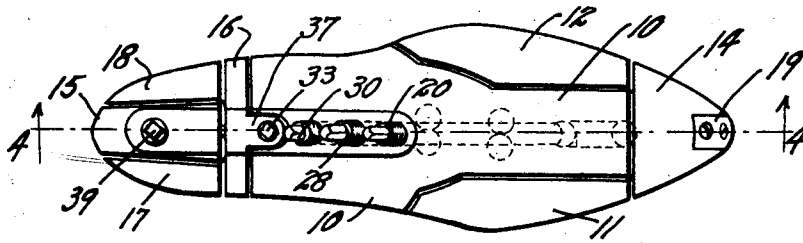


FIG 2

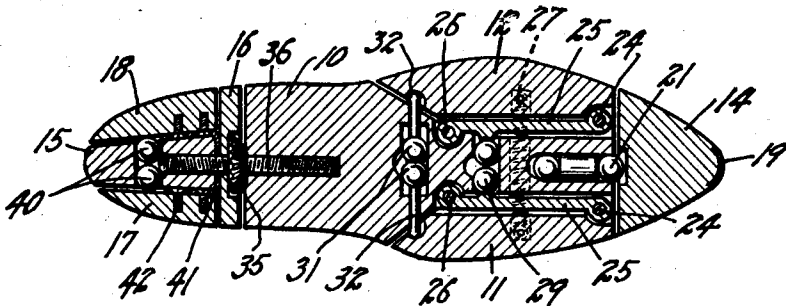


FIG 3

Inventor

ELIA GALTERIO

By

*A. Galterio*

Attorney

Nov. 13, 1928.

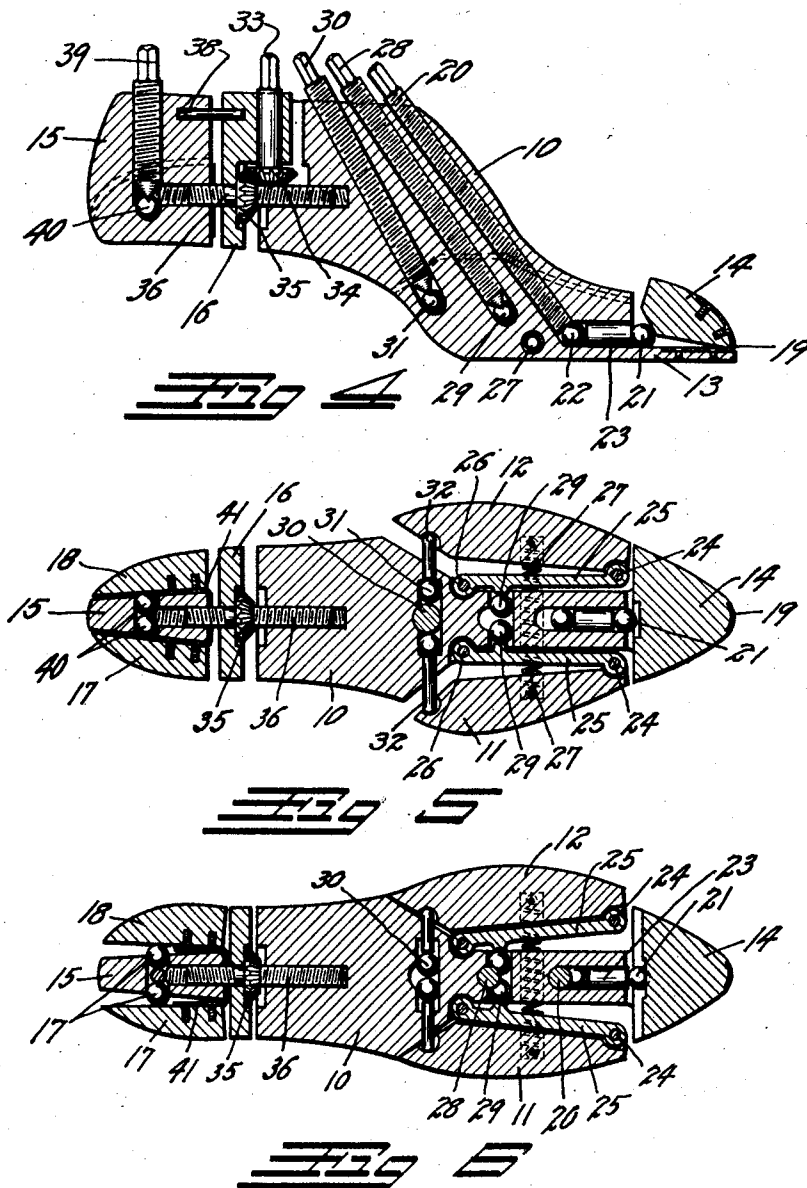
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Inventor

ELIA GALTERIO

By

Attorney

# UNITED STATES PATENT OFFICE.

ELIA GALTERIO, OF DENVER, COLORADO, ASSIGNOR TO ADA GALTERIO, D. CHARLES MARIOTTI, AND A. L. RUGGIERO, ALL OF DENVER, COLORADO.

## SHOE-STRETCHING LAST.

Application filed July 25, 1927. Serial No. 208,155.

This invention relates to a shoe stretching last, and has for its principal object, the provision of means in a single last for individually or simultaneously stretching the shoe length, the width of the counter, the height of the toe box and the vamp and shank of the shoe.

Another object is to provide a last, the shape of which can be changed to accommodate various styles of shoes.

Other objects and advantages reside in the detail construction of the invention, which is designed for economy, efficiency and simplicity. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawings:

Fig. 1 is a side elevation of my improved last.

Fig. 2 is a plan view thereof.

Fig. 3 is a horizontal section through the last, taken on the line 3—3, Fig. 1.

Fig. 4 is a vertical section, taken on the line 4—4, Fig. 2. In this section, the length of the last has been increased by means of the length adjustment and the toe has been raised to the position employed for stretching the cap and toebox of a shoe.

Figs. 5 and 6 are horizontal sections similar to Fig. 3 illustrating the mechanism in various positions to be later described.

My improved last is shaped in its entirety to conform to the last or interior surface of an average shoe, it being intended to have a pair of lasts typical for ladies' shoes, a second pair of lasts for men's, and a third pair for children's shoes. In the drawings the ladies' last is illustrated.

My improved last comprises a body 10, cut away at its sides to receive right and left hand vamp stretching members 11 and 12 respectively. The forward portion of the body 10 is projected to form a ledge or sole 13 upon the front of which is hinged a toe member 14. A heel member 15 is adjustably carried at the back of the body 10 separated therefrom by a spacer 16. On each side of the heel member 15, adjustable right and left counter stretchers 17 and 18, respectively, are carried.

The toe member 14 is secured to a leaf spring 19, which in turn is secured to the ledge 13 so as to provide a spring hinge at the point of the toe member. The toe member is preferably attached to the spring 19 by means of screws, as illustrated, so that members to suit various styles of toe shapes may be used interchangeably. The rear portion of the toe member may be raised by means of an adjusting screw 20 which acts to force a ball 21, which acts as a wedge, against an inclined surface 43 under the rear portion of the toe member. Motion is imparted to the ball 21 through a second ball 22 and a plunger 23 which are actuated by the adjusting screw 20. By this construction rotation of the adjusting screw in one direction will raise the rear portion of the toe member 14 and cause it to stretch the cap and toe box of the shoe. Rotation of the screw in the opposite direction allows the leaf spring 19 to force the balls 21 and 22 and the plunger 23 into the body 10.

Each of the vamp stretching members 11 and 12 is pivoted adjacent its one extremity at 24 to a hinge bar 25. The hinge bars 25 in turn are pivoted adjacent the other extremities of the vamp members at 26. A spring 27 connects the vamp stretching members through the body 10 and acts to constantly draw them toward each other. Should it be desired to stretch the forward portion of the vamp adjacent the toe box, an adjusting screw 28 is rotated. The screw 28 is provided with a pointed extremity which acts to force a pair of balls 29 apart. The balls 29 act against the hinge members 25 to swing them about their pivots 26, as shown in Fig. 6, thus causing the forward extremities of the vamp members 11 and 12 to move outwardly and stretch the shoe. Rotation of the adjusting screw 28 in the opposite direction allows the spring 27 to return the hinge members to their former position.

Should it be desired to stretch the rear portion of the vamp, a third adjusting screw 30 having a similar pointed extremity is rotated so as to separate a pair of balls 31 carried in the body 10. This forces plungers 32 against the rearward extremities of the vamp stretching members 11 and 12, as shown in Fig. 5, thus stretching the shoe at the rear of the vamp.

Should it be desired to stretch the entire length of the vamp, both of the adjusting

screws 28 and 30 may be threaded inwardly so as to move the stretching members 11 and 12 outwardly in substantially parallel relation, thus combining the actions of Figs. 5 and 6.

Should it be desired to stretch the length of the shoe, a pinion shaft 33 is rotated. The shaft 33 carries a miter pinion 34 which meshes with a similar pinion 35 carried on the mid-portion of a right and left hand threaded screw 36. One extremity of the screw 36 is threaded into the body 10, the other extremity is threaded with an opposite hand thread into the heel member 15.

The shaft 33 rides in the separator 16 which surrounds the screw 36 and acts to maintain the miter pinions in mesh. The separator moves with the movement of the screw and always maintains a mid-position between the body 10 and the heel member 15. It is prevented from rotating with the screw by a tongue 37 which fits within a vertical groove in the body member. The heel member 15 is prevented from rotating on the screw by means of a pin 38 which rides in openings in the separator and heel member.

It can be readily seen that rotation of the shaft 33 will cause the heel member 15 to move away from the body member 10 as shown in Figs. 4 and 5, so as to increase the length of the last and stretch the length of the surrounding shoe.

Should it be desired to stretch the width of the counter, a fourth adjusting screw 39 having a pointed extremity is rotated so as to cause the pointed extremity to separate a pair of balls 40 carried in the heel member 15. These balls act against the counter stretching members 17 and 18 so as to separate them from the heel member, as shown in Fig. 6.

When the adjusting screw 39 is released the counter members 17 and 18 are returned to their former positions by a leaf spring 41, to the extremities of which they are secured at 42. The mid-portion of the spring 41 is secured to the forward face of the heel member 15.

The body member is preferably, but not necessarily, made of metal, and may be skeletonized to save weight if desired. The movable stretching members may also be of metal but could be formed of hard wood or similar light weight material.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what I claim and desire to secure by Letters Patent is:—

1. A shoe stretching last comprising a body portion; vamp stretching members

hinged to each side of said body portion; a screw threaded into said body portion; a pointed extremity formed on said screw; actuating members adapted to be separated by said pointed extremity so as to move said vamp stretching members away from said body portion, said actuating members comprising balls; and spring means for causing said balls to bear against opposite sides of said pointed extremity.

2. A shoe stretching last comprising a body portion; hinge members pivoted at their one extremity at each side of said body portion; vamp stretching members pivoted to the opposite extremities of said hinge members; spring means for drawing said hinge members and said vamp stretching members toward said body portion; actuating means for causing said hinge members to swing away from said body portion; and independent actuating means for causing said vamp stretching members to swing away from said hinge members.

3. A shoe stretching last comprising a body portion; vamp stretching members hinged at each side of said body portion; means for separating the forward extremities of said vamp stretching members from said body portion; independent means for separating the rearward extremities of said vamp stretching members from said body portion; and spring means arranged to resist said separating.

4. A shoe stretching last comprising a body portion; vamp stretching members hinged at each side of said body portion; means for separating said vamp stretching members from said body portion, said means comprising a screw operable from the exterior of said body portion; a pointed extremity formed on said screw; and a pair of balls adapted to be separated by said pointed extremity and communicate their movement to said vamp stretching members.

5. A shoe stretching last comprising a body portion; a heel portion; a screw threaded by a thread of one hand into said body portion, and by a thread of opposite hand into said heel portion; a separator carried on said screw between said body portion and said heel portion so as to travel with the longitudinal movement of said screw; and a shaft in said separator operatively connected to said screw and adapted to rotate the latter.

6. A shoe stretching last comprising a body portion; a heel portion; a screw threaded by a thread of one hand into said body portion, and by a thread of opposite hand into said heel portion; a separator carried on said screw between said body portion and said heel portion so as to travel with the longitudinal movement of said screw; and a shaft in said separator operatively connected to said screw and adapted to rotate the lat-

ter; and slidable means between said body portion and said separator and said separator and said heel portion arranged to maintain the latter in alignment with said body

5 portion.

7. A shoe stretching last comprising a body portion; a heel portion; a screw threaded by a thread of one hand into said body portion, and by a thread of opposite hand  
10 into said heel portion; a separator carried on said screw between said body portion and said heel portion so as to travel with the longitudinal movement of said screw; a shaft  
15 in said separator operatively connected to said screw and adapted to rotate the latter; and a vertical tongue on said separator sur-

rounding said shaft and adapted to fit into a groove in said body portion.

8. In a shoe stretching last having a body portion; vamp stretching members arranged  
20 at each side of said body portion; a pivot arranged adjacent the rearward extremity of each of said members; a second pivot arranged adjacent the forward extremity of  
25 each of said members, one of said pivots being fixed to said body portion, the other of said pivots being fixed to said members, and means for causing each said member to rotate about either one or both of said pivots.

In testimony whereof, I affix my signature. 30

ELIA GALTERIO.